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I hereby give notice that a hearing by commissioners will be held on:

**Date:** **Monday 19 to Wednesday 21 May 2025**  
(Thursday 22 May as an overflow day if required)

**Time:** **9.30am**

**Meeting room:** **Henderson Chamber**

**Venue:** **Level 2, 1 Smythe Road, Henderson**

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## **SUBMISSIONS AND FURTHER SUBMISSIONS**

### **VOLUME 1**

## **PRIVATE PLAN CHANGE 100 - RIVERHEAD**

### **RIVERHEAD LANDOWNER GROUP**

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#### **COMMISSIONERS**

<b>Chairperson</b>	<b>Karyn Kurzeja</b>
<b>Commissioners</b>	<b>Nigel Mark-Brown</b>
	<b>Vanessa Wilkinson</b>

**Julie McKee**  
**KAIWHAKAHAERE WHAKAWĀTANGA**  
**HEARINGS MANAGER**

Telephone: 09 977 6993 or 0274 909 902  
Email: [julie.mckee@aucklandcouncil.govt.nz](mailto:julie.mckee@aucklandcouncil.govt.nz)  
Website: [www.aucklandcouncil.govt.nz](http://www.aucklandcouncil.govt.nz)

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**Note:** The reports contained within this document are for consideration and should not be construed as a decision of Council. Should commissioners require further information relating to any reports, please contact the hearings advisor.

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**Private Plan Change 100 - Private Plan Change 100 - Riverhead**  
**Monday 19 to Wednesday 21 May 2025 (with Thursday 22 May as an overflow day if required)**

---



**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - David Lyon  
**Date:** Thursday, 18 April 2024 12:00:17 pm

---

The following customer has submitted a Unitary Plan online submission.

#### **Contact details**

Full name of submitter: David Lyon

Organisation name:

Agent's full name: David Lyon

Email address: davidlyon2001@gmail.com

Contact phone number:

Postal address:

20 Jelas Drive

Riverhead

Auckland 0820

#### **Submission details**

##### **This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### **My submission relates to**

Rule or rules:

PC 100 - Riverhead

Property address: Riverhead

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

The proposed plan will ruin the rural feel of the Riverhead community, the traffic is already a major issue and worst of all there is no mention of expanding education facilities within the area.

Riverhead Primary is already near capacity and there is no high school in the Kuemu, Tuapaki, Riverhead area (currently zoned for Massey which is near full). Schooling needs to be sorted before any growth in the area should happen.

I don't see any need for intensified housing. Single level unattached dwellings work well for the rest of the area and the attempts for terraced housing so far have not been finished and are an eyesore.

I or we seek the following decision by council: Decline the plan change

Submission date: 18 April 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Beverley Kruse  
**Date:** Thursday, 18 April 2024 2:45:21 pm

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Beverley Kruse  
Organisation name: BA Kruse & SM Farley, Beverley Kruse family Trust  
Agent's full name: Beverley Kruse  
Email address: countrybloomsnz@gmail.com  
Contact phone number:  
Postal address:  
1156 Coatesville Riverhead Hwy,  
Kumeu  
Auckland 0892

**Submission details**

**This is a submission to:**  
Plan change number: Plan Change 100 (Private)  
Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:  
Property address: 1156 Coatesville Riverhead Hwy, Kumeu  
Map or maps:  
Other provisions:  
Do you support or oppose the provisions you have specified? I or we support the specific provisions identified  
Do you wish to have the provisions you have identified above amended? No  
The reason for my or our views are:  
My views are that progress in the Riverhead area is needed for a better future for our area  
I or we seek the following decision by council: Approve the plan change without any amendments

2.1

Details of amendments:  
Submission date: 18 April 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Alexandra Grace Roland  
**Date:** Thursday, 18 April 2024 9:30:14 pm

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Alexandra Grace Roland

Organisation name:

Agent's full name:

Email address: ali.roland88@gmail.com

Contact phone number: 022 409 1197

Postal address:

43 Cambridge road

Riverhead

Auckland 0820

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:

Property address:

Map or maps:

Other provisions:

Traffic, permeable surfaces, secondary education facilities and safe walking/ pavement areas

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

As a local inhabitant I don't believe the Riverhead area, as well as the wider radius can handle the extra capacity that a more densely populated area would demand

I or we seek the following decision by council: Decline the plan change

Submission date: 18 April 2024

3.1

#### Attend a hearing

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?

No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Michael Cushnie  
**Date:** Friday, 19 April 2024 8:45:47 am

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Michael Cushnie

Organisation name:

Agent's full name:

Email address: michael@tlw.co.nz

Contact phone number:

Postal address:

53 Queen Street

Riverhead

Auckland 0820

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:

All of it

Property address:

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

There is no infrastructure to support the proposed development.

The new part of Riverhead should not have been developed in the first place due to the lack of any infrastructure.

SH16 upgrades at CRH, A bypass of the area, a High school, and general infrastructure are needed before any development takes place.

Traffic in this area is already atrocious with poor alternative transport options in place.

The development of another Green fields area on an existing and known flood plane is a recipe for chaos. Look at the developments in Kumeu area on a flood plane and the issues that has caused.

There are minimal places of work in the area so all traffic will be heading back into town. Intensify that area where infrastructure is already in place.

I or we seek the following decision by council: Decline the plan change

4.1

Submission date: 19 April 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Melissa Bramley  
**Date:** Friday, 19 April 2024 9:15:48 am

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Melissa Bramley  
Organisation name:  
Agent's full name:  
Email address: melissajbramley@gmail.com  
Contact phone number:  
Postal address:  
108 Solan Drive  
Waimauku  
Waimauku 0812

**Submission details**

**This is a submission to:**  
Plan change number: Plan Change 100 (Private)  
Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:  
All of it  
Property address: Riverhead  
Map or maps: All of it  
Other provisions:  
Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified  
Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:  
The North West has experienced significant growth with developments over the last 15+ years. These developments have come with very little infrastructure improvements and as a result the communities are struggling with traffic issues and schooling options for year 9 and above. You may not get many official submissions as people can be overwhelmed by such processes but many in the community would state that traffic is the number one issue, specifically the intersection at SH16 and CRH. Putting even more pressure on our already overwhelmed infrastructure with even more housing is criminal. Any further developments should at least have the requirement to build a high school as part of their development.

I or we seek the following decision by council: Decline the plan change  
Submission date: 19 April 2024

5.1

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Daniel Smyth  
**Date:** Friday, 19 April 2024 11:01:09 am

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Daniel Smyth

Organisation name:

Agent's full name:

Email address: smyth-daniel@hotmail.com

Contact phone number:

Postal address:

Auckland 9032

**Submission details**

**This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:

Property address:

Map or maps: Entirety of plan change zoning map.

Other provisions:

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

This development hits the mark with high quality builds in a desirable neighborhood and assisting Auckland with its urgent need for more housing.

I or we seek the following decision by council: Approve the plan change without any amendments

6.1

Details of amendments:

Submission date: 19 April 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Kelin Bi  
**Date:** Friday, 19 April 2024 12:45:51 pm

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Kelin Bi  
 Organisation name: GBI Family Trust Limited  
 Agent's full name: Kelin Bi  
 Email address: gbifamilytrust@gmail.com  
 Contact phone number: 021 680398  
 Postal address:  
 164 Riverhead Rd  
 Kumeu  
 Auckland 0892

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)  
 Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:  
 Proposed Private Plan Change 100  
 A proposal to rezone 6 ha of land in Riverhead from Future Urban to Rural-Mixed Rural zone and 75.5 ha to a mix of Residential  
 Also seek to shift the Rural Urban Boundary to align with the boundary between the proposed Rural Mixed Rural zoning and the urban zones

Property address: 164 Riverhead Road Kumeu

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:  
 We have loved this area for a long time, and we hope this proposal will bring more development and improve the convenience of our current life.

I or we seek the following decision by council: Approve the plan change without any amendments

7.1

Details of amendments:

Submission date: 19 April 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?  
No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Maan Alzaher  
**Date:** Saturday, 20 April 2024 2:45:48 am

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Maan Alzaher  
Organisation name:  
Agent's full name:  
Email address: maan.alzaher@gmail.com  
Contact phone number:  
Postal address:

**Submission details**

**This is a submission to:**  
Plan change number: Plan Change 100 (Private)  
Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:  
Property address: 17 Deacon Road  
Map or maps:  
Other provisions:  
Do you support or oppose the provisions you have specified? I or we support the specific provisions identified  
Do you wish to have the provisions you have identified above amended? No  
The reason for my or our views are:  
The proposal improves the local sub-center of the Riverhead area, allows for a diverse residential density, and addresses the housing shortage in Auckland.  
I or we seek the following decision by council: Approve the plan change without any amendments  
Details of amendments:  
Submission date: 20 April 2024

8.1

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Kim scoffin  
**Date:** Saturday, 20 April 2024 11:00:15 am

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Kim scoffin  
Organisation name:  
Agent's full name:  
Email address: kim.scoffin@gmail.com  
Contact phone number:  
Postal address:  
64 matatea rd  
Waimauku  
Waimauku 0881

**Submission details**

**This is a submission to:**

Plan change number: Plan Change 100 (Private)  
Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:  
Infrastructure or lack of it in the for mentioned area  
Property address: Riverhead  
Map or maps:  
Other provisions:  
Traffic chaos  
Ruining the natural aspect of our rural areas  
Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified  
Do you wish to have the provisions you have identified above amended? No  
The reason for my or our views are:  
Traffic chaos  
Ruining the natural aspect of our rural areas  
Inviting more crime

I or we seek the following decision by council: Decline the plan change

Submission date: 20 April 2024

9.1

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Niki Buric  
**Date:** Saturday, 20 April 2024 1:30:16 pm

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Niki Buric  
Organisation name:  
Agent's full name:  
Email address: nevans685@gmail.com  
Contact phone number:  
Postal address:

**Submission details**

**This is a submission to:**

Plan change number: Plan Change 100 (Private)  
Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:  
Non-specific  
Property address: The entire properties and question  
Map or maps:  
Other provisions:  
Overall development  
Do you support or oppose the provisions you have specified? I or we support the specific provisions identified  
Do you wish to have the provisions you have identified above amended? No  
The reason for my or our views are:  
I believe the proposed planned changes will enhance the Riverhead community and benefit everybody in the long-term

The area needs to grow a speedily as resources will allow  
There is an overgrowing demand for satellite suburbs outside Auckland but still remaining in Close proximity to CBD

I or we seek the following decision by council: Approve the plan change without any amendments

10.1

Details of amendments:

Submission date: 20 April 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Daniel cohen  
**Date:** Sunday, 21 April 2024 9:15:31 am

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Daniel cohen  
Organisation name:  
Agent's full name:  
Email address: dan.cohen@lesmills.com  
Contact phone number: 021833117  
Postal address:  
9 mill grove  
Riverhead  
Auckland 0820

**Submission details**

**This is a submission to:**

Plan change number: Plan Change 100 (Private)  
Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:  
N/A  
Property address: 9 mill grove Riverhead Auckland  
Map or maps:  
Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:  
The plans do not include and prevent excess storm water increase. The increase in population whilst there currently is poor wetlands coverage has direct impact of flooding to the immediate surroundings

I or we seek the following decision by council: Decline the plan change

11.1

Submission date: 21 April 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? Yes  
Would you consider presenting a joint case at a hearing if others have made a similar submission?

No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Dan cohen  
**Date:** Tuesday, 14 May 2024 10:45:37 pm

---

The following customer has submitted a Unitary Plan online submission.

#### **Contact details**

Full name of submitter: Dan cohen

Organisation name:

Agent's full name:

Email address: dan.cohen@lesmills.com

Contact phone number: 021833117

Postal address:

9 mill grove

Riverhead

Auckland 0820

#### **Submission details**

##### **This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### **My submission relates to**

Rule or rules:

8- transport

10- flooding

Property address: 9 mill grove

Map or maps: Duke street

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

Both transport & flooding prevention are significantly neglected . Infrastructure is almost non existent- the issue of flooding is the most serious , the drainage and direction of storm water greatly effect mill grove. This has happened 4 times and we cannot take on any other water directed towards us

I or we seek the following decision by council: Decline the plan change, but if approved, make the amendments I requested

Details of amendments: Upgrade all drain to larger in size, re direct the water away from mill grove

Submission date: 14 May 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?  
Yes

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Dan Cohen](#)  
**To:** [Unitary Plan](#)  
**Subject:** Re: PC 100 (Private): Riverhead  
**Date:** Thursday, 16 May 2024 10:37:10 am  
**Attachments:** [image199570.png](#)  
[image987671.png](#)  
[image806206.png](#)  
[image889638.png](#)  
[image062590.png](#)  
[image638407.png](#)  
[image406364.png](#)

Yes same person

I wanted to be clear in what I was opposing. Effectively the most concerning is that if any development goes ahead at the bottom of duke street the will cause significant increase in storm water run off and flood our property's as the current situation is all ready at max stress.

There's ongoing concern of drainage issues without any increase to the area. This is extremely concerning.

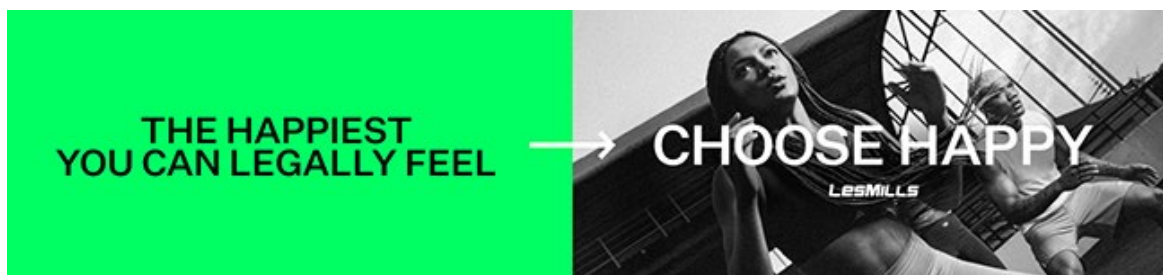
Secondly the timing around infrastructure prior to building. At the hall meeting last week it was made clear that building would go ahead and infrastructure at a later date. This is madness. The stress on roads, storm water, drainage is already maxed out.

Dan

For attractive lips, speak words of kindness. For lovely eyes, seek out the good in people. -Audrey Hepburn

Sent from my iPhone

Dan Cohen | Winning Together Coaching Director (WTCD) | Program Director (BC/Core)  
 Les Mills International | [Dan.Cohen@lesmills.com](mailto:Dan.Cohen@lesmills.com)  
 tel +64 9 366 9902 | [www.lesmills.com](http://www.lesmills.com)



**LES MILLS**



On 16 May 2024, at 10:29, Unitary Plan <[unitaryplan@aucklandcouncil.govt.nz](mailto:unitaryplan@aucklandcouncil.govt.nz)> wrote:

You don't often get email from [unitaryplan@aucklandcouncil.govt.nz](mailto:unitaryplan@aucklandcouncil.govt.nz). [Learn why this is important](#)

Hi Dan,

We have received 2 submissions with your name 'Dan' and 'Daniel', could you please confirm that both submissions are for the one person and I will combine them as one submission.

Many thanks,

**Regards**

**Unitary Plan Enquiries team**

**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Michael Ferkins  
**Date:** Sunday, 21 April 2024 10:00:34 am

---

The following customer has submitted a Unitary Plan online submission.

#### **Contact details**

Full name of submitter: Michael Ferkins

Organisation name:

Agent's full name:

Email address: michaelferkins@gmail.com

Contact phone number:

Postal address:

21 Dysart Lane

Kumeu

Auckland 0891

#### **Submission details**

##### **This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### **My submission relates to**

Rule or rules:

Property address:

Map or maps:

Other provisions:

Infrastructure of wider north west area.

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

The North West area of Auckland has seen significant growth and development over the last 10-15 years. All of the housing developments in the wider north west area have not been supported by infrastructure. Stats NZ show that from 2013 - 2018, the population of Kumeu alone nearly tripled. Add to this the wider areas of Waimauku, Riverhead and Helensville and the increase would be immense. The increase again from 2018 - present would at least double it once more. The traffic on Sh16 is unbearable, especially where Coatesville-Riverhead hwy joins Sh16. There are works currently going on to make it safer however the number of vehicles will only make this more tragic.

My request is that no more developments are approved for the northwest area until significant infrastructure is approved, planned, funded and underway.

The Kumeu bypass has been given a timeline of 20-30 years of it is even funded??? We cannot continue to develop our areas without the suitable provisions in place.

I or we seek the following decision by council: Decline the plan change

12.1

Submission date: 21 April 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Lesa van Bott  
**Date:** Sunday, 21 April 2024 10:00:39 am

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Lesa van Bott

Organisation name:

Agent's full name: Lesa van Bott

Email address: lesa.frank@xtra.co.nz

Contact phone number:

Postal address:

18 Great North Road

Riverhead

Auckland 0820

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:

Rezoning from Future Urban to Mixed Rural to mixed housing suburban.

Property address: 18 Great North Road, Riverhead 0820

Map or maps: Riverhead

Other provisions:

Lack of all infrastructure and a high school. Also effects on existing properties with flooding issues.

This Plan change 100 does NOT reflect our community values.

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

As long time local, this is a rural community and apartment style living does not fit into our values.

Roads, Water and Waste are not up to standard, nor is communications technology.

Riverhead and the wider community also don't have a local high school to accommodate the fast growing community already here let alone more.

This is a rural community, which has already grown and not in the direction the locals want.

I or we seek the following decision by council: Decline the plan change

13.1

Submission date: 21 April 2024

#### Attend a hearing

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Paula Hogg  
**Date:** Sunday, 21 April 2024 2:15:32 pm

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Paula Hogg

Organisation name:

Agent's full name:

Email address: paula@h4.co.nz

Contact phone number:

Postal address:  
 172 Taupaki road  
 Taupaki  
 Auckland 0782

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:  
 Rezone from future Urban to mix of suburban and terrace housing and shifting of Rural boundaries.

Property address: Riverhead road, coatesville Riverhead Highway, Cambridge road and Duke street

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:  
 The infrastructure is not there to support the number of houses proposed.  
 Traffic around the area is already gridlocked for many hours of the day.  
 Where will the residents go for healthcare? The local doctors have waiting lists.  
 Where will the kids go to school? No schools on any plan.  
 How will residents get to their jobs? Kumeu, Huapai, Riverhead and Westgate only have so many jobs, which means people travelling across town, causing mass congestion.  
 Where will the residents go for lesiure activities? We don't have any pools or Lesiure centers in the surrounding areas.

I or we seek the following decision by council: Decline the plan change

14.1

Submission date: 21 April 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Hin San Li  
**Date:** Monday, 22 April 2024 4:45:33 pm

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Hin San Li

Organisation name:

Agent's full name:

Email address: hinsanli@gmail.com

Contact phone number:

Postal address:

**Submission details**

**This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:

Plan Change 100 (Private)

Property address:

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

Auckland needs to go both up and out. More land needs to be made available to ensure housing is both available and affordable for all.

I or we seek the following decision by council: Approve the plan change without any amendments

15.1

Details of amendments:

Submission date: 22 April 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**



Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Phil Jackson  
**Date:** Tuesday, 23 April 2024 9:16:02 am

---

The following customer has submitted a Unitary Plan online submission.

#### **Contact details**

Full name of submitter: Phil Jackson

Organisation name: NA

Agent's full name: NA

Email address: pjtonz@gmail.com

Contact phone number:

Postal address:

7 Alice Street

Riverhead

Riverhead 0820

#### **Submission details**

##### **This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### **My submission relates to**

Rule or rules:

• The Plan Change request is frivolous or vexatious (clause 25(4)(a)); • The Plan Change request is not in accordance with sound resource management practice (clause 25(4)(c)); or

Property address: All

Map or maps: All

Other provisions:

Lack of infrastructure, including emergency services, roading, schools, public transport etc. The reports mention character of Riverhead, describing it as a workings mans environment and a satellite area - then contradicts itself by suggesting the urban growth inline with what has occurred in Kumeu / Huapai. Also lots of talk of assessments and considerations around infrastructure growth - this are suggestions not requirements, that in my opinion are unlikely to be implemented.

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

The current road infrastructure struggles to accommodate current road users, with peak times being some of the worst in Auckland.

The area has limited police, ambulance presence and is supported by a volunteer fire station in kumeu.

The area is lacking in basic amenities, such as adequate safe footpaths, street lighting, and open drains even through these pose increased risk of slips, trips and falls, the council has not made significant improvement.

The area is classed as rural for some services including courier.  
 School options are limited, and the public transport is often over subscribed at peak times.  
 The urban design statement pg.20 states storm water should be seen as a resource, not a problem  
 - I'm not sure the home owners, first responders and insurance companies share this view.

I or we seek the following decision by council: Decline the plan change

16.1

Submission date: 23 April 2024

### Attend a hearing

Do you wish to be heard in support of your submission? No

### Declaration

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Peter Wilding  
**Date:** Tuesday, 23 April 2024 11:31:22 am

---

The following customer has submitted a Unitary Plan online submission.

#### **Contact details**

Full name of submitter: Peter Wilding

Organisation name:

Agent's full name: Peter Wilding

Email address: wildingp9@gmail.com

Contact phone number: 0274400188

Postal address:  
 17 Cobblers Lane  
 Riverhead  
 Auckland 0820

#### **Submission details**

##### **This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### **My submission relates to**

Rule or rules:  
 Plan change 100 (Private) - Riverhead

Property address:

Map or maps:

Other provisions:  
 Change of zone from Future Urban to Residential and mixed rural zone.

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

I implore the Auckland Council to take note that while there is no strong objection in my community to a change of a zone WHEN adequate infrastructure is in place to support the significant impost the extra housing and business activities will create. A change to zoning must only be done when there is a commitment to improve the supporting infrastructure, and in particular the roading. A similar application was previously voted down by the council, yet without any concrete plans to improve roading, this application is being put through by council. I urge you to take note of the impact on your ratepayers and not just developers. My family and the Riverhead community and DO NOT WANT development until our narrow rural roads are improved to cope with the extra vehicular load.

There are massive queues in the mornings and weekends to exit from Riverhead, at times stretching kilometers from the aerial route intersections. This is 3rd world standard and is abysmal in terms of development planning. PLEASE DO NOT APPROVE FURTHER DEVELOPMENT

UNTIL ROADING IS IMPROVED TO COPE WITH THE EXTRA LOAD!

I or we seek the following decision by council: Decline the plan change, but if approved, make the amendments I requested | 17.1

Details of amendments: Make improvement of local infrastructure and especially roading  
CONDITIONAL on any change to zoning. | 17.2

Submission date: 23 April 2024

### **Attend a hearing**

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?  
Yes

### **Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Laura Storey  
**Date:** Tuesday, 23 April 2024 3:31:04 pm

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Laura Storey

Organisation name:

Agent's full name:

Email address: laura.storey@prolex.co.nz

Contact phone number:

Postal address:

laura.storey@prolex.co.nz

Kingsland

Auckland 1021

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:

Property address:

Map or maps:

Other provisions:

Private plan change 100 Riverhead - FUZ to rural mixed and residential, business and neighbourhood centre zones

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

The site is within the identified Future Urban Zone and adjacent to existing live zoned land - the submission makes sense to sensibly expand the Auckland urban area suitably and considering managed growth into greenfield areas. The developers undertaking the residential development have committed to invest in required infrastructure upgrades to provide for growing neighbourhoods. The development supports residential and commercial growth.

I or we seek the following decision by council: Approve the plan change without any amendments

18.1

Details of amendments:

Submission date: 23 April 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Malhar Panchwagh  
**Date:** Wednesday, 24 April 2024 10:31:08 am

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Malhar Panchwagh

Organisation name:

Agent's full name: Malhar Panchwagh

Email address: malhar\_p@xtra.co.nz

Contact phone number: 021587336

Postal address:  
 32 Pohutukawa Parade  
 Riverhead  
 Auckland 0820

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:

Property address: 32 Pohutukawa Parade, Riverhead, Auckland 0820

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

There has been a massive growth of houses in the new development of Riverhead. Sometimes it takes up to 30 minutes just to reach SH16 from Hallertau. We cannot sustain high density living with a one lane access to the motorways. The local school is getting crowded and Riverhead school has lost most of its playground with new classrooms. Our 10 year old boy comes home almost every day with a bruised knee because he has had a fall on the concrete play area as they have no access to the playground. You cannot just keep adding more houses without taking care of the people and infrastructure first.

I or we seek the following decision by council: Decline the plan change

19.1

Submission date: 24 April 2024

#### Attend a hearing



Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?  
Yes

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Michelle Sandra Young  
**Date:** Friday, 26 April 2024 12:45:28 pm

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Michelle Sandra Young

Organisation name:

Agent's full name:

Email address: michelle.young@raywhite.com

Contact phone number: 0276795605

Postal address:  
25 Princes Street  
Riverhead  
Auckland 0820

**Submission details**

**This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:  
Rezoning of approx. 80.5 Ha of land in Riverhead from future Urban Zone to mixed housing suburban zone and commercial.

Property address: Coatesville Riverhead Highway, Riverhead head

Map or maps: All

Other provisions:  
N/-

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:  
After speaking with the owner of a local drainage company (ODC), he said that the flood plan is not going to be adequate, he said that a lot of local drainage companies think it's a joke and there will be flooding which is very concerning for existing residents. It will be an absolute tragedy for anyone effected.  
The transport infrastructure cannot handle the number of cars now, there is no reliable public transport, including sheltered bus stops. This needs to be changed before any new housing is built.

I or we seek the following decision by council: Decline the plan change, but if approved, make the amendments I requested | 20.1

Details of amendments: Infrastructure, flooding and transport | 20.2

Submission date: 26 April 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?  
Yes

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Taimane Cohen  
**Date:** Saturday, 27 April 2024 6:00:41 pm

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Taimane Cohen

Organisation name:

Agent's full name:

Email address: diamonds\_297@hotmail.com

Contact phone number: 0212590250

Postal address:

0820

Riverhead

Auckland 0820

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:

11

Property address:

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

We strongly oppose the building on the wetland off duke street as the increase in storm water cause significant flooding to duke street and mill grove and we don't want a repeat of feb 2023. This is a direct result of the duke street development. It is already causing significant issues every time it rains. We strongly oppose any new developments in the surrounding lands.

I or we seek the following decision by council: Decline the plan change

21.1

Submission date: 27 April 2024

#### Attend a hearing

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?  
Yes

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Katherine McCarthy  
**Date:** Tuesday, 30 April 2024 8:16:03 am

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Katherine McCarthy

Organisation name:

Agent's full name:

Email address: dkdmft@hotmail.com

Contact phone number:

Postal address:

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:  
Section 32

Property address:

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

There is not the infrastructure or public transport to support such a huge development in Riverhead. The existing public transport utilise the same clogged single access road to the main highway and there does not appear to be any short term plan to fix the current nightmare of driving these roads. Terraced housing of any sort is not in keeping with the existing village. The only terrace housing we currently have has sat unfinished for years and is an eyesore. The proposed huge rest home development is going to impact Riverhead enough negatively without then having what is essentially another Riverhead village alongside the existing village. Another concern is that there is not the level of police support for Riverhead and surrounding areas for such a large change in volume of residents this proposal will create. I strongly disagree with the proposed plan.

I or we seek the following decision by council: Decline the plan change

22.1

Submission date: 30 April 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Jesse McBride  
**Date:** Tuesday, 30 April 2024 12:45:59 pm

---

The following customer has submitted a Unitary Plan online submission.

#### **Contact details**

Full name of submitter: Jesse McBride

Organisation name:

Agent's full name:

Email address: jess@mcbrides.co.nz

Contact phone number:

Postal address:  
 46 Pohutukawa Parade  
 Riverhead  
 Auckland 0820

#### **Submission details**

##### **This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### **My submission relates to**

Rule or rules:  
 Transport and Schooling

Property address:

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

Riverheads peak time transport issues are massive. Traffic backups onto SH16 along CHR Highway start at 0600 on weekdays and will continue until 0830 with traffic backed up to the golf course or further towards the brewery. Traffic is also an issue during weekends with vehicles trying to access SH16 from around 0930 until 1600 most times. Any additional properties using this feeder road and others in the vicinity will cause longer delays as well as people trying to find alternative routes to dodge the traffic. This will lead to an increase in accidents. Until such time as the promised bypass motorway or SH16 upgrades between Taupaki roundabout and Brigham Creek roundabout are done then these roads cannot take any more traffic. Public transport is near nonexistent. To get to either Albany or Westgate requires a wait of up to 1 hour for the next bus. Also, even though there is a train line close by this still has not been upgraded for general public transport.

There is also a lack of high school options in the area with Riverhead residents required to head to



Massey or Kaipara College. Adding more children to Riverhead will increase the strain on these colleges. A new High School needs to be established in the Kemeu/Huapai/Riverhead area before large scale changes like this can be considered.

I or we seek the following decision by council: Decline the plan change

23.1

Submission date: 30 April 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Kate Frances Lyon  
**Date:** Tuesday, 30 April 2024 8:46:01 pm

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Kate Frances Lyon  
Organisation name:  
Agent's full name:  
Email address: kate.f.truman@gmail.com  
Contact phone number:  
Postal address:  
20 Jelas drive  
Riverhead  
Auckland 0820

**Submission details**

**This is a submission to:**  
Plan change number: Plan Change 100 (Private)  
Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:  
Property address: Riverhead  
Map or maps:  
Other provisions:  
Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified  
Do you wish to have the provisions you have identified above amended? No  
The reason for my or our views are:  
Riverhead is a friendly safe suburb that offers semi rural living where our child can play on the streets safety without too much traffic. The homes and spaces in Riverhead are not high density. There are already major issues with traffic and lack of public transport. There is already concern with primary school enrolment number and needing to build more class rooms and then taking away the sports field. There is no local high school within the area. There are already regular power cuts and issues people still being on tunk water and eco flow sewage.

I or we seek the following decision by council: Decline the plan change, but if approved, make the amendments I requested	24.1
Details of amendments: Low density housing instead of high density. Minimum 800m2 sections.	24.2
Keeping the housing style as per existing. Urgent high school. Urgent traffic management plan.	24.3
Urgent public transport plan. Urgent improved infrastructure - power, water, wast sewage	24.4
	24.5
	24.6

Submission date: 30 April 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Nijo Jacob  
**Date:** Wednesday, 1 May 2024 10:31:19 am

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Nijo Jacob

Organisation name:

Agent's full name:

Email address: nioj468@live.com

Contact phone number:

Postal address:  
 66 Vinistra Road  
 Huapai  
 Auckland 0810

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:  
 Riverhead

Property address:

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

We need better and bigger roads before bringing more people to the community.traffic is already a problem for many don't want to make it worse

I or we seek the following decision by council: Decline the plan change

25.1

Submission date: 1 May 2024

#### Attend a hearing

Do you wish to be heard in support of your submission? No

#### Declaration

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Monique Masoe  
**Date:** Wednesday, 1 May 2024 1:15:58 pm

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Monique Masoe

Organisation name:

Agent's full name:

Email address: chess@xtra.co.nz

Contact phone number:

Postal address:  
 156 Taylor Road  
 Waimauku  
 Auckland 0882

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:  
 Roading and traffic congestion already an issue

Property address:

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

The infrastructure from Waimauku to the north western motorway both heading south and heading north is already appalling both during the week and weekend .

The Roading needs to be upgraded significantly for me to agree to any other subdivisions. The road planning for the added subdivisions in the north west has been non existent. There are upgrades everywhere around the country except for here. Oh except for putting a barrier along the stretch between Waimauku and Huapai and the ridiculously expensive speed bumps on Muriwai Road and I understand traffic lights at station road heading onto SH 16 another moronic idea when there is a round about 50 meters up the road! Come on people do better here

I or we seek the following decision by council: Decline the plan change

26.1

Submission date: 1 May 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Monique Masoe  
**Date:** Monday, 13 May 2024 7:15:46 pm

---

The following customer has submitted a Unitary Plan online submission.

#### **Contact details**

Full name of submitter: Monique Masoe

Organisation name:

Agent's full name:

Email address: chess@xtra.co.nz

Contact phone number:

Postal address:

156 Taylor Rd

Waimauku

Auckland 0883

#### **Submission details**

##### **This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### **My submission relates to**

Rule or rules:

Infrastructure roading

Property address: River head

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

Traffic is already horrendous. Infrastructure and Roding should be sign improved before considering putting any more houses in the northwest

I or we seek the following decision by council: Decline the plan change

Submission date: 13 May 2024

#### **Attend a hearing**

Do you wish to be heard in support of your submission? No

#### **Declaration**



Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Ali summers  
**Date:** Wednesday, 1 May 2024 3:46:06 pm

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Ali summers

Organisation name:

Agent's full name:

Email address: alisummers@hotmail.com

Contact phone number:

Postal address:  
0881

Muriwai 0881

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:  
Additional houses in Riverhead

Property address:

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

The community and infrastructure cannot cope with extra residential development at this time - the roads are unreasonably congested already in this area and it has a massive impact on existing residents.

I or we seek the following decision by council: Decline the plan change

27.1

Submission date: 1 May 2024

#### Attend a hearing

Do you wish to be heard in support of your submission? No

#### Declaration

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Jane Sparnon  
**Date:** Wednesday, 1 May 2024 7:15:55 pm

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Jane Sparnon

Organisation name:

Agent's full name:

Email address: info@grabit.kiwi

Contact phone number: 0212736139

Postal address:

3 Applemoors Way Riverhead

Riverhead

Auckland 0820

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:

Coatesville Riverhead Highway and access to State Highway 16 7.6.1

Property address:

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

The increased traffic volume from all the development and also before any dwellings are built with increased truck movements is not viable for the residents of Riverhead and Kumeu to access any main arterial route without an extended travel time. The main road in Riverhead township is substandard at present and dangerous to cross at the only crossing on Coatesville Riverhead Highway. There is permission granted by Council to build another Apartment complex with a severe lack of parking and there is no parking available on surrounding roads.

I or we seek the following decision by council: Decline the plan change

28.1

Submission date: 1 May 2024

#### Attend a hearing

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?  
Yes

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Renee Thrower  
**Date:** Wednesday, 1 May 2024 9:00:56 pm

---

The following customer has submitted a Unitary Plan online submission.

#### **Contact details**

Full name of submitter: Renee Thrower

Organisation name:

Agent's full name:

Email address: renee.thrower@yahoo.co.nz

Contact phone number:

Postal address:  
 3 Ara Kakara Ave  
 Huapai  
 Auckland 0810

#### **Submission details**

##### **This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### **My submission relates to**

Rule or rules:  
 Urban zoning

Property address:

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

The proposal will drastically increase population in the area when supporting infrastructure can not cope.

We are 10 years at least away from a bypass around Kumeu and until then face significant traffic issues for existing residents which grows with each subdivision added. Public traffic is multiple busses and long commute time making it not logistically possible.

Attempts to fix traffic on SH16 but stopping a right turn put of coasteville riverhead highway as a bandaid for the significant traffic issues have don't nothing to reduce this traffic.

Not only that there is not supporting hugh schools for this population growth, requiring people to go to Hobsonville or Massey which also adds to the traffic.

I or we seek the following decision by council: Decline the plan change  
Submission date: 1 May 2024

29.1

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Jiayi Yu  
**Date:** Thursday, 2 May 2024 11:45:50 am

---

The following customer has submitted a Unitary Plan online submission.

#### **Contact details**

Full name of submitter: Jiayi Yu

Organisation name:

Agent's full name:

Email address: kaurica@outlook.co.nz

Contact phone number: 021968383

Postal address:  
 107 old railway road  
 Kumeu  
 Auckland 0892

#### **Submission details**

##### **This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### **My submission relates to**

Rule or rules:  
 7.6 Transport

Property address:

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

Insufficient transport upgrade is a common issue that we have encountered after residential development in Huapai/Kumeu area. It takes an average 3 hours return if you work in Auckland CBD, and 1 hours spent on just waiting to get onto the motorway. Higher population moving to Riverhead will seriously making the situation worse. I can see in the plan there are proposal for transportation upgrade, but not clear who should be paying for the costs. I would suggest developers also bear part of the transport upgrade costs and not just getting them all from other tax payers. Currently, there is only one Riverhead bus per hour, which is making it nearly impossible for normal workforce to use public transport. If the traffic keeps increasing at peak time, with more people willing to use public transport giving that there will be more buses available, a local park and ride supporting residents from Riverhead, Kumeu, Huapai and Whenuapai need to be built. Currently Kids can walk to school from the small RiverHead town, if traffic increase due to residential development, safer walkways need to be built.



I or we seek the following decision by council: Approve the plan change with the amendments I requested

30.1

Details of amendments: The developer to bear part of the transportation cost, which could include but not limited to Road Expansion, building local Park and Ride and Walkways for kids.

Submission date: 2 May 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?  
Yes

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Nick V](#)  
**To:** [Unitary Plan](#)  
**Subject:** Plan change 100 private Riverhead  
**Date:** Thursday, 2 May 2024 4:37:22 pm

---

Hello

I support the Riverhead unitary plan changes  
The community needs to grow with more houses cafes and restaurants and everybody will benefit from the bigger community that is created here

31.1

Jordanka Vitasovich  
094129613

**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Stephen Nicholas  
**Date:** Friday, 3 May 2024 11:31:00 am

---

The following customer has submitted a Unitary Plan online submission.

#### **Contact details**

Full name of submitter: Stephen Nicholas

Organisation name:

Agent's full name: Steve Nicholas

Email address: snicholas\_nz@yahoo.com

Contact phone number:

Postal address:

7 Mill Grove  
Riverhead  
Auckland 0820

#### **Submission details**

##### **This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### **My submission relates to**

Rule or rules:

Planned development of mixed residential dwellings in Riverhead by 2032

Property address:

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

1. Traffic. There have been no roading infrastructure updates for the last 10 years. But 100s and 100s of new houses have been built. Making it almost impossible to leave the area at certain times of the day. The queue of traffic to get on to SH16 at Borich can be backed up Hallertau at times. Which then causes the traffic on SH16 to be backed up all the way back to Kumeu. And this can be week days or the weekend.

A roundabout system was installed at the opposite end of Coatesville Riverhead highway at the Albany end which resolved any traffic queuing issues. The infrastructure can not cope with the current traffic levels, so why is adding more residential areas even being suggested without major infrastructure updates ?

2. Storm and Waste Water. When we first moved to the area and built, there was no issues with flooding. But as the permeable land has been built on, this has gotten worse and worse. Until the major flooding of Auckland anniversary weekend. I have heard so many times that building new

subdivisions will have minimal effect on storm water, which is just untrue. Water that used to soak into the ground is now fast tracked to the waterways which cannot cope. So water backs up and floods our properties. We have replaced multiple fences, multiple times. And costing us thousands of dollars to recover our section after flooding. Again how can there even be talk of creating more residential areas with out major updates to the storm/waste water systems ?

I or we seek the following decision by council: Decline the plan change

32.1

Submission date: 3 May 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - David Rice  
**Date:** Friday, 3 May 2024 11:45:58 am

---

The following customer has submitted a Unitary Plan online submission.

#### **Contact details**

Full name of submitter: David Rice

Organisation name:

Agent's full name:

Email address: drice83@gmail.com

Contact phone number:

Postal address:  
 52 Pohutukawa Parade  
 Riverhead  
 Auckland 0820

#### **Submission details**

##### **This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### **My submission relates to**

Rule or rules:  
 the entire development plan

Property address:

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

As a current resident of Riverhead, the infrastructure is already unfit for purpose. On weekday mornings, the traffic is frequently bumper to bumper from the intersection of SH16 and the Riverhead Coatesville Highway right down to Riverhead Point drive (2.3km) and even on weekends, is frequently backed up to Huapai Golf Course (1.6km). It is not uncommon for it to take more than 30 minutes just to turn left onto SH16 from Riverhead. Similarly in the afternoons, on returning to Riverhead, it frequently takes 30 minutes to travel from Whenuapai village to Riverhead point drive (~6km). This issue is compounded by the lack of appropriate schooling in the area, with only one primary school (that is bursting at the seams) in Riverhead and no high school to service the entire Huapai/Kumeu/Riverhead/Whenuapai area, which means that children frequently need to travel to the North Shore or inner West Auckland to attend school. Approving this plan, and the additional vehicle traffic associated with the proposed residential and business areas will completely gridlock Riverhead and make it untenable to be a resident here. This is only compounded by the lack of suitable public transport in the area, with a bus trip to Auckland CBD taking almost 1hr 30 minutes

on a weekday morning and no alternative option such as trains, despite a railway line running right through the middle of Kumeu/Huapai. Furthermore, the Stormwater pond at the Landing in the existing Riverhead development perpetually floods with even the threat of heavy rain and several areas of Riverhead, including many of the roads surrounding the proposed development area (Riverhead Rd, Deacon Rd, Coatesville Riverhead Highway) flood and are impassible on a frequent basis (at least 5 times per annum). If this development is allowed to proceed, the increase in non-permeable land in Riverhead will no doubt worsen these problems substantially and may cause large amounts of property damage. In summary, it would be ludicrous to approve this plan change without FIRST developing the necessary roading, stormwater and education infrastructure to service the current residents, let alone any future residential and business developments.

I or we seek the following decision by council: Decline the plan change

33.1

Submission date: 3 May 2024

### **Attend a hearing**

Do you wish to be heard in support of your submission? No

### **Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Claire Jones  
**Date:** Sunday, 5 May 2024 2:31:10 pm  
**Attachments:** [10-pc100-app-8-integrated-transport-assessment.pdf](#)

---

The following customer has submitted a Unitary Plan online submission.

#### **Contact details**

Full name of submitter: Claire Jones

Organisation name:

Agent's full name:

Email address:

Contact phone number:

Postal address:  
 23 Pitoitoi Drive  
 Riverhead  
 Auckland 0820

#### **Submission details**

##### **This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### **My submission relates to**

Rule or rules:

Property address:

Map or maps: Assessment 8 Integrated Transport

Other provisions:  
 Appendix 8

Integrated Transport Assessment

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

The current state of traffic from my home to highway 16 if I want to go anywhere is appalling currently. I hate to think what would happen if this change goes ahead with scores of trucks trying to access the limited provisions for travel. Last Wednesday I tried to get onto highway 16 at 9.30AM and what should have taken about 5 minutes took 30 minutes. I was late for an important appointment and had to pay for it. There were cars and trucks lined up 300 metres on every possible access road moving a couple of metres every 2 minutes. This change cannot possibly be approved without more serious facilities for access to the main highway North or South. I have lived here for 6 years now and the traffic situation is getting worse all the time. Until these developers increase their provision for workers travel out of the area it will just be a gridlock permanently for the whole area.

I or we seek the following decision by council: Decline the plan change

34.1

Submission date: 5 May 2024

Supporting documents  
10-pc100-app-8-integrated-transport-assessment.pdf

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

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## **Riverhead Plan Change**

### **Integrated Transport Assessment**

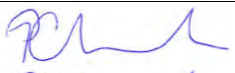

**October 2023**

**flow**

**TRANSPORTATION SPECIALISTS 81**

**Project:** Riverhead Private Plan Change  
**Title:** Integrated Transport Assessment  
**Document Reference:** P:\frlx\015 Fletchers Riverhead Masterplan and Private Plan Change\Reporting\R1F221212 Riverhead Plan Change.docx  
**Prepared by:** Harry Shepherd  
**Project Manager:** Terry Church  
**Reviewed by:** Terry Church

**Revisions:**

Date	Status	Reference	Approved by	Initials
2 December 2021	Draft to project team	R1A211202	T Church	
8 December 2021	Draft to Auckland Transport to support drawings	R1B211208	T Church	
1 June 2022	Updated draft to project team	R1C220601	T Church	
30 June 2022	Final	R1D220630	T Church	
6 December 2022	Notification draft	R1E221206	T Church	
12 December 2022	For Notification	R1F221212	T Church	
4 October 2023	For Notification post c25 acceptance	R1G231004	T Church	

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## SUMMARY OF OUR ASSESSMENT

Riverhead Landowner Group (Applicant) has engaged Flow Transportation Specialists Ltd (Flow) to assess the transport planning and traffic engineering matters relating to a Structure Plan and subsequent Private Plan Change (Proposal) for land zoned Future Urban, located in Riverhead, adjacent to Coatesville-Riverhead Highway and Riverhead Road (Site).

The Structure Plan and Plan Change Proposal includes the following elements that are material to transport matters

- ◆ Rezoning the Future Urban Zone land to a variety of zones, including
  - Residential – Mixed Housing Suburban and Terrace Housing and Apartment Buildings<sup>1</sup>
  - Business – Local Centre, providing for a supermarket, ancillary retail, café and offices
  - Business – Neighbourhood Centre, providing a smaller scale retail offering to the local neighbourhood
  - Rural – Mixed Rural
- ◆ Enabling of future activities and amenities including a potential school, early childhood centre, and open space.
- ◆ Upgrading the transport network within the Plan Change area which provides access to Riverhead and the development area, including
  - Upgrading the surrounding road network within the Plan Change area to improve road safety and provide new separated facilities for pedestrians and cyclists. These upgrades align with those being assessed by Auckland Transport and Te Tupu Ngātahi Supporting Growth for Coatesville-Riverhead Highway. Similar upgrades are also provided for Riverhead Road, with Lathrope Road also being sealed and a pedestrian path provided on the northern side. Upgrades are also included for Cambridge Road fronting the Site, with a pedestrian path also provided for along Queen Street to connect to Coatesville-Riverhead Highway.
  - Anticipated speed limit reductions (through Bylaw changes) by extending the existing 50 km/h speed limits on Coatesville-Riverhead Highway, Riverhead Road and Lathrope Road which front the extended urban area to enable safer speed environments for all road users, and provide new speed threshold treatments.
- ◆ Upgrading the following intersections to improve safety and facilitate active modes
  - Coatesville-Riverhead Highway / Riverhead Road – upgrade existing roundabout
  - Coatesville-Riverhead Highway / Riverhead Point Drive / new collector road – upgrade to a roundabout and construct a fourth west leg to provide a collector road into the site

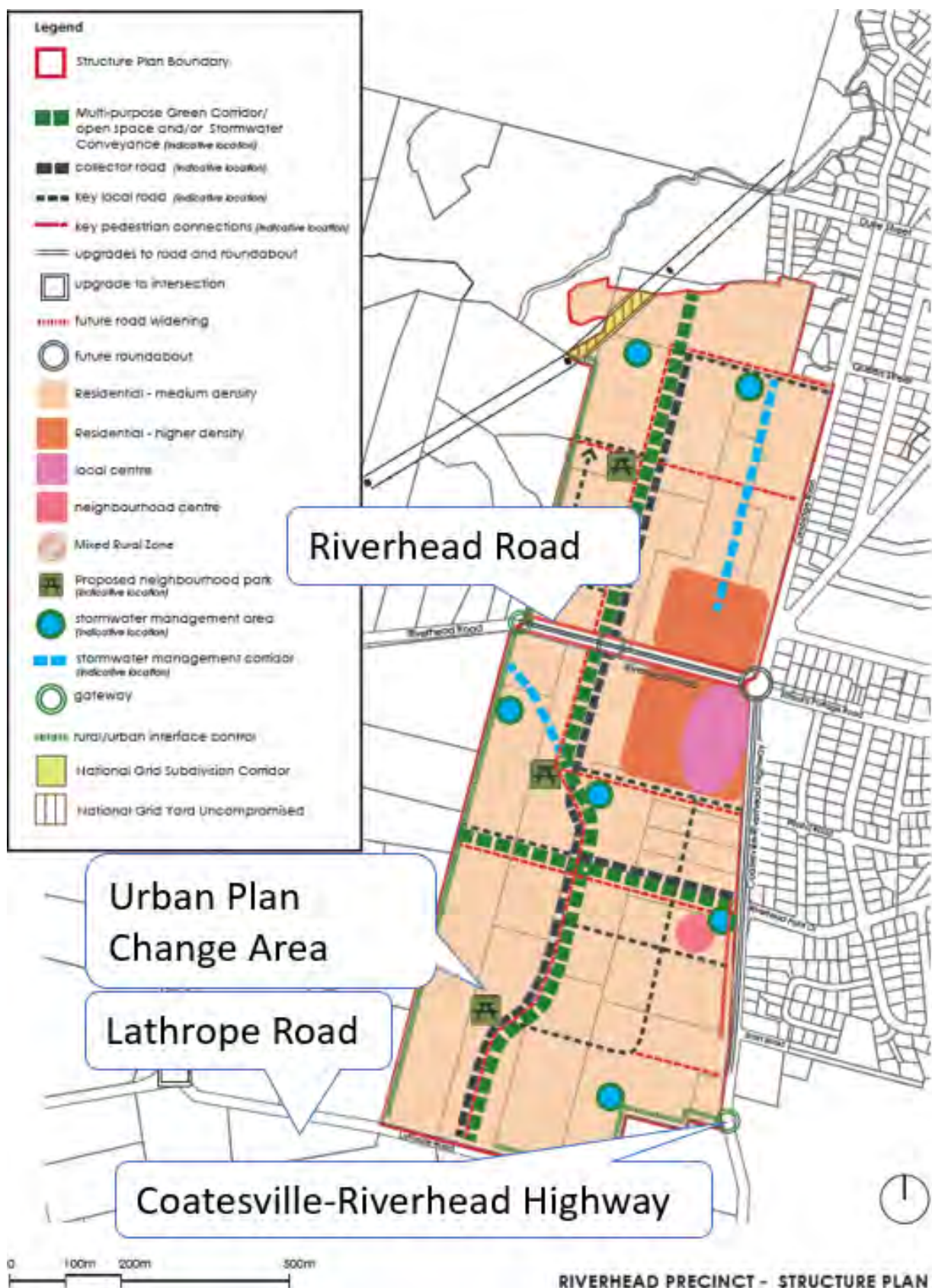
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<sup>1</sup> Allowing up to 1,558 residential dwellings, a retirement village with some 310 apartments, 90 aged care beds, a childcare centre, a medical centre and supporting café and retail

- Coatesville-Riverhead Highway / new local road – construct a new local road access onto Coatesville-Riverhead Highway between Riverhead Point Drive and Short Road as a priority-controlled intersection
  - Riverhead Road / new collector road – construct a new roundabout west of Coatesville-Riverhead Highway. The new collector road will provide a north and south approach to the roundabout, providing a total of four approaches
  - Lathrope Road / Riverhead Road – upgrade the existing priority control intersection. Realign the Lathrope Road access into one point, and provide a right turn bay and a flush median on Riverhead Road
  - Right turn bays on Coatesville-Riverhead Highway will be required at the Riverland Road and Old Railway Road intersections.
- ◆ Precinct plan provisions, which ensure the necessary infrastructure upgrades are operational prior to relevant development being occupied. This includes the infrastructure upgrades outlined above and tying occupied development to the SH16 / Coatesville-Riverhead Highway intersection upgrade being progressed by Waka Kotahi, given the safety improvements this upgrade provides to all of Riverhead.

A plan showing the Site and general layout is included at Figure ES1.

Figure ES1: Proposed Structure Plan



Based on the analysis described in this report, we conclude that the Structure Plan and proposed Plan Change can enable activities that can operate safely and efficiently from a transportation perspective.



We conclude that

### Planning context

- ♦ The Plan change aligns well with the Auckland Plan and Auckland Unitary Plan transport objectives by providing people with choices of healthy and sustainable transport modes and encourages a range of activities. A full assessment of the relevant objectives and policies is provided in the section 32 report prepared by Barker & Associates
- ♦ The rezoning of Future Urban land will enable a range of complementary activities, including residential dwellings, a local centre, early learning childcare centres and a retirement village complex
- ♦ Provision of education options are being provided
- ♦ The Plan Change brings the development ahead of the 2028 – 2032 current schedule in the Future Urban Land Supply Strategy by three to four years although that timing is principally based on issues applying to Kumeu and Huapai that do not constrain Riverhead. We note that the roading improvements captured in the Precinct Provisions are all that is required prior to development being occupied.

### Local access and roads

- ♦ The sections of Riverhead Road and Coatesville-Riverhead Highway that front the plan change area and provide the entry points to Riverhead will receive full corridor upgrades within the vicinity of the Site as part of the Plan Change. This includes providing new dedicated facilities for pedestrians and cyclists on both sides of these roads, which will significantly improve active mode accessibility for existing and future residents of Riverhead
- ♦ Lathrope Road will be upgraded and sealed to provide a footpath on the northern side, and allow this road to be used as an external vehicle access route from the Site to Riverhead Road
- ♦ An internal road network will be provided to support the activities included in the Plan Change. Several new intersections will be constructed. Existing intersections in the local area will be upgraded. These intersections will be designed in accordance with Vision Zero and designed to safely accommodate all road users. The proposed Precinct Provisions set out the anticipated design elements of local roads, requiring low speed designs that offer a safe outcome to all users
- ♦ New footpaths on Queen Street and Cambridge Road will be provided to improve pedestrian connectivity
- ♦ Precinct Plan provisions will allow improved public transport facilities to be provided in the future
- ♦ It is anticipated that speed limits will be revised (through the Bylaw) on Riverhead Road and Coatesville-Riverhead Highway, as a result of urbanisation of the area. This will provide safety benefits for all road users and align with Vision Zero principles (see Section 6.1.1).

### Wider network

- ♦ There are existing capacity constraints on the road network, particularly on SH16. The section of SH16 south of the Site has funding to be upgraded by Waka Kotahi NZTA by 2025, which will increase capacity and improve safety from the Plan Change area. The Notice of Requirement for

this project has now been lodged with Auckland Council. The proposed Precinct Provisions include a requirement to ensure that this upgrade is provided before development is occupied

- ◆ There will be a noticeable number of trips generated by the development in time, but the impact on the wider network will be reduced by pass-by trips, multi-purpose trips, and trips that can be undertaken locally within Riverhead. All intersections within the Riverhead Plan Change area are anticipated to perform without any noticeable queue lengths or delays with the increased traffic volumes
- ◆ The SH16 / Coatesville-Riverhead Highway intersection is predicted to perform well, even when considering the full 100% Plan Change buildout by 2038, due to the Waka Kotahi upgrade
- ◆ Coatesville-Riverhead Highway is serviced by a bus route, which connects to the Westgate public transport hub and Albany station. The upgrades proposed on Coatesville-Riverhead Highway will include the provision of public transport infrastructure to support provision of increased services and encourage travel by public transport
- ◆ Right turn bays on Coatesville-Riverhead Highway will be required at the Riverland Road and Old Railway Road intersections, noting the Old Railway Road right turn bay is already required.

Overall, we are of the view that the Plan Change will enable development that aligns with or implements transport network upgrades as planned by Waka Kotahi and Auckland Transport. The upgrades proposed as part of the Plan Change will significantly improve accessibility for all transport modes in Riverhead.

We therefore consider that there are no transportation planning or traffic engineering reasons to preclude the implementation of the Plan Change as set out in the proposed Precinct Provisions.

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- APPENDIX D COATESVILLE-RIVERHEAD HIGHWAY RIGHT TURN BAY ASSESSMENT

## 1 WHAT THIS REPORT INCLUDES

Riverhead Landowner Group<sup>2</sup> (Applicant) has engaged Flow Transportation Specialists Ltd (Flow) to assess the transport planning and traffic engineering matters relating to a Structure Plan and Private Plan Change (Proposal) for land zoned Future Urban, located in Riverhead, adjacent to Coatesville-Riverhead Highway and Riverhead Road (Site). The Private Plan Change will consist of rezoning land from Future Urban to allow residential and local retail activities.

This Transport Assessment provides the following information

- ◆ A description of the Proposal, focussing on the transport matters
- ◆ An assessment of the Proposal against the relevant transport planning documents, including the Auckland Plan, Auckland Unitary Plan (Unitary Plan), Future Urban Land Supply Strategy and Future Connect
- ◆ The provision of background information to provide context to the transport assessment of the Proposal. This information includes
  - ◆ the Site location and immediate surrounding transport network, including traffic volumes
  - ◆ a description and assessment of the historic crash record of the immediate transport network
  - ◆ a description of the private vehicle, public transport and walking and cycling accessibility of the Site
- ◆ An assessment of the Proposal and potential transport effects with regard to
  - ◆ vehicle access
  - ◆ traffic generation and impacts on the surrounding transport network
  - ◆ safety impacts and upgrades
  - ◆ active mode and public transport provisions
- ◆ Outcomes in relation to the implementation of upgrades, including who is responsible for delivering the upgrade.

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<sup>2</sup> Consisting of Fletcher Living, Matvin Group, Neil Group

## 2 THE PLAN CHANGE PROPOSAL

The Proposal includes the following elements and infrastructure upgrades that are material to transport matters

- ◆ Rezoning the Future Urban Zone land to a variety of zones, including
  - Residential – Mixed Housing Suburban and Terrace Housing and Apartment Buildings
  - Business – Local Centre
  - Business – Neighbourhood Centre
  - Rural – Mixed Rural
- ◆ This will enable the following activities within the proposed urban zones<sup>3</sup>
  - Some 1,468 residential dwellings including
    - 385 lower density dwellings with the Mixed Housing Suburban zone
    - 775 medium density dwellings with the Mixed Housing Suburban zone
    - 100 dwellings in the Terrace House and Apartment Buildings zone
    - 208 retirement village villas.
  - A local centre, which could contain
    - a supermarket of up to 4,000 m<sup>2</sup>
    - ancillary retail of 650 m<sup>2</sup>
    - café of 600 m<sup>2</sup>
    - offices of up to 1,000 m<sup>2</sup>
    - medical centre up to 250 m<sup>2</sup>
  - A neighbourhood centre of approximately 300 m<sup>2</sup>
  - A retirement village complex, which could contain
    - Some 310 retirement village apartments (158 villas are included in the total number of retirement villas for residential dwellings above, which would bring the total to 468 if included here)
    - 90 aged care / dementia beds
    - A café of 450 m<sup>2</sup>
    - Retail of 150 m<sup>2</sup>
    - A childcare centre accommodating 100 children
    - A medical centre of 250 m<sup>2</sup>
  - A potential school could be provided, with an assumed capacity to accommodate some 1,100 students.

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<sup>3</sup> Based on anticipated development implemented over a 5-10 year period

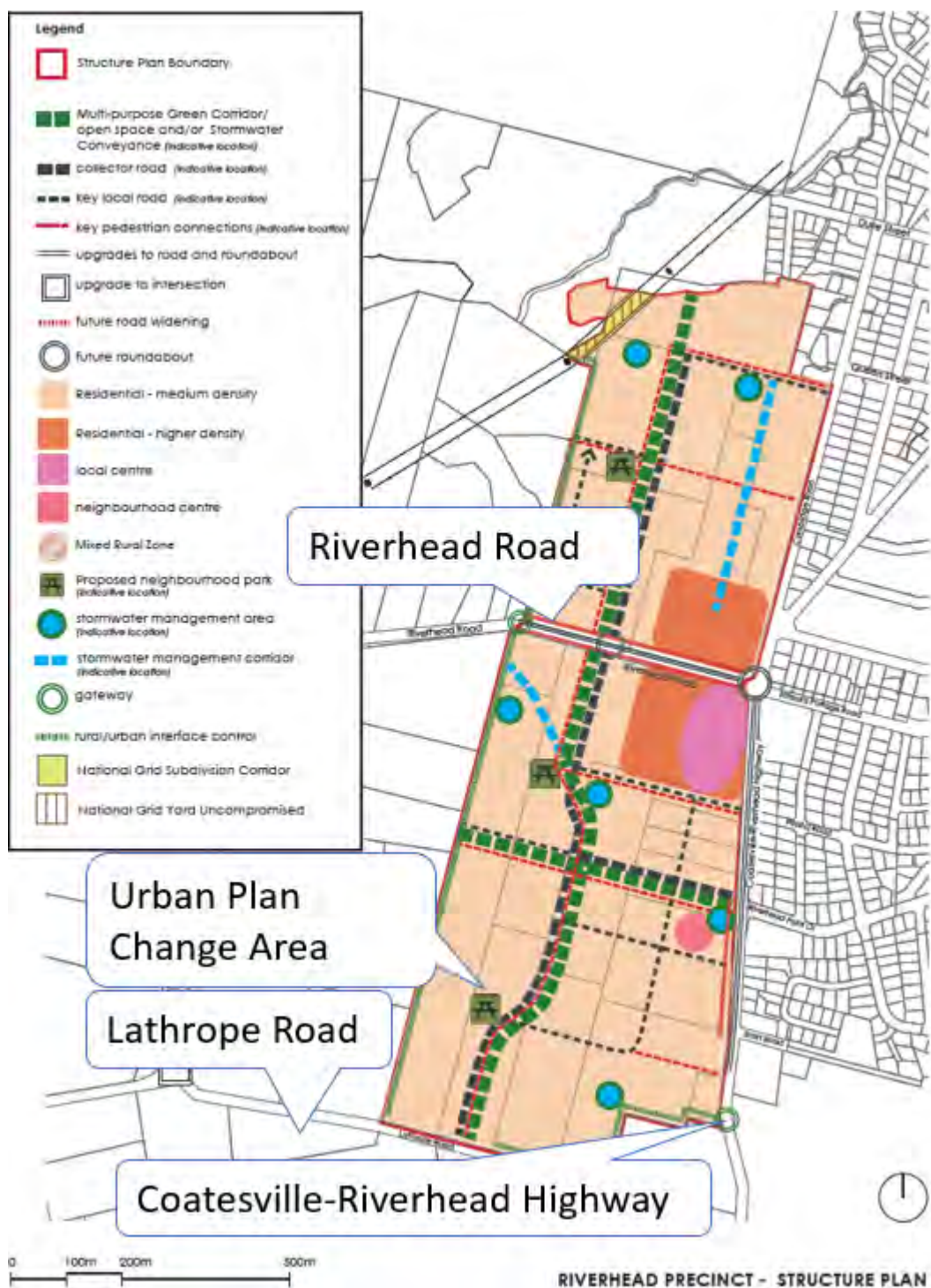
- ♦ Anticipated speed limit reductions through the Bylaw process (consistent with those being implemented fronting other new urban areas) on Coatesville-Riverhead Highway, Riverhead Road and Lathrope Road to 50 km/h, enabling safer speed environments for all road users, and provide new speed threshold treatments (referred to as 'gateways' in the Precinct Provisions)
  - Coatesville-Riverhead Highway – extend the existing 50 km/h speed limit further south and relocate the speed threshold treatment south of Short Road
  - Riverhead Road – reduce from 80 km/h to 50km/h in front of the Plan Change Site, and provide a new speed threshold treatment west of the Site
  - Lathrope Road – reduce from 60 km/h to 50 km/h
- ♦ Providing the following corridor upgrades to the surrounding road network to improve road safety and provide new separated facilities for pedestrians and cyclists. The Coatesville-Riverhead Highway upgrade aligns with that lodged by Auckland Transport and Te Tupu Ngātahi Supporting Growth, with the Riverhead upgrade being consistent with this design
  - Coatesville-Riverhead Highway – upgrade from Riverhead Road to 80 m south of Short Road to provide separated cycle lanes and pedestrians footpaths on each side
  - Riverhead Road – upgrade from Coatesville-Riverhead Highway to the eastern boundary of 307 Riverhead Road to provide separated cycle lanes and pedestrians footpaths on each side
  - Lathrope Road – upgrade the full length of Lathrope Road to provide a sealed carriageway and a footpath on the northern side
  - Cambridge Road – urbanise Cambridge Road fronting the Site, including a footpath on the western side of Cambridge Road and on the northern side of Queen Street
- ♦ Upgrading or constructing the following intersections to improve safety and facilitate active modes
  - Coatesville-Riverhead Highway / Riverhead Road – upgrade existing roundabout
  - Coatesville-Riverhead Highway / Riverhead Point Drive / new collector road – upgrade to a roundabout and construct a fourth west leg to provide a collector road into the site
  - Coatesville-Riverhead Highway / new local road – construct a new local road access onto Coatesville-Riverhead Highway between Riverhead Point Drive and Short Road as a priority-controlled intersection
  - Riverhead Road / new collector road – construct a new roundabout west of Coatesville-Riverhead Highway. The new collector road will provide a north and south approach to the roundabout, providing a total of four approaches
  - Lathrope Road / Riverhead Road – upgrade the existing priority control intersection. Realign the Lathrope Road access into one point, and provide a right turn bay and a flush median on Riverhead Road
  - Right turn bays on Coatesville-Riverhead Highway will be required at the Riverland Road and Old Railway Road intersections.

- ♦ Introducing Precinct Plan provisions, which include requirements for specific infrastructure upgrades to be provided prior to development being occupied. This includes the infrastructure upgrades outlined above, and the SH16 / Coatesville-Riverhead Highway intersection upgrade being progressed by Waka Kotahi, given the safety improvements this upgrade provides to all of Riverhead.

The Neighbourhood Design Statement, which forms part of the application provides further details about how the yields for the various activities have been established.

A diagram of the Structure and Plan Change is shown in Figure 1.

Figure 1: Proposed Structure Plan





## 3 STRATEGIC CONTEXT

### 3.1 Auckland Plan

The Auckland Plan is a long-term spatial plan for Auckland, with a 2050<sup>4</sup> outlook. It considers how we will address key challenges such as high population growth and shared prosperity.

There are six outcomes of the Auckland Plan, with transport and access being one. Within the transport and access outcome, there are three key directions

- ◆ Better connect people, places, goods and services
- ◆ Increase genuine travel choices for a healthy, vibrant and equitable Auckland
- ◆ Maximise safety and environmental protection.

The Riverhead Plan Change provides opportunity to align with these directions

- ◆ New active mode facilities for pedestrians and cyclists will provide genuine travel choices for current and future residents in Riverhead. This will also maximise safety for active modes
- ◆ People can be better connected to places, goods and services in Riverhead by providing a mix of new land uses, such as new local and neighbourhood centres, education facilities and residential accommodation for all age groups.

### 3.2 Auckland Unitary Plan

The Auckland Unitary Plan has the following region-wide transport objectives in Auckland<sup>5</sup>

- ◆ Land use and all modes of transport are integrated in a manner that enables
  - the benefits of an integrated transport network to be realised
  - the adverse effects of traffic generation on the transport network to be managed
- ◆ An integrated transport network including public transport, walking, cycling, private vehicles and freight is provided for
- ◆ Parking and loading support urban growth and the quality compact urban form
- ◆ The provision of safe and efficient parking, loading and access is commensurate with the character, scale and intensity of the zone
- ◆ Pedestrian safety and amenity along public footpaths are prioritised
- ◆ Road/rail crossings operate safely with neighbouring land use and development.

The Riverhead Plan Change align with several transport objectives of the Unitary Plan

- ◆ Achieving a quality compact urban form consistent with the Unitary Plan's hierarchy of centres

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<sup>4</sup> <https://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/our-plans-strategies/auckland-plan/Pages/default.aspx>

<sup>5</sup> <https://unitaryplan.aucklandcouncil.govt.nz/Images/Auckland%20Unitary%20Plan%20Operative/Chapter%20E%20Auckland-wide/4.%20Infrastructure/E27%20Transport.pdf>



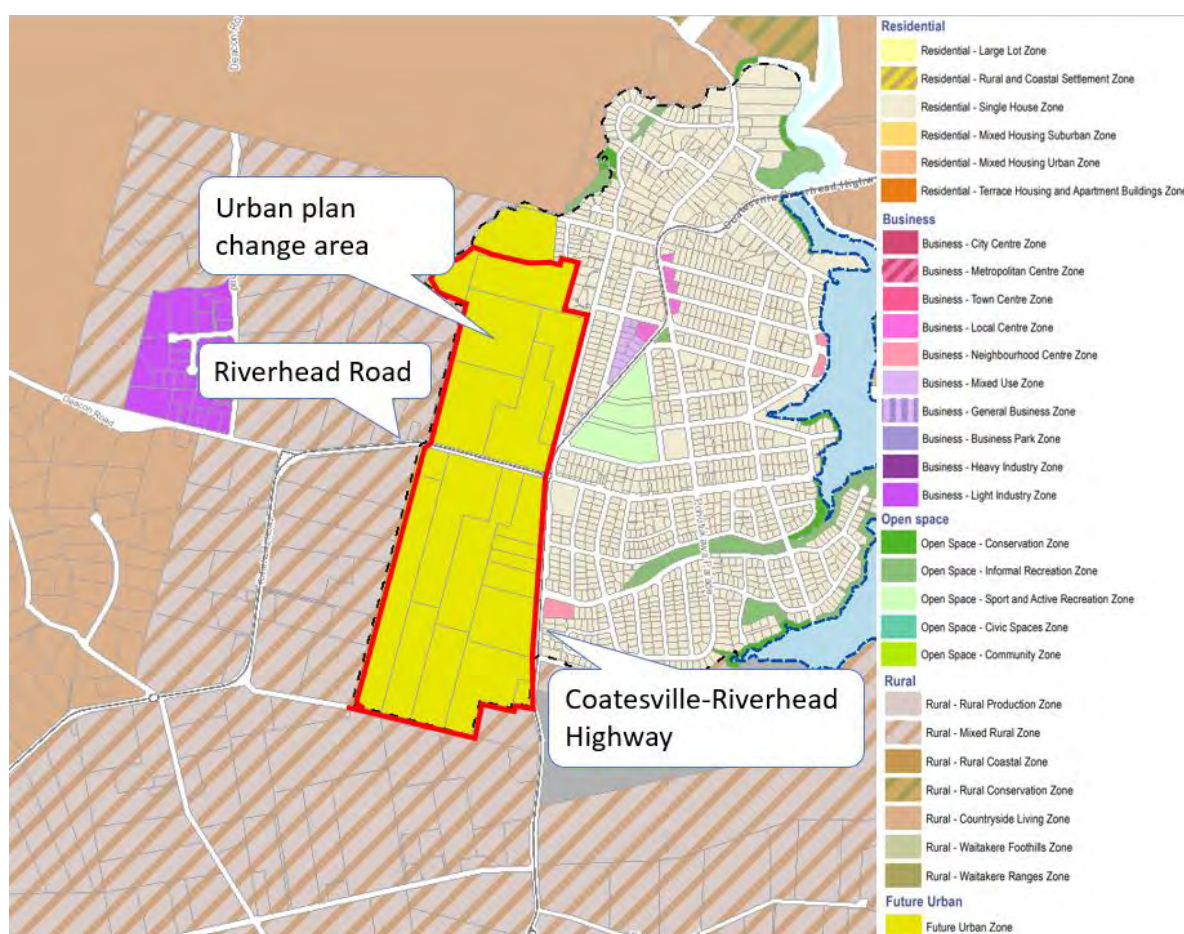
- ◆ Providing a mix of land use activities, including local and neighbourhood centres, can ensure that land use is integrated to minimise the need to travel longer distances to other areas
- ◆ Adverse effects of trip generation can be managed by providing upgrades to the local road network and providing new activities in Riverhead, allowing existing residents to undertake trips locally
- ◆ Providing new and upgraded facilities for walking and cycling can ensure that all modes of transport are provided in an integrated manner, and will increase opportunities for local active mode use
- ◆ Pedestrian safety and amenity can be improved by providing new and upgraded facilities.

The Section 32 report by Barker & Associates provides a full assessment against the transport policies and objectives of the Unitary Plan. We also note this Section 32 report provides an assessment against the relevant transport provisions of the National Policy Statement on Urban Development.

### 3.2.1 Site Context

The Unitary Plan zoning of the Site is shown in Figure 2. The Site is zoned Future Urban Zone.

Figure 2: Unitary Plan zoning<sup>6</sup>



<sup>6</sup> <https://unitaryplanmaps.aucklandcouncil.govt.nz/upviewer/>

Land to the north, west and south is primarily zoned for rural activities being Mixed Rural and Countryside Living zones. The existing Riverhead settlement is located to the east, which mostly consists of Residential – Single House Zone land.

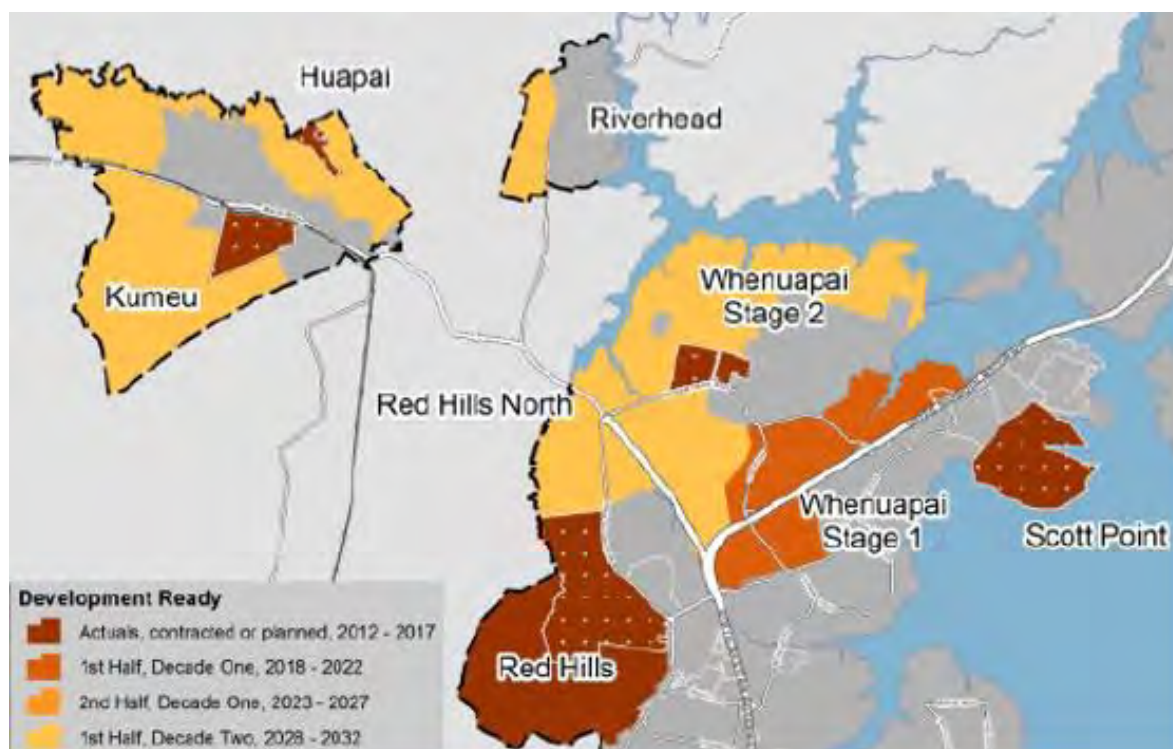
Riverhead Road and Coatesville-Riverhead Highway are classified as Arterial Roads under the Unitary Plan. This means that direct access onto these roads triggers Vehicle Access Restrictions, which is a Restricted Discretionary activity.

### 3.3 Future Urban Land Supply Strategy

The Future Urban Land Supply Strategy (FULSS)<sup>7</sup> is a non-statutory document which identifies a programme to sequence land over 30 years in Auckland. It is a strategy which assists with the ongoing supply of greenfield land for development. It determines sequencing and timing for when future urban areas will be ready for development to commence which requires necessary underpinning zoning and bulk infrastructure to be in place.

Figure 3 shows a map of the sequencing for Northwest Auckland. Riverhead is identified to be development ready between 2028 – 2032. This Plan Change would effectively bring development in Riverhead forward, ahead of the 2028 – 2032 schedule. However, it is noted that Riverhead is grouped with Kumeu and Huapai, whereas the constraints that are the basis for this schedule as identified in the FULSS, particularly those relating to transport can be appropriately managed as identified in this report. The key transport constraint for this particular area is the SH16 safety and capacity upgrades.

Figure 3: Future Urban Land Supply Strategy – Sequencing of Northwest Auckland



<sup>7</sup> <https://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/our-plans-strategies/topic-based-plans-strategies/housing-plans/Documents/future-urban-land-supply-strategy.pdf>

### 3.4 Future Connect

Auckland Transport's Future Connect programme sets out the long-term network plan for Auckland's integrated transport system, with the network plan helping to inform the 10-year investment programme. For Riverhead, Future Connect classifies the following for the first decade (2021-2031)

- ♦ Cycle and micro-mobility – Coatesville-Riverhead Highway and Riverhead Road as local (supporting) corridors. The network about Riverhead is not considered to be Regional, Major or Connector routes
- ♦ Public Transport – Coatesville-Riverhead Highway has a supporting local transit route highlighted, being that which connects Albany Station to Westgate Station. There are no Frequent or Strategic routes planned through Riverhead at this time.
- ♦ General Traffic – Coatesville-Riverhead Highway is a Primary Arterial, with Riverhead Road being a (supporting) Secondary Arterial. Both these corridors about the plan change area are proposed to be upgraded, with the upgrades reflecting these classifications
- ♦ Walking – Coatesville-Riverhead Highway is classified as being a Primary and Secondary classification fronting the Plan Change site, with Riverhead Road being a supporting tertiary route. Again, the corridor and intersection upgrades proposed will significantly improve the safety and provision for walking about Riverhead.

The Plan Change and recommended upgrades align with the network anticipated by Auckland Transport for Riverhead.

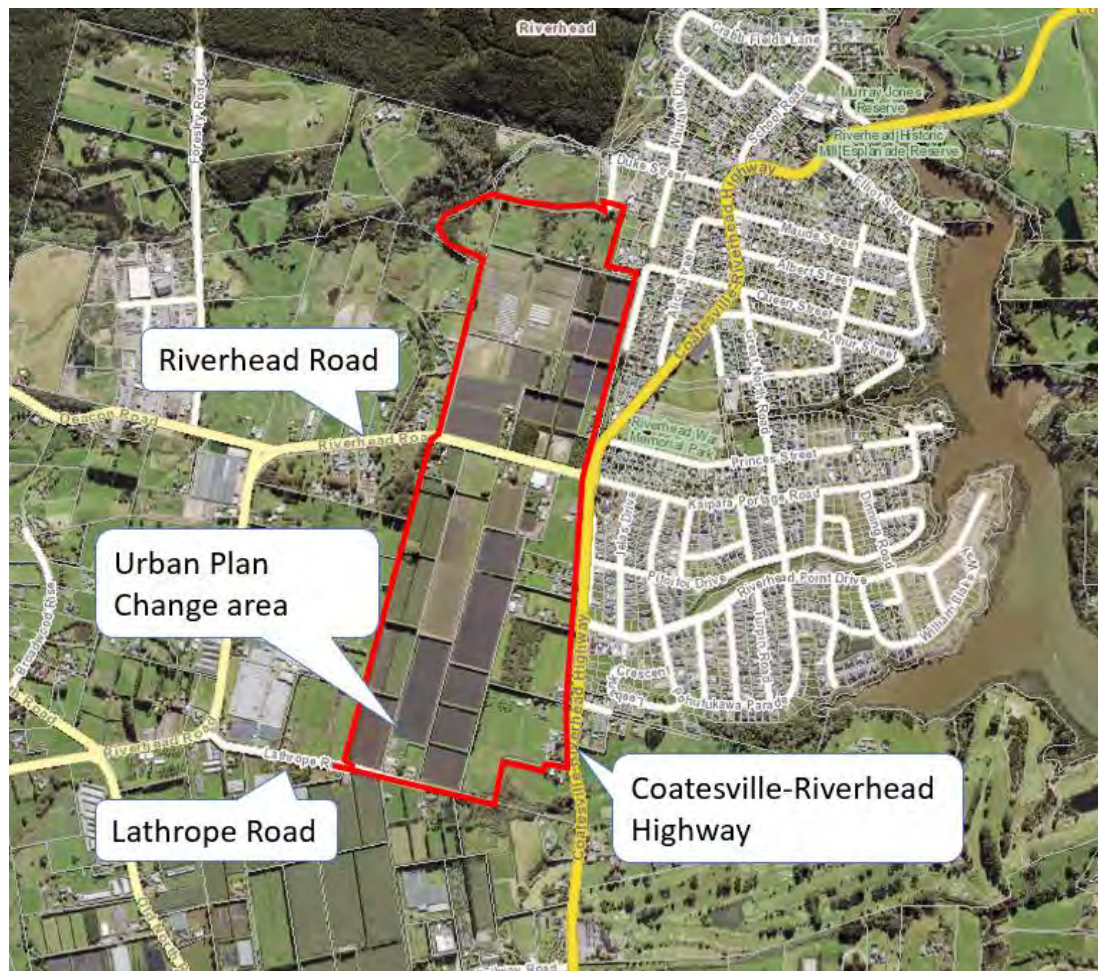


## 4 A DESCRIPTION OF THE EXISTING ENVIRONMENT

### 4.1 The Site and surrounding environment

The extent of the Urban Plan Change area is shown in Figure 4. While the Riverhead Landowner Group own or have rights to the majority of land within the Plan Change boundary, the Site comprises several smaller sites, which currently contain rural activities and some residential dwellings.

Figure 4: The site and immediate surrounds



We note that

- ◆ Land to the west and south is primarily rural in nature
- ◆ An industrial area is located west of the Site, near Deacon Road and Forestry Road
- ◆ The existing Riverhead residential area is located immediately east of the Site, which mostly consists of low density residential houses
- ◆ The Riverhead Forest is located north of the Site, which contains walking and cycling tracks
- ◆ The Kumeu town centre is located approximately 3-4 km west of the Site
- ◆ The Site has access points onto Riverhead Road, Coatesville-Riverhead Highway and Lathrope Road. The northern section of the Site also has access points onto Cambridge Road.

## 4.2 Existing roads

### 4.2.1 Coatesville-Riverhead Highway

Coatesville-Riverhead Highway is a 14 km long road which connects SH16 at its southern end to Dairy Flat and Albany to the northeast. It is primarily a two-lane rural road, with no formal footpaths.

Within the existing Riverhead town area and along the Site boundary, Coatesville-Riverhead Highway is constructed to a more urban standard on the eastern edge.

Figure 5 shows a photo of the urbanised section of Coatesville-Riverhead Highway along the Site boundary. There is one traffic lane in each direction separated by a painted flush median. There is no footpath along the west side of the road. Along the east side, a footpath is provided between Riverhead Road and Riverhead Point Drive along Grove Way, which is a frontage road giving access to local properties.

**Figure 5: Typical layout of urban section of Coatesville-Riverhead Highway (shown south of Grove Way entrance, looking north)**



### 4.2.2 Riverhead Road

Riverhead Road is currently a rural arterial road which connects Riverhead to Kumeu (via SH16) at its southwest end.

Riverhead Road typically has one traffic lane in each direction, with no dedicated footpaths or cycling facilities.



**Figure 6: Typical layout of Riverhead Road (shown west of Coatesville-Riverhead Highway, looking west)**



#### 4.2.3 Lathrope Road

A photo of Lathrope Road is shown in Figure 7. Lathrope Road is an unsealed rural road, which has no dedicated footpaths. It currently serves local properties and is a no exit road. Its intersection with Riverhead Road is the only external access point to the wider road network.

**Figure 7: Typical layout of Lathrope Road**



## 4.3 Existing traffic conditions

### 4.3.1 Coatesville-Riverhead Highway and Riverhead Road

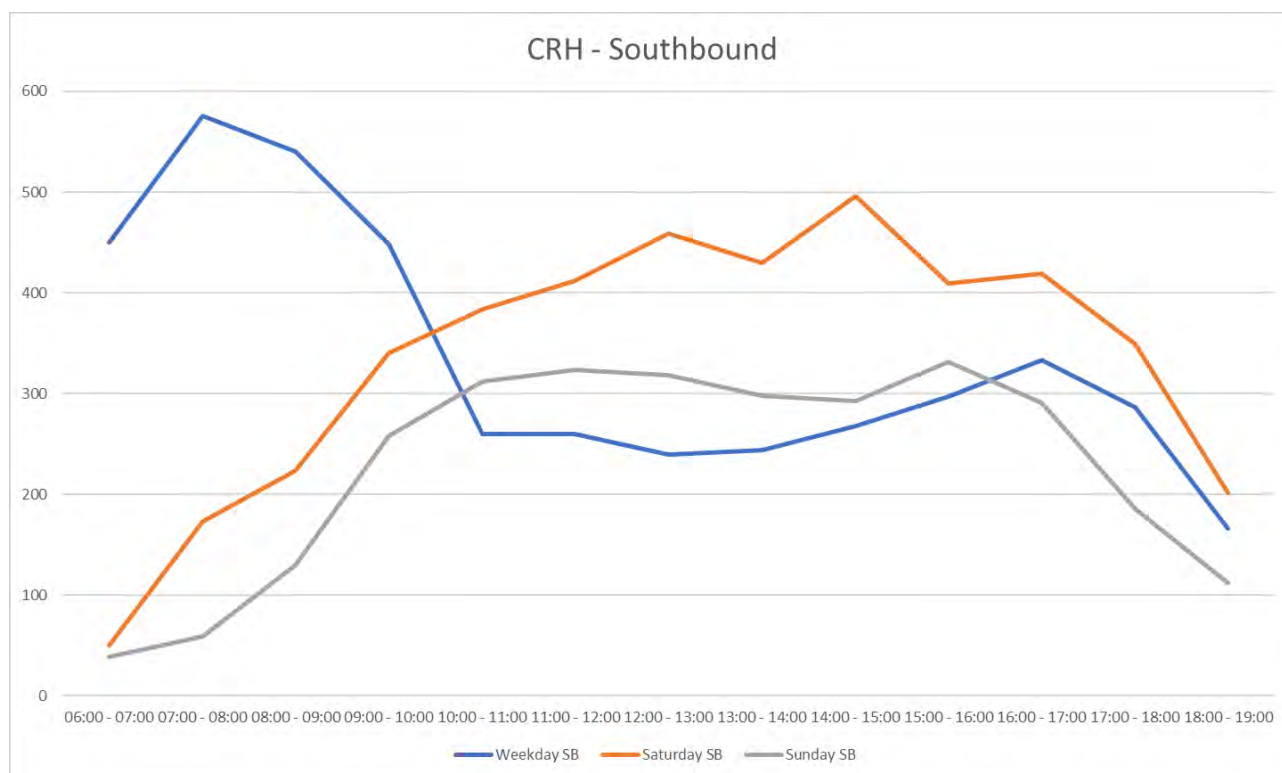
Daily and peak hour traffic count information available from the Auckland Transport traffic count database is presented in Table 1.

**Table 1: Auckland Transport traffic count data near the Site**

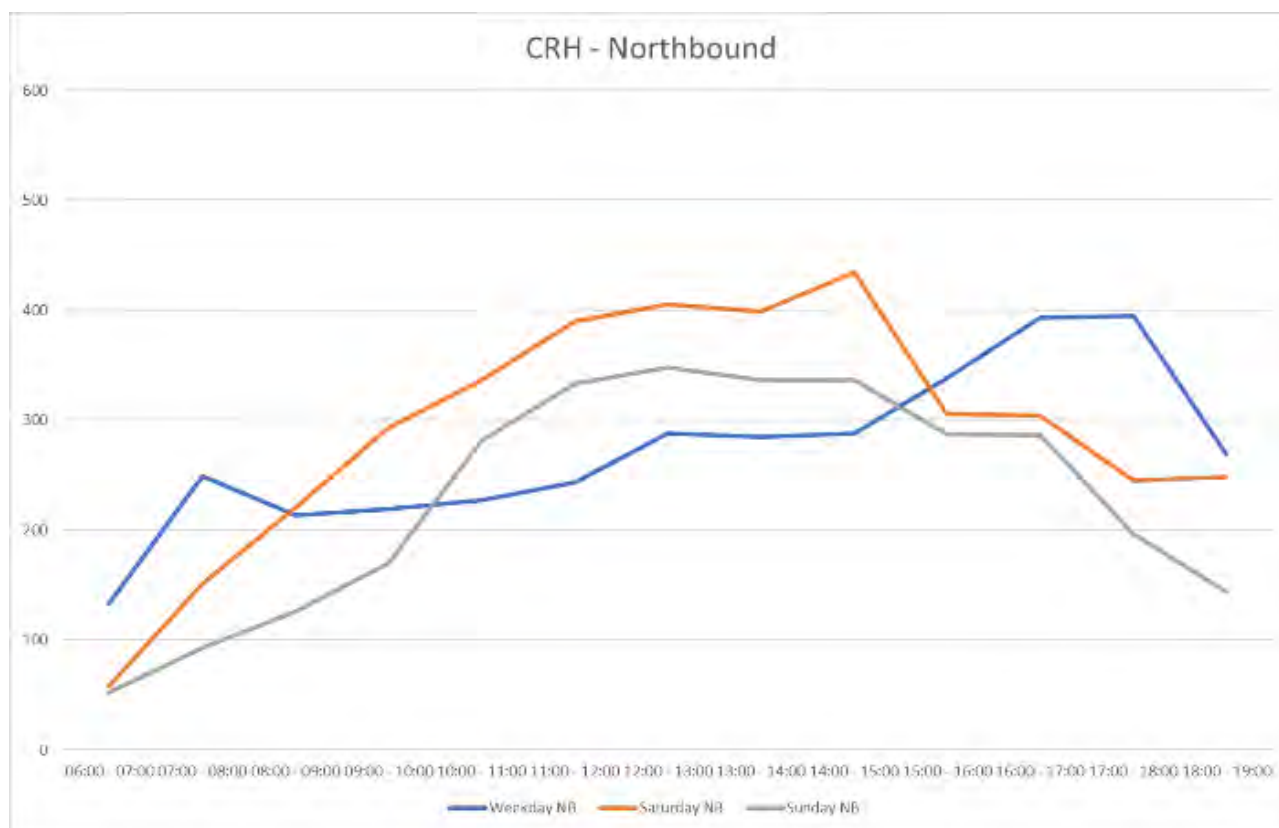
Location	Date	Weekday Average Daily Volume (vpd)	Morning Peak Hour Volume (vph)	Afternoon Peak Hour Volume (vph)
Riverhead Road (west of Coatesville-Riverhead Highway)	5/08/2022	6,754	776	794
Coatesville-Riverhead Highway (north of SH16)	5/08/2022	8,598	9271	793

We have obtained the profiles of the Coatesville-Riverhead Highway traffic counts. These traffic profiles for the average weekday, Saturday and Sunday are presented in Figure 8 and Figure 9.

**Figure 8: Coatesville-Riverhead Highway hourly traffic volumes, southbound direction**



**Figure 9: Coatesville-Riverhead Highway hourly traffic volumes, northbound direction**



The weekday peak periods are observed to be 7:00 to 8:00 am and 4:00 to 5:00 pm. We note that Saturday volumes on Coatesville-Riverhead Highway (southbound) are higher than the typical weekday (outside of the AM Peak hour), however the AM Peak volume is the busiest southbound volume.

#### 4.3.2 SH16

SH16, between Coatesville-Riverhead Highway and Brigham Creek Road, recorded an average of 22,900 vehicles per day in 2019 based on Waka Kotahi NZTA's traffic count system.

We have obtained traffic counts from Waka Kotahi's Traffic Management System (TMS) for a week, starting Monday 15 August 2022. Waka Kotahi collects traffic volumes on SH16 to the east and west of Coatesville-Riverhead Highway. As such, each of the sites have been assessed, allowing for the constraint at Coatesville-Riverhead Highway to be assessed and accounted for in our assessment.

When viewing the eastbound traffic profile either side of Coatesville-Riverhead Highway, the impact of the existing intersection at Coatesville-Riverhead Highway is evident. The profile of traffic to the west of Coatesville-Riverhead Highway shows the reduction in demand on the approach to Coatesville-Riverhead Highway intersection caused by motorists letting people in and therefore reducing the capacity of SH16 eastbound. Once through the intersection, the profile located to the east of the Coatesville-Riverhead Highway intersection resembles a profile more in keeping with traffic demands along the corridor, as shown in Figure 10 and Figure 11.



Figure 10: SH16 Eastbound traffic flow profile, west of Coatesville-Riverhead Highway

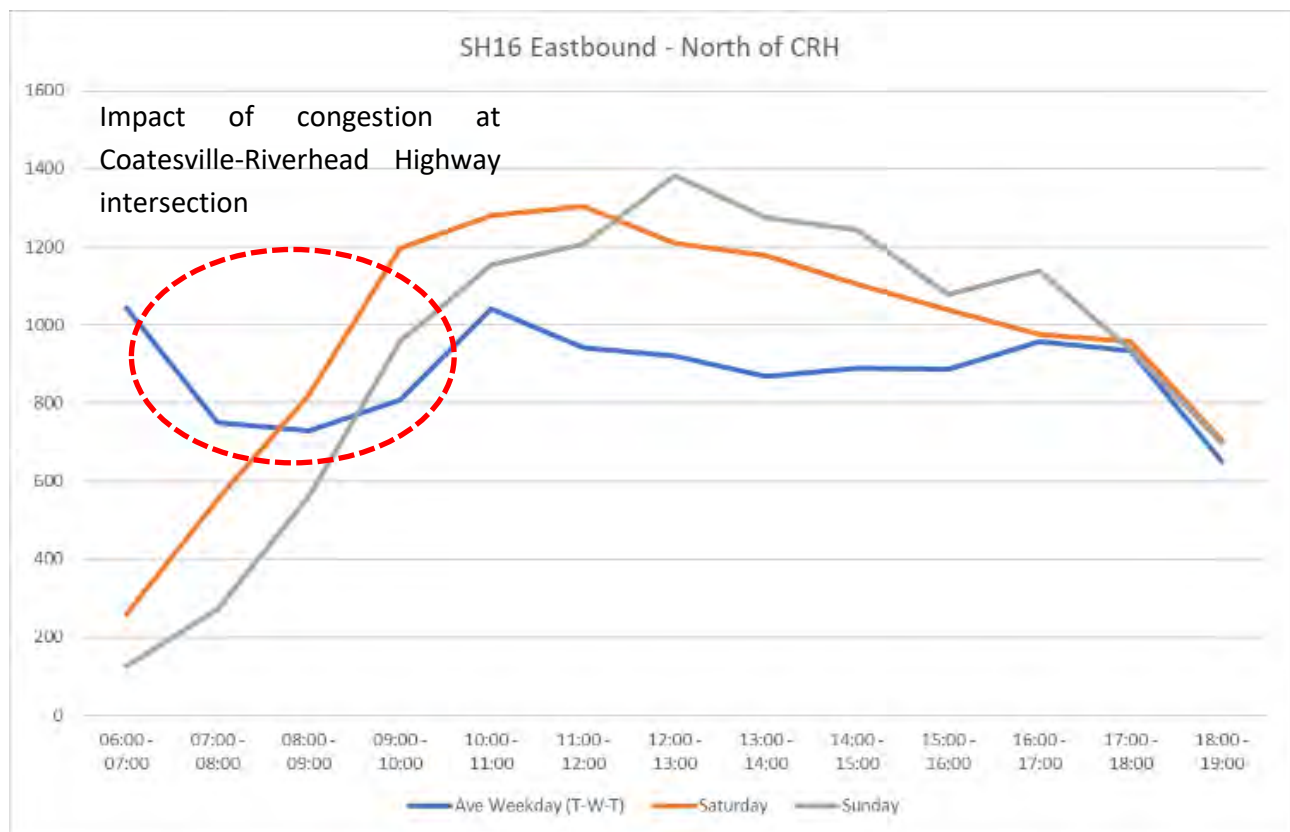
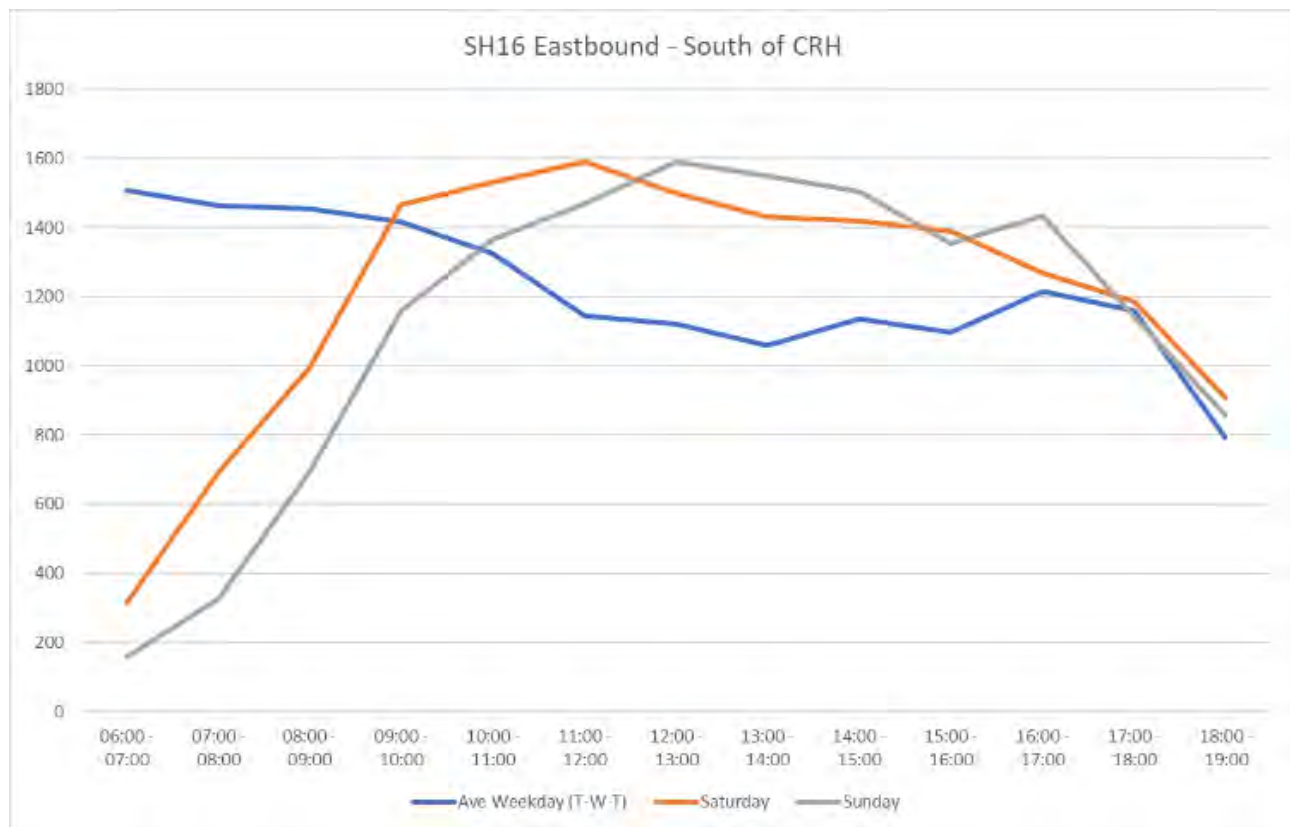
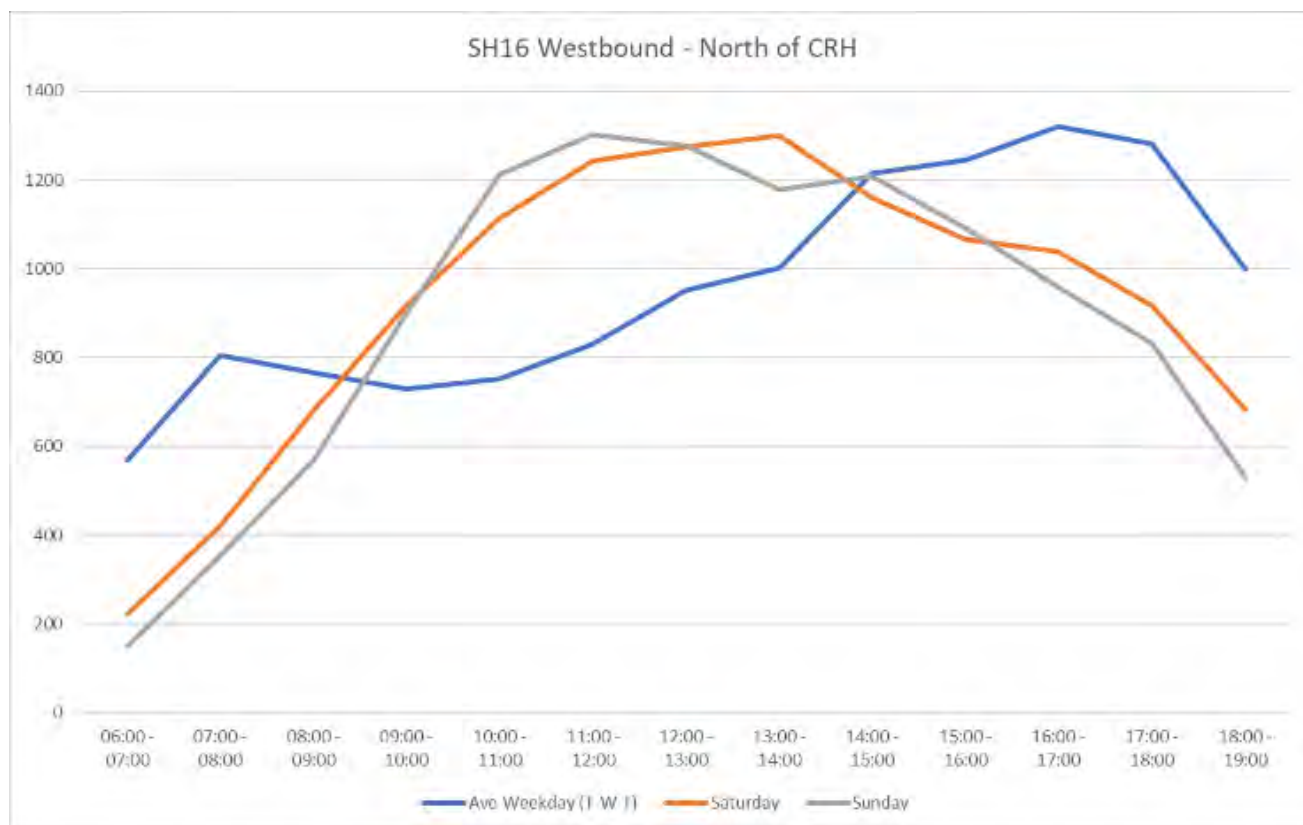


Figure 11: SH16 Eastbound traffic flow profile, east of Coatesville-Riverhead Highway

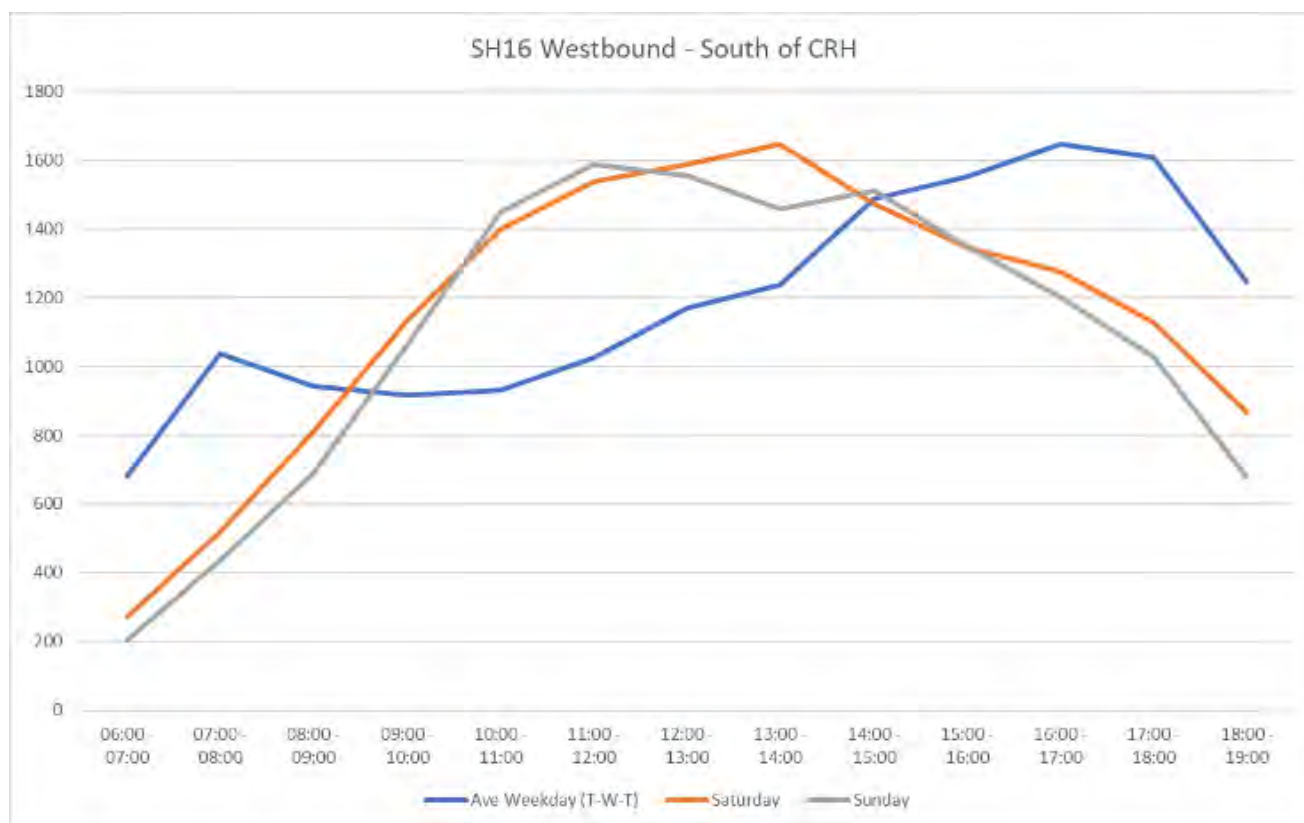


For the westbound direction, traffic profiles recorded to the west and east of Coatesville-Riverhead Highway are consistent, with the traffic volumes reducing by some 200 vehicles per hour, being the reduction in traffic turning right into Coatesville-Riverhead Highway. Westbound traffic profiles are summarised in Figure 12 (west) and Figure 13 (east), with the westbound traffic demand being 1,600 vehicles per hour.

**Figure 12: SH16 Westbound traffic flow profile, west of Coatesville-Riverhead Highway**



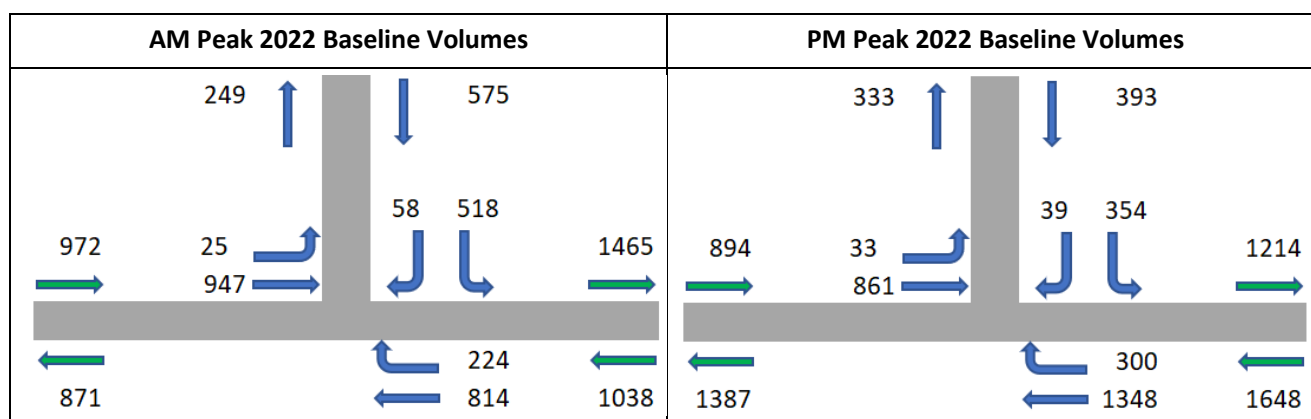
**Figure 13: SH16 Westbound traffic flow profile, east of Coatesville-Riverhead Highway**



#### 4.4 SH16 / Coatesville-Riverhead Highway intersection

The baseline traffic volumes for the SH16/Coatesville-Riverhead Highway intersection have been based on the above information. While the right turn from Coatesville-Riverhead Highway is currently banned, we have assumed the right turn movement remains open in our analysis, as the upgrade to a roundabout will reintroduce the right turn movement. The 2022 baseline volumes are shown in Figure 14.

**Figure 14: 2022 Baseline Traffic Volumes – SH16/Coatesville-Riverhead Highway intersection**





## 4.5 The existing road safety record

### 4.5.1 Immediate transport network

We have assessed the crash records from 2016 to 2020 (plus all available crashes up to mid/late 2021) for the surrounding roads obtained from the NZTA Crash Analysis System. With Covid restrictions impacting the 5 year sample data, earlier data has been used in this assessment. The search area is shown in Figure 15 and generally includes all the areas within the plan change that could have direct access to the road network.

Figure 15: Crash search history of Riverhead Plan Change Area, 2016 – 2021



A total of 19 crashes were reported, summarised as follows

- ◆ There was 1 fatal injury crash, 2 serious injury crashes, 6 minor injury crashes, and 10 non-injury crashes

- ♦ The fatal injury crash occurred on Riverhead Road near Deacon Road, where the driver of a car lost control as they travelled around the bend. The car flipped over as it went over a ditch, and collided with a concrete power pole
- ♦ 1 of the serious injury crashes occurred when a motorcyclist was travelling on Coatesville-Riverhead Highway and lost control as they drove up onto the grass berm. The driver hit a street pole, and was not wearing a helmet
- ♦ The other serious injury crash occurred when a vehicle turning left from Coatesville-Riverhead Highway into Riverhead Point Drive collided with a southbound cyclist
- ♦ 2 of the serious injury crashes involved cyclists
- ♦ No crashes involved pedestrians
- ♦ The most common crash type was loss of control around a bend, which consisted of 7 (37%) of the total 19 crashes
- ♦ The next most common crash types were loss of control on a straight section of road and rear-end / obstruction with 4 crashes (21%) each.

The crash history indicates that there are some existing road safety issues within the study area. The rural nature of the roads mean that they have higher vehicle speeds, and below standard facilities for active modes.

The Plan Change provides the opportunity to improve road safety by upgrading these facilities, as Riverhead further urbanises. This can be achieved by intersection and corridor upgrades, and speed limit reductions as are proposed for this Plan Change.

#### 4.5.2 Wider transport network

We have also assessed the crash records from 2016 to 2021 for the wider transport network around Riverhead. The search area is shown in Figure 16, and includes areas to the south of the Plan Change site. This includes Coatesville-Riverhead Highway, Old North Road and Old Railway Road.



**Figure 16: Crash search history of wider transport network, 2016 – 2021**



A total of 77 crashes were reported, summarised as follows

- ◆ There were 0 fatal injury crashes, 12 serious injury crashes, 26 minor injury crashes, and 39 non-injury crashes
- ◆ On Old North Road, 4 serious injury crashes were reported. There are also two clusters of crashes on Old North Road at the Old Railway Road intersection and at the horizontal bend 290 m south of this intersection. We note that speed cameras have now been installed on Old North Road, which will bring vehicle speeds down, and therefore reduce crash likelihood and severity
- ◆ On Coatesville-Riverhead Highway, 24 crashes were reported. 3 of these crashes were serious injury crashes, although we note that 1 of these is included in the immediate Plan Change area. We assess the intersections along Coatesville-Riverhead Highway and the requirement for right turn bay treatments further below
- ◆ 1 of the serious injury crashes involved a cyclist

- ◆ No crashes involved pedestrians
- ◆ The most common crash type was loss of control around a bend, which consisted of 30 (39%) of the total 19 crashes
- ◆ The next most common crash type was crossing / turning crashes, consisting of 28 (37%) of the total 77 crashes.

Like the crash history for the local Riverhead area, the crash history indicates that there are some existing road safety issues within the wider Riverhead network. The rural nature of the roads mean that they have higher vehicle speeds. We have considered these intersections and corridors further in our assessment.

#### 4.5.3 SH16/Coatesville Riverhead Highway Intersection

A key access point to the wider transport network for Riverhead is the SH16/Coatesville Riverhead Highway intersection. This intersection has a poor safety record and presents operational concerns throughout the day. The proposed upgrade to SH16 is discussed further at Section 5.1, with this section summarising the crash history for this site.

While the crash history has been assessed for 2016-2020 (inclusive), we note that there has been a recent change to the intersection layout which includes banning the right turn movement out of Coatesville-Riverhead Highway.

The search area is shown in Figure 17 and extends around 50 m from the approach lanes including the west approach slip lane.

**Figure 17: Crash search history of the SH16/Coatesville Riverhead Highway intersection, 2016 – 2020**





A total of 17 crashes were reported, summarised as follows

- ♦ There was 1 serious injury crash, 5 minor injury crashes, and 11 non-injury crashes
- ♦ The serious injury crash occurred in 2016 when a vehicle right turning out of Coatesville-Riverhead Highway collided with a southbound vehicle, 2 non-injury crashes occurred with the same movement
- ♦ 1 minor injury crash involved a motorcyclist losing control turning left from Coatesville-Riverhead Highway colliding with a vehicle intending on turning right into Coatesville-Riverhead Highway
- ♦ 3 minor injury crashes involved rear end incidents in the lefthand slip lane on Coatesville-Riverhead Highway
- ♦ The other minor injury crash involved a driver turning right into Coatesville-Riverhead Highway failing to give way to a motorcyclist although weather conditions were noted as heavy rain
- ♦ No crashes involved pedestrians or cyclists
- ♦ The most common crash type was rear end crashes, which consisted of 6 (35%) of the total 17 crashes. 1 occurred on SH16 while the other 5 occurred on Coatesville-Riverhead Highway
- ♦ The next most common crash types were right turning movements with 3 (18%) crashes.

The improvements being implemented by Waka Kotahi, which is outlined in Section 5.1 will assist in addressing the issues currently experienced at the intersection.

The Precinct Provisions recognise the existing safety issues, with a standard being included that requires the intersection upgrade to be completed prior to development within the Plan Change being occupied. This is to ensure occupied development traffic does not add to an existing problem and that a safe intersection is in place prior to increasing the population of the Riverhead area.

## 4.6 The Site's transport accessibility

### 4.6.1 Public transport accessibility

A map of the public transport network about the wider area is shown in Figure 18.

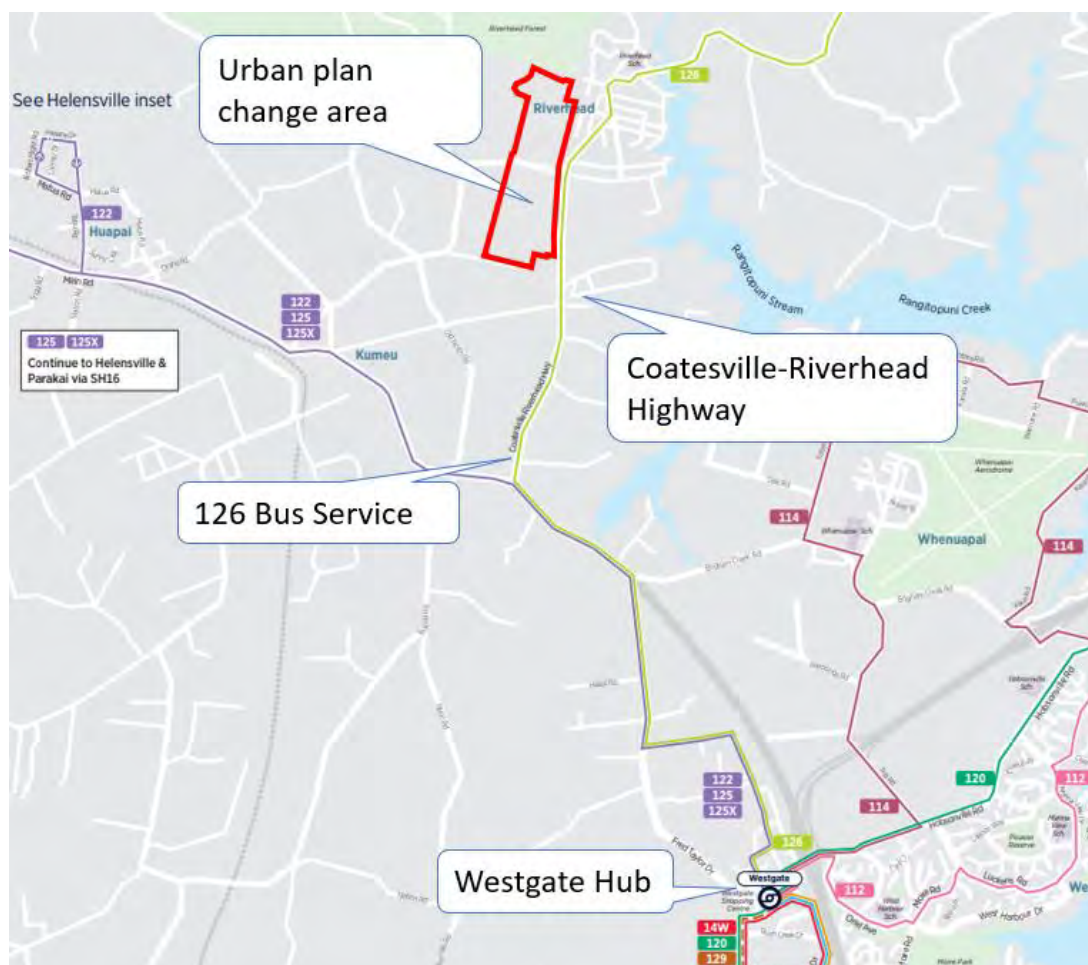
The Site is currently served by the 126 bus service, which connects Albany to Westgate via Riverhead. It typically operates at a frequency of one bus per hour per direction. We understand that Auckland Transport are looking to increase the frequency of this bus service in the future, with the increase in frequency subject to funding.

Based on the timetables, the service typically takes 15 – 20 minutes to travel between Riverhead and Westgate, and 20 – 25 minutes to travel between Riverhead and Albany Station.

This service connects to Westgate, which is a key connection point in the West Auckland public transport network. A number of bus services connect to Westgate, where a person using the 126 service can connect to, providing public transport access to the wider area.



Figure 18: Public transport network in the wider area near the Site



Overall, we consider that the Site will have adequate accessibility to the existing public transport network.

The Plan Change also provides the opportunity to improve public transport facilities, such as bus shelters, near the Site. The Plan Change provides connectivity between the site and Coatesville-Riverhead Highway, ensuring connectivity with existing bus facilities, with the upgrades both internal and external to the Precinct requiring the provision of bus infrastructure.

#### 4.6.2 Walking and cycling accessibility

Given the mostly rural nature of the site, there are currently limited active mode facilities available. We note that

- ◆ Within the existing Riverhead village, there are typically footpaths on both sides of the road
- ◆ Riverhead Road has no footpaths on either side of the road
- ◆ On Coatesville-Riverhead Highway, there is a footpath on the eastern side between Riverhead Road and Short Road
- ◆ There are no footpaths about the local road network northeast of the Plan Change area, namely those of Cambridge Road and Queen Street
- ◆ There are no dedicated cycling facilities in the local area.

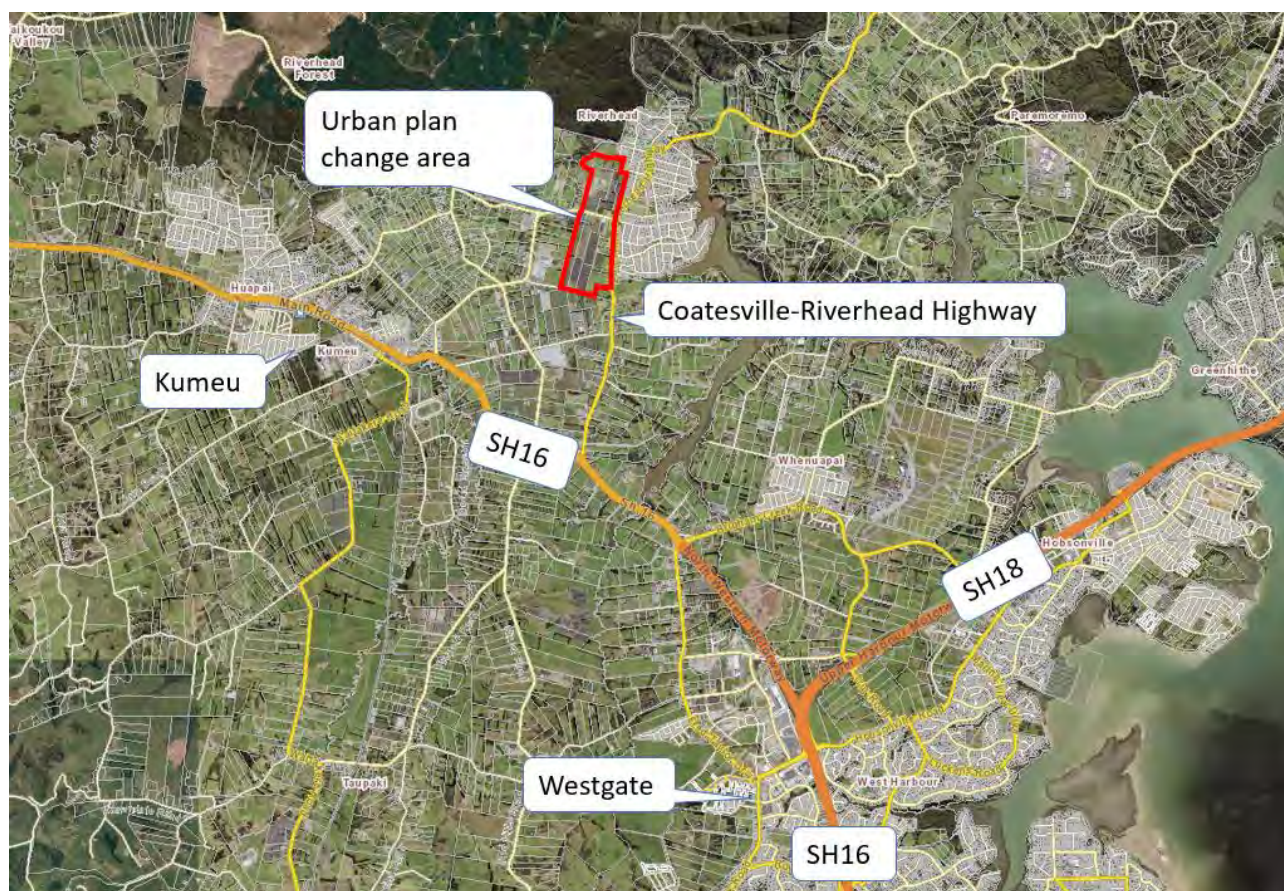
We understand that the Local Board is looking to address the ‘gaps’ in footpath provision about the surrounding road network to the plan change, with conceptual plans produced. The roads include Cambridge Road, George Street, Duke Street, Princes Street, York Terrace, Alice Street, Queen Street, and King Street. We are unsure as to the timing of these upgrades. Importantly however, the Local Board acknowledges the gaps in the existing footpath network which need to be addressed.

#### 4.6.3 Private vehicle accessibility

As shown in Figure 19, the Site is well-located with respect to providing vehicle accessibility to the State Highway network.

- ◆ SH16 is located approximately 2 km south of the Site, which can be accessed from the Site via Coatesville-Riverhead Highway, Old North Road or Riverhead Road
- ◆ SH16 provides connections to Kumeu to the west, and Westgate to the south
- ◆ SH16 connects to SH18 (via Brigham Creek Road or Trig Road) which provides a connection to Albany and the North Shore
- ◆ Coatesville-Riverhead Highway and Riverhead Road are arterial roads which provide connections about the local area. Coatesville-Riverhead Highway provides an alternative route to Albany.

Figure 19: Site location in the strategic transport network

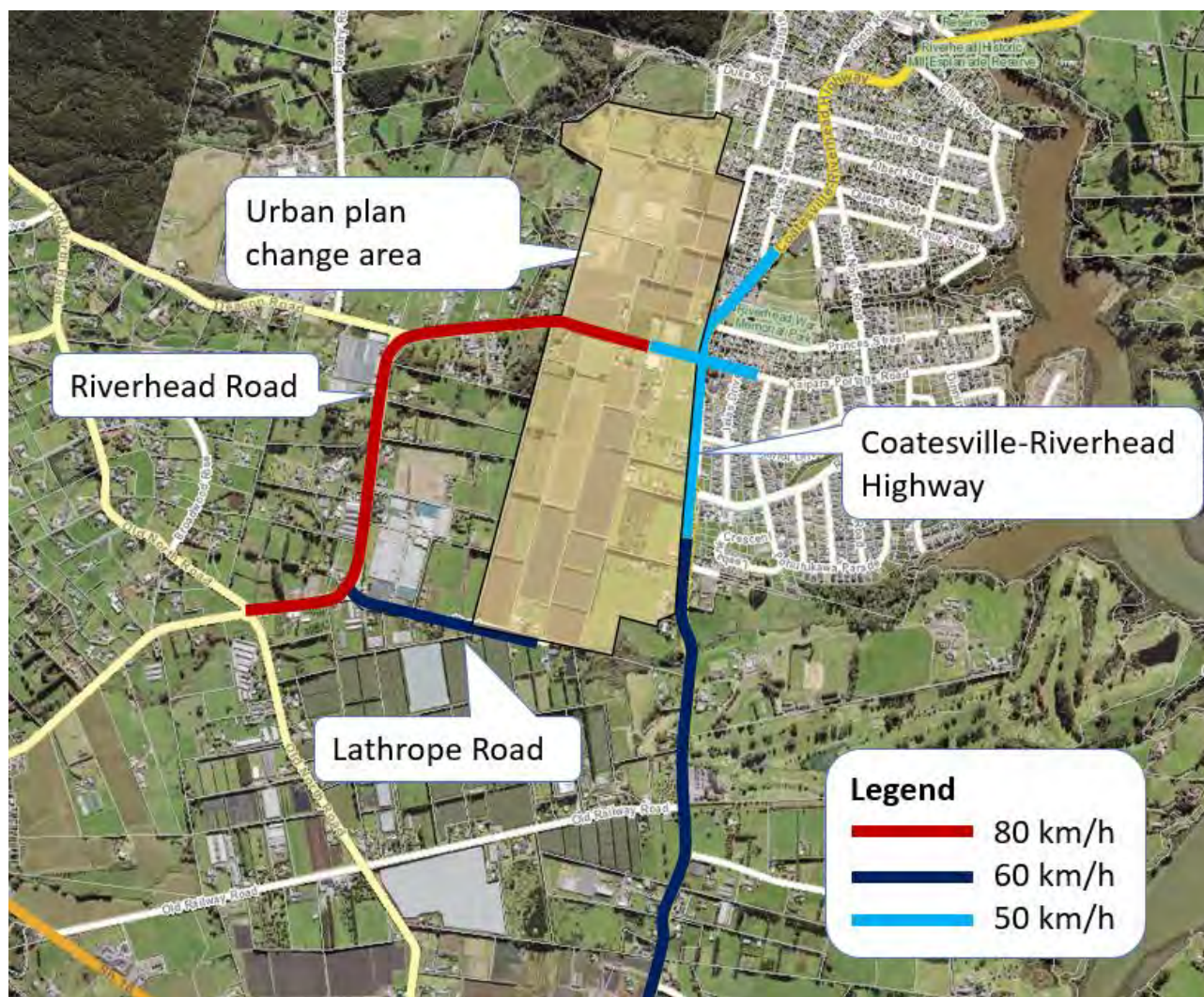




## 4.7 Existing speed limits

A diagram of the existing speed limits on Riverhead Road, Coatesville-Riverhead Highway and Lathrope Road is shown in Figure 20.

Figure 20: Existing speed limits near the Site



Riverhead Road currently has a posted speed limit of 80 km/h, which reduces to 50 km/h approximately 200 m east of Coatesville-Riverhead Highway. An 80 km/h speed limit requires a design speed environment of 90 km/h.

Coatesville-Riverhead Highway currently has a speed limit of 60 km/h, which reduces to 50 km/h approximately 90 m north of Short Road. This results in a speed environment of approximately 70 km/h and 60 km/h for these two sections respectively.

Lathrope Road has a posted speed limit of 60 km/h. It is an unsealed rural road which provides access to properties. The only connection point to the road network is at Riverhead Road at its west end.

Other roads within the Riverhead village and those that site to the northeast of the Plan Change Site generally have a speed limit of 50 km/h.

## 5 FUTURE ROAD NETWORK

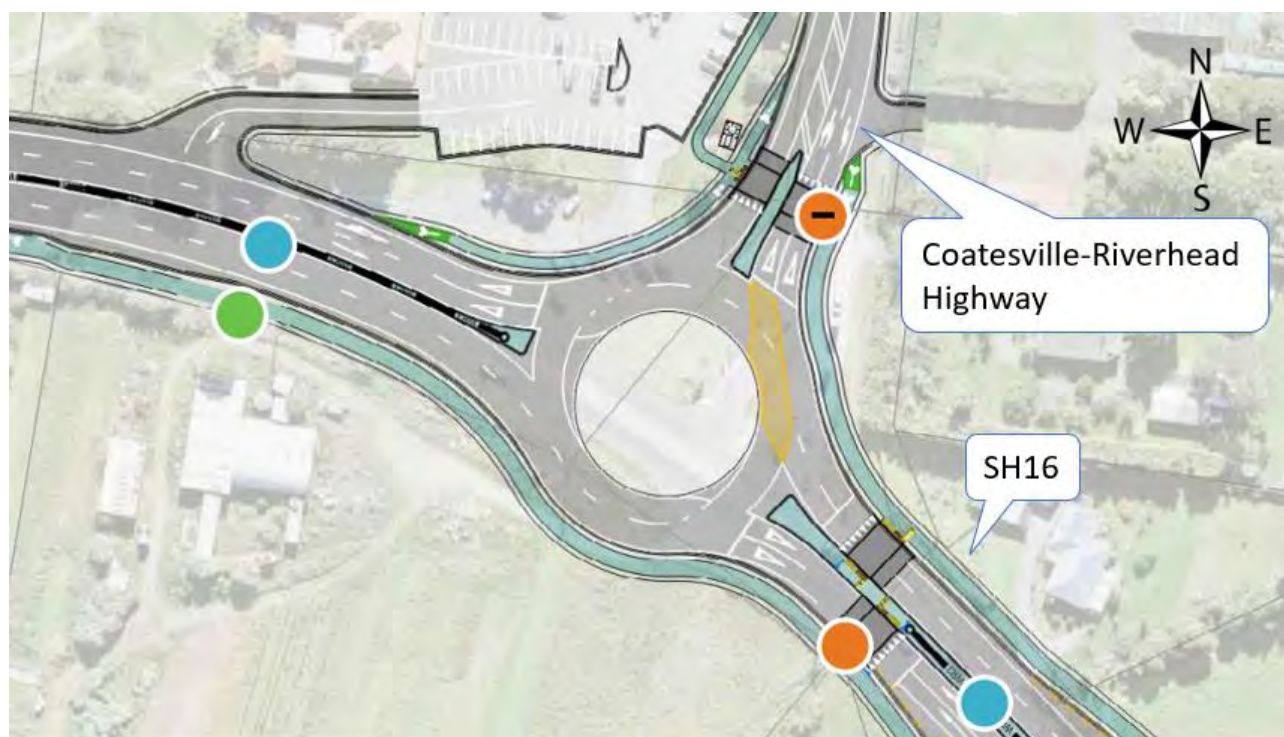
### 5.1 SH16 Brigham Creek to Waimauku Upgrade

This project, proposed under the Regional Land Transport Plan 2021-2031 (RLTP), will deliver safety and capacity improvements between Waimauku and the end of the North Western Motorway (SH16) at Brigham Creek Road.

The relevant components to the Plan Change include

- ◆ Safety improvements, with a new roundabout being located at the Coatesville-Riverhead Highway / SH16 intersection, as shown in Figure 21
- ◆ Upgrading the SH16 corridor to four traffic lanes between Brigham Creek Road to the Taupaki Roundabout, therefore removing the bottleneck experienced at the Coatesville-Riverhead Highway intersection citybound during the morning peak, and removing the two to one lane merge west of the SH16 / Brigham Creek Road / Fred Taylor Drive roundabout westbound, which causes congestion during the evening peak
- ◆ A shared path from Brigham Creek Road to Kumeu.

**Figure 21: SH16/Coatesville-Riverhead Highway Upgrade**



These upgrades will improve safety, increase capacity of the road network and alleviate congestion at the SH16/Coatesville-Riverhead Highway intersection, which is the main intersection used to access the state highway network from Riverhead. The planned upgrades along SH16 results in several consecutive roundabouts, being located at the Riverhead Road intersection, Old North Road intersection (existing), Coatesville-Riverhead Highway intersection and the SH16/Brigham Creek Road/Fred Taylor Drive intersection. As per the Waka Kotahi website, the upgrade provides a consistent intersection design,



provides priority to the right and is influenced by incoming traffic, but can also be signalised to adjust priority during peak traffic flows<sup>8</sup>.

As shown in the intersection layout in Figure 21, the design of the Coatesville-Riverhead Highway approach contains two southbound lanes on the approach to SH16. This consists of a dedicated left turning lane and a shared left/right turning lane from Coatesville-Riverhead Highway onto SH16, which will increase vehicle capacity from Riverhead.

The 2021 RLTP has this project having 'Priority 1 – Committed and Essential Funding' set out for 2021 to 2025 financial years. The RLTP includes some \$137.4 Million for this Waka Kotahi project.

As of late 2022, the detailed design has been completed and the resource consent has been lodged. The Notice of Requirement for Stage Two (Brigham Creek to Kumeu) has now been lodged with Auckland Council.

As this project provides critical safety and capacity upgrades to the external transport network, this upgrade is included within the proposed Precinct Provision as part of the Plan Change. As outlined in Section 8, any development within the Plan Change area undertaken prior to this upgrade would be a Restricted Discretionary Activity. This would ensure effects of any occupied development are appropriately assessed. This recognises the importance of ensuring a safe transport network exists prior to significantly increasing traffic demand about the Riverhead area. We also note that Waka Kotahi has recently implemented a right turn ban at the SH16/Coatesville-Riverhead Highway intersection which again improves safety at the intersection until such time as the roundabout is constructed.

## 5.2 SH16 Northwest Bus Improvements

This project, also proposed under the RLTP, will deliver infrastructure to allow a new Northwest Express bus service to operate along SH16, connecting Northwest Auckland with the central city. This project has also been classed as Priority 1 – Committed and Essential under the RLTP.

Interim bus interchange facilities are being delivered at Westgate, Lincoln Road and Te Atatu, with improved bus shoulder lanes along the North Western Motorway. A long-term rapid transit solution for the Northwest corridor is expected to follow in the future.

This facility will offer benefits for Riverhead in terms of transport choice and alleviated congestion citybound.

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<sup>8</sup> <https://www.nzta.govt.nz/assets/projects/sh16-brigham-creek-and-waimauku/SH16-Brigham-Creek-to-Waimauku-Coatesville-1-web.pdf>

<https://www.nzta.govt.nz/assets/projects/sh16-brigham-creek-and-waimauku/SH16-BC2W-walking-and-biking.pdf>

### 5.3 Te Tupu Ngātahi Supporting Growth Programme

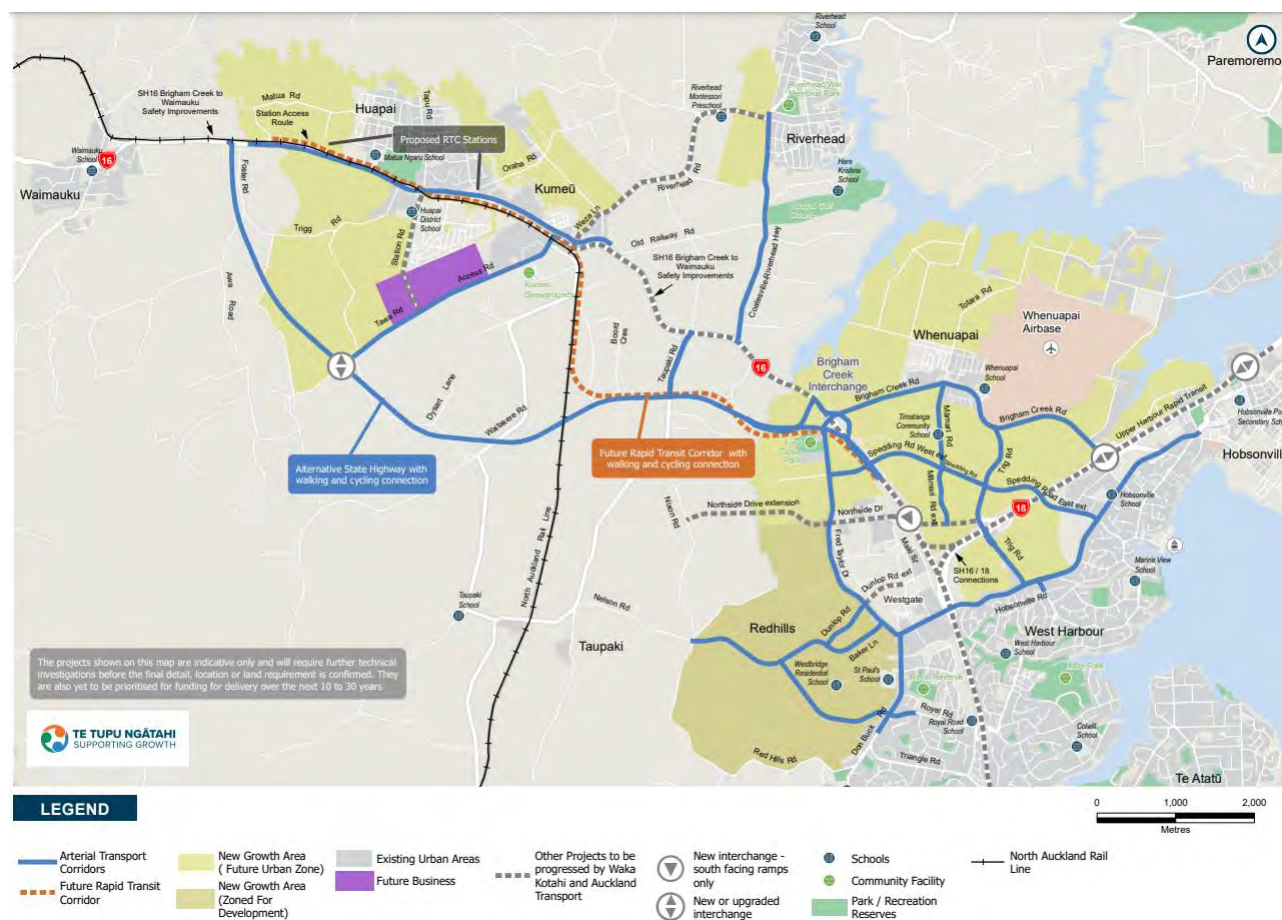
Road improvements as part of the Te Tupu Ngātahi Supporting Growth Programme are identified for Coatesville-Riverhead Highway (between SH16 and Riverhead Road). Safety improvements are also included on Coatesville-Riverhead Highway north of the Riverhead township.

The current designation process (with the designation lodged, notified and hearings underway in September/October 2023) focusses on Coatesville-Riverhead Highway, which includes the frontage of the Site. There are no dates as to when the Coatesville-Riverhead Highway upgrade will occur or what detailed design of the upgrade will consist of, with the current focus being to secure route protection by designation. The designation being sought for Coatesville-Riverhead Highway includes a 20 year lapse period. There is no funding currently allocated for construction.

As noted above, the role of Te Tupu Ngātahi Supporting Growth Programme is to secure the designations that enable the anticipated upgrades (from rural to urban) to occur at a future date. The role is not to construct the upgrades, with this being subject to future processes including funding availability. This Plan Change however presents an opportunity for key components to be delivered by developers, as a means of mitigating effects and ensuring a safe and efficient transport network exists when development comes online. As set out in the Implementation Plan, the developers propose to construct the roading upgrades fronting the Plan Change Site, transitioning the rural environment to urban and providing the infrastructure for future upgrades anticipated along Coatesville-Riverhead Highway to tie into.

A map of the indicative strategic transport network for Northwest Auckland identified by Te Tupu Ngātahi Supporting Growth Programme to support growth in this area is shown in Figure 22.

Figure 22: Supporting Growth Indicative Strategic Transport Network for Northwest Auckland<sup>10</sup>



## 6 PROPOSED ROAD NETWORK

### 6.1 Design philosophy

To assist with the design and development of the Plan Change, we have used several guiding documents and guidelines to form the overall design philosophy of the road network. This includes Auckland Transport's Roads and Streets Framework (RSF) and Transport Design Manual (TDM), and the Vision Zero principles.

#### 6.1.1 Vision Zero

Vision Zero is an ethics-based transport safety approach. Developed by Sweden in the late 1990s, responsibility for safety is placed on people who design and operate the transport system. The goal is to provide a safe system which accommodates human beings. It acknowledges that people in the transport system make mistakes, and people are vulnerable to high-impact forces in a crash. The Vision Zero system looks at the whole system to ensure everything works together to protect road users from forces that can cause traumatic injury.

<sup>10</sup><http://www.supportinggrowth.govt.nz/assets/supporting-growth/docs/Northwest-Auckland/North-West-Auckland-Strategic-Connections-Map.pdf>

Vision Zero for Tāmaki-Makaurau Auckland is a transport safety vision that states that there will be no deaths or serious injuries on our transport system by 2050<sup>11</sup>.

As transport system designers and operators, reducing the likelihood and severity of serious injury crashes from occurring aligns with the goals of Vision Zero. Measures to align with Vision Zero include speed limit reductions, as road users are much less likely to sustain serious injuries at lower speeds. It also encourages designs and intersections which minimise crash likelihood and severity, such as using roundabouts at intersections which reduce the likelihood of head-on crashes.

The proposed Plan Change provides the opportunity to make Riverhead a safer place for all road users by adopting Vision Zero principles. The roading and intersection upgrades proposed achieve this outcome external to the development, with the layout and functions of roads internal to the development presenting safe outcomes for all road users.

### 6.1.2 Roads and Streets Framework

The RASF is an Auckland Transport strategic planning tool used to guide the future planning and development of Auckland's roads, streets and places. It is used to inform any development design of a road or street and reflects the needs and catchment of the adjoining land use as well as the movement of people, goods and services<sup>12</sup>.

The RASF provides an approach for thinking about the movement and place functions of a road and identifies their level of significance in the context of the whole Auckland region. It is used as the first step in a process to identify the issues that must be addressed by a project.

As the Plan Change will provide a new internal road network and upgrade existing road corridors, the RASF is a useful tool to inform the requirements and typology for each road.

We note that the traffic on the internal local roads is expected to be very low, with those living and working in the area predominantly being the only people using the roads. That is, there would be a very low throughput of external traffic. As such, designing for low speed environments, with a focus on place, movement by active modes and safety is a key outcome achieved through the proposed planning provisions.

### 6.1.3 Transport Design Manual

Auckland Transport's Transport Design Manual (TDM) is a set of guides, codes and specifications that are specifically created for the Auckland region based on international best practice and robust common engineering theory<sup>13</sup>.

The TDM has three sections, design principles, engineering standards and specifications. Together, these sections allow end user outcomes, engineering design and construction requirements to be clearly identified and designed.

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<sup>11</sup> <https://at.govt.nz/projects-roadworks/vision-zero-for-the-greater-good/>

<sup>12</sup> <https://at.govt.nz/about-us/transport-plans-strategies/roads-and-streets-framework/>

<sup>13</sup> <https://at.govt.nz/about-us/manuals-guidelines/transport-design-manual/>



For the Riverhead Plan Change, the TDM can be used alongside the RASF to provide safe and appropriate transport infrastructure. We have designed our proposed upgrades for the Plan Change in accordance with the TDM, noting that future Resource Consents and Engineering Plan Approval applications will assess the TDM requirements in more detail.

## 6.2 Proposed speed limits

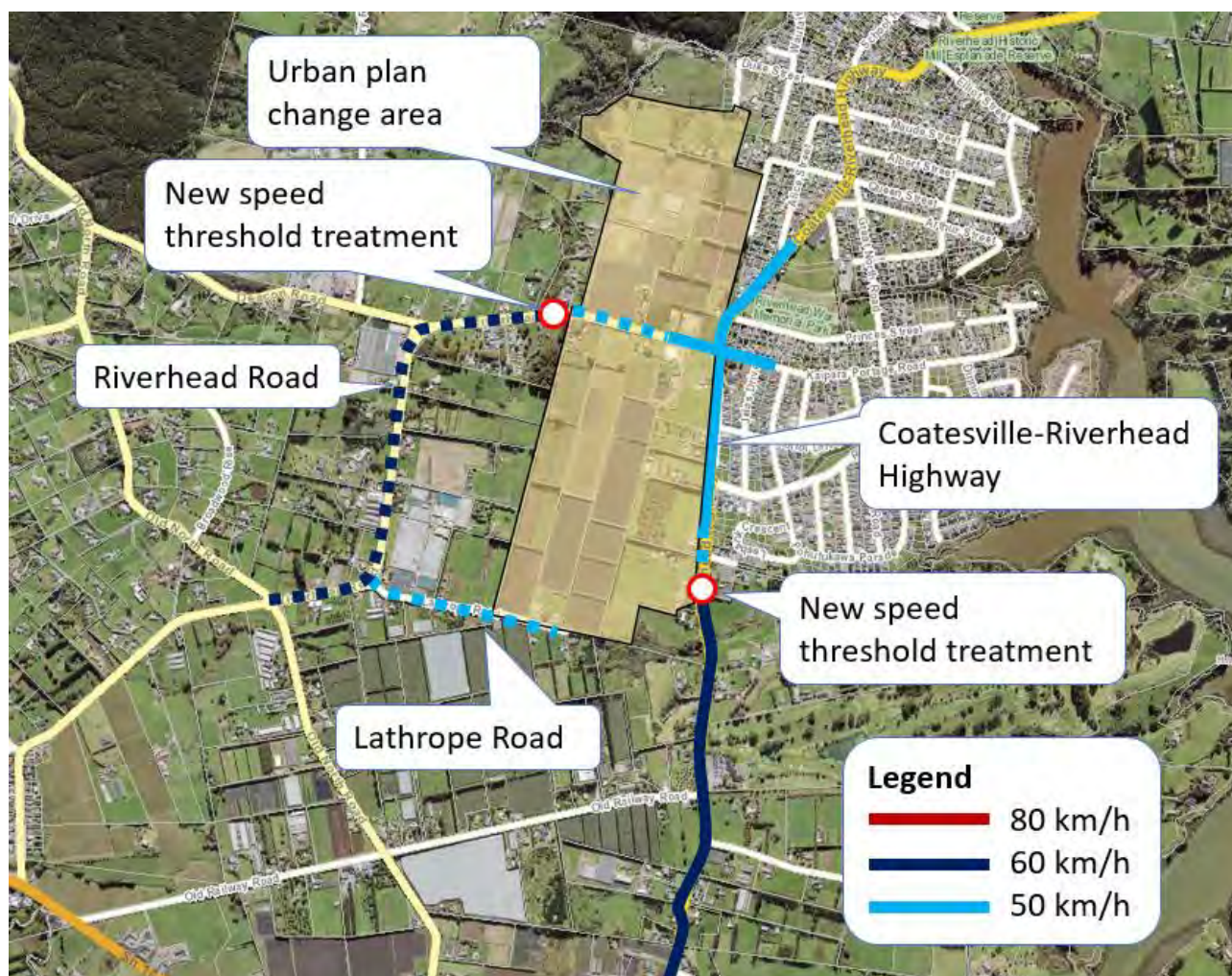
To support the Plan Change, we are proposing a series of speed limit reductions on sections of Riverhead Road, Coatesville-Riverhead Highway, and Lathrope Road. These changes will improve road safety for all users by reducing the likelihood and severity of crashes. They will also allow new intersections and private property access to be constructed in a safer manner.

A diagram of our proposed speed limits is shown in Figure 23. The existing speed limits are outlined in Section 4.7.

We note that each of the roads external to the Site play either an arterial function or a collector function. For the roads fronting the plan change area, while posted speed limits will be 50km/h, treatments will be used to slow vehicles and ensure a safe environment exists for all road users. Roads internal to the plan change area will have a focus on reducing speeds further, with treatments bringing speeds down to 30km/h, using measures consistent with the TDM. These measures will be addressed through future Engineering Plan Approval processes.

We also note that there is a formal bylaw process which Auckland Transport would need to undertake at the appropriate time to change existing external speed limits. This is a common exercise, with a number of speed change about the Region planned over the coming years. The change proposed in this assessment can be captured in future bylaws that align with the roading upgrades.

Figure 23: Proposed speed limits near the Site



The key changes are (shown in dashed lines above)

- ♦ Riverhead Road – moving the existing speed threshold treatment west by approximately 300 – 350 m, and reducing the posted speed limit fronting what will be an urban area to 50 km/h. The rural section west of this speed threshold treatment is proposed to be reduced from 80 km/h to 60 km/h.
- ♦ Coatesville-Riverhead Highway – moving the existing speed threshold treatment south by approximately 160 – 200 m and reducing the posted speed limit to 50 km/h
- ♦ Lathrope Road – lowering the speed limit from 60 km/h to 50 km/h.

These changes are intended to lower vehicle speeds when entering the expanded Riverhead urban area. This will provide safer vehicle speeds for all road users, including pedestrians and cyclists.

The speed limit changes will be accompanied by changes to the road reserve to ensure the road environment is safe and appropriate to the new speed limits.

Internal roads will be designed to a 30 km/h speed limit, which is in accordance with Vision Zero principles of creating survivable speeds for road users.

For Lathrope Road, the intent is to retain the current rural look and feel. While it will be sealed (as outlined later in Section 6.6), a possible outcome would be for the road to include edge beams, with swales and a footpath on the northern side. While taking this form, and based on its length, we consider that a 50 km/h speed is appropriate. This would provide a transition from Riverhead Road (which would be 60 km/h) and the local roads once turning into the Plan Change area, which will be designed to a 30 km/h speed limit.

The gateway treatments are intended to be physical measures. The design of the gateway treatments will take into consideration the transition from a rural to an urban road environment. The treatments will also consider the character of Riverhead as a smaller village with some rural characteristics. While we note that the design of the gateway treatments will be addressed at a subsequent detailed design stage, we anticipate they could include the following measures

- ◆ Kerb buildouts to narrow the carriageway width and lower vehicle speeds
- ◆ Trees or planting in the kerb buildouts to match Riverheads character
- ◆ A different coloured surface treatment of the carriageway, indicating that drivers should slow down
- ◆ Signage, displaying the speed limit and 'Riverhead' to ensure advance visibility to drivers.

In summary, the proposed speed limit reductions will improve safety for all existing and future road users in Riverhead. The reduction in speed will reduce the likelihood and severity of serious and fatal injury crashes, in accordance with Vision Zero.

### 6.3 Overview of the road network

A concept showing the proposed road network within the Site is included in Figure 24. We note

- ◆ The Site's proximity to Riverhead Road and Coatesville-Riverhead Highway as arterial roads
- ◆ New access points onto the arterial roads are limited through a few new collector roads, which will provide internal access to the wider Site.
- ◆ The intersections of the arterial roads and collector roads have been selected to ensure safe sight distances can be provided. The intersections will typically be roundabouts
- ◆ Walking and cycling facilities will be provided as part of the proposed road network.

The road network has been designed in accordance with the RASF by providing appropriate road typologies to accommodate their place and movement function within the future Riverhead road network

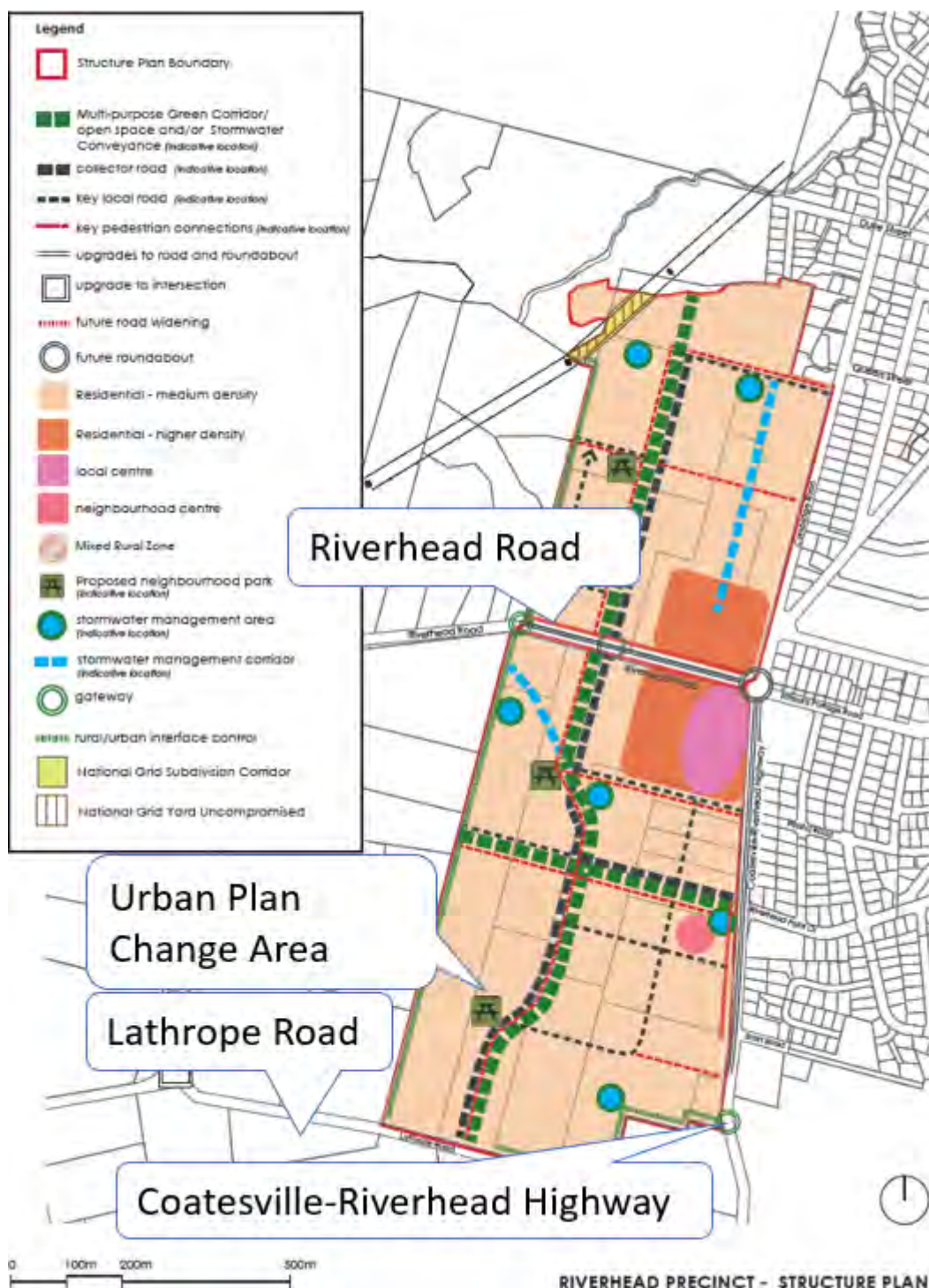
- ◆ Riverhead Road and Coatesville-Riverhead Highway provide higher movement functions, catering for public transport services and general traffic. They also provide the opportunity to provide new walking and cycling connections, as being investigated by Supporting Growth
- ◆ The new local and connector roads will generally facilitate trips within the Plan Change area and will have lower place and movement functions due to the smaller catchment of users. There will be some activities within the Site such as the potential school and local centre (containing a supermarket), which would result in a higher place function



- ♦ The internal road network has not been designed in detail at the Plan Change level, but the proposal aligns with the guidelines of the RASF and ensures both movement and place are accommodated in Riverhead.

We note that only key local roads are shown. Further local roads will be provided at subsequent detailed design stages, but we consider these are not necessary for the purposes of the Precinct Plan.

Figure 24: Site's proposed road network



## 6.4 Riverhead Road

The proposed cross-section for Riverhead Road is shown in Figure 25.

The road reserve will be widened from 20 m to 24 m to accommodate the following facilities

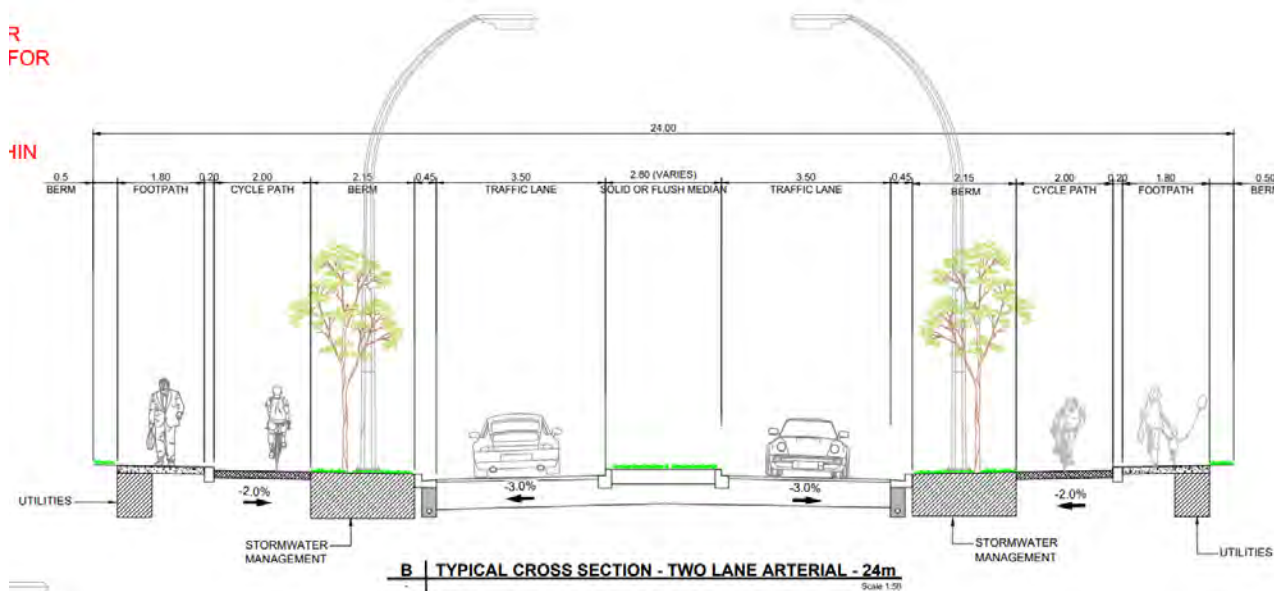
- ◆ One traffic lane in each direction, separated by a central median
- ◆ Front berms and back berms
- ◆ Dedicated 1.8 m footpaths and 2 m cycle paths, both separated from traffic lanes by the front berm.

These facilities will provide significant improvements for active mode accessibility. The upgrade will be applied from the Coatesville-Riverhead Highway roundabout, extending west to the new proposed roundabout on Riverhead Road. West of the new roundabout, the urban road upgrade will include a transition back to a rural environment through a new threshold treatment.

Riverhead Road provides for both local and regional movement as an arterial road. It needs to accommodate vehicle and freight movement, but also provides the opportunity to provide new and safe facilities for active modes. The proposed cross-section caters for these modes.

We understand that there is no expectation for buses to operate along Riverhead Road fronting the development site.

**Figure 25: Riverhead Road cross-section**



## 6.5 Coatesville-Riverhead Highway

The proposed upgrades on Coatesville-Riverhead Highway will generally be similar in principle to the upgrades described above for Riverhead Road. Both roads are arterial roads and need to cater for regional freight movements but also local walking and cycling trips in Riverhead. Coatesville-Riverhead Highway also needs to accommodate public transport movements.

Due to the existing layout of Coatesville-Riverhead Highway, a consistent cross-section along the corridor cannot be applied. This is largely due to Grove Way, which acts as a local frontage road to provide access to residential properties.

The layout for Coatesville-Riverhead Highway differs for the northern section (between Riverhead Road and Riverhead Point Drive) and the southern section (between Riverhead Point Drive and Small Road). Each section provides for active mode facilities according to that being investigated by Te Tupu Ngātahi Supporting Growth. We discuss each below.

#### **Northern section (between Riverhead Road and Riverhead Point Road)**

Our proposed layout for Coatesville-Riverhead Highway considers the existing layout of Grove Way. On the west side, separated pedestrian footpaths and cycle lanes can be provided, like on Riverhead Road. On the east side of Coatesville-Riverhead Highway, separated footpaths and cycle lanes can be provided through Grove Way. As Grove Way already contains a footpath, the existing grass berm would effectively be substituted with a cycle path.

Wider front berms (2.8m) on the west side can be provided due to the additional width that Grove Way allows. This provides the opportunity to plant more trees and landscaping along the corridor.

This section of Coatesville-Riverhead Highway may accommodate an access point into the local centre. This detail is not confirmed yet at the Plan Change stage and can be designed in the future to ensure that any access point is safe for all road users.

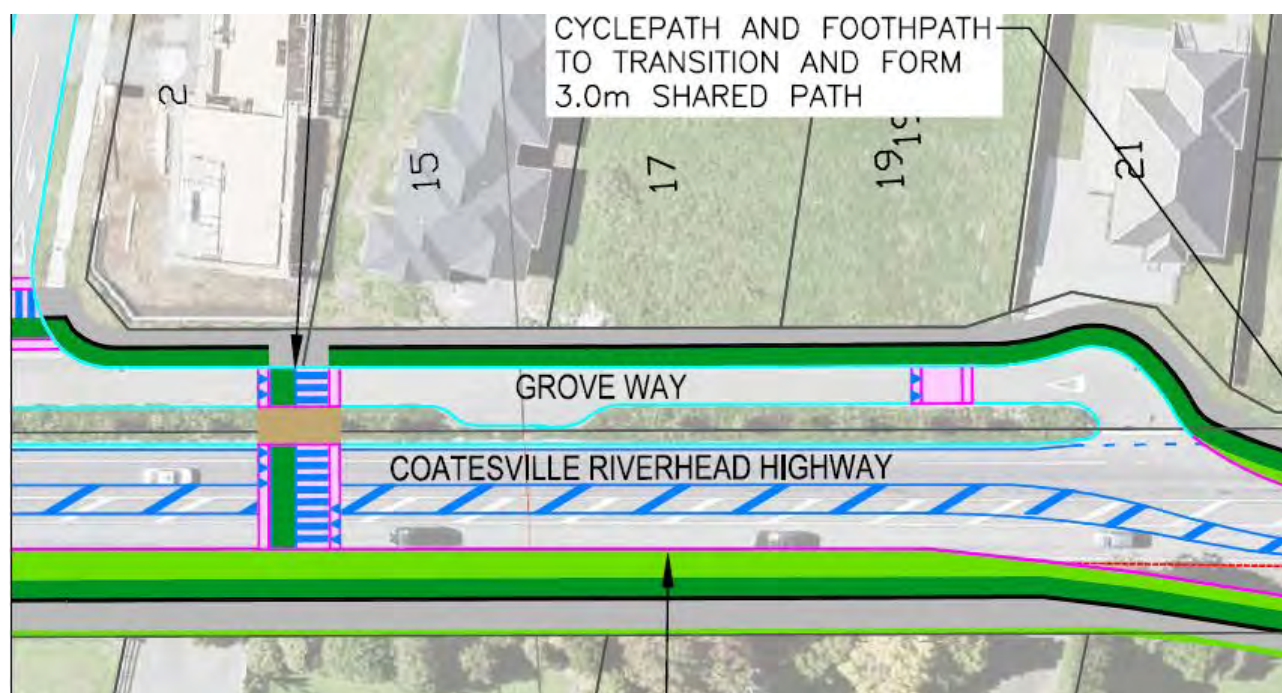
A raised table zebra crossing for pedestrians and cyclists will be provided south of Pitoitōi Drive. This will provide a new mid-block crossing point for active modes. This will improve accessibility in the area, as the current crossing points are located approximately 230 m north at Riverhead Road and 140 m south at Riverhead Point Drive. It will also provide a more direct connection for residents from Pitoitōi Road into the proposed local centre area. The crossing is located on a straight section of Coatesville-Riverhead Highway, which will allow safe sight distances to be provided for pedestrians.

Figure 26 shows a sample of the Coatesville-Riverhead Highway layout near Grove Way.

We consider that the upgrades will provide significant improvements for pedestrians and cyclists and make efficient use of the existing road corridor width. Providing separated facilities for active modes aligns with the goals of vision zero by isolating vulnerable road users from vehicle movements. As highlighted in the sample upgrade design, the upgrades can be accommodated within the existing road reserve, with localised widening required about key intersections only.



**Figure 26: Coatesville-Riverhead Highway proposed upgrade**



#### **Southern section (between Riverhead Point Road and Short Road)**

We understand that Te Tupu Ngātahi Supporting Growth propose a shared path along Coatesville-Riverhead Highway between SH16 (to the south) and Riverhead. We have therefore incorporated this element into the design, with the tie in point about Short Road. We note that Te Tupu Ngātahi Supporting Growth is classifying this as a shared path as a placeholder to protect land for the facilities via designation. The 4.0 m width allows for separated facilities to be provided in the future (1.8 m footpath + 2.0 m cycle lane + 0.2 m kerb) which would be addressed through detailed design. The width provides flexibility to provide these facilities in the future.

Separated pedestrian and cycle facilities on both sides will be provided up to Short Road. A raised zebra crossing for active modes will be provided north of Short Road to allow pedestrians and cyclists to cross safely. As shown in Appendix C, Crossing Sight Distance can be provided for pedestrians. Due to the vertical geometry on Coatesville-Riverhead Highway, a speed environment of 30 km/h will need to be achieved for this crossing. This could be achieved through the design of the threshold treatment and by raising the zebra crossing. These features can be developed further in the detailed design stage,

Figure 27 and Figure 28 show samples of the Coatesville-Riverhead Highway, south of Riverhead Point Drive. Minor localised widening is required on the western boundary of Coatesville-Riverhead Highway about the new intersections and to tie into the shared path proposed by Te Tupu Ngātahi Supporting Growth.

We consider that the upgrades will provide significant improvements for pedestrians and cyclists and makes efficient use of the existing road corridor width.



Figure 27: Coatesville-Riverhead Highway - proposed upgrade south of Riverhead Point Road, 1 of 2

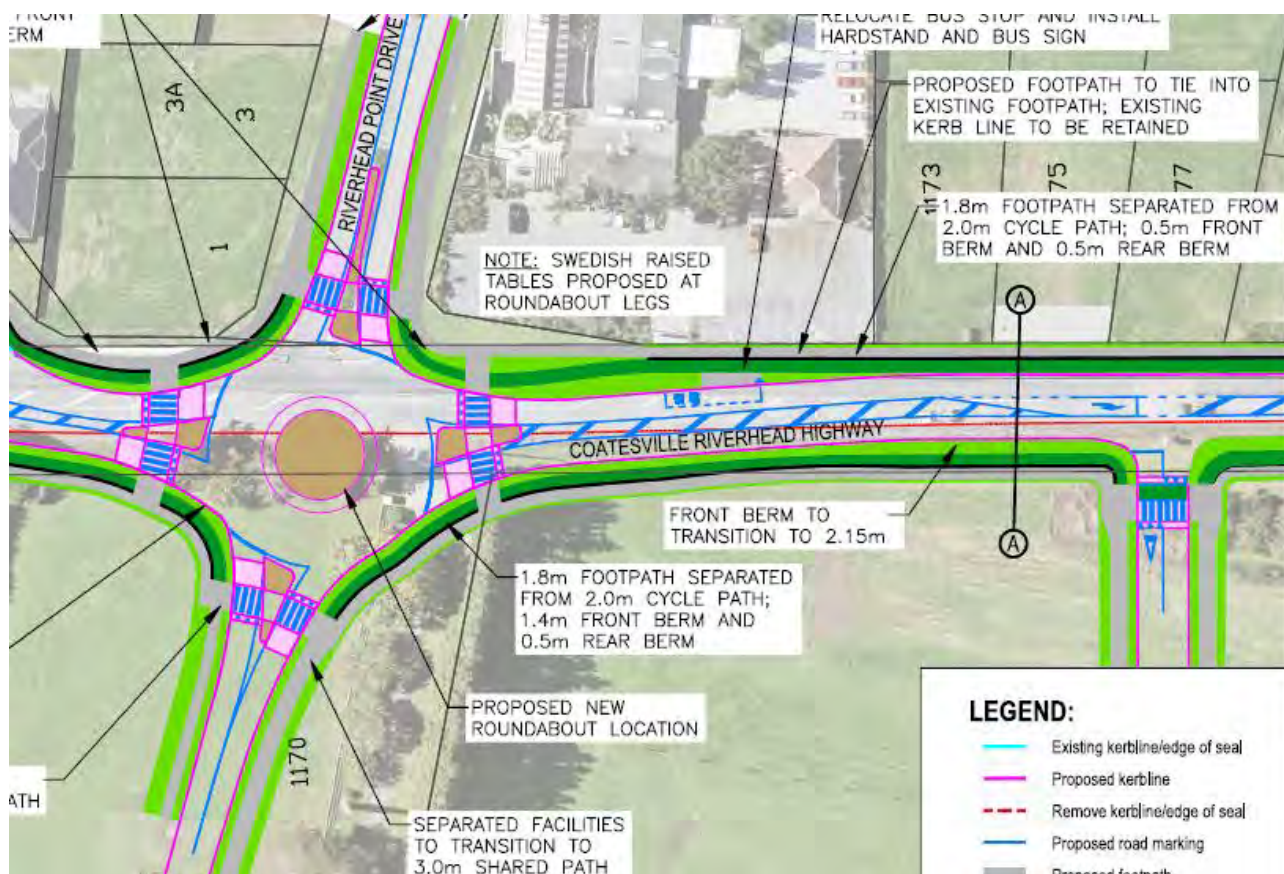
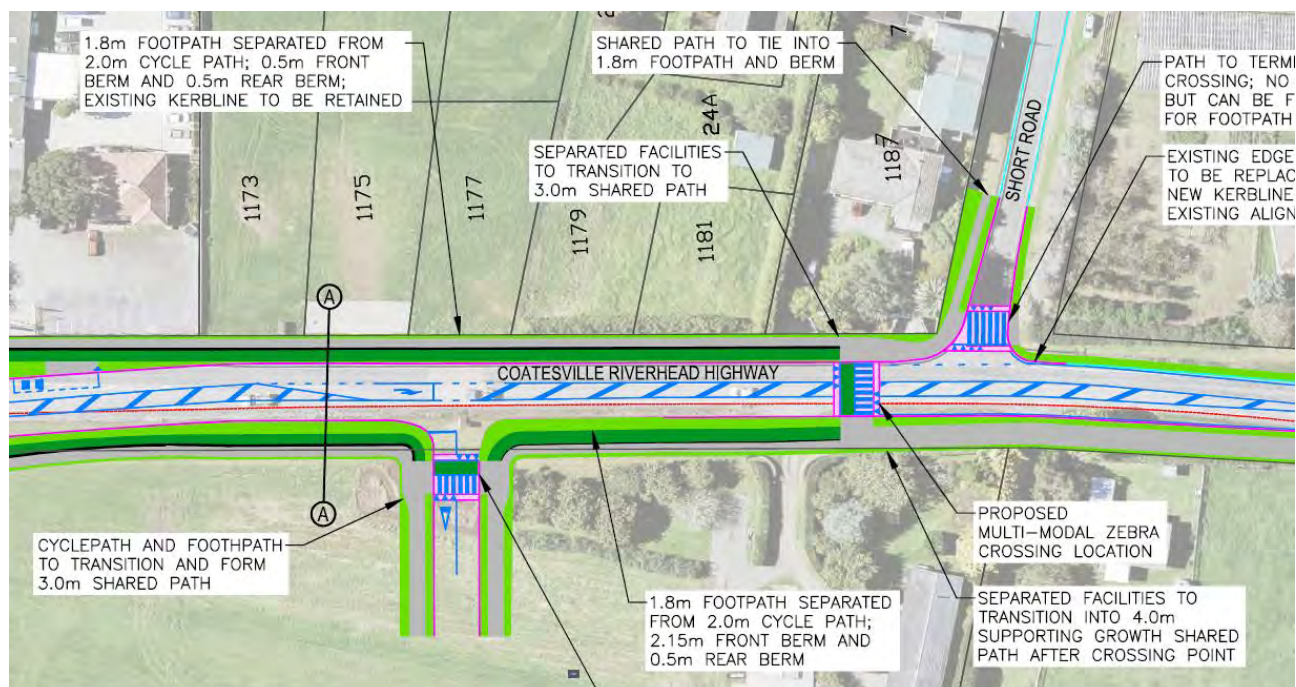


Figure 28: Coatesville-Riverhead Highway - proposed upgrade south of Riverhead Point Road, 2 of 2



Based on information from Auckland Transport, we understand that Coatesville-Riverhead Highway is planned to be an over-dimension route in the future. This can be addressed at the detailed design stage, when designing elements such as the roundabouts. We note that our vehicle tracking currently accommodates a 19.45 m semi-trailer truck.



With buses operating along Coatesville-Riverhead Highway, the existing bus stops will need to be retained or altered slightly to work in with the upgrade proposed. These details can be assessed at detailed design, with the Precinct Provisions highlighting the need to provide for bus infrastructure.

### North of Riverhead Road

Outside of the northern and southern sections, a new pedestrian crossing facility will be provided. As outlined in the Precinct Provisions, an additional crossing will be required between Edward Street and Princes Street. The exact location of the crossing will be confirmed at a later consenting stage.

## 6.6 Lathrope Road

Lathrope Road is an unsealed road. To support the Plan Change, we propose to upgrade Lathrope Road by providing a sealed carriageway, allowing one traffic lane in each direction. This will allow vehicles to use Lathrope Road as a viable access point to reach the wider road network.

There are currently no footpaths provided on Lathrope Road. We propose that the northern side of Lathrope Road will contain a footpath to provide some pedestrian facilities, noting that all of the adjacent properties on Lathrope Road are zoned rural, and there are no activities to connect to. The proposed footpath provides some future proofing of the road for new activities.

As outlined in Section 6.2, we propose that Lathrope Road will have a speed limit reduction from 60 km/h to 50 km/h. The intent is to retain the current rural look and feel. Lathrope Road will effectively provide a transition from Riverhead Road (which would be 60 km/h) and the local roads once turning into the Plan Change area (designed to a 30 km/h).

Auckland Transport have indicated Lathrope Road to be part of a future bus route. The Precinct Provisions acknowledge this and require bus provision to be considered during the design phase of the upgrade. This is specified in the road function and design elements table for external roads, included as Appendix 2 of the Precinct Provisions.

**Figure 29: Proposed Lathrope Road layout**



## 6.7 Cambridge Road and Queen Street

Cambridge Road runs alongside the eastern boundary of the site to the north of Riverhead Road. Currently rural in nature, Cambridge Road will be upgraded fronting the Site to ensure it is safe and in keeping with the anticipated development that will be located alongside.

Along the development frontage, Cambridge Road (south of Queen Street) will be upgraded to an urban standard, including

- ♦ a 6 m wide carriageway
- ♦ vehicle crossings to access activities that front Cambridge Road
- ♦ a pedestrian footpath along the development frontage, up to Queen Street.

While the detail of the upgrade can be worked through at detailed design and Engineering Plan Approval, upgrading Cambridge Road similar to that provided along the recently upgraded sections of Duke Street is considered appropriate given the challenging environment presented on the eastern side of Cambridge Road, where the berm sits higher than the road level and rises towards the north.

With Cambridge Road being upgraded and a new pedestrian facility being included on the western side (between Queen Street and Riverhead Road), a pedestrian path is also proposed on the northern side of Queen Street (between Coatesville-Riverhead Highway and Cambridge Road) on the existing grass

berm, connecting the development site to the existing Riverhead area, as well as existing bus stops, War Memorial Park and playground, the existing village and the new local centre.

As mentioned earlier, we understand that the Local Board is looking to address the 'gaps' in footpath provision about the surrounding road network to the plan change, with includes the above road sections. The provisions require the developer to deliver the upgrades discussed above, which in turn reduces the extent of the works the Local Board plans to undertake.

## 6.8 New internal local roads and collector roads

Internal roads will have road reserve widths ranging between 18 m (local) to 25 m (collector without adjacent open space reserve). The Precinct Provisions include a road function and design elements table (Appendix 1) that sets the key outcomes of each road type internal to the development. We note that the detailed layout for each road will be subject to future resource consent stages, with the Precinct table providing guidance to the outcomes sought.

### 6.8.1 Local roads

Local roads will be designed to achieve a speed limit of 30 km/h, providing a safe environment for all road users. Local roads will accommodate front and back berms, footpaths and two-way vehicle movement. The front berms can be used for landscaping and street furniture.

With a design speed of 30km/h, there is no requirement for dedicated cycle facilities to be provided on these roads. The Precinct Plan does however indicate routes where key pedestrian and cycling routes pass through the Precinct where safe facilities will be provided.

We note that the local road volumes will generally be very low, with most local roads for this development serving residential traffic only. The potential school would be the only high traffic generator around the new residential development.

The local road and collector road layout is designed in a way that will mean there is limited through traffic internal to the development. Riverhead Road and Coatesville-Riverhead Highway will carry out this function. This will keep the internal local road traffic volumes low, providing a safer environment for all road users. With regard to the local centre, this is located on the periphery of the development, and therefore traffic will generally remain on the outer of the residential streets.

### 6.8.2 Collector roads

The collector roads will provide separated walking and cycle facilities which connect to the proposed facilities on Riverhead Road and Coatesville-Riverhead Highway.

The design speed is 40km/h and could include two traffic lanes, separated cycle lanes and footpaths on both sides, front berms for street trees, street furniture and optional indented parking bays.

The Precinct Provisions also require bus facilities to be considered during subsequent design phases.

While the proposed collector roads will generally carry low volumes compared to other collector roads in Auckland, they have been designated collector roads for the purposes of ensuring Precinct Plan provisions can be made.

## 6.9 Intersection designs

The following major intersections are proposed to either be upgraded or constructed to support the Plan Change

- ♦ Coatesville-Riverhead Highway / Riverhead Road – upgrade existing roundabout
- ♦ Coatesville-Riverhead Highway / Riverhead Point Drive – upgrade to roundabout with fourth leg
- ♦ Coatesville-Riverhead Highway / Site access – provide new priority control intersection between Riverhead Point Drive and Short Road
- ♦ Riverhead Road / Site access (330 m west of Coatesville-Riverhead Highway) – new intersection with new north and south approach roads
- ♦ Riverhead Road / Lathrope Road – update existing priority control intersection.

All of these intersections will involve at least one arterial road. We have considered what the intersection upgrades will possibly include and are designed to accommodate 17.9 m semi-trailer trucks.

Apart from Riverhead Road / Lathrope Road intersection, all intersection upgrades will provide new and separated facilities for pedestrians and cyclists. Swedish table crossing points will be provided on each approach leg of the roundabouts to allow pedestrians and cyclists to safely cross. The permitter of the roundabouts allow the option for either separated pedestrian and cycle lanes, or shared paths. The desired outcome can be addressed during detailed design and Engineering Plan Approval.

The Coatesville-Riverhead Highway / Site access intersection between Riverhead Point Drive and Short Road is proposed to be a priority-controlled intersection. It will cater for a small number of trips within the Site, with the intersection at Riverhead Point Drive being designed as the primary collector road into the site. This intersection will contain a raised table across the Site approach leg to prioritise pedestrians and cyclists that will use the shared path on Coatesville-Riverhead Highway.

Riverhead Road / Lathrope Road is proposed to be upgraded to a priority-controlled intersection based on a lower speed environment discussed earlier. The two existing access points into Lathrope Road will be consolidated into one point, which will provide drivers with improved visibility of Riverhead Road. A right turn bay and median will also be provided on Riverhead Road to facilitate vehicle turning movements. This will allow Lathrope Road to safely accommodate the level of traffic anticipated to use this as an external access point. The current intersection layout is unsuitable for higher volumes of traffic and does not enable safe levels of visibility. The proposed design provides sufficient visibility for vehicles on Riverhead Road, Lathrope Road and the right turn bay given the proposed speed limit changes.

Detailed design and assessments such as road safety audits can be undertaken at future stages.

At the Plan Change level, the intersection designs show that all transport modes can be accommodated within the proposed road reserve boundaries. Localised intersection widening is required, however the

designs have assumed all localised road widening to occur within the current road reserve or within land that sits within the Plan Change boundary.

## 6.10 Coatesville-Riverhead Highway right turn bay treatments

We have reviewed the requirements for intersection upgrades to include right-turn bays at the Riverland Road intersection and the Old Railway Road intersections on Coatesville-Riverhead Highway.

We have outlined, in the technical note attached as Appendix D, the guidelines and criteria we use to determine the requirement for right-turn bays at intersections as well as indicated if the intersection upgrades are required now according to the current volumes using the intersection (that is, prior to any development within Riverhead), at the 60% development phase and at the 100% development phase.

We reviewed the crashes involving traffic turning right or left, as well as the traffic flows and volumes for these scenarios against Austroads warrants and find the following

- ♦ At the Riverland Road intersection, the warrant indicates there is some demand for a channelised turn treatment in the existing scenario however the crash record indicates the current demand for it is low
- ♦ At the Old Railway Road intersection, the warrant indicates that the demand for a channelised turn treatment is high in the existing scenario
- ♦ In both the 60% development scenario and the 100% development scenario, the predicted increase in traffic flows indicate a high demand for channelised turn treatments at both intersections
- ♦ The increase in traffic using Coatesville-Riverhead Highway may also lead to an increase in delays experienced by turning vehicles and therefore an increase in risk to vehicles turning into the side roads.

Therefore, to achieve safe outcomes for each intersection, right-turn bays are recommended for the Old Railway Road intersection pre-development but for the Riverland Road intersection, right-turn bays may be provided at the 60% development scenario.

We note that for the Old Railway Road intersection, Auckland Transport were planning to upgrade this intersection based on the existing conditions. We understand that the associated safety programme has been put on hold due to funding constraints. However, this intersection still requires upgrading due to existing conditions.

Concept plans of the right turn bays are provided in Appendix C.



## 7 DESCRIPTION AND ASSESSMENT OF THE PROPOSAL

### 7.1 Access assessment of the proposal

#### 7.1.1 Vehicle access

The road network will provide several new roads and intersections to support the Plan Change. This will provide suitable access for Site users. The roads will also allow existing residents to access the new activities, such as the proposed local centre and education facilities.

The upgrade of Lathrope Road provides a viable access point to travel towards SH16 to the south via Old North Road and Riverhead Road. This will relieve pressure on Coatesville-Riverhead Highway and Riverhead Road as the primary access routes.

#### 7.1.2 Visibility

All intersections and accesses have been designed to achieve the Safe Intersection Sight Distance (SISD) in Austroads. This is based on the revised operating speed limit on the roads recommended earlier within this report. In addition to providing safety benefits, the proposed reduction in speed limits provides more flexibility to safely locate intersections.

The main constraints for visibility are

- ♦ On Riverhead Road, the horizontal and vertical curvature 450 m west of the existing Coatesville-Riverhead Highway roundabout
- ♦ On Coatesville-Riverhead Highway, the main constraint is the horizontal and vertical curvature south of Short Road.

The proposed intersections comply with the visibility standards, assuming that the speed limits can be reduced to a safe and more appropriate level. We note that the speed limits will need to be amended through the bylaw at the appropriate time.

#### 7.1.3 Vehicle access restrictions

Coatesville-Riverhead Highway and Riverhead Road are classified as arterial roads in the Unitary Plan. This means that vehicle access restrictions will apply, which would trigger restricted discretionary activity criteria for any private vehicle access on these roads.

The Plan Change is not proposing direct vehicle accesses onto the arterial roads. Instead, they will be subject to future resource consents.

The proposed road network is designed to minimise the need for any direct access onto arterial roads, and will instead funnel traffic through new local and collector roads. We note that no specific provisions to restrict access onto collector roads is proposed or considered necessary, given they will be low volume in the context of other collector roads in Auckland.

#### 7.1.4 Pedestrian and cycle access

The following facilities will be provided for pedestrians and cyclists

- ♦ Corridor and intersection upgrades on Coatesville-Riverhead Highway and Riverhead Road, providing separated footpaths and cycle lanes and new mid-block crossing facilities (See Section 6.4 and 6.5)
- ♦ Footpaths on both sides of all local roads and collector roads. The collector roads will have separated cycle lanes
- ♦ Upgraded footpaths on Queen Street and Cambridge Street.

The internal road network will be designed to have low vehicle speeds, to provide safe environments for all users.

These will ensure that both current and future residents will have a range of safe and viable transport choices for travel within Riverhead. The separated facilities align with Vision Zero by minimising conflict points with vehicles.

#### 7.1.5 Public transport access

As outlined in Section 4.6.1, Riverhead is served by one bus route which connects to Albany and Westgate. There are several bus stops on Coatesville-Riverhead Highway along the eastern boundary of the Site.

The Plan Change will support public transport by providing safe and convenient pedestrian connections to the bus stops. Upgrades to public transport shelters can be provided as part of the proposed corridor upgrades on Coatesville-Riverhead Highway, with these being worked through at detailed design. The Precinct Provisions will enable public transport facilities to be provided on Coatesville-Riverhead Highway, Riverhead Road, Lathrope Road and the new internal collector roads.

The increased catchment of residents enabled by the plan change will also support public transport by increasing demand for services, which could result in services becoming more frequent in the future, if additional funding becomes available.

## 7.2 Trip generation and distribution of the Proposal

### 7.2.1 Trip generation rates

The following weekday peak hour vehicle trip rates are applicable to this Proposal.

#### **Residential dwellings**

The RTA “Guide to Traffic Generating Developments” (RTA Guide) contains trip generation rates for residential dwellings.

- ♦ Dwelling houses – 0.85 trips per dwelling
- ♦ Medium density residential flat building, larger units or townhouses – 0.5 to 0.65 trips per dwelling.

We have adopted the following rates for the Plan Change, assuming 100% buildout in the long term (by 2038). We note that the calculations are based on a slightly higher residential yield of 1,560 dwellings



which reflects an earlier calculation. As such, the traffic modelling analysis provides a conservative assessment of the predicted effects.

- ♦ Lower density dwellings – 0.75 trips per dwelling
- ♦ Medium / high density dwellings – 0.60 trips per dwelling.

The trip rates we have adopted are similar to the RTA Guide rates. For the lower density rates, we have used a slightly lower rate of 0.75 trips per dwelling.

- ♦ This is because residents in Riverhead will likely travel outside of the peak hours more, given congestion on the wider network.
- ♦ It is important to note in responding to this request that the development of Riverhead is going to occur over a number of years (10 years or so)
- ♦ We also highlight that our underlying assumptions have retained today's (2022) volumes as background traffic. With the Plan Change introducing employment, including a local centre that offers the opportunity for a major retail offering, such as a supermarket, there is a strong likelihood that an element of existing traffic (which currently leaves Riverhead) will now remain in Riverhead to undertake their daily needs.

We acknowledge that trip rates may be higher in the short term to medium account for the availability of non-private vehicle transport modes. As a result, we have adopted the following trip rates for the residential activities as a sensitivity test

- ♦ Lower density dwellings – 0.95 trips per dwelling
- ♦ Medium / high density dwellings – 0.70 trips per dwelling.

### **School**

We have adopted the following rates for the potential school. For the purpose of this assessment, we have assumed it will be a primary school

- ♦ AM peak – 0.65 trips per student
- ♦ PM peak – 0.15 trips per student.

The PM peak rate is lower than the AM rate, as the PM school peak hour occurs at a different time compared to the network PM peak.

### **Childcare centre**

We have adopted rates of 1 trip per child during the peak periods for the childcare centre. The RTA Guide provides trip rates ranging from 0.5 – 1.4 trips per child, so we have adopted the upper mid-range of 1 trip per child.

### **Supermarket**

For the proposed supermarket activity, we have adopted a rate of 11.6 trips per 100 m<sup>2</sup>. This is based on the RTA Guide peak hour rate for supermarkets on a Thursday evening and converting from GLFA to

GFA. We note that in reality the AM rate would likely be lower, but we have used this rate conservatively for both peak periods.

### **Retail**

The RTA Guide provides weekday supporting retail trip rates of 5.6 trips per 100 m<sup>2</sup> for weekdays. We have adopted this trip rate for both peak periods, as the proposed retail activities will primarily be small local shops, which will support existing and proposed land uses such as the proposed supermarket.

### **Offices**

We have adopted a trip rate of 2 trips per 100 m<sup>2</sup> for office activities, based on the RTA Guide rates.

### **Retirement village and aged care facilities**

For all of the retirement village and aged care facilities, we have adopted rates of 0.2 trips per unit for both peak hours. This is based on the upper range of the RTA Guide rate of 0.1 – 0.2 trips per unit for housing for aged and disabled persons.

### **Café**

For the café activities, we have adopted a rate of 7.6 trips per 100 m<sup>2</sup>. This is based on average trip rates from the NZ Trips Database for the PM peak period.

### **Medical centre**

For the medical centre, we have assumed a flat rate trip assumption of 30 vehicles per hour for both peak hour periods. We note that the medical centre is relatively small and will primarily support the retirement village and aged care facility activities.

### **Neighbourhood centre**

While the neighbourhood centre will consist of approximately 300 m<sup>2</sup> GFA, we have not included it in our modelling assessment. We note that the neighbourhood centre will predominantly serve the local area through convenience retail and services and is not expected to generate external vehicle trips. Given the walking and cycling upgrades that will be provided, many trips to the neighbourhood centre can be taken without a vehicle. Those that are vehicle related, will most likely be pass-by trips.

### 7.2.2 Trip generation volumes

The anticipated trip generation of the development is shown in Table 2. This shows the total raw number of trips, without any internalisation factors considered.

**Table 2: Weekday peak hour trip generation (unfactored)**

Activity	Size	Trip rate		Trip generation (vph)	
		AM	PM	AM	PM
Residential – lower dwelling houses	440 units	0.75 / dwelling	0.75 / dwelling	330	330
Residential – medium / higher density	910 units	0.60 / dwelling	0.60 / dwelling	545	545
Primary school	1,100 students	0.65 / student	0.15 / student	715	165
Childcare centre	100 children	1 / child	1 / child	100	100
Supermarket	4,000 m <sup>2</sup>	11.6 / 100 m <sup>2</sup>	11.6 / 100 m <sup>2</sup>	465	465
Retail	650 m <sup>2</sup>	5.6 / 100 m <sup>2</sup>	5.6 / 100 m <sup>2</sup>	35	35
Offices	1,000 m <sup>2</sup>	2 / 100 m <sup>2</sup>	2 / 100 m <sup>2</sup>	20	20
Retirement village	518 units	0.2 / unit	0.2 / unit	105	105
Aged care facility	90 beds	0.2 / unit	0.2 / unit	20	20
Café	600 m <sup>2</sup>	7.6 / 100 m <sup>2</sup>	7.6 / 100 m <sup>2</sup>	45	45
Medical Centre	250 m <sup>2</sup>	30 trips	30 trips	30	30
<b>Total</b>				<b>2,410</b>	<b>1,860</b>

In reality, the number of trips generated external to the Plan Change Site will be lower, due to the following factors

- ♦ Internal trips within Riverhead – some trips can be completed internally within Riverhead, which will not generate any traffic on the wider road network. These are trips which can be completed locally due to a range of activities being provided
- ♦ Pass-by trips – these are trips where a person stops by at a destination on their way to another destination, meaning the trip is not a new trip added onto the network
- ♦ Multi-purpose trips – these are trips where a person can visit multiple destinations in one trip, for example a local centre. This will reduce the number of new trips on the network as one trip can replace several.

Table 3 shows the factors we have adopted for each activity.

**Table 3: Peak hour trip generation factors**

Activity	Internal trips within Riverhead (%)	Pass-by trips (%)	Multi-purpose trips (%)
Residential – dwelling houses	20%	0%	0%
Residential – medium / higher density	20%	0%	0%
Primary school	80%	0%	0%
Childcare centre	80%	0%	0%
Supermarket	90%	40%	10%
Retail	70%	35%	10%
Offices	20%	0%	0%
Retirement village	20%	0%	0%
Aged care facility	20%	0%	0%
Café	70%	40%	10%
Medical Centre	50%	0%	0%

Multi-purpose factors have only been applied to trips generated by retail type activities within the plan change area, including supermarket, retail and café.

Reference has been made to the ITE Trip Generation Handbook to source typical pass-by trip rates for these uses, with

- ♦ Table 5.6 (Land Use 820 – Shopping Centre) having an overall average pass-by rate of 34%. The supporting graph and statistics at Figure 5.5 suggest the smaller the centre, the higher the pass-by percentage
- ♦ Table 5.10 (Land Use 850 – Supermarkets) having an overall average pass-by rate of 35%, with the range sitting between 20% and 55%.

While Table 3 provides rates for pass-by trips, our modelling provided no additional volume reductions for pass-by trips for simplicity. This means that the modelling is conservative, as including pass-by trips would result in a reduction in through trips. We have used rates of 35% to 40% for the retail elements of the plan change, noting also that the vast majority of users will be from within Riverhead which doesn't currently have a major supermarket.

Multi-purpose factors have only been applied to trips generated by retail type activities within the plan change area, including supermarket, retail and café. Table 3 of the ITE Journal, dated January 2011 sets out internal capture rates for various land use pairs. We have adopted a 10% value, again only being attributed to the retail component of the plan change, with the ITE noting the following multi-purpose rates

- ♦ To Retail, From Residential 10%
- ♦ To Retail, From Office 8%

With regard to internal capture percentages, we have assumed percentages based on our judgement. We note that the internal capture percentage still generates traffic that is assigned to the local network, but the traffic is predicted to remain in Riverhead, whether that is for recreation, school pickup and drop off, childcare, shopping, visiting friends etc. External trips are assumed to leave Riverhead and use the wider transport network.

For the purpose of our modelling assessment, we have ignored pass-by trips, noting that these will be only from the supermarket, retail and café activities internal to Riverhead.

Table 4 and Table 5 shows the trip generation volumes, updated with these factors. This shows

- ◆ New trips, which accounts for the reduction of multi-purpose trips
- ◆ New external trips, which is new trips with that will be generated externally outside of Riverhead. These trips will have an effect on the wider road network.

For the purpose of our modelling assessment, we have ignored pass-by trips, noting that these will be only from the supermarket, retail and café activities internal to Riverhead.

**Table 4: Factored peak hour trip generation, AM peak**

Activity	Multi-purpose trips	New trips (unfactored minus multi-purpose)	New external trips (new trips reduced by internal trip proportion)
Residential – dwelling houses	0	330	265
Residential – medium density	0	545	435
Primary school	0	715	145
Childcare centre	0	100	20
Supermarket	45	410	40
Retail	5	30	10
Offices	0	20	15
Retirement village	0	105	85
Aged care facility	0	20	15
Café	5	40	10
Medical Centre	0	30	15
<b>Total</b>	<b>55</b>	<b>2,355</b>	<b>1,055</b>

**Table 5: Factored peak hour trip generation, PM peak**

Activity	Multi-purpose trips	New trips (unfactored minus multi-purpose)	New external trips (new trips reduced by internal trip proportion)
Residential – dwelling houses	0	330	265
Residential – medium density	0	545	435
Primary school	0	165	35
Childcare centre	0	100	20
Supermarket	45	465	40
Retail	5	35	10
Offices	0	20	15
Retirement village	0	105	85
Aged care facility	0	20	15
Café	5	45	10
Medical Centre	0	30	15
<b>Total</b>	<b>55</b>	<b>1,860</b>	<b>945</b>

These factors show that there will be a reasonable reduction of external trips generated by the Plan Change. The number of new external trips is noticeably lower compared to the unfactored trip volumes, which demonstrates that trips can be undertaken locally with the range of proposed activities.

### 7.2.3 Trip distribution

Appendix A show the trip distribution about the immediate roading network for the AM and PM peak hours. The diagrams show the total volumes of traffic with the Plan Change implemented, for the 2038 year. The volumes in brackets show the anticipated increase due to the trip generation of the Plan Change. While we have undertaken a spreadsheet assessment to distribute traffic, the distributions have been informed by the Northwest SATURN traffic model.

The trips have been grouped and distributed into four quadrants. The quadrants are

- ◆ North East – which essentially covers the proposed retirement village and Matvin land holdings
- ◆ North West – which is residential development, which is predominantly made up by Neil Group land holdings
- ◆ Southern commercial – being the commercial elements that are located south of Riverhead Road
- ◆ Southern residential – being the residential development located to the south of Riverhead Road which is predominantly made up by Fletcher land holdings.

External trips to the wider area beyond the immediate Riverhead catchment are based on 'new external trips' in Table 4 and Table 5. For the purposes of our modelling assessment, we have ignored pass-by trips, noting that these will only be from the supermarket, retail and café activities internal to Riverhead.

### 7.3 Existing network operation

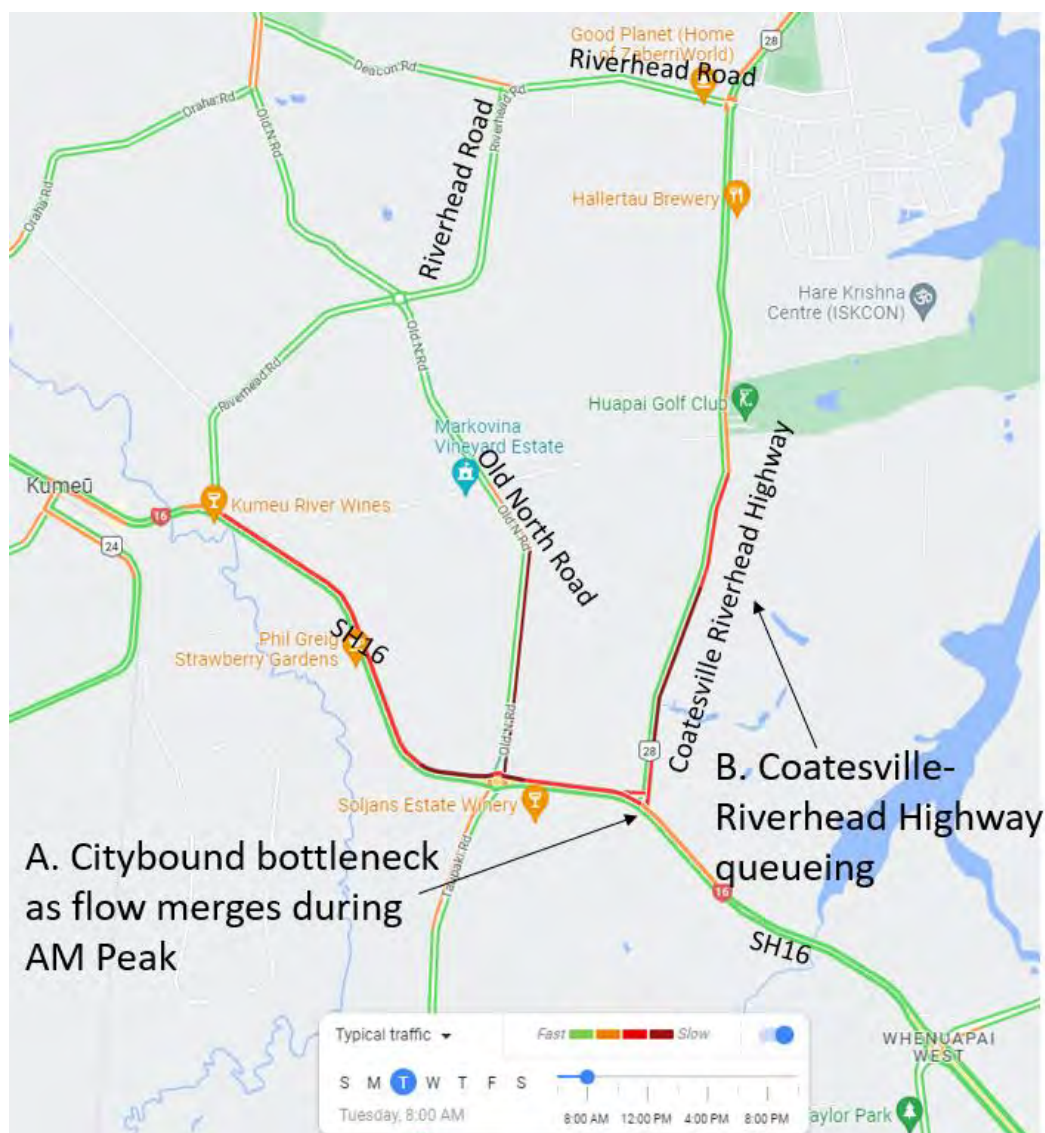
Coatesville-Riverhead Highway and Old North Road (via Riverhead Road) connect the Site to SH16, providing access to the east and west. SH16 experiences congestion heading citybound in the morning peak and westbound in the evening peak. Congestion is also experienced during weekend periods, however we anticipate the performance of the network will be improved on weekends following the SH16 upgrade. As the weekend includes a number of discretionary trips, our focus has been on the weekday morning and evening peak periods, where the higher conflicting volumes occur.

During the morning peak, the congestion is caused by two busy traffic streams coming together at the Coatesville-Riverhead Highway intersection with SH16 (labelled "A" on Figure 30). Traffic on SH16 generally allows traffic from Riverhead to join, therefore causing queues that tail back towards Kumeu. Once traffic merges on SH16, traffic speeds increase going towards the city as shown by green in Figure 30 below.

The congestion on SH16 results in queuing on Coatesville-Riverhead Highway (labelled "B" on Figure 30). Based on the typical weekday morning commuter period, the queues reach the Huapai Golf Club, approximately 1.8 km from SH16. On the Coatesville-Riverhead Highway southbound approach, right turns out are restricted, meaning only left turns onto SH16 occur.



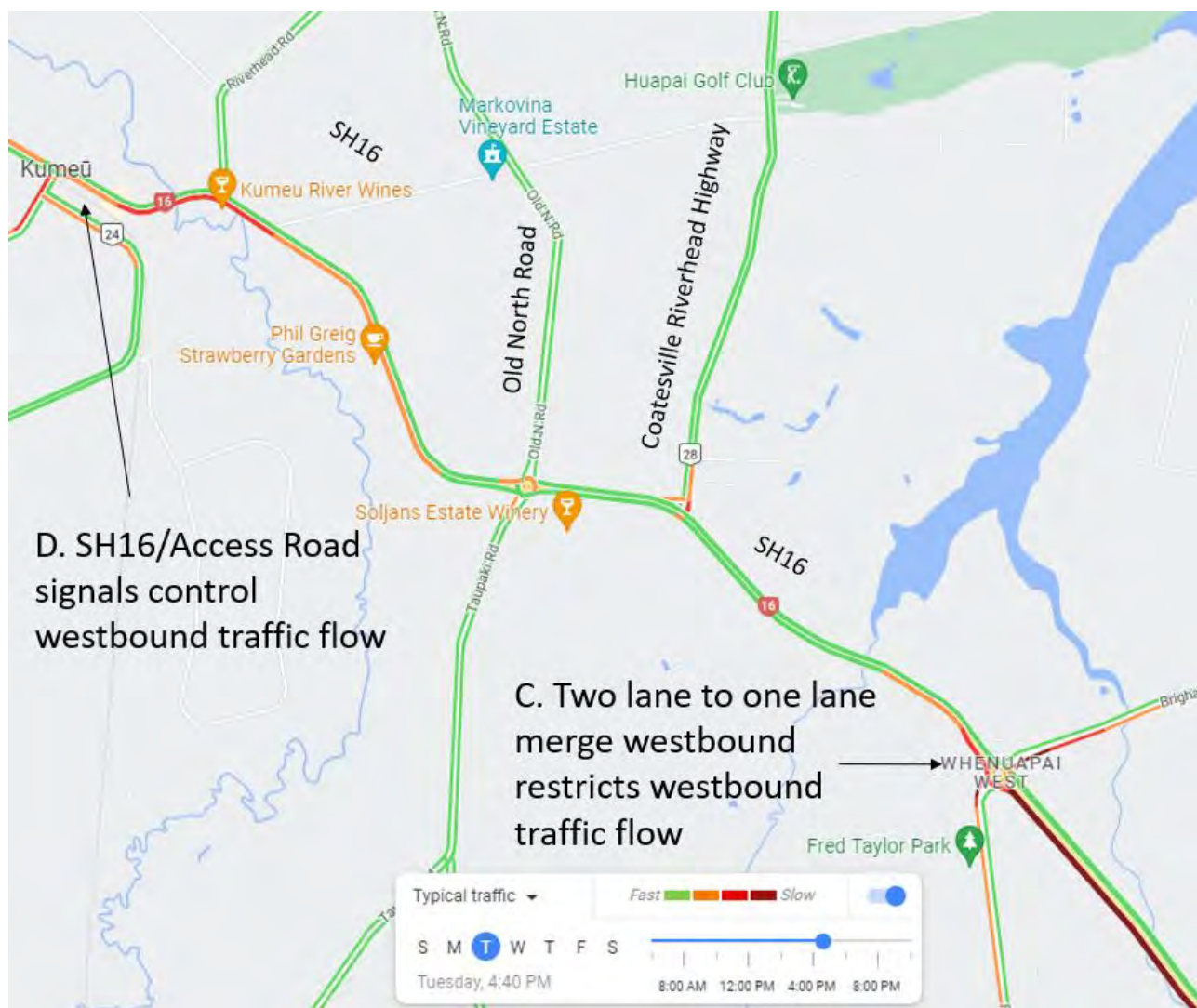
Figure 30: AM Peak Typical Commuter (8:00 am)



During the evening peak, large queues are experienced at the SH16/Brigham Creek Road/Fred Taylor Drive roundabout (labelled “C” on Figure 31), due to the heavy westbound demand. While turning movements between Brigham Creek Road and SH16 west have priority over the SH16 westbound movement, a key constraint at the intersection is the downstream merge from two lanes to one lane.

Once clear, traffic experiences acceptable conditions until approaching Kumeu, where the Access Road/SH16 signalised intersection governs the performance of traffic entering Kumeu and further west (labelled “D” on Figure 31).

Figure 31: PM Peak Typical Commuter (4:40 pm)



## 7.4 Modelling methodology

### 7.4.1 Summary of modelling methodology

To assess the traffic effects of the Plan Change, we have assessed the performance of key intersections using the SIDRA intersection modelling software.

We have assessed the following two scenarios in the weekday AM and PM peak hour periods as our primary scenarios

- ◆ 2038 base without Plan Change
- ◆ 2038 with Plan Change.

As sensitivity tests for the Coatesville-Riverhead Highway intersection, we have also tested the following scenarios (in addition to the primary scenarios above)

- ◆ 2031 Plan Change scenario which reflects 60% development complete with sensitivity trip rates
- ◆ Full build Plan Change scenario (background traffic for 2038) and reflects sensitivity trip rates for the residential activities, outlined in Section 7.2.1.

We have assessed the following intersections

- ♦ SH16 / Coatesville-Riverhead Highway
- ♦ Lathrope Road / Riverhead Road
- ♦ Riverhead Road / Site collector road
- ♦ Coatesville-Riverhead Highway / Riverhead Road
- ♦ Coatesville-Riverhead Highway / Riverhead Point Drive / Site collector road
- ♦ Coatesville-Riverhead Highway / Site access (south of Riverhead Point Drive)
- ♦ Riverhead Road / Old North Road
- ♦ Old North Road / Old Railway Road.

The intersection layouts assume all proposed upgrades have been completed in both scenarios.

The SIDRA intersection layouts and movement summary results of the peak periods are provided in Appendix B.

#### 7.4.2 Methodology for network traffic volumes and network assumptions

Forecast traffic volumes have been sourced from Auckland Transport's Supporting Growth Northwest SATURN traffic model. This model relies on inputs from the higher tier Auckland Macro Strategic Model (MSM) which includes forecast land use and infrastructure assumptions (I11.5 land use scenario).

The Northwest SATURN traffic model was obtained from the Auckland Forecast Centre, with various versions being presented. We have used the Reference Case scenario on the basis that the other models provided included infrastructure upgrades, such as the Alternative State Highway (Kumeu Bypass) or Whenuapai Upgrades, being the Spedding Road connection which relieves pressure from the SH16/Brigham Creek Road roundabout.

The roading upgrades included in the 2028 Reference Case include

- ♦ SH16 4-laning between Brigham Creek and Old North Road roundabout
- ♦ Upgrade of the SH16/Coatesville-Riverhead Highway intersection to a roundabout
- ♦ Upgrade of the Main Road/Access Road intersection
- ♦ Upgrade of the Main Road/Station Road intersection to traffic signals
- ♦ Inclusion of the local road network being established about the Redhills development area.

No changes to the default land use assumptions were made for public transport availability.

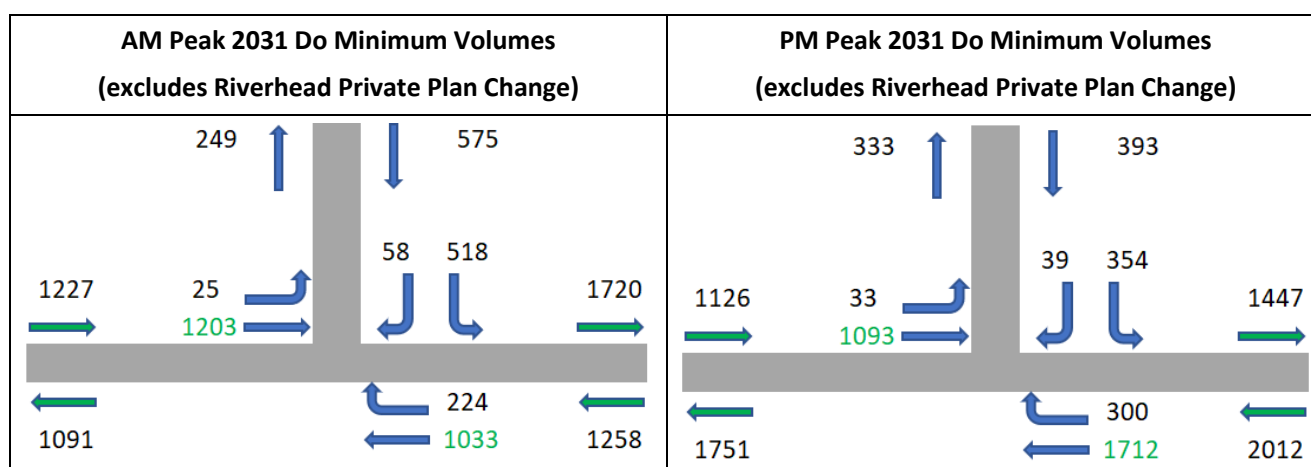
The Northwest SATURN traffic model, and higher tier MSM assumes growth about Kumeu and Huapai, but does not include growth within Riverhead, as the MSM aligns with the Future Urban Land Supply Strategy, which has growth in Riverhead starting in 2028. As such, an increase in housing is not projected until 2033 (being the next defined forecast year). Importantly however, growth is assumed in Kumeu and Huapai, with the volumes in the 2028 and 2038 forecast traffic model on SH16 being (on average) some 3% higher (annual arithmetic growth rate) when referenced against 2022 observed volumes.

Volumes predicted in the Northwest model for Coatesville-Riverhead Highway are very low and are therefore not a reliable source for the purposes of this assessment. That is, for 2028 and 2038, volumes on Coatesville-Riverhead Highway are lighter than 2022 volumes. We also note that the current volumes experience an element of rat running, and as such, the distribution of traffic using Coatesville-Riverhead Highway may reduce slightly when the SH16 constraint is addressed through the upgrade. We however have taken a worst case approach, whereby the existing volume on Coatesville-Riverhead Highway is assumed to remain unchanged.

Using the growth in traffic predicted on SH16 resulting from development further west (Kumeu and Huapai), we have developed a Do Minimum 2031 volume for the SH16/Coatesville-Riverhead Highway intersection. This is the volume predicted to use the intersection should the Riverhead Private Plan Change progress in line with the Future Urban Land Supply Strategy, where traffic associated with consented activities within the plan change area would be expected to be added to the network. The 2031 projected demand also forms as a basis where 60% of the development (ie the land holdings currently controlled by the Riverhead Landowner Group) could be completed by.

The volumes predicted for 2031 are set out in Figure 32, with the growth in through traffic on SH16 (eastbound and westbound) being comparable to the background volumes predicted in 2028 within the Northwest SATURN traffic model.

Figure 32: 2031 Do Minimum Traffic Volumes – SH16/Coatesville-Riverhead Highway intersection



The westbound volume in the PM Peak has been capped at 1,730 vehicles per hour on the basis that a westbound volume of some 2,400 vehicles per hour is likely to be the maximum hourly volume for traffic passing through the Brigham Creek roundabout located at the end of the Northwest Motorway. The analysis allows some additional 800 vehicles per hour over the current westbound demand, being 1,600 vehicles per hour in the PM Peak.



## 7.5 Traffic effects – SH16 / Coatesville-Riverhead Highway intersection

The intersection layouts assume a 3-leg roundabout with the proposed Waka Kotahi upgrades. This includes

- Two through traffic lanes from SH16 (east) to SH16 (west)
- Two through traffic lanes from SH16 (west) to SH16 (east)
- Two left turn lanes (with the second left turn lane being shared with the right turn) from Coatesville-Riverhead Highway to SH16 (east). The second lane is understood to be a short lane approximately 40 m long.
- A relatively large internal diameter (30 m) which we assume is required given location of the roundabout on SH16 and the need to allow trucks to circulate together in adjacent lanes.

### 7.5.1 2031 Do Minimum – Background growth and SH16 upgrade

The 2031 Do Minimum scenario reflects no development within Riverhead but includes growth about Kumeu and Huapai and the upgrade of the intersection to a roundabout consistent with the SH16 Brigham Creek to Waimauku project being completed by Waka Kotahi.

Table 6 summarises the predicted performance of the SH16/Coatesville-Riverhead Highway intersection. The roundabout is predicted to operate well within capacity, with relatively small queues on each of the approaches.

**Table 6: 2031 Do Minimum SIDRA Modelling Results – No Riverhead Development**

Approach	AM Peak			PM Peak		
	LOS	DoS (v/c)	Queue (m)	LOS	DoS (v/c)	Queue (m)
SH16 (East)	LOS A	0.40	25 m	LOS A	0.63	60 m
Coatesville-Riverhead Highway	LOS B	0.40	15 m	LOS A	0.27	10 m
SH16 (West)	LOS A	0.46	25 m	LOS A	0.45	25 m
<b>Total Intersection</b>	<b>LOS A</b>	<b>0.46</b>	<b>25 m</b>	<b>LOS A</b>	<b>0.63</b>	<b>60 m</b>

### 7.5.2 2038 Plan Change Scenario – Full Build 100% Plan Change Development

This test assumes the full build (100%) Plan Change scenario. The modelling assumes background growth out to 2038 and reflects long term trip rates.

Table 7 summarises the predicted performance of the SH16/Coatesville-Riverhead Highway intersection. The roundabout is predicted to operate within capacity when accommodating 100% development, with queue lengths remaining within 100m for the busier trafficked movements (Coatesville-Riverhead Highway in the AM and SH16 (east) in the PM). The intersection operates at LOS B, with the predicted queues considered satisfactory, such that no concerns are raised with the operation of the roundabout long term.

We also note that this scenario excludes the potential long term Alternative State Highway (also referred to as the Kumeu Bypass) which would remove a large number of vehicles from the intersection.

**Table 7: 2038 Plan Change SIDRA Modelling Results – Full Build (100%) Development/Long Term trip rates**

Approach	AM Peak			PM Peak		
	LOS	DoS (v/c)	Queue (m)	LOS	DoS (v/c)	Queue (m)
SH16 (East)	LOS A	0.52	40 m	LOS A	0.74	95 m
Coatesville-Riverhead Highway	LOS C	0.88	75 m	LOS B	0.56	30 m
SH16 (West)	LOS B	0.62	50 m	LOS B	0.68	65 m
<b>Total Intersection</b>	<b>LOS B</b>	<b>0.88</b>	<b>75 m</b>	<b>LOS B</b>	<b>0.74</b>	<b>95 m</b>

### 7.5.3 2031 Plan Change Sensitivity – 60% Plan Change Development

This Plan Change scenario reflects 60% development with sensitivity residential trip rates for the short/medium term.

Table 8 summarises the predicted performance of the SH16/Coatesville-Riverhead Highway intersection. The roundabout is predicted to operate well within capacity when accommodating 60% development, with queue lengths generally increasing by 10-25 m across each approach. The predicted queues are considered satisfactory and do not raise any concerns with the operation of the roundabout.

**Table 8: 2031 Plan Change SIDRA Modelling Results – 60% Development/Sensitivity Trip Rates**

Approach	AM Peak			PM Peak		
	LOS	DoS (v/c)	Queue (m)	LOS	DoS (v/c)	Queue (m)
SH16 (East)	LOS A	0.47	35 m	LOS A	0.72	85 m
Coatesville-Riverhead Highway	LOS B	0.69	40 m	LOS B	0.44	20 m
SH16 (West)	LOS A	0.54	35 m	LOS B	0.56	40 m
<b>Total Intersection</b>	<b>LOS A</b>	<b>0.69</b>	<b>40 m</b>	<b>LOS A</b>	<b>0.72</b>	<b>85 m</b>

### 7.5.4 2038 Plan Change Sensitivity Test – Full Build 100% Plan Change Development

This test assumes the full build (100%) Plan Change scenario, with a sensitivity test assuming background growth out to 2038, and higher residential vehicle trip rates being applied to a long term horizon.

Table 9 summarises the predicted performance of the SH16/Coatesville-Riverhead Highway intersection. With the higher trip rates applied to the plan change area, the roundabout is predicted to operate within capacity, with a practicable degree of saturation of 95%. This is still acceptable, with LOS D being predicted for the Coatesville-Riverhead Highway approach during the AM peak. Queue lengths remain satisfactory, such that no concerns are predicted with the operation of the roundabout long term.

As with the previous scenario, we note that this scenario is based on higher trip rates and excludes the potential long term Alternative State Highway (also referred to as the Kumeu Bypass) which would remove a large number of vehicles from the intersection if constructed.

**Table 9: 2038 Plan Change Sensitivity SIDRA Modelling Results – Full Build (100%) Development/Sensitivity trip rates**

Approach	AM Peak			PM Peak		
	LOS	DoS (v/c)	Queue (m)	LOS	DoS (v/c)	Queue (m)
SH16 (East)	LOS A	0.53	45 m	LOS A	0.76	105 m
Coatesville-Riverhead Highway	LOS D	0.95	125 m	LOS B	0.60	35 m
SH16 (West)	LOS B	0.63	50 m	LOS B	0.72	80 m
<b>Total Intersection</b>	<b>LOS B</b>	<b>0.95</b>	<b>125 m</b>	<b>LOS B</b>	<b>0.76</b>	<b>105 m</b>

## 7.6 Traffic effects – local Riverhead intersections

### 7.6.1 Lathrope Road / Riverhead Road

The intersection layout assumes a priority control intersection with a right turn bay on Riverhead Road.

The intersection is anticipated to perform well in both peak periods and scenarios. All approaches are predicted to operate at LOS A and B, which indicates minimal delays being experienced. Queue lengths are expected to be minimal.

### 7.6.2 Riverhead Road / Site collector road

The intersection layout assumes a 4-leg roundabout with single lane approaches.

All legs are anticipated to operate at LOS A or LOS B, with negligible delays and queue lengths.

### 7.6.3 Coatesville-Riverhead Highway / Riverhead Road

The intersection layout assumes a 4-leg roundabout with single lane approaches. The geometry of the roundabout reflects the proposed upgrades to this intersection.

The intersection is expected to perform adequately with the plan change.

We note the following of the results

- ◆ Most approaches are anticipated to operate well at LOS A to C
- ◆ In the AM peak with the plan change, Kaipara Portage Road is predicted to operate at LOS D and E, with approximately 50 seconds of delays
- ◆ The 95<sup>th</sup> percentile queue lengths in the AM peak are predicted to be 120 – 150 m on the Kaipara Portage Road and Coatesville-Riverhead Highway southbound approaches
- ◆ We note that our modelling internal to Riverhead is conservative, as we haven't directly accounted for reduction in through traffic due to pass-by trips. These will be largely generated by the retail activities from the centres, which are expected to be close to this intersection. If the pass-by trips are considered, then there would be less traffic at this intersection. Nevertheless, we consider the performance is acceptable given these issues would only be for the AM peak hour, and the delays and queue lengths are not excessive.



#### 7.6.4 Coatesville-Riverhead Highway / Riverhead Point Drive / Site collector road

The intersection layout assumes a 4-leg roundabout with single lane approaches.

All legs are anticipated to operate at LOS A to C, with negligible delays.

The 95<sup>th</sup> percentile queues are expected to be very minor. In the AM peak period with the Plan Change, the queue length is up to 120 m on the Coatesville-Riverhead Highway southbound approach.

#### 7.6.5 Coatesville-Riverhead Highway / Site access (south of Riverhead Point Drive)

The intersection layout assumes a 3-leg priority control intersection with a right turn bay on Coatesville-Riverhead Highway.

With the Plan Change scenario, the Coatesville-Riverhead Highway movements are expected to perform without any issues, with LOS A for all movements on this road. Without the Plan Change, there would be no traffic on the site access road.

Some small delays are expected on the Site access approach with the Plan Change, which has a single lane. In the AM peak periods, LOS F and average delays of around 50 seconds are predicted on this approach. We note that vehicles using this approach have the option of using the Coatesville-Riverhead Highway / Riverhead Point Drive roundabout to avoid potential delays. We consider that this level of delay is acceptable, and will not affect the performance of Coatesville-Riverhead Highway.

#### 7.6.6 Riverhead Road / Old North Road

We have assumed the existing intersection layout, with one lane on each approach and departure.

The intersection is predicted to perform without any issues in the peak periods with the Plan Change, with LOS A and B.

#### 7.6.7 Old North Road / Old Railway Road

We have assumed the existing priority-controlled intersection layout. No turning bays on Old North Road are included. For the Old Railway Road approaches, we have assumed there is short space available for a vehicle to turn left in addition to another vehicle travelling straight or turning right.

The intersection is predicted to perform without any issues in the peak periods with the Plan Change, with LOS A and B on Old North Road.

On the Old Railway Road approaches, some delays of up to 40 seconds are predicted with LOS D or E. We note that the turning volumes on Old Railway Road are predicted to be minimal.

### 7.7 Summary of modelling results

In summary, all intersections within the Riverhead Plan Change area (and surrounding road network) are anticipated to perform without any noticeable queue lengths or delays with the increased traffic volumes. All intersections have been adequately designed to accommodate the level of traffic anticipated by the Plan Change.

We have also assessed the SH16 / Coatesville-Riverhead Highway intersection across multiple scenarios, including a worse case 100% buildout in 2038 with higher sensitivity trip generation rates. We note that the intersection is predicted to perform well, for each of the scenarios tested.

## 7.8 Wider network effects

With regard to the wider network, we have considered the safety of intersections further afield which are predicted to experience an increase in traffic volumes as a result of the Plan Change. For Coatesville-Riverhead Highway an additional 550-600 vehicles per hour are predicted (two-way), with some 180-210 vehicles per hour (two-way) predicted for Old North Road.

A summary of the safety outcomes of wider local road intersections is set out in Table 10.

**Table 10: Wider intersection assessment**

Intersection	Current Layout	Expected change and effect
Coatesville-Riverhead Highway / Short Road	Short Road is a minor cul-de-sac providing access to a small number of properties. There have been two reported crashes, with each related to turning right into Short Road.	The Plan Change proposes moving the threshold treatment and therefore reducing the speed limit fronting Short Road, as well as urbanising Coatesville-Riverhead Highway about the Short Road intersection. Furthermore, a raised crossing is proposed north of Short Road on Coatesville-Riverhead Highway. We expect these changes will slow vehicles about the Short Road intersection and improve safety.
Coatesville-Riverhead Highway / Old Railway Road	There have been 8 crashes at this intersection since 2016, with 3 crashes being serious in nature. We note that the speed limit has recently been reduced for Coatesville-Riverhead Highway and that there have been no reported crashes since Jan 2020.	See Section 6.10 for assessment. A right turn bay is required based on the existing traffic conditions. This is reflected in the Precinct Provisions.
Coatesville-Riverhead Highway / Riverland Road	Riverland Road is a stop-controlled intersection which serves 15 to 20 properties. Three crashes have occurred at the intersection (in 2016 and 2017 – all turning right) With Coatesville-Riverhead Highway having horizontal and vertical curves approaching the intersection, the recent reduction in speed limit on Coatesville-	See Section 6.10 for assessment. A right turn bay is required based on a 60% buildout scenario of the development. This is reflected in the Precinct Provisions.

Intersection	Current Layout	Expected change and effect
	Riverhead Highway provides greater safety for traffic turning into Riverland Road.	
Coatesville-Riverhead Highway / Moontide Road	Moontide Road is a stop-controlled intersection with a formed right turn bay. It serves 10 to 15 properties. Five crashes have occurred at the intersection, with one being a serious crash. No reported crashes have occurred since 2019.	The current intersection design is considered safe and we anticipate the reduced speed limit on Coatesville-Riverhead Highway will assist in catering for the additional traffic expected by the Plan Change through the intersection. We also note this intersection currently includes a right turn bay on Coatesville-Riverhead Highway.
Coatesville-Riverhead Highway / Brigham Lane	Located north of the Coatesville-Riverhead Highway intersection with SH16, the speed of traffic on Coatesville-Riverhead Highway through the intersection is slow, as vehicles either slow for the intersection (when queues are not present) or are queued on the approach to the intersection. A shoulder exists to allow northbound traffic to pass any vehicles turning right. Four crashes have occurred at this intersection since 2016, with 1 being minor injury.	Vehicle speeds on Coatesville-Riverhead Highway are low. We anticipate no change in operation of this intersection as a result of the Plan Change and do not consider any works are required in the immediate future.
Old North Road / Old Railway Road	A number of crashes have occurred at the Old North Road/Old Railway Road, with the current intersection presenting a safety issue. Currently a stop controlled cross road intersection, most crashes are those crossing the intersection. Speed interventions have been located at the intersection, including markings on Old Railway Road (both approaches) and a speed camera on Old North Road.	The Plan Change predicts some additional 180-210 vehicles travelling on Old North Road during the AM and PM peak hours. While good visibility exists at the intersection, the Plan Change is adding traffic to the priority route, rather than the crossing route. The SIDRA results outlined in Section 7.6.7 shows that the intersection will perform sufficiently with the additional traffic included. We would add that the current intersection does have a safety concern, with a longer-term upgrade needing to address the current concern. The footprint of the intersection however is small

Intersection	Current Layout	Expected change and effect
		and will likely require additional land for Auckland Transport to implement the necessary upgrade required.

## 8 PROPOSED PRECINCT PLAN PROVISIONS

### 8.1 Precinct Provisions

A Precinct is proposed as part of the Plan Change. The Precinct allows specific standards and assessment criteria to be included in the Unitary Plan, so that development of Riverhead can be managed appropriately.

The Precinct includes provisions that limit any dwellings within the Riverhead Plan Change area from being occupied prior to the SH16 / Coatesville – Riverhead Highway intersection from being upgraded. This is a key transport move in terms of safety and capacity for the Riverhead area. The intersection upgrade is proposed by Waka Kotahi and is currently scheduled to be completed by 2025. The Notice of Requirement has been lodged with Auckland Council. Should the intersection not be upgraded, matters of discretion are included in the precinct provisions such that any occupied development will be required to address the safety of the surrounding transport network, including at the SH16 / Coatesville-Riverhead Highway intersection.

The Precinct Plan provisions includes requirements to upgrade Riverhead Road, Coatesville-Riverhead Highway, Lathrope Road and Cambridge Road fronting the Site prior to any development being completed which would use these roads. Further, the implementation of a footpath on Queen Street is required that connects the plan change area through the existing Riverhead village and public transport facilities at the time development occurs. This will ensure that development will have safe infrastructure available in the local Riverhead area at the time development becomes occupied. As noted above, other localised footpaths are being proposed by the Local Board to address the ‘gaps’ in the existing network.

Proposed Standards related to transport, as set out in IX6.1 of the precinct provisions include

- (1) Prior to occupation of a dwelling within the Riverhead Precinct, the following transport infrastructure must be constructed and operational:
  - (a) Upgrade of the Coatesville-Riverhead Highway / Main Road (SH16) intersection to a roundabout, as part of the SH16 Bringham Creek to Waimauku project, led by Waka Kotahi NZ Transport Agency.
- (2) Prior to occupation of a building on a site with vehicle access to and/or from Coatesville-Riverhead Highway, the following road infrastructure upgrades must be constructed and operational:
  - (a) Upgrade and urbanise Coatesville-Riverhead Highway from 80m south of Short Road to the Coatesville-Riverhead Highway / Riverhead Road roundabout, including walking/cycling infrastructure, gateway treatment and public transport infrastructure in accordance with IX.10.3 Riverhead: Precinct plan 3 and IX.11.2 Appendix 2; and
  - (b) Upgrade and urbanise the Coatesville-Riverhead Highway / Riverhead Road roundabout, in accordance with IX.10.3 Riverhead: Precinct plan 3 and IX.11.2 Appendix 2.
- (3) Prior to occupation of a building on a site with vehicle access to and/or from Riverhead Road, the following road infrastructure upgrades must be constructed and operational:
  - (a) Upgrade and urbanise Coatesville-Riverhead Highway from 80m south of Short Road to the Coatesville-Riverhead Highway / Riverhead Road roundabout, including

- walking/cycling infrastructure, gateway treatment and public transport infrastructure in accordance with IX.10.3 Riverhead: Precinct plan 3 and IX.11.2 Appendix 2; and
- (b) Upgrade and urbanise the Coatesville-Riverhead Highway / Riverhead Road roundabout, in accordance with IX.10.3 Riverhead: Precinct plan 3 and IX.11.2 Appendix 2; and
  - (c) Upgrade and urbanise Riverhead Road, from the eastern boundary of 307 Riverhead Road to Coatesville-Riverhead Highway, including walking/cycling infrastructure, gateway threshold treatment, and public transport infrastructure in accordance with IX.10.3 Riverhead: Precinct plan 3.
- (4) Prior to occupation of a building on a site with vehicle access to and/or from Lathrope Road, the following road infrastructure upgrades must be constructed and operational:
- (a) Upgrade Lathrope Road between Riverhead Road and the new access point, in accordance with IX.10.3 Riverhead: Precinct plan 3 and IX.11.2 Appendix 2; and
  - (b) Upgrade the Riverhead Road/Lathrope Road intersection to a Give-Way controlled intersection, in accordance with IX.10.3 Riverhead: Precinct plan 3 and IX.11.2 Appendix 2.
- (5) Prior to occupation of a building on a site with vehicle access to and/or from Cambridge Road, the following road infrastructure upgrades must be constructed and operational:
- (a) A new footpath on the western side of Cambridge Road between Queen Street and Riverhead Road in accordance with IX.10.3 Riverhead: Precinct plan 3;
  - (b) Upgrade and urbanise the existing carriageway of the formed portion of Cambridge Road south of Queen Street to an urban standard, in accordance IX.10.3 Riverhead: Precinct Plan 3;
  - (c) A new footpath on the northern side of Queen Street between Coatesville-Riverhead Highway and Cambridge Road in accordance with IX.10.3 Riverhead: Precinct plan 3; and
  - (d) An additional pedestrian crossing facility on Coatesville-Riverhead Highway between Edward Street and Princes Street.

In addition to the above upgrades, standard IX6.2 includes a road widening requirement of 2m on land adjoining Riverhead Road. This allows the Riverhead Road reserve to be widened from 20m to 24m, providing sufficient space to accommodate the upgrades required.

Localised road widening is required about new intersections on Riverhead Road and Coatesville-Riverhead Highway, with the extent of the widening to be addressed at detailed design. We note that the current Notice of Requirement process being undertaken by Supporting Growth has landed on an extent of designation which allows for the roundabout design discussed in this report. This is captured in Appendix 2 of the Precinct Provisions (refer to the Precinct provisions appended with the Plan Change documentation to review Appendix 2).

## 8.2 Infrastructure Implementation Plan

A summary of the proposed implementation plan for transport infrastructure is provided in Table 11.

As mentioned previously, it is anticipated that the SH16 / Coatesville-Riverhead Highway upgrade will be completed before any development within the Site occurs. This project is being delivered by Waka Kotahi and is scheduled to be completed by 2025.

The 2025 timeframe aligns with the anticipated date for buildings starting to be occupied on Site, with a development timeframe of 5-10 years (2030-35) for the key stakeholders. Should development come online earlier, the provisions ensure any proposals are adequately assessed, ensuring that a safe transport network exists prior to occupation of buildings.

The proposed corridor and intersection upgrades of Coatesville-Riverhead Highway, Riverhead Road, Lathrope Road, Cambridge Road and supporting footpath connections will be undertaken by the applicant, Riverhead Landowner Group. Each of these upgrades will be undertaken prior to any development connecting to these roads.

**Table 11: Infrastructure implementation plan**

Infrastructure upgrade	Implementation timing / trigger point	Party responsible
SH16 / Coatesville-Riverhead Highway	2025 –Prior to occupation of a dwelling within Riverhead Precinct	Waka Kotahi
Coatesville-Riverhead Highway corridor and intersections (Riverhead Road to 80 m south of Short Road)	Prior to occupation of a building on a site with a vehicle access to and/or from Coatesville-Riverhead Highway, or Riverhead Road	Riverhead Landowner Group
Riverhead Road corridor and intersections (Coatesville-Riverhead Highway to eastern boundary of 307 Riverhead Road)	Prior to occupation of a building on a site with a vehicle access to and/or from Riverhead Road	Riverhead Landowner Group
Lathrope Road corridor and Lathrope Road / Riverhead Road intersection	Prior to occupation of a building on a site with a vehicle access to and/or from Lathrope Road	Riverhead Landowner Group
Urbanise Cambridge Road fronting the development site and provide a footpath on the western side (between Queen Street and Riverhead Road)	Prior to occupation of a building on a site with a vehicle access to and/or from Cambridge Road	Riverhead Landowner Group
Provide a new footpath on the northern side of Queen Street (Cambridge Road to Coatesville-Riverhead Highway)	Prior to occupation of a building on a site with a vehicle access to and/or from Cambridge Road	Riverhead Landowner Group
Additional pedestrian crossing on Coatesville-Riverhead Highway between Edward Street and Princes Street	Prior to occupation of a building on a site with a vehicle access to and/or from Cambridge Road	Riverhead Landowner Group



Infrastructure upgrade	Implementation timing / trigger point	Party responsible
Coatesville-Riverhead Highway / Old Railway Road and Riverland Road intersections – provide right turn bay upgrades	Prior to occupation of dwellings within Riverhead Precinct	Riverhead Landowner Group

## 9 CONCLUSIONS

Based on the analysis described in this report, we conclude that the Structure Plan and proposed Riverhead Plan Change can enable activities that can operate safely and efficiently from a transportation perspective. We conclude that

- ♦ The Plan change aligns well with the Auckland Plan and Auckland Unitary Plan transport objectives by providing people with choices of healthy and sustainable transport modes, and encouraging a range of activities (assessed in further detail in the Section 32 report by Barkers & Associates)
- ♦ The rezoning of Future Urban land will enable a range of complementary activities, including residential dwellings, a local centre, early learning childcare centres and a retirement village complex and provisions support social facilities, including education facilities
- ♦ The Plan Change brings the development ahead of the 2028 – 2032 current schedule in the Future Urban Land Supply Strategy, by four or so years although that timing is principally based on issues applying to Kumeu and Huapai that do not constrain Riverhead. We note that the roading improvements captured in the Precinct Provisions are all that required. The Plan Change requires these to be in place prior to development being occupied
- ♦ The sections of Riverhead Road and Coatesville-Riverhead Highway that front the plan change area and provide the entry points to Riverhead will receive full corridor upgrades within the vicinity of the Site as part of the Plan Change. This includes providing new dedicated facilities for pedestrians and cyclists on both sides, which will significantly improve active mode accessibility for existing and future residents of Riverhead
- ♦ Lathrope Road will be upgraded and sealed to provide a footpath and allow this to be used as an external vehicle access route from the Site
- ♦ Anticipated speed limit reductions on Riverhead Road and Coatesville-Riverhead Highway will provide safety benefits for all road users and align with Vision Zero principles
- ♦ An internal road network will be provided to support the activities included in the Plan Change. Several new intersections will be constructed, while existing intersections in the local area will be upgraded. These intersections will be designed in accordance with Vision Zero, and designed to safely accommodate all road users. The proposed Precinct Provisions set out the anticipated design elements of local roads, requiring low speed designs that offers a safe outcome to all users
- ♦ New footpaths will be provided on Cambridge Road and Queen Street to provide facilities for pedestrians, as no footpaths currently exist along sections of these roads
- ♦ Right turn bays on Coatesville-Riverhead Highway will be required at the Riverland Road and Old Railway Road intersections, noting the Old Railway Road right turn bay is already required
- ♦ There are existing capacity constraints on the road network, particularly on SH16. The section of SH16 south of the Site has funding to be upgraded by Waka Kotahi NZTA by 2025, which will increase capacity and improve safety to all Riverhead residents. The proposed Precinct Provisions include a standard to ensure that this upgrade is provided before development is occupied
- ♦ There will be a noticeable number of trips generated by the development, but the impact on the wider network will be reduced by-pass trips, multi-purpose trips, and trips that can be undertaken

locally within Riverhead. All intersections within the Riverhead Plan Change area are anticipated to perform without any noticeable queue lengths or delays with the increased traffic volumes

- ♦ The SH16 / Coatesville-Riverhead Highway intersection is predicted to perform well, even when considering the full 100% Plan Change buildout by 2038, due to the Waka Kotahi upgrade
- ♦ Coatesville-Riverhead Highway is serviced by a bus route, which connects to the Westgate public transport hub and Albany station. The upgrades proposed on Coatesville-Riverhead Highway will include the provision of public transport infrastructure to support and encourage travel by public transport.

Overall, we are of the view that the Plan Change will enable development that aligns with or implements transport network upgrades as planned by Waka Kotahi and Auckland Transport. The upgrades proposed as part of the Plan Change will significantly improve accessibility for all transport modes in Riverhead and will supplement upgrades to SH16 proposed by 2025.

We therefore consider that there are no transportation planning or traffic engineering reasons to preclude the implementation of the Plan Change as intended.

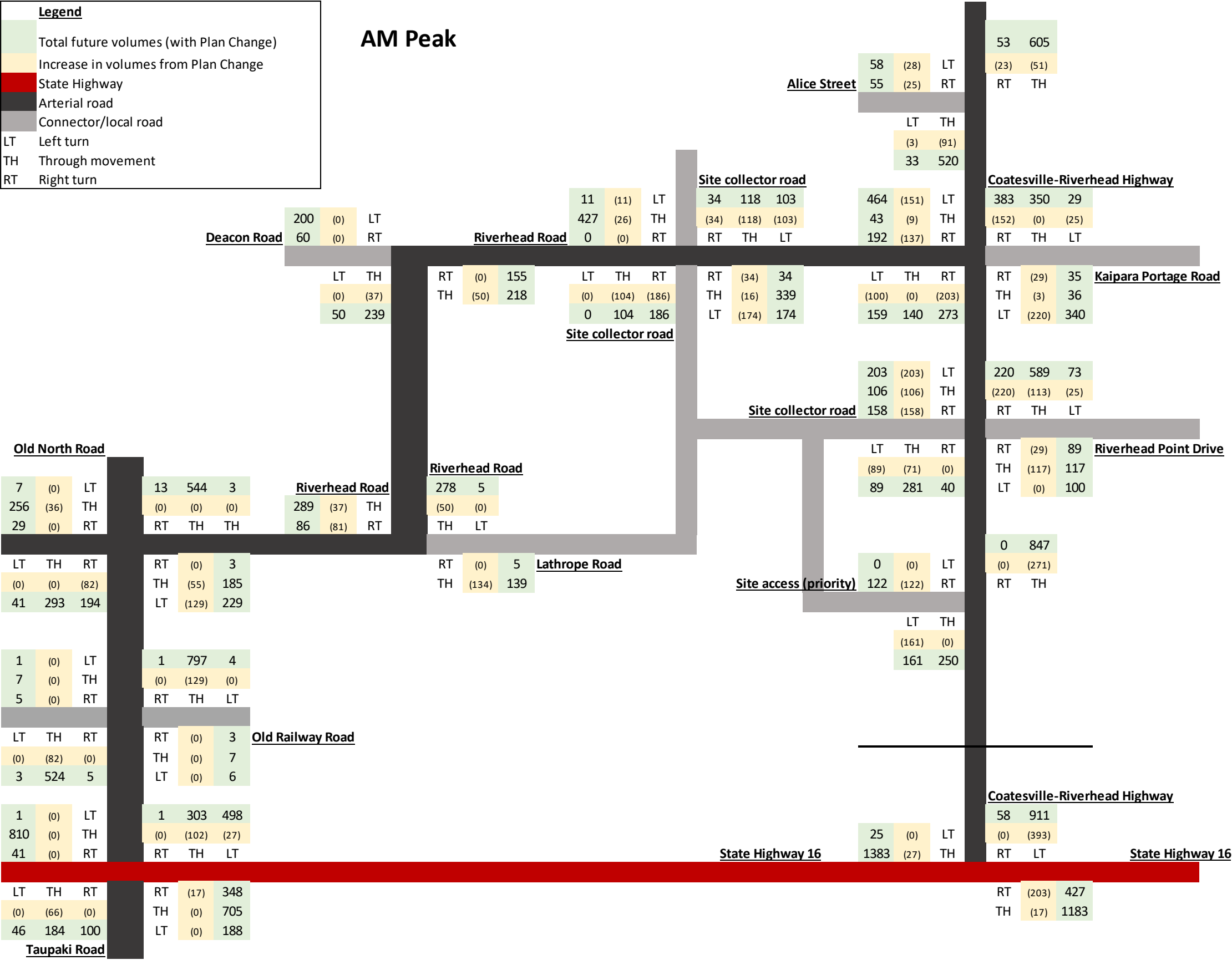
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## APPENDIX A

## Trip distribution diagrams

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Full Build Trip Distribution Diagram –AM Peak with Plan Change



**Legend**

- Total future volumes (with Plan Change)
- Increase in volumes from Plan Change
- State Highway
- Arterial road
- Connector/local road
- LT Left turn
- TH Through movement
- RT Right turn

**PM Peak**

**Alice Street**

55	(25)	LT
58	(28)	RT

**Deacon Road**

160	(0)	LT
55	(0)	RT

**Riverhead Road**

29	(29)	LT
409	(18)	TH
21	(21)	RT

**Site collector road**

17	69	51
(17)	(69)	(51)

**Coatesville-Riverhead Highway**

333	(84)	LT
93	(4)	TH
165	(111)	RT

**Coatesville-Riverhead Highway**

396	250	38
(100)	(0)	(28)

**Kaipara Portage Road**

RT	(25)	30
TH	(7)	42
LT	(129)	224

**Site collector road**

114	(114)	LT
60	(60)	TH
82	(82)	RT

**Old North Road**

18	(0)	LT
266	(45)	TH
48	(0)	RT

**Riverhead Road**

11	404	4
(0)	(0)	(0)
RT	TH	TH

**Riverhead Road**

328	(47)	TH
108	(103)	RT

**Riverhead Road**

218	5
(41)	(0)
TH	LT

**Lathrope Road**

RT	(0)	5
TH	(70)	75

**Site access (priority)**

0	(0)	LT
61	(61)	RT

**Old Railway Road**

LT	TH	RT
(0)	(104)	(0)
7	784	10

**Old Railway Road**

RT	(0)	5
TH	(0)	10
LT	(0)	27

**Coatesville-Riverhead Highway**

39	580
(0)	(226)

**State Highway 16**

33	(0)	LT
1249	(16)	TH

**State Highway 16**

RT	LT
----	----

**Taupaki Road**

LT	TH	RT
(0)	(82)	(0)
37	268	174

**Taupaki Road**

RT	(22)	532
TH	(0)	1360
LT	(0)	99

**Coatesville-Riverhead Highway**

RT	(328)	628
TH	(22)	1730

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## APPENDIX B

## SIDRA modelling outputs

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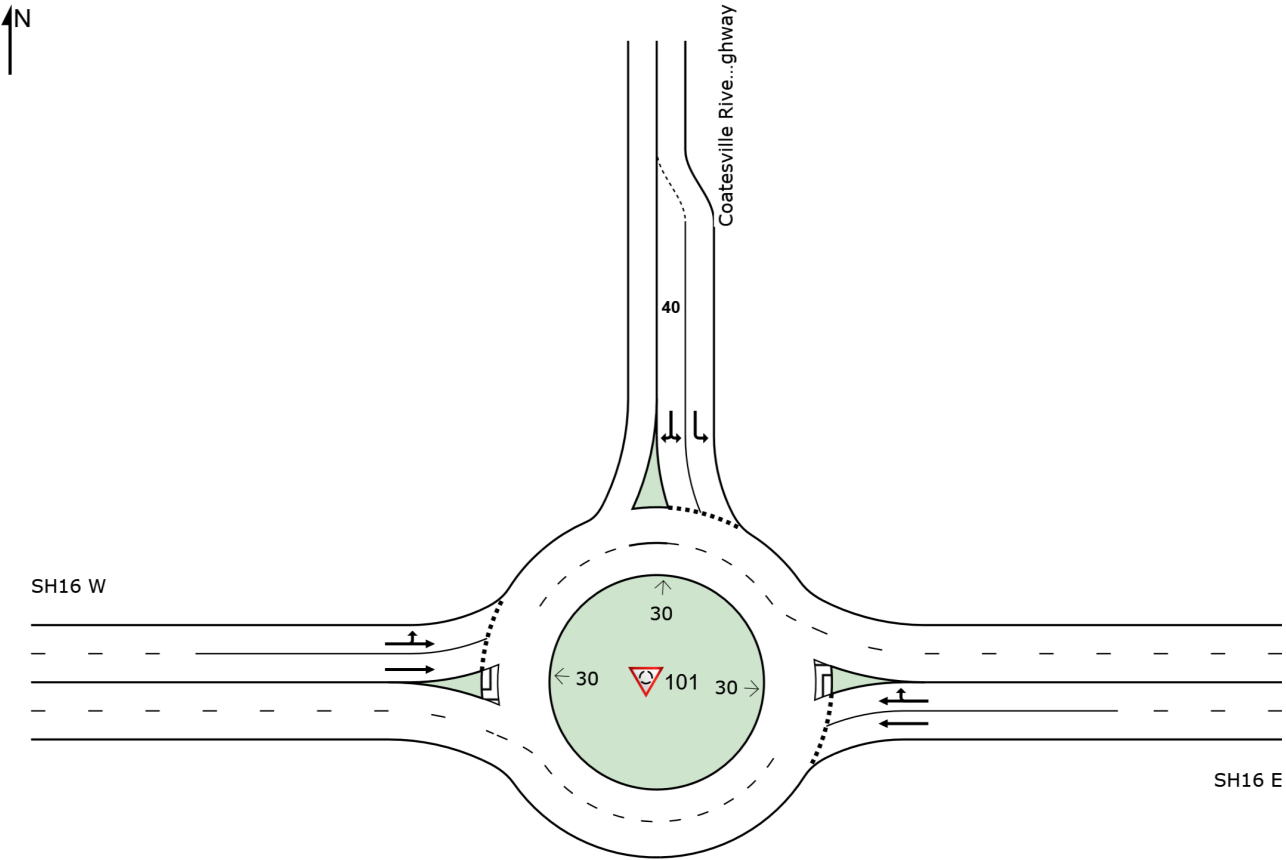


SITE LAYOUT

Site: 101 [SH16/Coatesville-Riverhead Highway 2031 (Site Folder: Base\_AM)]

New Site  
Site Category: (None)  
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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## MOVEMENT SUMMARY

 **Site: 101 [SH16/Coatesville-Riverhead Highway 2031 (Site Folder: Base\_AM)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
v/csec														
East: SH16 E														
5	T1	1034	9.0	1034	9.0	0.407	6.4	LOS A	3.5	26.5	0.29	0.48	0.29	65.3
6	R2	224	6.0	224	6.0	0.407	12.2	LOS B	3.4	25.5	0.30	0.54	0.30	64.3
Approach		1258	8.5	1258	8.5	0.407	7.4	LOS A	3.5	26.5	0.29	0.49	0.29	65.1
North: Coatesville Riverhead Highway														
7	L2	518	6.0	518	6.0	0.408	9.8	LOS A	2.3	16.8	0.76	0.92	0.85	61.7
9	R2	58	6.0	58	6.0	0.408	16.9	LOS B	2.1	15.5	0.76	0.93	0.86	61.6
Approach		576	6.0	576	6.0	0.408	10.5	LOS B	2.3	16.8	0.76	0.92	0.85	61.7
West: SH16 W														
10	L2	25	6.0	25	6.0	0.460	6.7	LOS A	3.5	26.2	0.50	0.56	0.50	63.0
11	T1	1203	9.0	1203	9.0	0.460	7.4	LOS A	3.5	26.2	0.52	0.57	0.52	64.3
Approach		1228	8.9	1228	8.9	0.460	7.4	LOS A	3.5	26.2	0.52	0.57	0.52	64.3
All Vehicles		3062	8.2	3062	8.2	0.460	8.0	LOS A	3.5	26.5	0.47	0.61	0.49	64.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [SH16/Coatesville-Riverhead Highway 2031 (Site Folder: Base\_PM)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
East: SH16 E														
5	T1	1712	9.0	1712	9.0	0.632	6.4	LOS A	7.7	58.2	0.32	0.46	0.32	65.2
6	R2	300	6.0	300	6.0	0.632	12.2	LOS B	7.7	57.7	0.34	0.51	0.34	64.4
Approach		2012	8.6	2012	8.6	0.632	7.2	LOS A	7.7	58.2	0.32	0.47	0.32	65.1
North: Coatesville Riverhead Highway														
7	L2	354	6.0	354	6.0	0.269	8.7	LOS A	1.3	9.9	0.71	0.83	0.71	62.5
9	R2	39	6.0	39	6.0	0.269	15.5	LOS B	1.2	9.1	0.71	0.88	0.71	63.1
Approach		393	6.0	393	6.0	0.269	9.3	LOS A	1.3	9.9	0.71	0.84	0.71	62.5
West: SH16 W														
10	L2	33	6.0	33	6.0	0.449	7.1	LOS A	3.4	25.4	0.57	0.60	0.57	62.6
11	T1	1093	9.0	1093	9.0	0.449	7.8	LOS A	3.4	25.4	0.59	0.61	0.59	63.8
Approach		1126	8.9	1126	8.9	0.449	7.8	LOS A	3.4	25.4	0.59	0.61	0.59	63.8
All Vehicles		3531	8.4	3531	8.4	0.632	7.6	LOS A	7.7	58.2	0.45	0.56	0.45	64.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [SH16/Coatesville-Riverhead Highway 60% 2031  
(Site Folder: Clause 23 Scenarios\_Future\_AM)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
East: SH16 E														
5	T1	1049	9.0	1049	9.0	0.468	6.4	LOS A	4.5	34.1	0.32	0.48	0.32	65.0
6	R2	397	6.0	397	6.0	0.468	12.3	LOS B	4.4	32.6	0.33	0.57	0.33	63.0
Approach		1446	8.2	1446	8.2	0.468	8.0	LOS A	4.5	34.1	0.32	0.51	0.32	64.4
North: Coatesville Riverhead Highway														
7	L2	820	6.0	820	6.0	0.688	13.2	LOS B	5.4	39.9	0.89	1.05	1.24	58.5
9	R2	58	6.0	58	6.0	0.688	20.7	LOS C	4.8	35.6	0.88	1.05	1.25	58.4
Approach		878	6.0	878	6.0	0.688	13.7	LOS B	5.4	39.9	0.89	1.05	1.24	58.4
West: SH16 W														
10	L2	25	6.0	25	6.0	0.536	7.8	LOS A	4.4	32.8	0.69	0.65	0.69	61.8
11	T1	1224	9.0	1224	9.0	0.536	8.8	LOS A	4.4	32.8	0.71	0.70	0.73	63.0
Approach		1249	8.9	1249	8.9	0.536	8.8	LOS A	4.4	32.9	0.71	0.70	0.72	63.0
All Vehicles		3573	7.9	3573	7.9	0.688	9.7	LOS A	5.4	39.9	0.60	0.71	0.69	62.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [SH16/Coatesville-Riverhead Highway 60% 2031  
(Site Folder: Clause 23 Scenarios\_Future\_PM)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
East: SH16 E														
5	T1	1730	9.0	1730	9.0	0.716	6.4	LOS A	11.2	84.5	0.38	0.46	0.38	64.6
6	R2	553	6.0	553	6.0	0.716	12.3	LOS B	10.9	80.8	0.42	0.53	0.42	62.9
Approach		2283	8.3	2283	8.3	0.716	7.9	LOS A	11.2	84.5	0.39	0.47	0.39	64.2
North: Coatesville Riverhead Highway														
7	L2	537	6.0	537	6.0	0.440	9.7	LOS A	2.7	19.7	0.81	0.93	0.90	61.8
9	R2	39	6.0	39	6.0	0.440	16.7	LOS B	2.5	18.1	0.80	0.95	0.91	62.3
Approach		576	6.0	576	6.0	0.440	10.2	LOS B	2.7	19.7	0.81	0.93	0.90	61.8
West: SH16 W														
10	L2	33	6.0	33	6.0	0.561	9.6	LOS A	5.4	40.5	0.82	0.81	0.91	60.9
11	T1	1107	9.0	1107	9.0	0.561	10.8	LOS B	5.4	40.5	0.83	0.84	0.94	62.1
Approach		1140	8.9	1140	8.9	0.561	10.8	LOS B	5.4	40.5	0.83	0.84	0.94	62.1
All Vehicles		3999	8.1	3999	8.1	0.716	9.0	LOS A	11.2	84.5	0.57	0.64	0.62	63.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [SH16/Coatesville Riverhead Highway (Site Folder: Future\_AM - 2038 100%)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
East: SH16 E														
5	T1	1183	9.0	1183	9.0	0.521	6.4	LOS A	5.5	41.8	0.35	0.48	0.35	64.8
6	R2	427	6.0	427	6.0	0.521	12.3	LOS B	5.4	40.0	0.37	0.56	0.37	62.9
Approach		1610	8.2	1610	8.2	0.521	8.0	LOS A	5.5	41.8	0.35	0.50	0.35	64.3
North: Coatesville Riverhead Highway														
7	L2	911	6.0	911	6.0	0.877	23.8	LOS C	10.2	75.1	0.98	1.26	1.99	50.1
9	R2	58	6.0	58	6.0	0.877	32.7	LOS C	8.8	64.4	0.96	1.25	2.01	49.1
Approach		969	6.0	969	6.0	0.877	24.3	LOS C	10.2	75.1	0.98	1.26	2.00	50.0
West: SH16 W														
10	L2	25	6.0	25	6.0	0.621	9.0	LOS A	6.3	47.6	0.77	0.76	0.85	61.2
11	T1	1383	9.0	1383	9.0	0.621	10.1	LOS B	6.3	47.6	0.79	0.79	0.89	62.5
Approach		1408	8.9	1408	8.9	0.621	10.1	LOS B	6.3	47.6	0.79	0.79	0.89	62.4
All Vehicles		3987	7.9	3987	7.9	0.877	12.7	LOS B	10.2	75.1	0.66	0.79	0.94	59.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [SH16/Coatesville Riverhead Highway (Site Folder: Future\_PM - 2038 100%)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
East: SH16 E														
5	T1	1730	9.0	1730	9.0	0.740	6.5	LOS A	12.7	96.0	0.41	0.45	0.41	64.4
6	R2	628	6.0	628	6.0	0.740	12.4	LOS B	12.2	90.4	0.45	0.52	0.45	62.5
Approach		2358	8.2	2358	8.2	0.740	8.0	LOS A	12.7	96.0	0.42	0.47	0.42	63.9
North: Coatesville Riverhead Highway														
7	L2	580	6.0	580	6.0	0.557	11.8	LOS B	3.8	28.3	0.89	1.00	1.07	59.8
9	R2	39	6.0	39	6.0	0.557	18.9	LOS B	3.4	25.3	0.87	1.00	1.07	60.1
Approach		619	6.0	619	6.0	0.557	12.3	LOS B	3.8	28.3	0.89	1.00	1.07	59.8
West: SH16 W														
10	L2	33	6.0	33	6.0	0.680	12.7	LOS B	8.7	65.5	0.94	0.96	1.22	59.2
11	T1	1249	9.0	1249	9.0	0.680	14.2	LOS B	8.7	65.5	0.94	1.00	1.25	59.5
Approach		1282	8.9	1282	8.9	0.680	14.2	LOS B	8.7	65.5	0.94	1.00	1.25	59.5
All Vehicles		4259	8.1	4259	8.1	0.740	10.5	LOS B	12.7	96.0	0.64	0.71	0.77	61.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 Site: 101 [SH16/Coatesville-Riverhead Highway 100%<sub>sens2</sub>  
2038 (Site Folder: Clause 23 Scenarios\_Future\_AM)]

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
East: SH16 E														
5	T1	1184	9.0	1184	9.0	0.529	6.4	LOS A	5.7	43.2	0.35	0.48	0.35	64.8
6	R2	449	6.0	449	6.0	0.529	12.3	LOS B	5.6	41.4	0.37	0.57	0.37	62.8
Approach		1633	8.2	1633	8.2	0.529	8.0	LOS A	5.7	43.2	0.36	0.50	0.36	64.2
North: Coatesville Riverhead Highway														
7	L2	978	6.0	978	6.0	0.953	40.4	LOS D	17.1	125.9	0.99	1.57	3.11	40.8
9	R2	58	6.0	58	6.0	0.953	50.8	LOS E	14.3	105.4	0.99	1.55	3.12	39.6
Approach		1036	6.0	1036	6.0	0.953	41.0	LOS D	17.1	125.9	0.99	1.57	3.12	40.8
West: SH16 W														
10	L2	25	6.0	25	6.0	0.634	9.4	LOS A	6.7	50.8	0.80	0.79	0.90	61.1
11	T1	1387	9.0	1387	9.0	0.634	10.6	LOS B	6.7	50.8	0.81	0.82	0.94	62.3
Approach		1412	8.9	1412	8.9	0.634	10.6	LOS B	6.7	50.8	0.81	0.82	0.94	62.3
All Vehicles		4081	7.9	4081	7.9	0.953	17.3	LOS B	17.1	125.9	0.68	0.88	1.26	55.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [SH16/Coatesville-Riverhead Highway 100%<sub>sens2</sub> 2038 (Site Folder: Clause 23 Scenarios\_Future\_PM)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
East: SH16 E														
5	T1	1730	9.0	1730	9.0	0.758	6.5	LOS A	13.9	105.1	0.43	0.45	0.43	64.3
6	R2	686	6.0	686	6.0	0.758	12.4	LOS B	13.2	97.9	0.48	0.52	0.48	62.2
Approach		2416	8.1	2416	8.1	0.758	8.2	LOS A	13.9	105.1	0.44	0.47	0.44	63.6
North: Coatesville Riverhead Highway														
7	L2	615	6.0	615	6.0	0.608	12.8	LOS B	4.4	32.5	0.91	1.02	1.14	58.9
9	R2	39	6.0	39	6.0	0.608	20.0	LOS B	3.9	28.9	0.89	1.02	1.14	59.1
Approach		654	6.0	654	6.0	0.608	13.2	LOS B	4.4	32.5	0.91	1.02	1.14	58.9
West: SH16 W														
10	L2	33	6.0	33	6.0	0.724	15.0	LOS B	10.5	79.0	0.99	1.06	1.42	57.1
11	T1	1251	9.0	1251	9.0	0.724	16.8	LOS B	10.5	79.0	0.99	1.09	1.45	57.2
Approach		1284	8.9	1284	8.9	0.724	16.7	LOS B	10.5	79.0	0.99	1.09	1.45	57.2
All Vehicles		4354	8.1	4354	8.1	0.758	11.5	LOS B	13.9	105.1	0.67	0.74	0.84	60.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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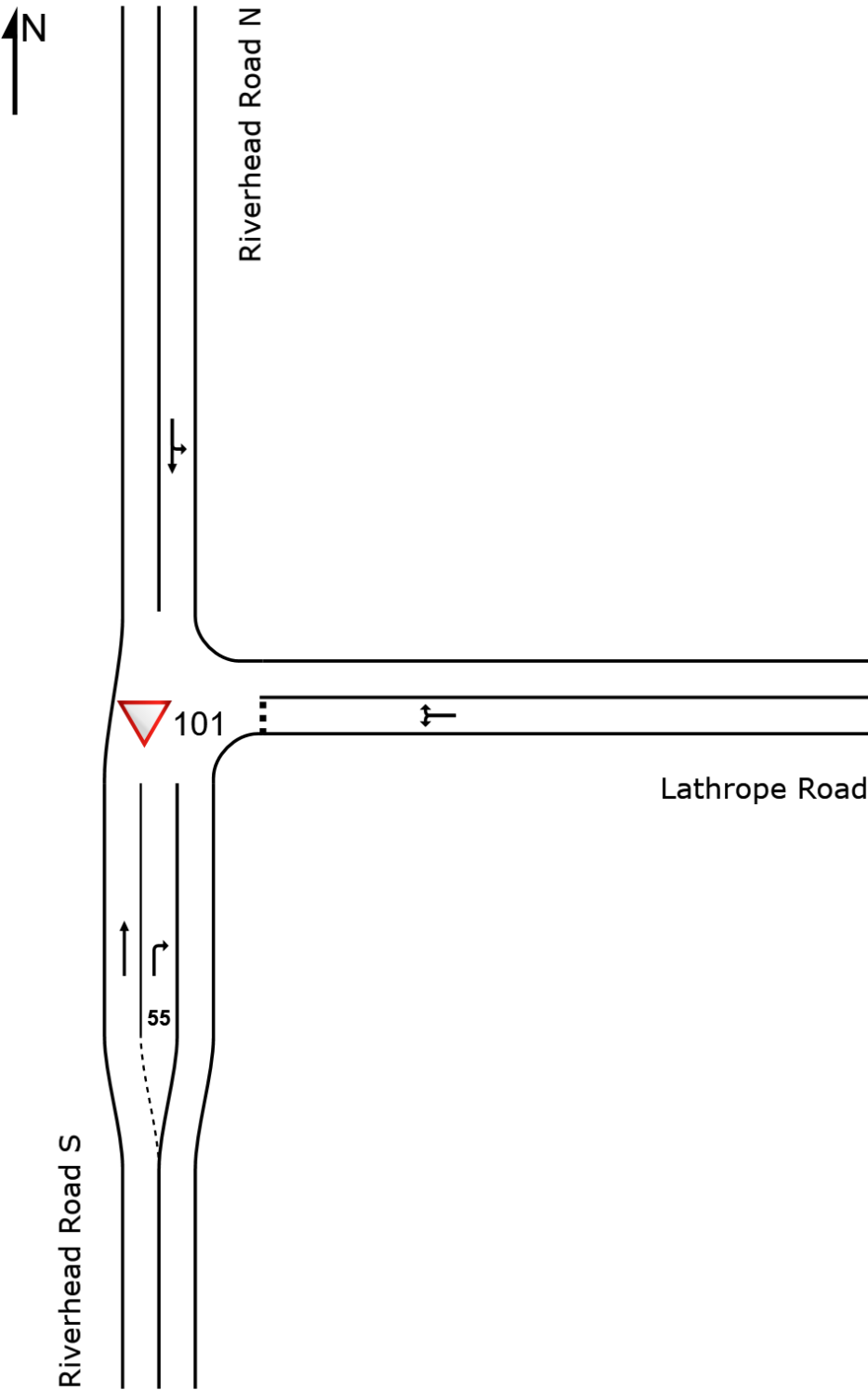
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SITE LAYOUT

▽ Site: 101 [Lathrope Road / Riverhead Road (Site Folder: Base\_AM)]

New Site  
Site Category: (None)  
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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## MOVEMENT SUMMARY

▽ Site: 101 [Lathrope Road / Riverhead Road (Site Folder: Base\_AM)]

New Site

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %	v/c	sec		[ Veh. veh	Dist ] m				km/h
South: Riverhead Road S														
2	T1	252	6.0	265	6.0	0.141	0.0	LOSA	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	5	0.0	5	0.0	0.004	5.3	LOSA	0.0	0.1	0.34	0.52	0.34	45.5
Approach		257	5.9	271	5.9	0.141	0.1	NA	0.0	0.1	0.01	0.01	0.01	59.6
East: Lathrope Road														
4	L2	5	0.0	5	0.0	0.012	6.3	LOSA	0.0	0.3	0.41	0.60	0.41	52.1
6	R2	5	0.0	5	0.0	0.012	8.9	LOSA	0.0	0.3	0.41	0.60	0.41	51.6
Approach		10	0.0	11	0.0	0.012	7.6	LOSA	0.0	0.3	0.41	0.60	0.41	51.8
North: Riverhead Road N														
7	L2	5	0.0	5	0.0	0.131	5.5	LOSA	0.0	0.0	0.00	0.01	0.00	58.0
8	T1	228	6.0	240	6.0	0.131	0.0	LOSA	0.0	0.0	0.00	0.01	0.00	59.6
Approach		233	5.9	245	5.9	0.131	0.2	NA	0.0	0.0	0.00	0.01	0.00	59.5
All Vehicles		500	5.8	526	5.8	0.141	0.3	NA	0.0	0.3	0.01	0.02	0.01	59.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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3:39:39 PM

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## MOVEMENT SUMMARY

▽ Site: 101 [Lathrope Road / Riverhead Road (Site Folder: Base\_PM)]

New Site

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
						v/c	sec							km/h
South: Riverhead Road S														
2	T1	282	6.0	297	6.0	0.158	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	5	0.0	5	0.0	0.003	5.1	LOS A	0.0	0.1	0.29	0.51	0.29	45.6
Approach		287	5.9	302	5.9	0.158	0.1	NA	0.0	0.1	0.01	0.01	0.01	59.6
East: Lathrope Road														
4	L2	5	0.0	5	0.0	0.012	6.1	LOS A	0.0	0.3	0.36	0.59	0.36	52.2
6	R2	5	0.0	5	0.0	0.012	8.7	LOS A	0.0	0.3	0.36	0.59	0.36	51.7
Approach		10	0.0	11	0.0	0.012	7.4	LOS A	0.0	0.3	0.36	0.59	0.36	51.9
North: Riverhead Road N														
7	L2	5	0.0	5	0.0	0.102	5.5	LOS A	0.0	0.0	0.00	0.02	0.00	57.9
8	T1	177	6.0	186	6.0	0.102	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.5
Approach		182	5.8	192	5.8	0.102	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.4
All Vehicles		479	5.7	504	5.7	0.158	0.3	NA	0.0	0.3	0.01	0.02	0.01	59.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

▽ Site: 101 [Lathrope Road / Riverhead Road (Site Folder: Future\_AM - 2038 100%)]

New Site

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %	v/c	sec		[ Veh. veh	Dist m				km/h
South: Riverhead Road S														
2	T1	289	6.0	304	6.0	0.163	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	86	0.0	91	0.0	0.067	5.6	LOS A	0.3	2.1	0.39	0.59	0.39	45.4
Approach		375	4.6	395	4.6	0.163	1.3	NA	0.3	2.1	0.09	0.13	0.09	55.8
East: Lathrope Road														
4	L2	139	0.0	146	0.0	0.128	6.6	LOS A	0.5	3.7	0.39	0.62	0.39	52.4
6	R2	5	0.0	5	0.0	0.128	11.6	LOS B	0.5	3.7	0.39	0.62	0.39	51.9
Approach		144	0.0	152	0.0	0.128	6.8	LOS A	0.5	3.7	0.39	0.62	0.39	52.4
North: Riverhead Road N														
7	L2	5	0.0	5	0.0	0.159	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	58.0
8	T1	278	6.0	293	6.0	0.159	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.6
Approach		283	5.9	298	5.9	0.159	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.6
All Vehicles		802	4.2	844	4.2	0.163	1.9	NA	0.5	3.7	0.11	0.18	0.11	56.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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12:25:01 PM

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## MOVEMENT SUMMARY

▽ Site: 101 [Lathrope Road / Riverhead Road (Site Folder: Future\_PM - 2038 100%)]

New Site

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %	v/c	sec		[ Veh. veh	Dist ] m				km/h
South: Riverhead Road S														
2	T1	328	6.0	345	6.0	0.185	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	108	0.0	114	0.0	0.079	5.4	LOS A	0.4	2.5	0.35	0.57	0.35	45.5
Approach		436	4.5	459	4.5	0.185	1.4	NA	0.4	2.5	0.09	0.14	0.09	55.5
East: Lathrope Road														
4	L2	75	0.0	79	0.0	0.070	6.3	LOS A	0.3	1.9	0.33	0.59	0.33	52.6
6	R2	5	0.0	5	0.0	0.070	11.3	LOS B	0.3	1.9	0.33	0.59	0.33	52.1
Approach		80	0.0	84	0.0	0.070	6.6	LOS A	0.3	1.9	0.33	0.59	0.33	52.6
North: Riverhead Road N														
7	L2	5	0.0	5	0.0	0.125	5.5	LOS A	0.0	0.0	0.00	0.01	0.00	58.0
8	T1	218	6.0	229	6.0	0.125	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.5
Approach		223	5.9	235	5.9	0.125	0.2	NA	0.0	0.0	0.00	0.01	0.00	59.5
All Vehicles		739	4.4	778	4.4	0.185	1.6	NA	0.4	2.5	0.09	0.15	0.09	56.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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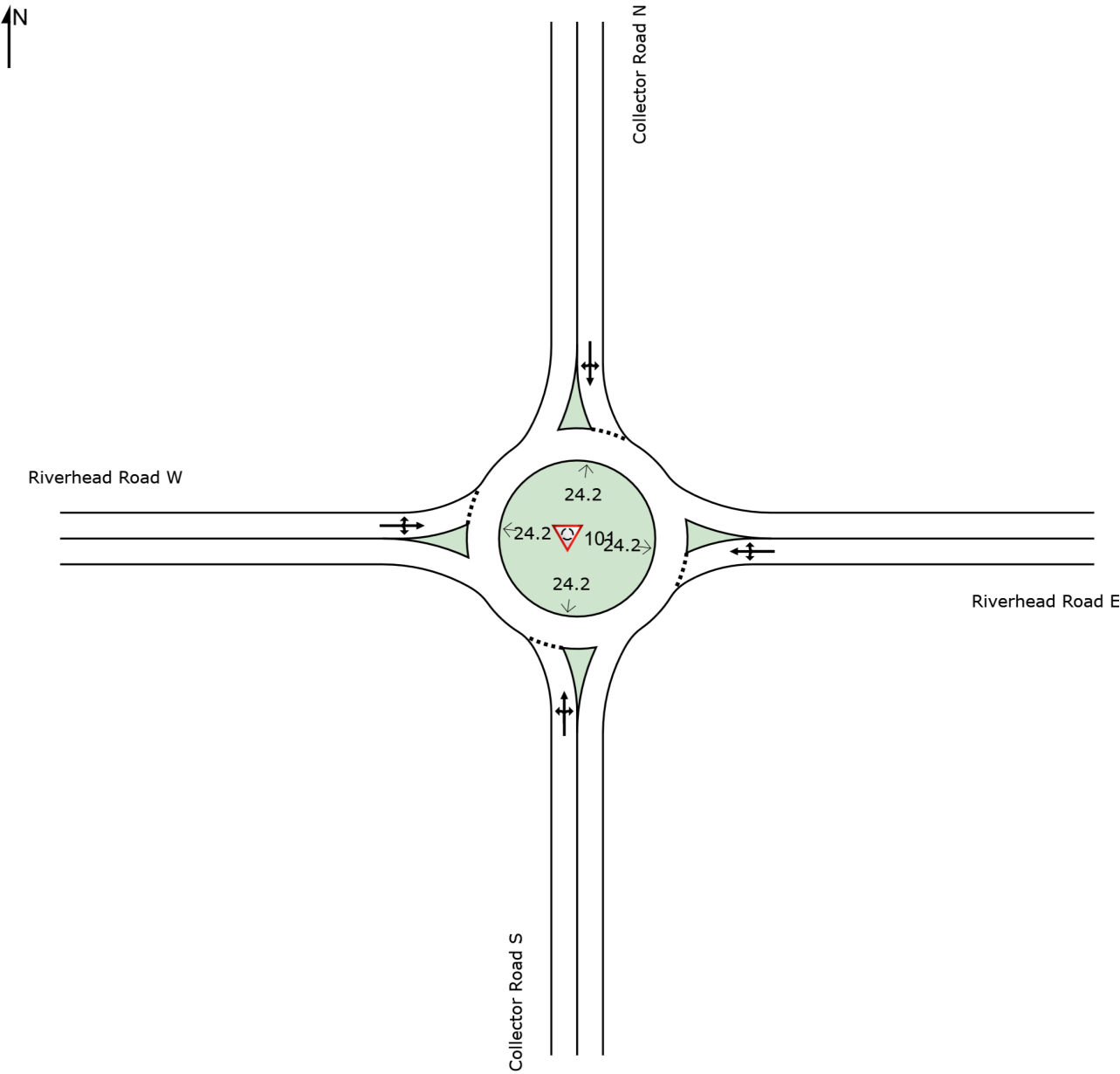
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SITE LAYOUT

Site: 101 [Riverhead Road/Site collector road (Site Folder: Base\_AM)]

New Site  
Site Category: (None)  
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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## MOVEMENT SUMMARY

 Site: 101 [Riverhead Road/Site collector road (Site Folder: Base\_AM)]

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
South: Collector Road S														
1	L2	1	6.0	1	6.0	0.003	4.1	LOSA	0.0	0.1	0.44	0.46	0.44	46.3
2	T1	1	6.0	1	6.0	0.003	3.9	LOSA	0.0	0.1	0.44	0.46	0.44	47.5
3	R2	1	6.0	1	6.0	0.003	8.9	LOSA	0.0	0.1	0.44	0.46	0.44	47.8
Approach		3	6.0	3	6.0	0.003	5.6	LOSA	0.0	0.1	0.44	0.46	0.44	47.2
East: Riverhead Road E														
4	L2	1	6.0	1	6.0	0.203	2.6	LOSA	1.2	9.0	0.04	0.28	0.04	48.4
5	T1	323	6.0	340	6.0	0.203	2.5	LOSA	1.2	9.0	0.04	0.28	0.04	49.7
6	R2	1	6.0	1	6.0	0.203	7.4	LOSA	1.2	9.0	0.04	0.28	0.04	50.0
Approach		325	6.0	342	6.0	0.203	2.5	LOSA	1.2	9.0	0.04	0.28	0.04	49.7
North: Collector Road N														
7	L2	1	6.0	1	6.0	0.003	4.5	LOSA	0.0	0.1	0.49	0.48	0.49	46.1
8	T1	1	6.0	1	6.0	0.003	4.3	LOSA	0.0	0.1	0.49	0.48	0.49	47.3
9	R2	1	6.0	1	6.0	0.003	9.3	LOSA	0.0	0.1	0.49	0.48	0.49	47.6
Approach		3	6.0	3	6.0	0.003	6.1	LOSA	0.0	0.1	0.49	0.48	0.49	47.0
West: Riverhead Road W														
10	L2	1	6.0	1	6.0	0.251	2.6	LOSA	1.6	11.6	0.04	0.28	0.04	48.4
11	T1	402	6.0	423	6.0	0.251	2.5	LOSA	1.6	11.6	0.04	0.28	0.04	49.7
12	R2	1	6.0	1	6.0	0.251	7.4	LOSA	1.6	11.6	0.04	0.28	0.04	50.0
Approach		404	6.0	425	6.0	0.251	2.5	LOSA	1.6	11.6	0.04	0.28	0.04	49.7
All Vehicles		735	6.0	774	6.0	0.251	2.5	LOSA	1.6	11.6	0.04	0.28	0.04	49.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [Riverhead Road/Site collector road (Site Folder: Base\_PM)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
South: Collector Road S														
1	L2	1	6.0	1	6.0	0.003	4.4	LOSA	0.0	0.1	0.47	0.47	0.47	46.2
2	T1	1	6.0	1	6.0	0.003	4.2	LOSA	0.0	0.1	0.47	0.47	0.47	47.4
3	R2	1	6.0	1	6.0	0.003	9.2	LOSA	0.0	0.1	0.47	0.47	0.47	47.7
Approach		3	6.0	3	6.0	0.003	5.9	LOSA	0.0	0.1	0.47	0.47	0.47	47.1
East: Riverhead Road E														
4	L2	1	6.0	1	6.0	0.239	2.6	LOSA	1.5	11.0	0.04	0.28	0.04	48.4
5	T1	382	6.0	402	6.0	0.239	2.5	LOSA	1.5	11.0	0.04	0.28	0.04	49.7
6	R2	1	6.0	1	6.0	0.239	7.4	LOSA	1.5	11.0	0.04	0.28	0.04	50.0
Approach		384	6.0	404	6.0	0.239	2.5	LOSA	1.5	11.0	0.04	0.28	0.04	49.7
North: Collector Road N														
7	L2	1	6.0	1	6.0	0.003	4.5	LOSA	0.0	0.1	0.48	0.48	0.48	46.2
8	T1	1	6.0	1	6.0	0.003	4.3	LOSA	0.0	0.1	0.48	0.48	0.48	47.3
9	R2	1	6.0	1	6.0	0.003	9.3	LOSA	0.0	0.1	0.48	0.48	0.48	47.6
Approach		3	6.0	3	6.0	0.003	6.0	LOSA	0.0	0.1	0.48	0.48	0.48	47.0
West: Riverhead Road W														
10	L2	1	6.0	1	6.0	0.245	2.6	LOSA	1.5	11.4	0.04	0.28	0.04	48.4
11	T1	392	6.0	413	6.0	0.245	2.5	LOSA	1.5	11.4	0.04	0.28	0.04	49.7
12	R2	1	6.0	1	6.0	0.245	7.4	LOSA	1.5	11.4	0.04	0.28	0.04	50.0
Approach		394	6.0	415	6.0	0.245	2.5	LOSA	1.5	11.4	0.04	0.28	0.04	49.7
All Vehicles		784	6.0	825	6.0	0.245	2.5	LOSA	1.5	11.4	0.04	0.28	0.04	49.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [Riverhead Road/Site collector road (Site Folder: Future\_AM - 2038 100%)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
South: Collector Road S														
1	L2	10	6.0	11	6.0	0.333	5.3	LOS A	2.2	16.1	0.66	0.70	0.66	45.0
2	T1	104	6.0	109	6.0	0.333	5.2	LOS A	2.2	16.1	0.66	0.70	0.66	46.1
3	R2	186	6.0	196	6.0	0.333	10.1	LOS B	2.2	16.1	0.66	0.70	0.66	46.3
Approach		300	6.0	316	6.0	0.333	8.3	LOS A	2.2	16.1	0.66	0.70	0.66	46.2
East: Riverhead Road E														
4	L2	174	6.0	183	6.0	0.468	3.8	LOS A	3.9	28.5	0.53	0.46	0.53	46.6
5	T1	339	6.0	357	6.0	0.468	3.6	LOS A	3.9	28.5	0.53	0.46	0.53	47.8
6	R2	34	6.0	36	6.0	0.468	8.6	LOS A	3.9	28.5	0.53	0.46	0.53	48.1
Approach		547	6.0	576	6.0	0.468	4.0	LOS A	3.9	28.5	0.53	0.46	0.53	47.4
North: Collector Road N														
7	L2	103	6.0	108	6.0	0.348	7.2	LOS A	2.4	17.6	0.79	0.80	0.79	45.3
8	T1	118	6.0	124	6.0	0.348	7.0	LOS A	2.4	17.6	0.79	0.80	0.79	46.5
9	R2	34	6.0	36	6.0	0.348	12.0	LOS B	2.4	17.6	0.79	0.80	0.79	46.8
Approach		255	6.0	268	6.0	0.348	7.7	LOS A	2.4	17.6	0.79	0.80	0.79	46.0
West: Riverhead Road W														
10	L2	11	6.0	12	6.0	0.463	5.0	LOS A	3.5	25.4	0.68	0.57	0.68	46.0
11	T1	427	6.0	449	6.0	0.463	4.9	LOS A	3.5	25.4	0.68	0.57	0.68	47.2
12	R2	10	6.0	11	6.0	0.463	9.8	LOS A	3.5	25.4	0.68	0.57	0.68	47.5
Approach		448	6.0	472	6.0	0.463	5.0	LOS A	3.5	25.4	0.68	0.57	0.68	47.2
All Vehicles		1550	6.0	1632	6.0	0.468	5.7	LOS A	3.9	28.5	0.64	0.59	0.64	46.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [Riverhead Road/Site collector road (Site Folder: Future\_PM - 2038 100%)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
South: Collector Road S														
1	L2	10	6.0	11	6.0	0.220	5.8	LOS A	1.4	10.0	0.67	0.72	0.67	44.9
2	T1	64	6.0	67	6.0	0.220	5.6	LOS A	1.4	10.0	0.67	0.72	0.67	45.9
3	R2	108	6.0	114	6.0	0.220	10.6	LOS B	1.4	10.0	0.67	0.72	0.67	46.2
Approach		182	6.0	192	6.0	0.220	8.6	LOS A	1.4	10.0	0.67	0.72	0.67	46.0
East: Riverhead Road E														
4	L2	132	6.0	139	6.0	0.489	3.4	LOS A	4.1	30.4	0.43	0.43	0.43	46.7
5	T1	406	6.0	427	6.0	0.489	3.3	LOS A	4.1	30.4	0.43	0.43	0.43	47.9
6	R2	86	6.0	91	6.0	0.489	8.2	LOS A	4.1	30.4	0.43	0.43	0.43	48.2
Approach		624	6.0	657	6.0	0.489	4.0	LOS A	4.1	30.4	0.43	0.43	0.43	47.7
North: Collector Road N														
7	L2	51	6.0	54	6.0	0.172	5.9	LOS A	1.0	7.7	0.68	0.67	0.68	45.9
8	T1	69	6.0	73	6.0	0.172	5.7	LOS A	1.0	7.7	0.68	0.67	0.68	47.1
9	R2	17	6.0	18	6.0	0.172	10.7	LOS B	1.0	7.7	0.68	0.67	0.68	47.4
Approach		137	6.0	144	6.0	0.172	6.4	LOS A	1.0	7.7	0.68	0.67	0.68	46.7
West: Riverhead Road W														
10	L2	29	6.0	31	6.0	0.437	4.5	LOS A	3.1	23.1	0.59	0.51	0.59	46.3
11	T1	409	6.0	431	6.0	0.437	4.3	LOS A	3.1	23.1	0.59	0.51	0.59	47.5
12	R2	21	6.0	22	6.0	0.437	9.3	LOS A	3.1	23.1	0.59	0.51	0.59	47.8
Approach		459	6.0	483	6.0	0.437	4.6	LOS A	3.1	23.1	0.59	0.51	0.59	47.4
All Vehicles		1402	6.0	1476	6.0	0.489	5.0	LOS A	4.1	30.4	0.54	0.52	0.54	47.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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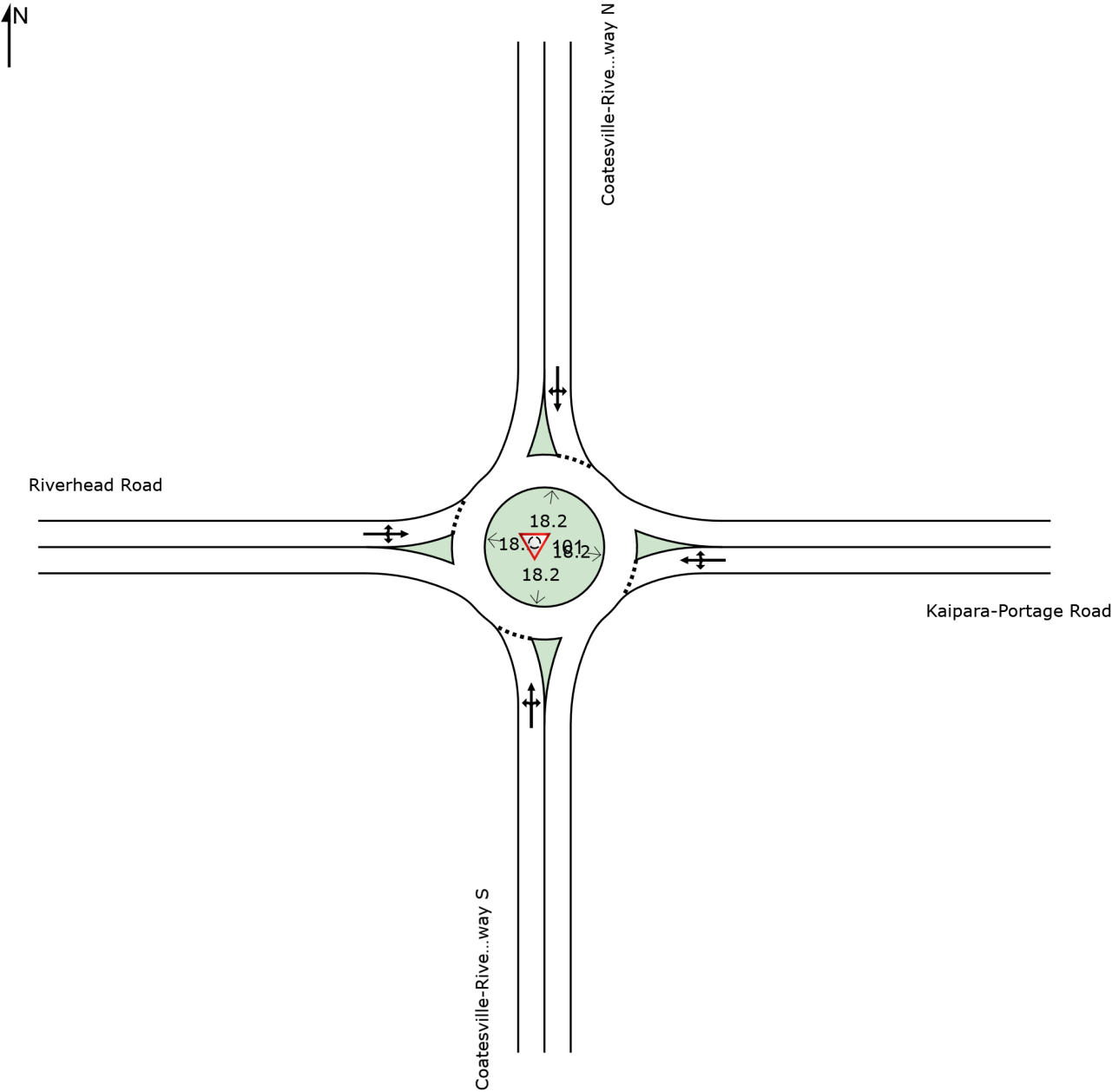
Project: P:\frlx\015 Fletchers Riverhead Masterplan and Private Plan Change\SIDRA\Riverhead Sidra 221129.sip9

SITE LAYOUT

Site: 101 [Coatesville-Riverhead Highway/Riverhead Road  
(Site Folder: Base\_AM)]

New Site  
Site Category: (None)  
Roundabout

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## MOVEMENT SUMMARY

 **Site: 101 [Coatesville-Riverhead Highway/Riverhead Road  
(Site Folder: Base\_AM)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %				[ Veh. veh	Dist ] m				
						v/c	sec							km/h
South: Coatesville-Riverhead Highway S														
1	L2	60	6.0	63	6.0	0.276	4.8	LOS A	1.7	12.5	0.53	0.59	0.53	45.8
2	T1	140	6.0	147	6.0	0.276	4.7	LOS A	1.7	12.5	0.53	0.59	0.53	46.8
3	R2	70	6.0	74	6.0	0.276	9.1	LOS A	1.7	12.5	0.53	0.59	0.53	46.9
Approach		270	6.0	284	6.0	0.276	5.9	LOS A	1.7	12.5	0.53	0.59	0.53	46.6
East: Kaipara-Portage Road														
4	L2	120	6.0	126	6.0	0.231	7.5	LOS A	1.5	10.8	0.75	0.77	0.75	45.2
5	T1	33	6.0	35	6.0	0.231	7.5	LOS A	1.5	10.8	0.75	0.77	0.75	46.2
6	R2	6	6.0	6	6.0	0.231	11.8	LOS B	1.5	10.8	0.75	0.77	0.75	46.3
Approach		159	6.0	167	6.0	0.231	7.7	LOS A	1.5	10.8	0.75	0.77	0.75	45.4
North: Coatesville-Riverhead Highway N														
7	L2	4	6.0	4	6.0	0.504	4.3	LOS A	3.9	29.0	0.51	0.56	0.51	45.6
8	T1	350	6.0	368	6.0	0.504	4.3	LOS A	3.9	29.0	0.51	0.56	0.51	46.6
9	R2	231	6.0	243	6.0	0.504	8.6	LOS A	3.9	29.0	0.51	0.56	0.51	46.7
Approach		585	6.0	616	6.0	0.504	6.0	LOS A	3.9	29.0	0.51	0.56	0.51	46.6
West: Riverhead Road														
10	L2	313	6.0	329	6.0	0.383	4.5	LOS A	2.7	19.6	0.53	0.58	0.53	46.3
11	T1	35	6.0	37	6.0	0.383	4.5	LOS A	2.7	19.6	0.53	0.58	0.53	47.3
12	R2	54	6.0	57	6.0	0.383	8.8	LOS A	2.7	19.6	0.53	0.58	0.53	47.4
Approach		402	6.0	423	6.0	0.383	5.1	LOS A	2.7	19.6	0.53	0.58	0.53	46.5
All Vehicles		1416	6.0	1491	6.0	0.504	5.9	LOS A	3.9	29.0	0.55	0.59	0.55	46.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [Coatesville-Riverhead Highway/Riverhead Road  
(Site Folder: Base\_PM)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %				[ Veh. veh	Dist ] m				
						v/c	sec							km/h
South: Coatesville-Riverhead Highway S														
1	L2	51	6.0	54	6.0	0.317	5.3	LOS A	2.0	15.0	0.61	0.63	0.61	45.7
2	T1	190	6.0	200	6.0	0.317	5.3	LOS A	2.0	15.0	0.61	0.63	0.61	46.7
3	R2	50	6.0	53	6.0	0.317	9.6	LOS A	2.0	15.0	0.61	0.63	0.61	46.8
Approach		291	6.0	306	6.0	0.317	6.0	LOS A	2.0	15.0	0.61	0.63	0.61	46.5
East: Kaipara-Portage Road														
4	L2	95	6.0	100	6.0	0.191	7.0	LOS A	1.2	8.8	0.73	0.73	0.73	45.4
5	T1	35	6.0	37	6.0	0.191	7.0	LOS A	1.2	8.8	0.73	0.73	0.73	46.4
6	R2	5	6.0	5	6.0	0.191	11.3	LOS B	1.2	8.8	0.73	0.73	0.73	46.5
Approach		135	6.0	142	6.0	0.191	7.2	LOS A	1.2	8.8	0.73	0.73	0.73	45.7
North: Coatesville-Riverhead Highway N														
7	L2	10	6.0	11	6.0	0.504	4.6	LOS A	4.0	29.2	0.56	0.60	0.56	45.2
8	T1	250	6.0	263	6.0	0.504	4.5	LOS A	4.0	29.2	0.56	0.60	0.56	46.2
9	R2	296	6.0	312	6.0	0.504	8.9	LOS A	4.0	29.2	0.56	0.60	0.56	46.3
Approach		556	6.0	585	6.0	0.504	6.8	LOS A	4.0	29.2	0.56	0.60	0.56	46.2
West: Riverhead Road														
10	L2	249	6.0	262	6.0	0.389	4.8	LOS A	2.7	20.1	0.57	0.60	0.57	46.1
11	T1	89	6.0	94	6.0	0.389	4.7	LOS A	2.7	20.1	0.57	0.60	0.57	47.1
12	R2	54	6.0	57	6.0	0.389	9.1	LOS A	2.7	20.1	0.57	0.60	0.57	47.2
Approach		392	6.0	413	6.0	0.389	5.4	LOS A	2.7	20.1	0.57	0.60	0.57	46.5
All Vehicles		1374	6.0	1446	6.0	0.504	6.3	LOS A	4.0	29.2	0.59	0.62	0.59	46.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [Coatesville-Riverhead Highway/Riverhead Road  
(Site Folder: Future\_AM - 2038 100%)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %				[ Veh. veh	Dist ] m				
South: Coatesville-Riverhead Highway S														
1	L2	159	6.0	159	6.0	0.678	9.8	LOS A	7.8	57.2	0.92	0.99	1.14	43.1
2	T1	140	6.0	140	6.0	0.678	9.8	LOS A	7.8	57.2	0.92	0.99	1.14	43.9
3	R2	273	6.0	273	6.0	0.678	14.1	LOS B	7.8	57.2	0.92	0.99	1.14	44.0
Approach		572	6.0	572	6.0	0.678	11.9	LOS B	7.8	57.2	0.92	0.99	1.14	43.7
East: Kaipara-Portage Road														
4	L2	340	6.0	340	6.0	0.888	47.8	LOS D	16.6	122.5	1.00	1.69	2.56	30.1
5	T1	36	6.0	36	6.0	0.888	47.7	LOS D	16.6	122.5	1.00	1.69	2.56	30.6
6	R2	35	6.0	35	6.0	0.888	52.1	LOS E	16.6	122.5	1.00	1.69	2.56	30.6
Approach		411	6.0	411	6.0	0.888	48.1	LOS D	16.6	122.5	1.00	1.69	2.56	30.2
North: Coatesville-Riverhead Highway N														
7	L2	29	6.0	29	6.0	0.899	23.8	LOS C	20.8	153.4	1.00	1.51	2.10	37.1
8	T1	350	6.0	350	6.0	0.899	23.8	LOS C	20.8	153.4	1.00	1.51	2.10	37.7
9	R2	383	6.0	383	6.0	0.899	28.1	LOS C	20.8	153.4	1.00	1.51	2.10	37.8
Approach		762	6.0	762	6.0	0.899	25.9	LOS C	20.8	153.4	1.00	1.51	2.10	37.7
West: Riverhead Road														
10	L2	464	6.0	464	6.0	0.815	14.2	LOS B	13.3	97.6	1.00	1.17	1.49	41.3
11	T1	43	6.0	43	6.0	0.815	14.2	LOS B	13.3	97.6	1.00	1.17	1.49	42.1
12	R2	192	6.0	192	6.0	0.815	18.5	LOS B	13.3	97.6	1.00	1.17	1.49	42.2
Approach		699	6.0	699	6.0	0.815	15.4	LOS B	13.3	97.6	1.00	1.17	1.49	41.6
All Vehicles		2444	6.0	2444	6.0	0.899	23.4	LOS C	20.8	153.4	0.98	1.32	1.78	38.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [Coatesville-Riverhead Highway/Riverhead Road  
(Site Folder: Future\_PM - 2038 100%)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
						v/c	sec							km/h
South: Coatesville-Riverhead Highway S														
1	L2	178	6.0	187	6.0	0.693	10.8	LOS B	8.2	60.0	0.94	1.04	1.22	42.9
2	T1	190	6.0	200	6.0	0.693	10.8	LOS B	8.2	60.0	0.94	1.04	1.22	43.8
3	R2	164	6.0	173	6.0	0.693	15.1	LOS B	8.2	60.0	0.94	1.04	1.22	43.8
Approach		532	6.0	560	6.0	0.693	12.1	LOS B	8.2	60.0	0.94	1.04	1.22	43.5
East: Kaipara-Portage Road														
4	L2	224	6.0	236	6.0	0.603	15.8	LOS B	6.0	44.0	1.00	1.15	1.33	40.9
5	T1	42	6.0	44	6.0	0.603	15.8	LOS B	6.0	44.0	1.00	1.15	1.33	41.7
6	R2	30	6.0	32	6.0	0.603	20.1	LOS C	6.0	44.0	1.00	1.15	1.33	41.7
Approach		296	6.0	312	6.0	0.603	16.3	LOS B	6.0	44.0	1.00	1.15	1.33	41.1
North: Coatesville-Riverhead Highway N														
7	L2	38	6.0	40	6.0	0.803	13.5	LOS B	12.5	92.3	0.99	1.14	1.45	41.1
8	T1	250	6.0	263	6.0	0.803	13.5	LOS B	12.5	92.3	0.99	1.14	1.45	41.9
9	R2	396	6.0	417	6.0	0.803	17.8	LOS B	12.5	92.3	0.99	1.14	1.45	42.0
Approach		684	6.0	720	6.0	0.803	16.0	LOS B	12.5	92.3	0.99	1.14	1.45	41.9
West: Riverhead Road														
10	L2	333	6.0	351	6.0	0.695	9.3	LOS A	8.3	61.2	0.91	0.95	1.12	43.7
11	T1	93	6.0	98	6.0	0.695	9.3	LOS A	8.3	61.2	0.91	0.95	1.12	44.6
12	R2	165	6.0	174	6.0	0.695	13.6	LOS B	8.3	61.2	0.91	0.95	1.12	44.7
Approach		591	6.0	622	6.0	0.695	10.5	LOS B	8.3	61.2	0.91	0.95	1.12	44.1
All Vehicles		2103	6.0	2214	6.0	0.803	13.5	LOS B	12.5	92.3	0.96	1.06	1.28	42.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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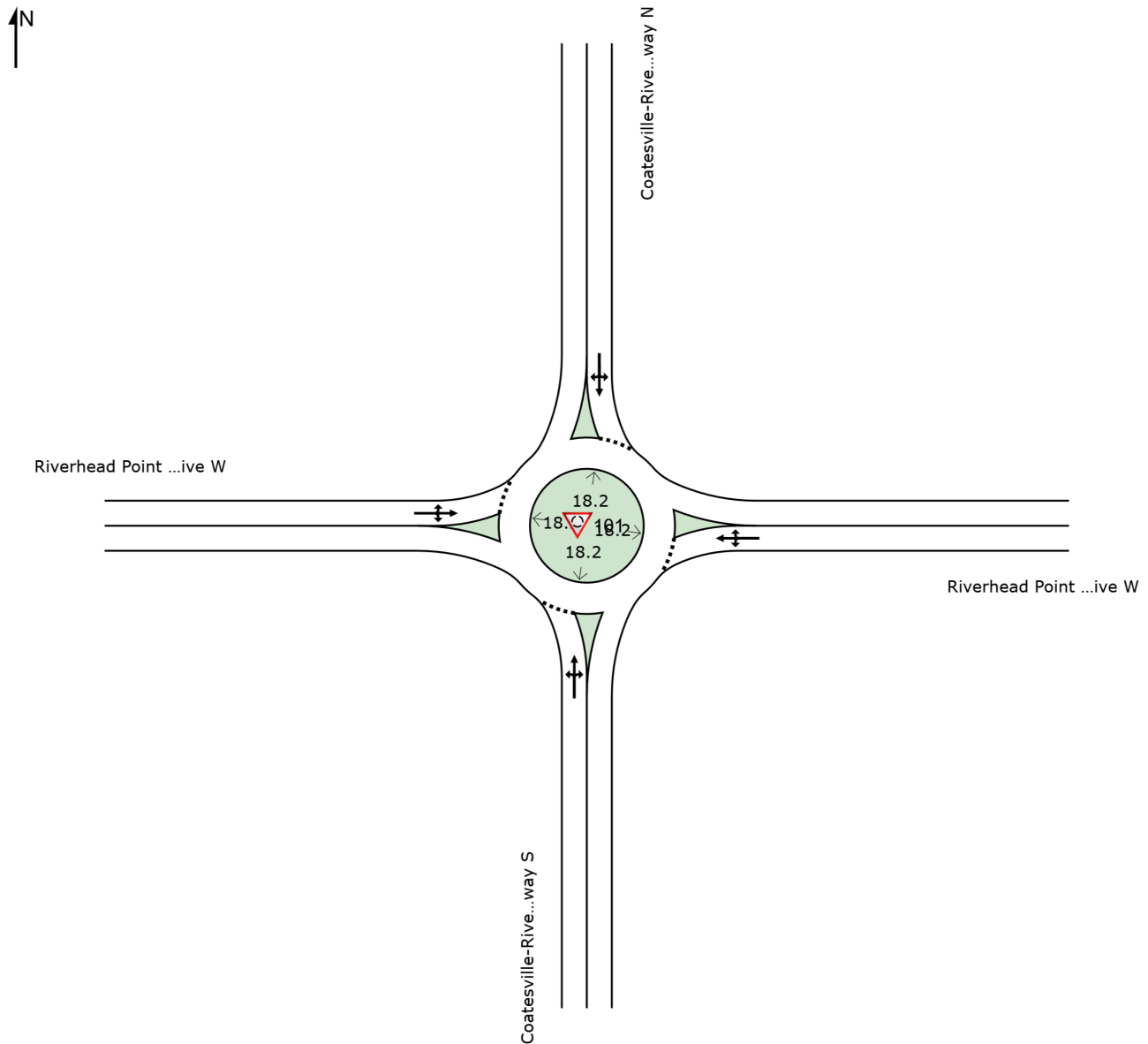
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## SITE LAYOUT

 **Site: 101 [Coatesville-Riverhead Highway/Riverhead Point Drive/Site collector road (Site Folder: Base\_AM)]**

New Site  
Site Category: (None)  
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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## MOVEMENT SUMMARY

 **Site: 101 [Coatesville-Riverhead Highway/Riverhead Point Drive/Site collector road (Site Folder: Base\_AM)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %				[ Veh. veh	Dist ] m				
						v/c	sec							km/h
South: Coatesville-Riverhead Highway S														
1	L2	1	6.0	1	6.0	0.197	3.3	LOS A	1.2	9.1	0.25	0.40	0.25	46.8
2	T1	210	6.0	221	6.0	0.197	3.3	LOS A	1.2	9.1	0.25	0.40	0.25	47.8
3	R2	40	6.0	42	6.0	0.197	7.6	LOS A	1.2	9.1	0.25	0.40	0.25	47.9
Approach		251	6.0	264	6.0	0.197	4.0	LOS A	1.2	9.1	0.25	0.40	0.25	47.8
East: Riverhead Point Drive W														
4	L2	100	6.0	105	6.0	0.191	6.0	LOS A	1.1	8.0	0.62	0.70	0.62	45.2
5	T1	1	6.0	1	6.0	0.191	6.0	LOS A	1.1	8.0	0.62	0.70	0.62	46.2
6	R2	60	6.0	63	6.0	0.191	10.3	LOS B	1.1	8.0	0.62	0.70	0.62	46.3
Approach		161	6.0	169	6.0	0.191	7.6	LOS A	1.1	8.0	0.62	0.70	0.62	45.6
North: Coatesville-Riverhead Highway N														
7	L2	48	6.0	51	6.0	0.377	3.2	LOS A	2.6	19.5	0.21	0.35	0.21	47.2
8	T1	476	6.0	501	6.0	0.377	3.2	LOS A	2.6	19.5	0.21	0.35	0.21	48.3
9	R2	1	6.0	1	6.0	0.377	7.6	LOS A	2.6	19.5	0.21	0.35	0.21	48.4
Approach		525	6.0	553	6.0	0.377	3.2	LOS A	2.6	19.5	0.21	0.35	0.21	48.2
West: Riverhead Point Drive W														
10	L2	1	6.0	1	6.0	0.003	4.5	LOS A	0.0	0.1	0.45	0.48	0.45	45.9
11	T1	1	6.0	1	6.0	0.003	4.4	LOS A	0.0	0.1	0.45	0.48	0.45	47.0
12	R2	1	6.0	1	6.0	0.003	8.8	LOS A	0.0	0.1	0.45	0.48	0.45	47.0
Approach		3	6.0	3	6.0	0.003	5.9	LOS A	0.0	0.1	0.45	0.48	0.45	46.6
All Vehicles		940	6.0	989	6.0	0.377	4.2	LOS A	2.6	19.5	0.29	0.42	0.29	47.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [Coatesville-Riverhead Highway/Riverhead Point Drive/Site collector road (Site Folder: Base\_PM)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %				[ Veh. veh	Dist ] m				
South: Coatesville-Riverhead Highway S														
1	L2	1	6.0	1	6.0	0.261	3.4	LOS A	1.7	12.5	0.28	0.46	0.28	46.3
2	T1	221	6.0	233	6.0	0.261	3.4	LOS A	1.7	12.5	0.28	0.46	0.28	47.4
3	R2	111	6.0	117	6.0	0.261	7.7	LOS A	1.7	12.5	0.28	0.46	0.28	47.4
Approach		333	6.0	351	6.0	0.261	4.8	LOS A	1.7	12.5	0.28	0.46	0.28	47.4
East: Riverhead Point Drive W														
4	L2	72	6.0	76	6.0	0.151	4.9	LOS A	0.8	6.2	0.52	0.63	0.52	45.5
5	T1	1	6.0	1	6.0	0.151	4.9	LOS A	0.8	6.2	0.52	0.63	0.52	46.5
6	R2	70	6.0	74	6.0	0.151	9.2	LOS A	0.8	6.2	0.52	0.63	0.52	46.6
Approach		143	6.0	151	6.0	0.151	7.0	LOS A	0.8	6.2	0.52	0.63	0.52	46.1
North: Coatesville-Riverhead Highway N														
7	L2	76	6.0	80	6.0	0.330	3.7	LOS A	2.1	15.7	0.35	0.42	0.35	46.8
8	T1	323	6.0	340	6.0	0.330	3.7	LOS A	2.1	15.7	0.35	0.42	0.35	47.8
9	R2	1	6.0	1	6.0	0.330	8.0	LOS A	2.1	15.7	0.35	0.42	0.35	47.9
Approach		400	6.0	421	6.0	0.330	3.7	LOS A	2.1	15.7	0.35	0.42	0.35	47.6
West: Riverhead Point Drive W														
10	L2	1	6.0	1	6.0	0.003	5.0	LOS A	0.0	0.1	0.51	0.50	0.51	45.7
11	T1	1	6.0	1	6.0	0.003	5.0	LOS A	0.0	0.1	0.51	0.50	0.51	46.7
12	R2	1	6.0	1	6.0	0.003	9.3	LOS A	0.0	0.1	0.51	0.50	0.51	46.8
Approach		3	6.0	3	6.0	0.003	6.4	LOS A	0.0	0.1	0.51	0.50	0.51	46.4
All Vehicles		879	6.0	925	6.0	0.330	4.7	LOS A	2.1	15.7	0.35	0.47	0.35	47.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [Coatesville-Riverhead Highway/Riverhead Point Drive/Site collector road (Site Folder: Future\_AM - 2038 100%)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %				[ Veh. veh	Dist ] m				
South: Coatesville-Riverhead Highway S														
1	L2	89	6.0	89	6.0	0.455	6.2	LOS A	3.2	23.8	0.72	0.72	0.72	45.4
2	T1	281	6.0	281	6.0	0.455	6.1	LOS A	3.2	23.8	0.72	0.72	0.72	46.4
3	R2	40	6.0	40	6.0	0.455	10.5	LOS B	3.2	23.8	0.72	0.72	0.72	46.5
Approach		410	6.0	410	6.0	0.455	6.6	LOS A	3.2	23.8	0.72	0.72	0.72	46.2
East: Riverhead Point Drive W														
4	L2	100	6.0	100	6.0	0.722	26.6	LOS C	8.5	62.2	1.00	1.27	1.62	36.3
5	T1	117	6.0	117	6.0	0.722	26.6	LOS C	8.5	62.2	1.00	1.27	1.62	36.9
6	R2	89	6.0	89	6.0	0.722	30.9	LOS C	8.5	62.2	1.00	1.27	1.62	37.0
Approach		306	6.0	306	6.0	0.722	27.8	LOS C	8.5	62.2	1.00	1.27	1.62	36.7
North: Coatesville-Riverhead Highway N														
7	L2	73	6.0	73	6.0	0.845	11.9	LOS B	15.9	117.1	1.00	1.03	1.35	42.5
8	T1	589	6.0	589	6.0	0.845	11.8	LOS B	15.9	117.1	1.00	1.03	1.35	43.4
9	R2	220	6.0	220	6.0	0.845	16.2	LOS B	15.9	117.1	1.00	1.03	1.35	43.5
Approach		882	6.0	882	6.0	0.845	12.9	LOS B	15.9	117.1	1.00	1.03	1.35	43.3
West: Riverhead Point Drive W														
10	L2	203	6.0	203	6.0	0.513	6.6	LOS A	4.1	30.2	0.75	0.79	0.79	44.9
11	T1	106	6.0	106	6.0	0.513	6.6	LOS A	4.1	30.2	0.75	0.79	0.79	45.9
12	R2	158	6.0	158	6.0	0.513	10.9	LOS B	4.1	30.2	0.75	0.79	0.79	46.0
Approach		467	6.0	467	6.0	0.513	8.1	LOS A	4.1	30.2	0.75	0.79	0.79	45.5
All Vehicles		2065	6.0	2065	6.0	0.845	12.8	LOS B	15.9	117.1	0.89	0.95	1.14	43.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [Coatesville-Riverhead Highway/Riverhead Point Drive/Site collector road (Site Folder: Future\_PM - 2038 100%)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %				[ Veh. veh	Dist ] m				
South: Coatesville-Riverhead Highway S														
1	L2	124	6.0	131	6.0	0.567	5.8	LOS A	4.8	35.4	0.70	0.70	0.73	45.4
2	T1	323	6.0	340	6.0	0.567	5.8	LOS A	4.8	35.4	0.70	0.70	0.73	46.4
3	R2	111	6.0	117	6.0	0.567	10.1	LOS B	4.8	35.4	0.70	0.70	0.73	46.4
Approach		558	6.0	587	6.0	0.567	6.7	LOS A	4.8	35.4	0.70	0.70	0.73	46.1
East: Riverhead Point Drive W														
4	L2	72	6.0	76	6.0	0.346	7.6	LOS A	2.4	17.5	0.81	0.83	0.81	44.3
5	T1	67	6.0	71	6.0	0.346	7.6	LOS A	2.4	17.5	0.81	0.83	0.81	45.3
6	R2	95	6.0	100	6.0	0.346	11.9	LOS B	2.4	17.5	0.81	0.83	0.81	45.3
Approach		234	6.0	246	6.0	0.346	9.4	LOS A	2.4	17.5	0.81	0.83	0.81	45.0
North: Coatesville-Riverhead Highway N														
7	L2	104	6.0	109	6.0	0.616	5.8	LOS A	5.7	42.1	0.71	0.68	0.74	45.3
8	T1	405	6.0	426	6.0	0.616	5.7	LOS A	5.7	42.1	0.71	0.68	0.74	46.3
9	R2	129	6.0	136	6.0	0.616	10.1	LOS B	5.7	42.1	0.71	0.68	0.74	46.4
Approach		638	6.0	672	6.0	0.616	6.6	LOS A	5.7	42.1	0.71	0.68	0.74	46.2
West: Riverhead Point Drive W														
10	L2	114	6.0	120	6.0	0.341	6.8	LOS A	2.3	16.8	0.75	0.78	0.75	44.9
11	T1	60	6.0	63	6.0	0.341	6.8	LOS A	2.3	16.8	0.75	0.78	0.75	45.8
12	R2	82	6.0	86	6.0	0.341	11.1	LOS B	2.3	16.8	0.75	0.78	0.75	45.9
Approach		256	6.0	269	6.0	0.341	8.2	LOS A	2.3	16.8	0.75	0.78	0.75	45.4
All Vehicles		1686	6.0	1775	6.0	0.616	7.3	LOS A	5.7	42.1	0.73	0.72	0.75	45.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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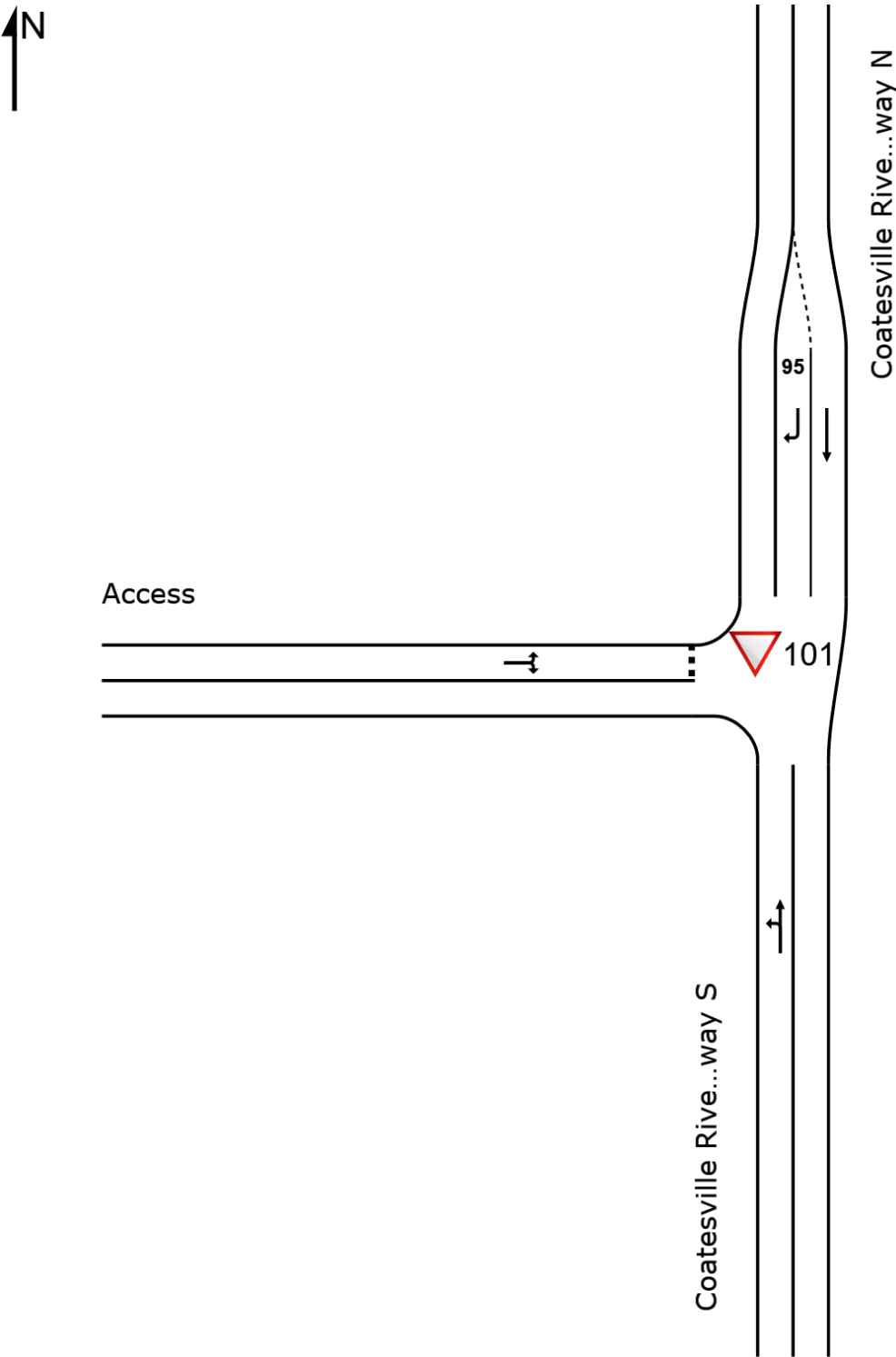
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SITE LAYOUT

▽ Site: 101 [Coatesville-Riverhead Highway/Site access  
(priority) (Site Folder: Base\_AM)]

New Site  
Site Category: (None)  
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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## MOVEMENT SUMMARY

▼ Site: 101 [Coatesville-Riverhead Highway/Site access  
(priority) (Site Folder: Base\_AM)]

New Site

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %	v/c	sec		[ Veh. veh	Dist m				km/h
South: Coatesville Riverhead Highway S														
1	L2	1	6.0	1	6.0	0.141	4.7	LOS A	0.0	0.0	0.00	0.00	0.00	49.3
2	T1	250	6.0	263	6.0	0.141	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		251	6.0	264	6.0	0.141	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.9
North: Coatesville Riverhead Highway N														
8	T1	576	6.0	606	6.0	0.323	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
9	R2	1	6.0	1	6.0	0.001	5.4	LOS A	0.0	0.0	0.36	0.50	0.36	45.3
Approach		577	6.0	607	6.0	0.323	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.8
West: Access														
10	L2	1	6.0	1	6.0	0.004	5.5	LOS A	0.0	0.1	0.51	0.59	0.51	43.7
12	R2	1	6.0	1	6.0	0.004	14.0	LOS B	0.0	0.1	0.51	0.59	0.51	43.3
Approach		2	6.0	2	6.0	0.004	9.7	LOS A	0.0	0.1	0.51	0.59	0.51	43.5
All Vehicles		830	6.0	874	6.0	0.323	0.1	NA	0.0	0.1	0.00	0.00	0.00	49.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

▽ Site: 101 [Coatesville-Riverhead Highway/Site access  
(priority) (Site Folder: Base\_PM)]

New Site

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
						v/c	sec							km/h
South: Coatesville Riverhead Highway S														
1	L2	1	6.0	1	6.0	0.187	4.7	LOS A	0.0	0.0	0.00	0.00	0.00	49.3
2	T1	332	6.0	349	6.0	0.187	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		333	6.0	351	6.0	0.187	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.9
North: Coatesville Riverhead Highway N														
8	T1	395	6.0	416	6.0	0.222	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
9	R2	1	6.0	1	6.0	0.001	5.8	LOS A	0.0	0.0	0.42	0.51	0.42	45.2
Approach		396	6.0	417	6.0	0.222	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.9
West: Access														
10	L2	1	6.0	1	6.0	0.004	5.8	LOS A	0.0	0.1	0.52	0.59	0.52	44.3
12	R2	1	6.0	1	6.0	0.004	11.5	LOS B	0.0	0.1	0.52	0.59	0.52	43.9
Approach		2	6.0	2	6.0	0.004	8.7	LOS A	0.0	0.1	0.52	0.59	0.52	44.1
All Vehicles		731	6.0	769	6.0	0.222	0.1	NA	0.0	0.1	0.00	0.00	0.00	49.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

▽ Site: 101 [Coatesville-Riverhead Highway/Site access  
(priority) (Site Folder: Future\_AM - 2038 100%)]

New Site

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %	v/c	sec		[ Veh. veh	Dist m				km/h
South: Coatesville Riverhead Highway S														
1	L2	161	6.0	161	6.0	0.224	4.7	LOS A	0.0	0.0	0.00	0.21	0.00	48.2
2	T1	250	6.0	250	6.0	0.224	0.1	LOS A	0.0	0.0	0.00	0.21	0.00	48.7
Approach		411	6.0	411	6.0	0.224	1.9	NA	0.0	0.0	0.00	0.21	0.00	48.5
North: Coatesville Riverhead Highway N														
8	T1	847	6.0	847	6.0	0.451	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	49.7
9	R2	5	6.0	5	6.0	0.004	6.1	LOS A	0.0	0.1	0.45	0.56	0.45	45.2
Approach		852	6.0	852	6.0	0.451	0.2	NA	0.0	0.1	0.00	0.00	0.00	49.7
West: Access														
10	L2	5	6.0	5	6.0	0.751	28.0	LOS D	3.8	28.1	0.94	1.25	1.90	29.2
12	R2	122	6.0	122	6.0	0.751	52.2	LOS F	3.8	28.1	0.94	1.25	1.90	29.0
Approach		127	6.0	127	6.0	0.751	51.2	LOS F	3.8	28.1	0.94	1.25	1.90	29.0
All Vehicles		1390	6.0	1390	6.0	0.751	5.4	NA	3.8	28.1	0.09	0.18	0.17	46.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

▼ Site: 101 [Coatesville-Riverhead Highway/Site access  
(priority) (Site Folder: Future\_PM - 2038 100%)]

New Site

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %	v/c	sec		[ Veh. veh	Dist m				km/h
South: Coatesville Riverhead Highway S														
1	L2	225	6.0	237	6.0	0.319	4.7	LOS A	0.0	0.0	0.00	0.22	0.00	48.1
2	T1	332	6.0	349	6.0	0.319	0.1	LOS A	0.0	0.0	0.00	0.22	0.00	48.6
Approach		557	6.0	586	6.0	0.319	2.0	NA	0.0	0.0	0.00	0.22	0.00	48.4
North: Coatesville Riverhead Highway N														
8	T1	560	6.0	589	6.0	0.314	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
9	R2	5	6.0	5	6.0	0.006	7.2	LOS A	0.0	0.2	0.54	0.62	0.54	44.6
Approach		565	6.0	595	6.0	0.314	0.2	NA	0.0	0.2	0.00	0.01	0.00	49.8
West: Access														
10	L2	5	6.0	5	6.0	0.278	7.5	LOS A	1.0	7.5	0.82	0.95	0.94	38.6
12	R2	61	6.0	64	6.0	0.278	21.8	LOS C	1.0	7.5	0.82	0.95	0.94	38.3
Approach		66	6.0	69	6.0	0.278	20.7	LOS C	1.0	7.5	0.82	0.95	0.94	38.3
All Vehicles		1188	6.0	1251	6.0	0.319	2.2	NA	1.0	7.5	0.05	0.16	0.05	48.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: P:\frlx\015 Fletchers Riverhead Masterplan and Private Plan Change\SIDRA\Riverhead Sidra 221129.sip9

## SITE LAYOUT

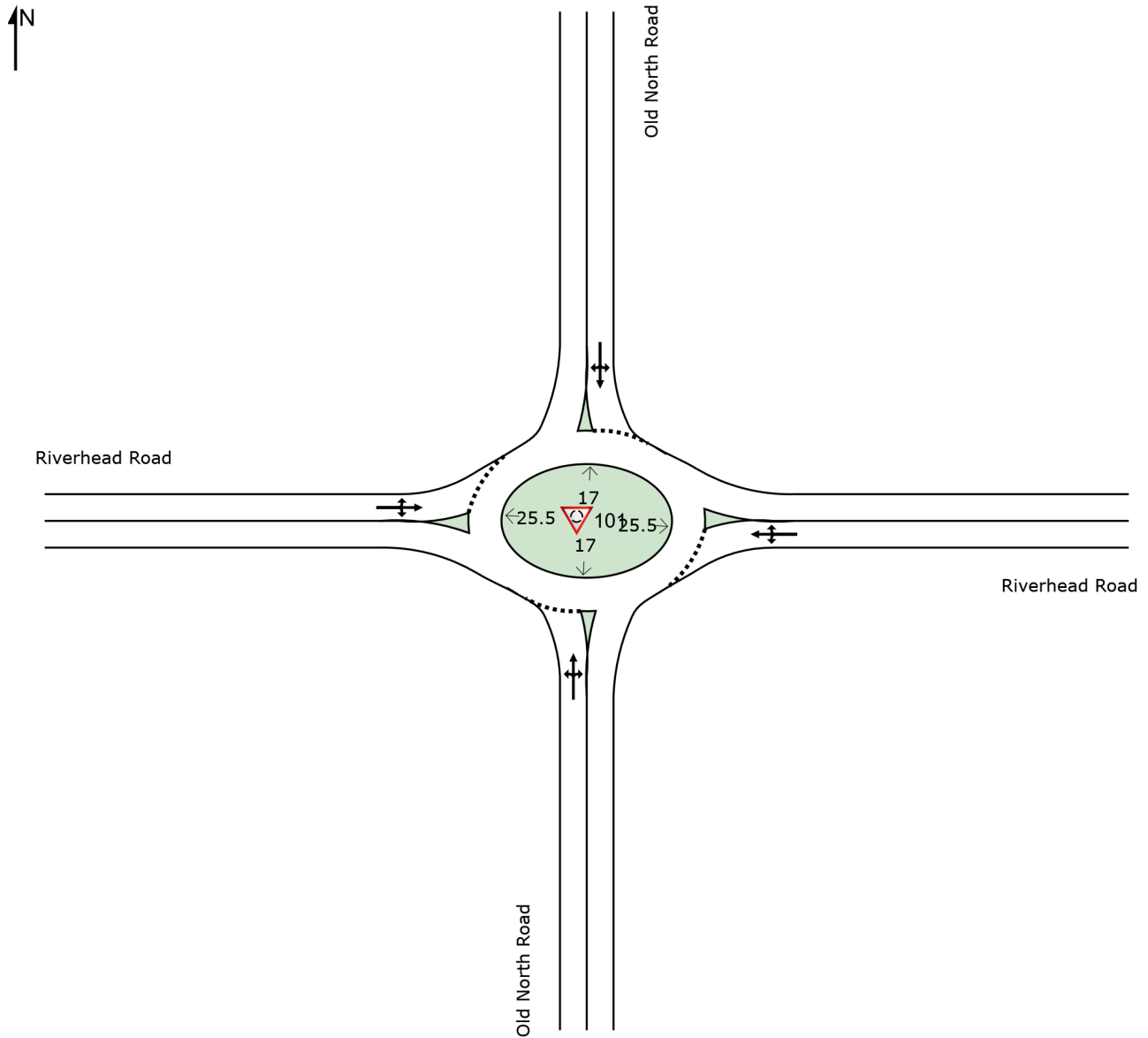
 Site: 101 [Riverhead Road/Old North Road (Site Folder: Base\_AM)]

New Site

Site Category: (None)

Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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Project: P:\frlx\015 Fletchers Riverhead Masterplan and Private Plan Change\SIDRA\Riverhead Sidra 221129.sip9

## MOVEMENT SUMMARY

 **Site: 101 [Riverhead Road/Old North Road (Site Folder: Base\_AM)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
South: Old North Road														
1	L2	41	6.0	43	6.0	0.398	4.1	LOS A	3.0	22.2	0.48	0.50	0.48	45.9
2	T1	293	6.0	308	6.0	0.398	3.7	LOS A	3.0	22.2	0.48	0.50	0.48	47.2
3	R2	112	6.0	118	6.0	0.398	8.4	LOS A	3.0	22.2	0.48	0.50	0.48	47.2
Approach		446	6.0	469	6.0	0.398	4.9	LOS A	3.0	22.2	0.48	0.50	0.48	47.1
East: Riverhead Road														
4	L2	100	6.0	105	6.0	0.329	6.6	LOS A	2.3	17.1	0.80	0.78	0.80	45.7
5	T1	130	6.0	137	6.0	0.329	6.8	LOS A	2.3	17.1	0.80	0.78	0.80	46.6
6	R2	3	6.0	3	6.0	0.329	11.5	LOS B	2.3	17.1	0.80	0.78	0.80	47.0
Approach		233	6.0	245	6.0	0.329	6.8	LOS A	2.3	17.1	0.80	0.78	0.80	46.2
North: Old North Road														
7	L2	3	6.0	3	6.0	0.629	8.0	LOS A	6.3	46.2	0.80	0.82	0.93	45.1
8	T1	544	6.0	573	6.0	0.629	7.6	LOS A	6.3	46.2	0.80	0.82	0.93	46.3
9	R2	13	6.0	14	6.0	0.629	12.3	LOS B	6.3	46.2	0.80	0.82	0.93	46.3
Approach		560	6.0	589	6.0	0.629	7.7	LOS A	6.3	46.2	0.80	0.82	0.93	46.3
West: Riverhead Road														
10	L2	7	6.0	7	6.0	0.287	5.2	LOS A	1.8	13.4	0.64	0.63	0.64	46.0
11	T1	221	6.0	233	6.0	0.287	5.3	LOS A	1.8	13.4	0.64	0.63	0.64	46.8
12	R2	29	6.0	31	6.0	0.287	10.0	LOS B	1.8	13.4	0.64	0.63	0.64	47.2
Approach		257	6.0	271	6.0	0.287	5.8	LOS A	1.8	13.4	0.64	0.63	0.64	46.9
All Vehicles		1496	6.0	1575	6.0	0.629	6.4	LOS A	6.3	46.2	0.68	0.69	0.73	46.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [Riverhead Road/Old North Road (Site Folder: Base\_PM)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
South: Old North Road														
1	L2	35	6.0	37	6.0	0.544	3.9	LOS A	5.1	37.5	0.44	0.44	0.44	46.2
2	T1	559	6.0	588	6.0	0.544	3.5	LOS A	5.1	37.5	0.44	0.44	0.44	47.5
3	R2	92	6.0	97	6.0	0.544	8.1	LOS A	5.1	37.5	0.44	0.44	0.44	47.6
Approach		686	6.0	722	6.0	0.544	4.1	LOS A	5.1	37.5	0.44	0.44	0.44	47.5
East: Riverhead Road														
4	L2	103	6.0	108	6.0	0.219	5.4	LOS A	1.4	10.2	0.67	0.66	0.67	46.4
5	T1	74	6.0	78	6.0	0.219	5.5	LOS A	1.4	10.2	0.67	0.66	0.67	47.3
6	R2	5	6.0	5	6.0	0.219	10.2	LOS B	1.4	10.2	0.67	0.66	0.67	47.6
Approach		182	6.0	192	6.0	0.219	5.6	LOS A	1.4	10.2	0.67	0.66	0.67	46.8
North: Old North Road														
7	L2	4	6.0	4	6.0	0.484	6.1	LOS A	3.6	26.7	0.72	0.68	0.73	45.5
8	T1	404	6.0	425	6.0	0.484	5.8	LOS A	3.6	26.7	0.72	0.68	0.73	46.7
9	R2	11	6.0	12	6.0	0.484	10.4	LOS B	3.6	26.7	0.72	0.68	0.73	46.7
Approach		419	6.0	441	6.0	0.484	5.9	LOS A	3.6	26.7	0.72	0.68	0.73	46.7
West: Riverhead Road														
10	L2	18	6.0	19	6.0	0.405	7.8	LOS A	2.9	21.2	0.83	0.84	0.84	44.9
11	T1	221	6.0	233	6.0	0.405	7.9	LOS A	2.9	21.2	0.83	0.84	0.84	45.8
12	R2	48	6.0	51	6.0	0.405	12.6	LOS B	2.9	21.2	0.83	0.84	0.84	46.1
Approach		287	6.0	302	6.0	0.405	8.7	LOS A	2.9	21.2	0.83	0.84	0.84	45.8
All Vehicles		1574	6.0	1657	6.0	0.544	5.6	LOS A	5.1	37.5	0.61	0.60	0.62	46.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [Riverhead Road/Old North Road (Site Folder: Future\_AM - 2038 100%)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
South: Old North Road														
1	L2	41	6.0	43	6.0	0.507	4.7	LOS A	4.3	31.7	0.63	0.58	0.63	45.3
2	T1	293	6.0	308	6.0	0.507	4.3	LOS A	4.3	31.7	0.63	0.58	0.63	46.6
3	R2	194	6.0	204	6.0	0.507	9.0	LOS A	4.3	31.7	0.63	0.58	0.63	46.6
Approach		528	6.0	556	6.0	0.507	6.1	LOS A	4.3	31.7	0.63	0.58	0.63	46.5
East: Riverhead Road														
4	L2	229	6.0	241	6.0	0.603	10.0	LOS B	6.1	45.0	0.94	1.02	1.16	44.1
5	T1	185	6.0	195	6.0	0.603	10.1	LOS B	6.1	45.0	0.94	1.02	1.16	44.9
6	R2	3	6.0	3	6.0	0.603	14.8	LOS B	6.1	45.0	0.94	1.02	1.16	45.2
Approach		417	6.0	439	6.0	0.603	10.1	LOS B	6.1	45.0	0.94	1.02	1.16	44.5
North: Old North Road														
7	L2	3	6.0	3	6.0	0.712	11.9	LOS B	8.5	62.9	0.92	1.05	1.25	43.0
8	T1	544	6.0	573	6.0	0.712	11.5	LOS B	8.5	62.9	0.92	1.05	1.25	44.2
9	R2	13	6.0	14	6.0	0.712	16.2	LOS B	8.5	62.9	0.92	1.05	1.25	44.2
Approach		560	6.0	589	6.0	0.712	11.7	LOS B	8.5	62.9	0.92	1.05	1.25	44.2
West: Riverhead Road														
10	L2	7	6.0	7	6.0	0.360	6.0	LOS A	2.5	18.3	0.74	0.72	0.74	45.6
11	T1	256	6.0	269	6.0	0.360	6.1	LOS A	2.5	18.3	0.74	0.72	0.74	46.5
12	R2	29	6.0	31	6.0	0.360	10.8	LOS B	2.5	18.3	0.74	0.72	0.74	46.8
Approach		292	6.0	307	6.0	0.360	6.5	LOS A	2.5	18.3	0.74	0.72	0.74	46.5
All Vehicles		1797	6.0	1892	6.0	0.712	8.8	LOS A	8.5	62.9	0.81	0.85	0.96	45.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [Riverhead Road/Old North Road (Site Folder: Future\_PM - 2038 100%)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
South: Old North Road														
1	L2	35	6.0	37	6.0	0.659	4.4	LOS A	7.2	53.1	0.61	0.51	0.61	45.5
2	T1	559	6.0	588	6.0	0.659	4.0	LOS A	7.2	53.1	0.61	0.51	0.61	46.8
3	R2	196	6.0	206	6.0	0.659	8.6	LOS A	7.2	53.1	0.61	0.51	0.61	46.8
Approach		790	6.0	832	6.0	0.659	5.2	LOS A	7.2	53.1	0.61	0.51	0.61	46.7
East: Riverhead Road														
4	L2	180	6.0	189	6.0	0.359	5.7	LOS A	2.5	18.6	0.74	0.71	0.74	46.2
5	T1	108	6.0	114	6.0	0.359	5.8	LOS A	2.5	18.6	0.74	0.71	0.74	47.1
6	R2	5	6.0	5	6.0	0.359	10.6	LOS B	2.5	18.6	0.74	0.71	0.74	47.5
Approach		293	6.0	308	6.0	0.359	5.9	LOS A	2.5	18.6	0.74	0.71	0.74	46.6
North: Old North Road														
7	L2	4	6.0	4	6.0	0.563	9.2	LOS A	5.1	37.3	0.85	0.91	1.00	44.5
8	T1	404	6.0	425	6.0	0.563	8.8	LOS A	5.1	37.3	0.85	0.91	1.00	45.6
9	R2	11	6.0	12	6.0	0.563	13.4	LOS B	5.1	37.3	0.85	0.91	1.00	45.7
Approach		419	6.0	441	6.0	0.563	8.9	LOS A	5.1	37.3	0.85	0.91	1.00	45.6
West: Riverhead Road														
10	L2	18	6.0	19	6.0	0.559	12.4	LOS B	5.3	39.0	0.96	1.08	1.21	42.6
11	T1	266	6.0	280	6.0	0.559	12.5	LOS B	5.3	39.0	0.96	1.08	1.21	43.4
12	R2	48	6.0	51	6.0	0.559	17.2	LOS B	5.3	39.0	0.96	1.08	1.21	43.7
Approach		332	6.0	349	6.0	0.559	13.2	LOS B	5.3	39.0	0.96	1.08	1.21	43.4
All Vehicles		1834	6.0	1931	6.0	0.659	7.6	LOS A	7.2	53.1	0.75	0.74	0.83	45.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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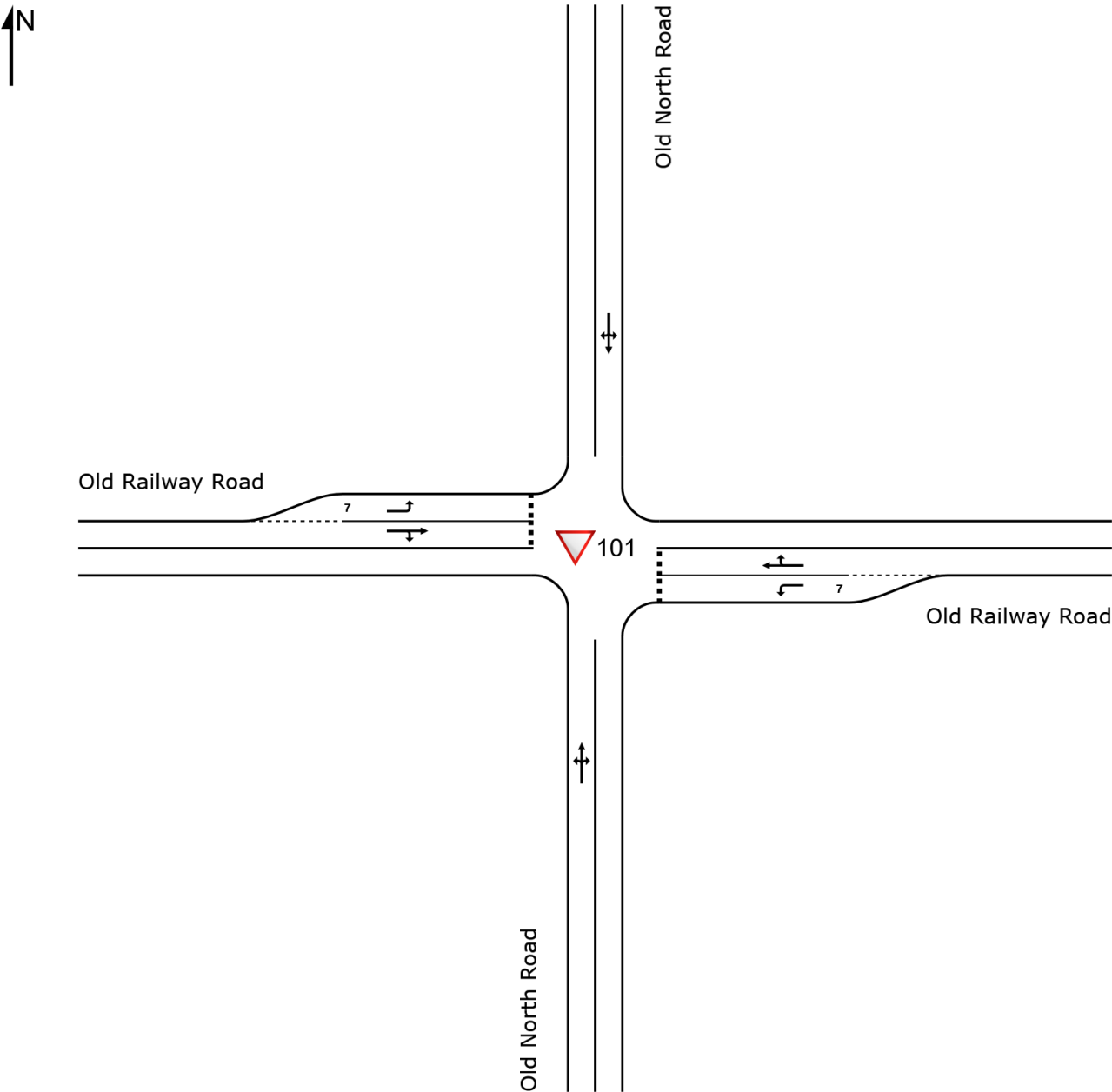
Project: P:\frlx\015 Fletchers Riverhead Masterplan and Private Plan Change\SIDRA\Riverhead Sidra 221129.sip9

SITE LAYOUT

▽ Site: 101 [Old North Road/Old Railway Road (Site Folder: Base\_AM)]

New Site  
Site Category: (None)  
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



## MOVEMENT SUMMARY

▼ Site: 101 [Old North Road/Old Railway Road (Site Folder: Base\_AM)]

New Site

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %	v/c	sec		[ Veh. veh	Dist ] m				km/h
South: Old North Road														
1	L2	3	6.0	3	6.0	0.257	8.9	LOS A	0.1	1.0	0.03	0.01	0.03	57.2
2	T1	442	6.0	465	6.0	0.257	0.1	LOS A	0.1	1.0	0.03	0.01	0.03	69.4
3	R2	5	6.0	5	6.0	0.257	10.0	LOS A	0.1	1.0	0.03	0.01	0.03	56.9
Approach		450	6.0	474	6.0	0.257	0.3	NA	0.1	1.0	0.03	0.01	0.03	69.1
East: Old Railway Road														
4	L2	6	6.0	6	6.0	0.009	9.2	LOS A	0.0	0.2	0.57	0.69	0.57	50.7
5	T1	7	6.0	7	6.0	0.045	15.7	LOS C	0.1	1.0	0.81	0.91	0.81	40.8
6	R2	3	6.0	3	6.0	0.045	21.7	LOS C	0.1	1.0	0.81	0.91	0.81	42.8
Approach		16	6.0	17	6.0	0.045	14.4	LOS B	0.1	1.0	0.72	0.83	0.72	44.5
North: Old North Road														
7	L2	4	6.0	4	6.0	0.378	5.4	LOS A	0.0	0.2	0.00	0.00	0.00	57.5
8	T1	668	6.0	703	6.0	0.378	0.0	LOS A	0.0	0.2	0.00	0.00	0.00	69.8
9	R2	1	6.0	1	6.0	0.378	7.9	LOS A	0.0	0.2	0.00	0.00	0.00	57.2
Approach		673	6.0	708	6.0	0.378	0.1	NA	0.0	0.2	0.00	0.00	0.00	69.7
West: Old Railway Road														
10	L2	1	6.0	1	6.0	0.001	6.4	LOS A	0.0	0.0	0.46	0.53	0.46	45.5
11	T1	7	6.0	7	6.0	0.056	15.8	LOS C	0.2	1.2	0.82	0.91	0.82	39.8
12	R2	5	6.0	5	6.0	0.056	21.0	LOS C	0.2	1.2	0.82	0.91	0.82	39.4
Approach		13	6.0	14	6.0	0.056	17.1	LOS C	0.2	1.2	0.79	0.88	0.79	40.0
All Vehicles		1152	6.0	1213	6.0	0.378	0.5	NA	0.2	1.2	0.03	0.03	0.03	68.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

▼ Site: 101 [Old North Road/Old Railway Road (Site Folder: Base\_PM)]

New Site

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %	v/c	sec		[ Veh. veh	Dist ] m				km/h
South: Old North Road														
1	L2	7	6.0	7	6.0	0.398	8.2	LOS A	0.3	2.1	0.04	0.01	0.05	57.1
2	T1	680	6.0	716	6.0	0.398	0.2	LOS A	0.3	2.1	0.04	0.01	0.05	69.2
3	R2	10	6.0	11	6.0	0.398	9.4	LOS A	0.3	2.1	0.04	0.01	0.05	56.8
Approach		697	6.0	734	6.0	0.398	0.4	NA	0.3	2.1	0.04	0.01	0.05	68.8
East: Old Railway Road														
4	L2	27	6.0	28	6.0	0.034	8.2	LOS A	0.1	0.9	0.52	0.70	0.52	51.4
5	T1	10	6.0	11	6.0	0.086	19.7	LOS C	0.3	1.9	0.86	0.93	0.86	38.9
6	R2	5	6.0	5	6.0	0.086	26.9	LOS D	0.3	1.9	0.86	0.93	0.86	40.7
Approach		42	6.0	44	6.0	0.086	13.2	LOS B	0.3	1.9	0.64	0.78	0.64	46.4
North: Old North Road														
7	L2	8	6.0	8	6.0	0.312	5.7	LOS A	0.0	0.3	0.01	0.01	0.01	57.4
8	T1	546	6.0	575	6.0	0.312	0.0	LOS A	0.0	0.3	0.01	0.01	0.01	69.6
9	R2	1	6.0	1	6.0	0.312	10.7	LOS B	0.0	0.3	0.01	0.01	0.01	57.1
Approach		555	6.0	584	6.0	0.312	0.1	NA	0.0	0.3	0.01	0.01	0.01	69.4
West: Old Railway Road														
10	L2	1	6.0	1	6.0	0.002	8.2	LOS A	0.0	0.0	0.57	0.60	0.57	44.5
11	T1	12	6.0	13	6.0	0.098	19.7	LOS C	0.3	2.1	0.86	0.93	0.86	38.2
12	R2	5	6.0	5	6.0	0.098	27.1	LOS D	0.3	2.1	0.86	0.93	0.86	37.8
Approach		18	6.0	19	6.0	0.098	21.1	LOS C	0.3	2.1	0.85	0.91	0.85	38.4
All Vehicles		1312	6.0	1381	6.0	0.398	1.0	NA	0.3	2.1	0.06	0.05	0.06	67.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

▼ Site: 101 [Old North Road/Old Railway Road (Site Folder: Future\_AM - 2038 100%)]

New Site

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
South: Old North Road														
1	L2	3	6.0	3	6.0	0.305	11.6	LOS B	0.2	1.5	0.04	0.01	0.04	57.2
2	T1	524	6.0	552	6.0	0.305	0.2	LOS A	0.2	1.5	0.04	0.01	0.04	69.3
3	R2	5	6.0	5	6.0	0.305	12.9	LOS B	0.2	1.5	0.04	0.01	0.04	56.9
Approach		532	6.0	560	6.0	0.305	0.4	NA	0.2	1.5	0.04	0.01	0.04	69.0
East: Old Railway Road														
4	L2	6	6.0	6	6.0	0.012	10.7	LOS B	0.0	0.3	0.66	0.76	0.66	49.7
5	T1	7	6.0	7	6.0	0.072	24.1	LOS C	0.2	1.5	0.89	0.95	0.89	37.0
6	R2	3	6.0	3	6.0	0.072	32.7	LOS D	0.2	1.5	0.89	0.95	0.89	38.6
Approach		16	6.0	17	6.0	0.072	20.7	LOS C	0.2	1.5	0.80	0.88	0.80	41.3
North: Old North Road														
7	L2	4	6.0	4	6.0	0.451	5.9	LOS A	0.0	0.3	0.00	0.00	0.01	57.5
8	T1	797	6.0	839	6.0	0.451	0.0	LOS A	0.0	0.3	0.00	0.00	0.01	69.8
9	R2	1	6.0	1	6.0	0.451	9.5	LOS A	0.0	0.3	0.00	0.00	0.01	57.2
Approach		802	6.0	844	6.0	0.451	0.1	NA	0.0	0.3	0.00	0.00	0.01	69.7
West: Old Railway Road														
10	L2	1	6.0	1	6.0	0.001	6.9	LOS A	0.0	0.0	0.50	0.55	0.50	45.2
11	T1	7	6.0	7	6.0	0.090	24.3	LOS C	0.3	1.9	0.89	0.95	0.89	36.0
12	R2	5	6.0	5	6.0	0.090	32.3	LOS D	0.3	1.9	0.89	0.95	0.89	35.7
Approach		13	6.0	14	6.0	0.090	26.0	LOS D	0.3	1.9	0.86	0.92	0.86	36.4
All Vehicles		1363	6.0	1435	6.0	0.451	0.7	NA	0.3	1.9	0.03	0.02	0.04	68.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

Site: 101 [Old North Road/Old Railway Road (Site Folder: Future\_PM - 2038 100%)]

New Site

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %	v/c	sec		[ Veh. veh	Dist ] m				km/h
South: Old North Road														
1	L2	7	6.0	7	6.0	0.457	9.7	LOS A	0.4	2.8	0.04	0.01	0.06	57.1
2	T1	784	6.0	825	6.0	0.457	0.2	LOS A	0.4	2.8	0.04	0.01	0.06	69.1
3	R2	10	6.0	11	6.0	0.457	11.3	LOS B	0.4	2.8	0.04	0.01	0.06	56.8
Approach		801	6.0	843	6.0	0.457	0.4	NA	0.4	2.8	0.04	0.01	0.06	68.8
East: Old Railway Road														
4	L2	27	6.0	28	6.0	0.038	8.9	LOS A	0.1	1.0	0.55	0.74	0.55	50.9
5	T1	10	6.0	11	6.0	0.132	29.0	LOS D	0.4	2.7	0.91	0.96	0.91	35.1
6	R2	5	6.0	5	6.0	0.132	38.9	LOS E	0.4	2.7	0.91	0.96	0.91	36.5
Approach		42	6.0	44	6.0	0.132	17.3	LOS C	0.4	2.7	0.68	0.82	0.68	44.1
North: Old North Road														
7	L2	8	6.0	8	6.0	0.356	6.4	LOS A	0.1	0.4	0.01	0.01	0.01	57.4
8	T1	623	6.0	656	6.0	0.356	0.0	LOS A	0.1	0.4	0.01	0.01	0.01	69.6
9	R2	1	6.0	1	6.0	0.356	13.4	LOS B	0.1	0.4	0.01	0.01	0.01	57.1
Approach		632	6.0	665	6.0	0.356	0.1	NA	0.1	0.4	0.01	0.01	0.01	69.4
West: Old Railway Road														
10	L2	1	6.0	1	6.0	0.002	9.4	LOS A	0.0	0.0	0.65	0.64	0.65	43.9
11	T1	12	6.0	13	6.0	0.151	29.3	LOS D	0.4	3.1	0.92	0.96	0.92	34.3
12	R2	5	6.0	5	6.0	0.151	40.0	LOS E	0.4	3.1	0.92	0.96	0.92	34.1
Approach		18	6.0	19	6.0	0.151	31.2	LOS D	0.4	3.1	0.90	0.94	0.91	34.7
All Vehicles		1493	6.0	1572	6.0	0.457	1.1	NA	0.4	3.1	0.06	0.04	0.07	67.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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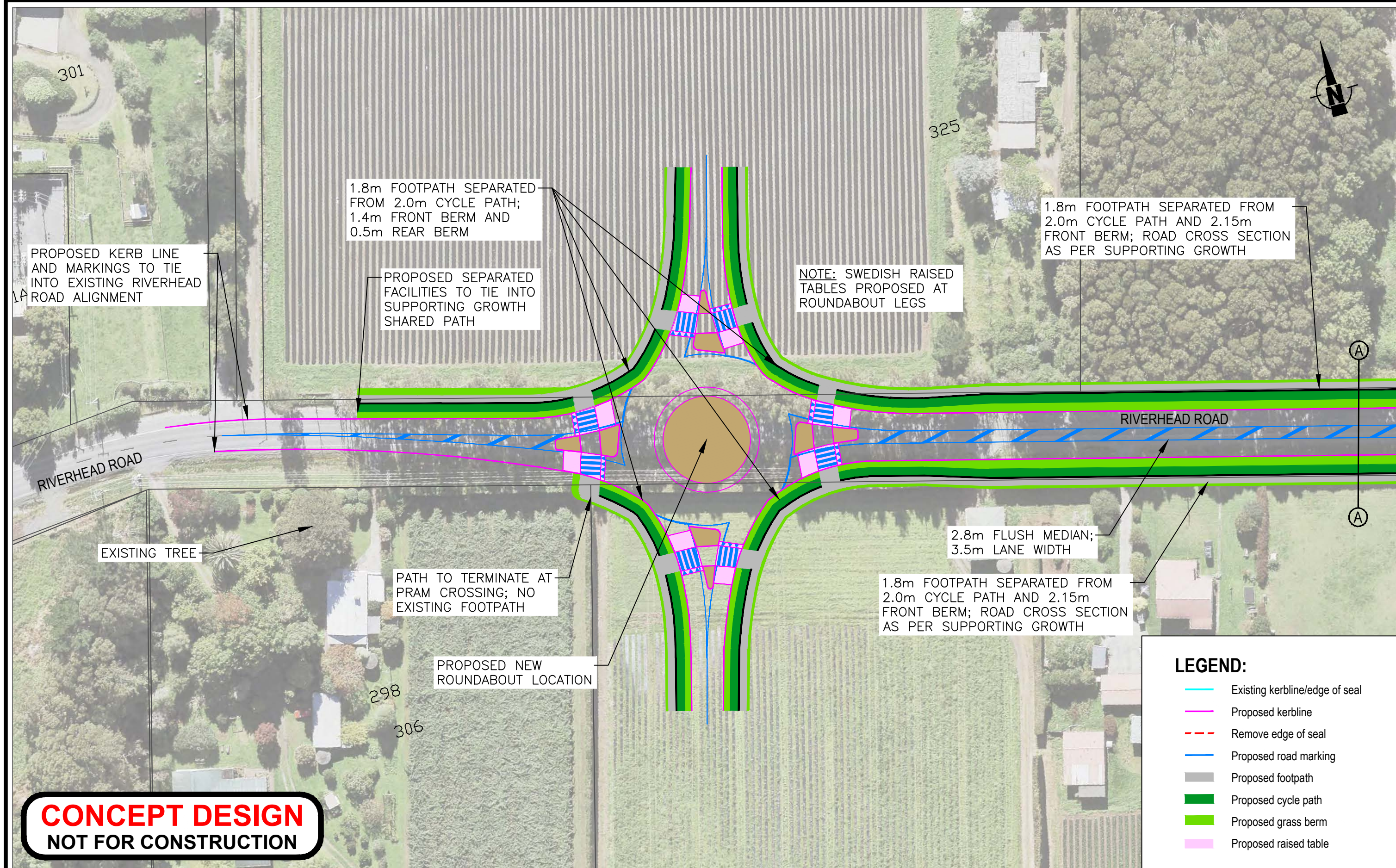
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## APPENDIX C

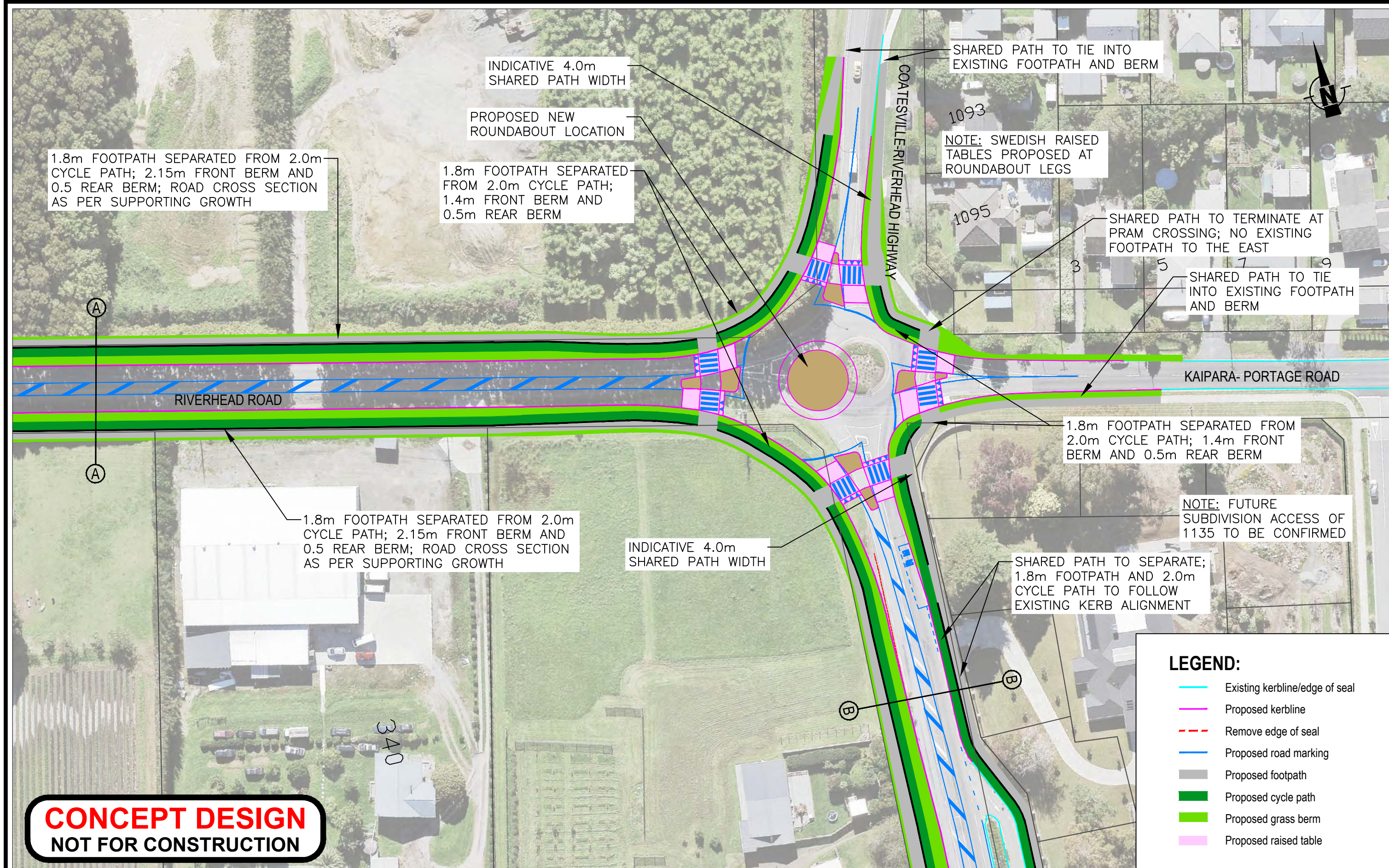
## Road layout plans

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revision: D date: 13/12/2022 checked: TC

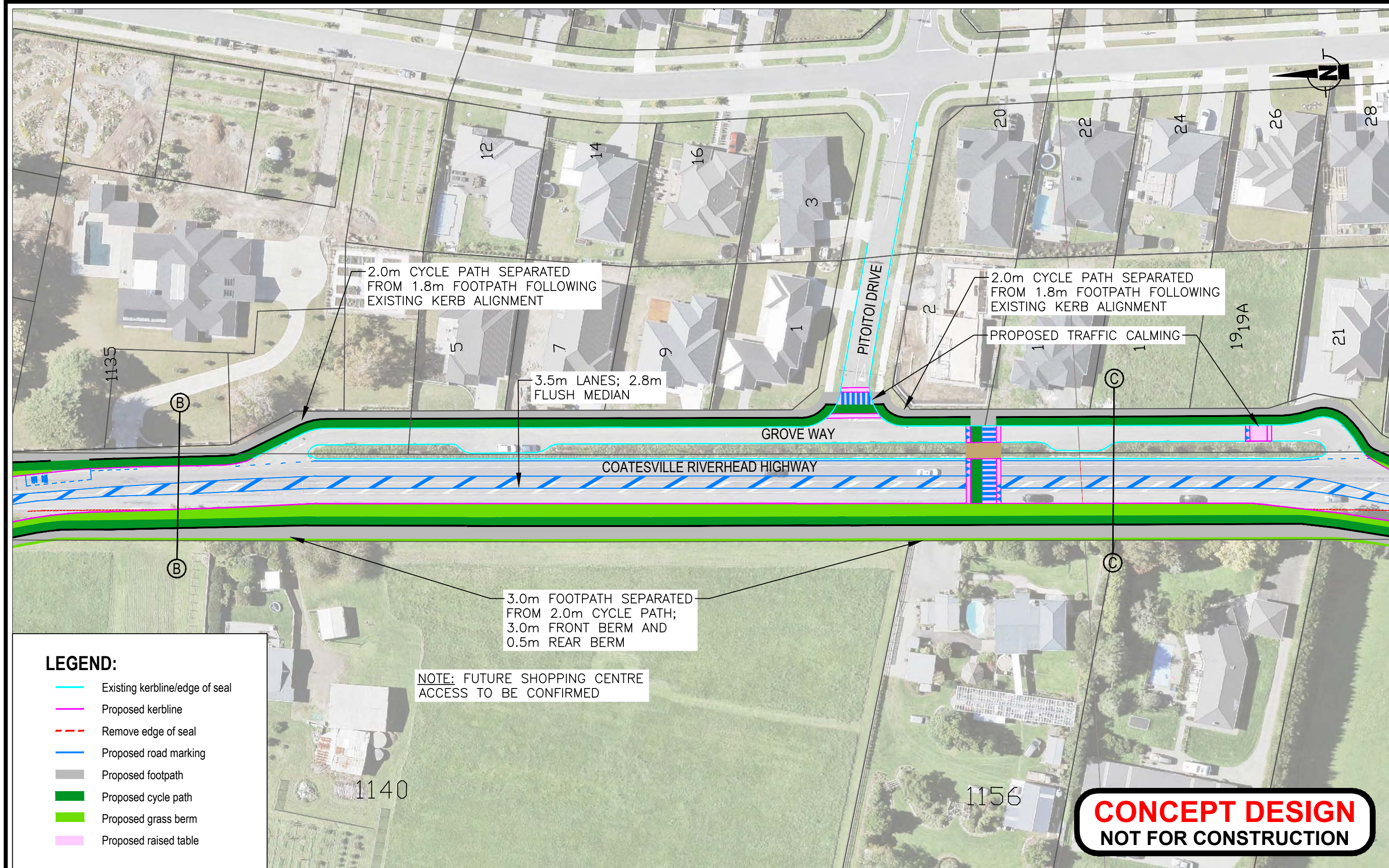
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B	Issue to Fletchers	14/02/2022
C	Revised Issue	29/09/2022
D	Issue for TA	13/12/2022

Riverhead Plan Change  
Pedestrian & Cycle facilities Concept Design

**flow**  
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LEGEND:

- Existing kerbline/edge of seal
- Proposed kerbline
- Remove edge of seal
- Proposed road marking
- Proposed footpath
- Proposed cycle path
- Proposed grass berm
- Proposed raised table

NOTE: FUTURE SHOPPING CENTRE ACCESS TO BE CONFIRMED

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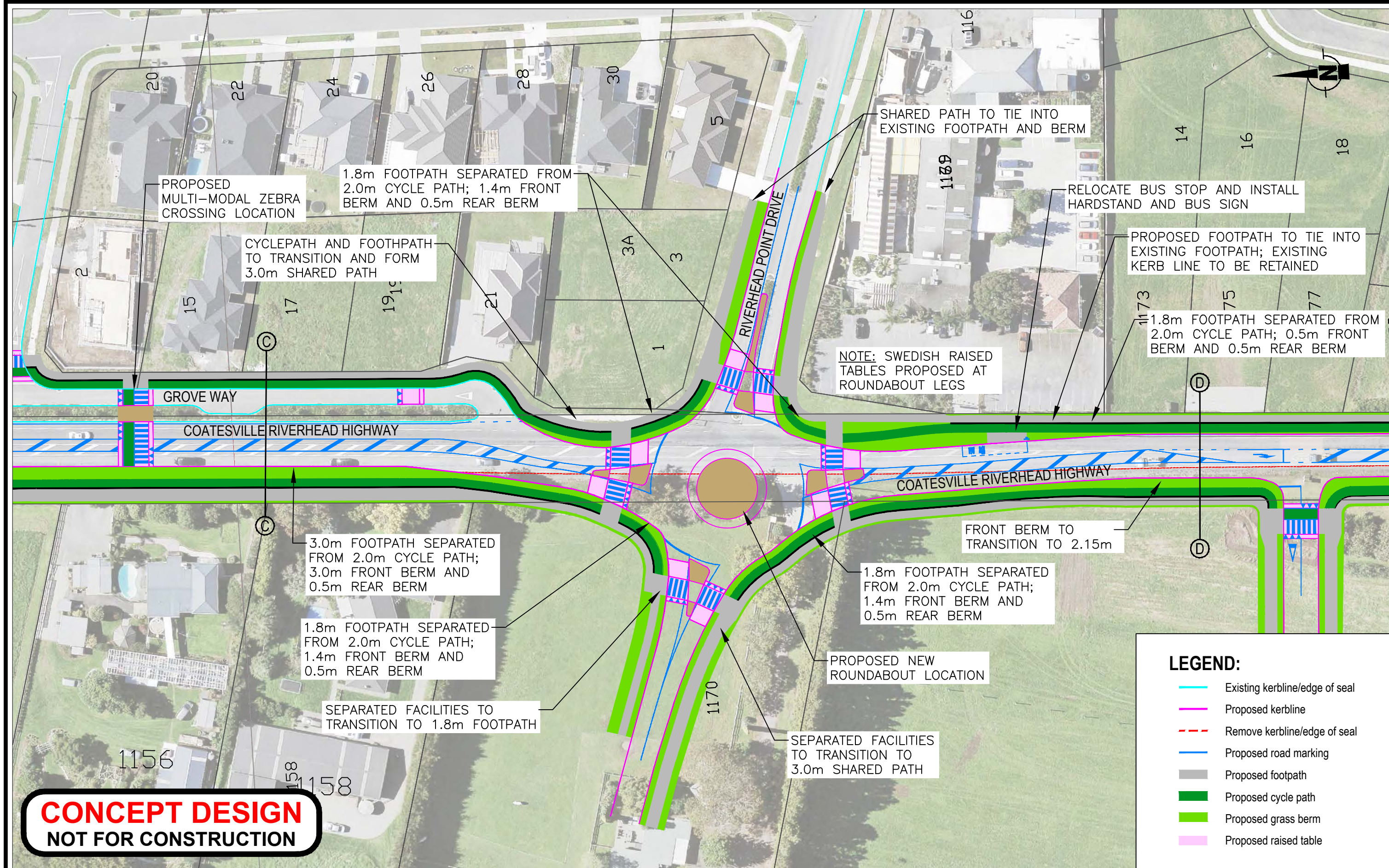
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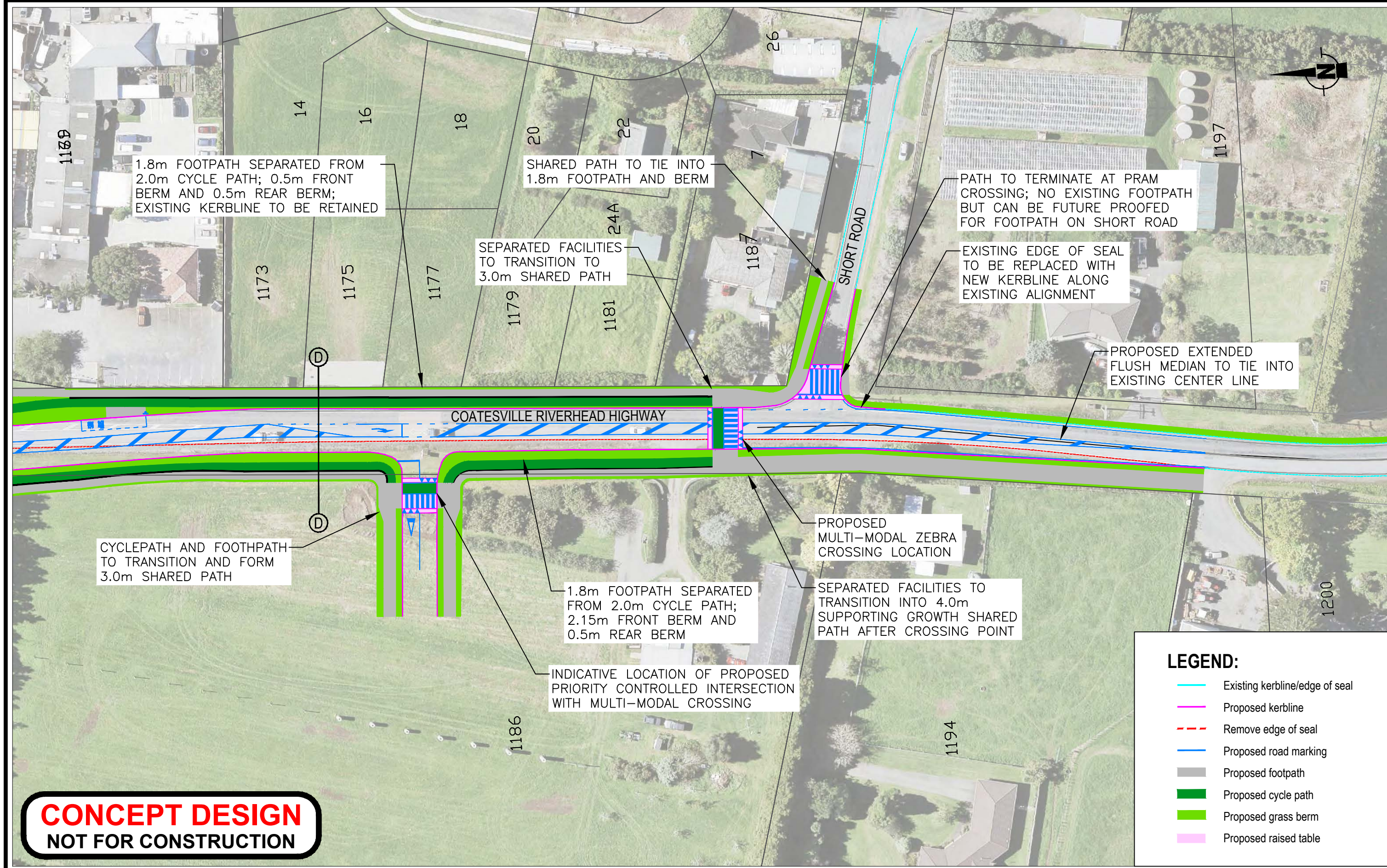
Riverhead Plan Change  
Pedestrian & Cycle facilities Concept Design

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D	Issue for TA	13/12/2022

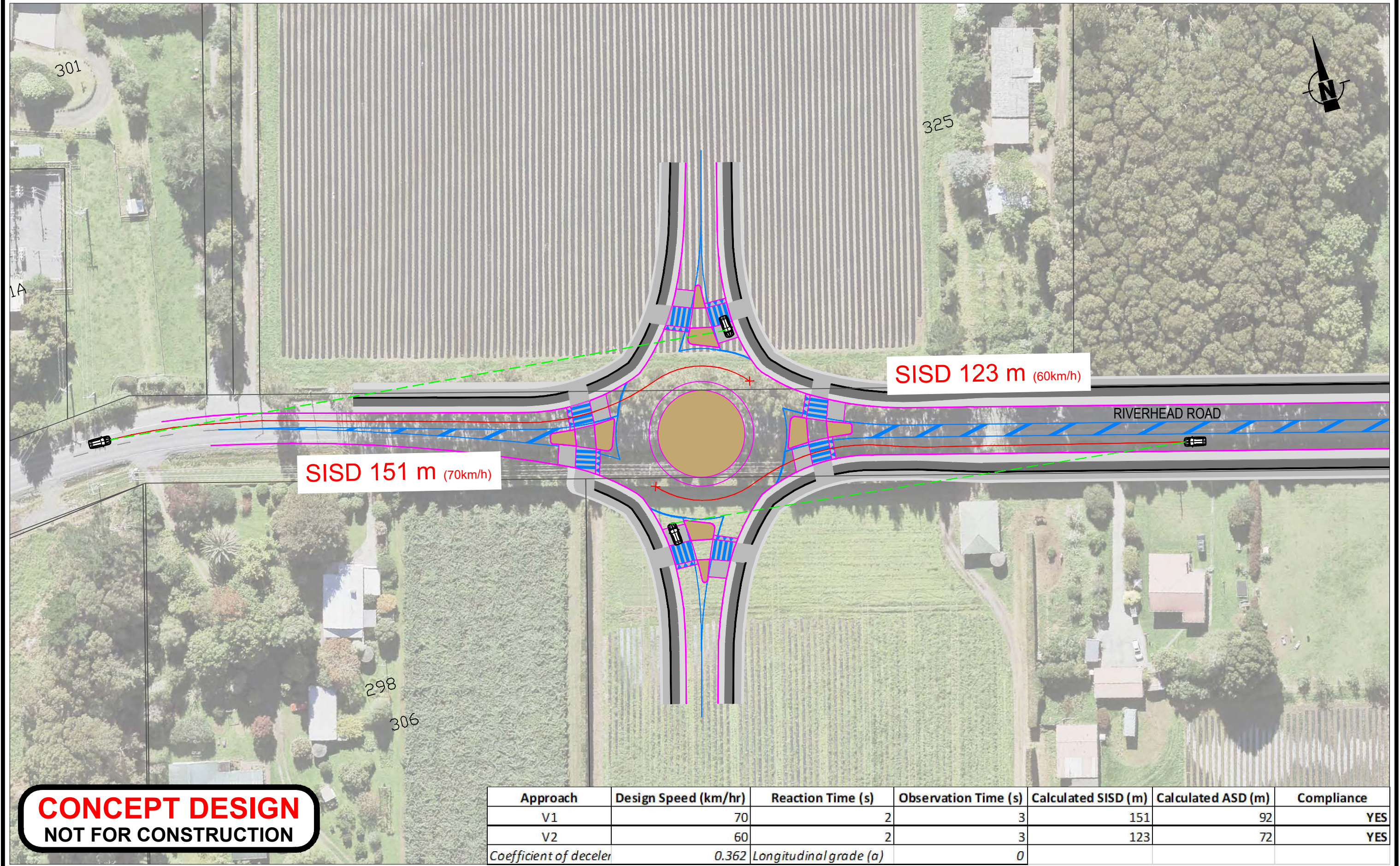
# Riverhead Plan Change

## Pedestrian & Cycle facilities Concept Design

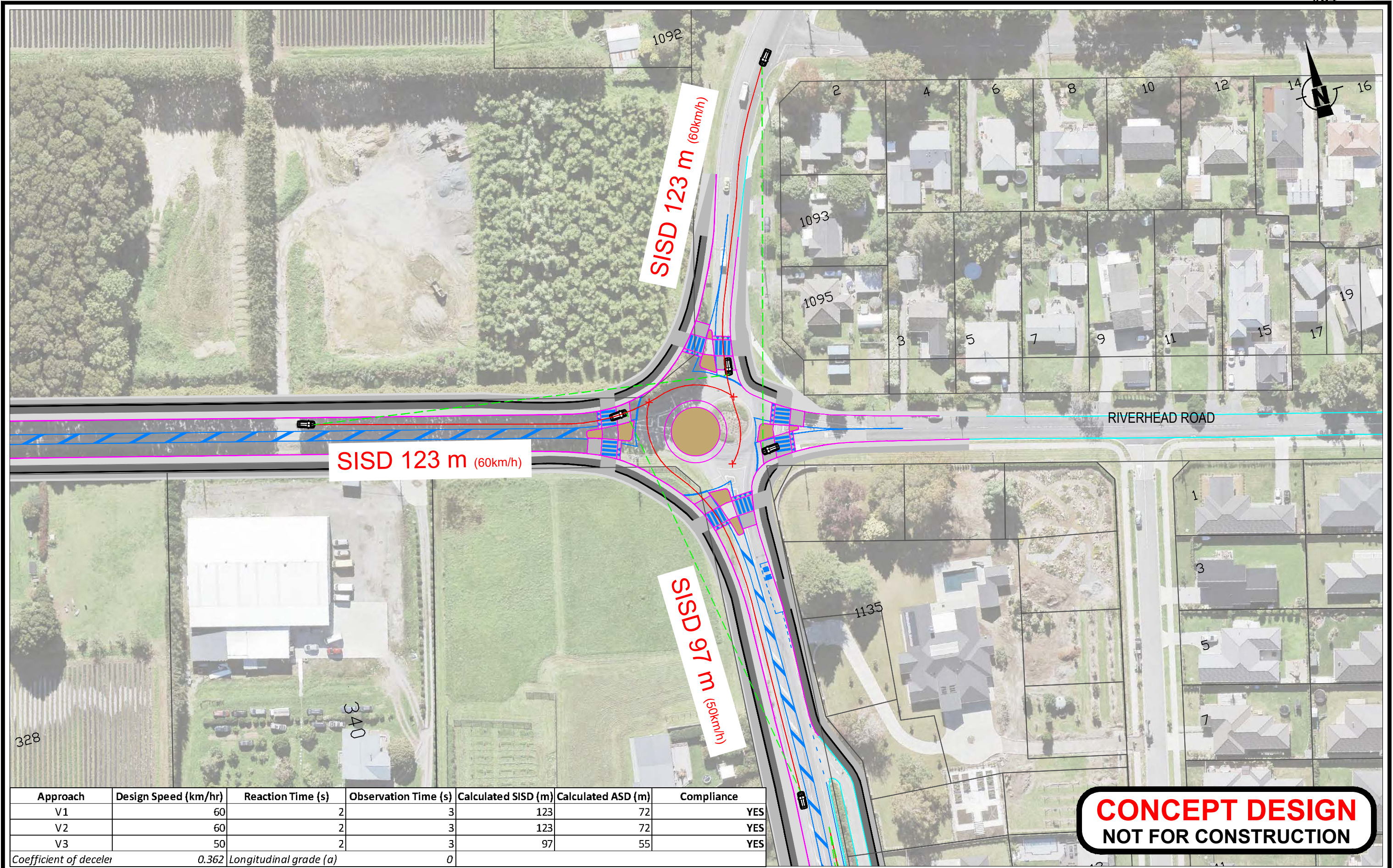
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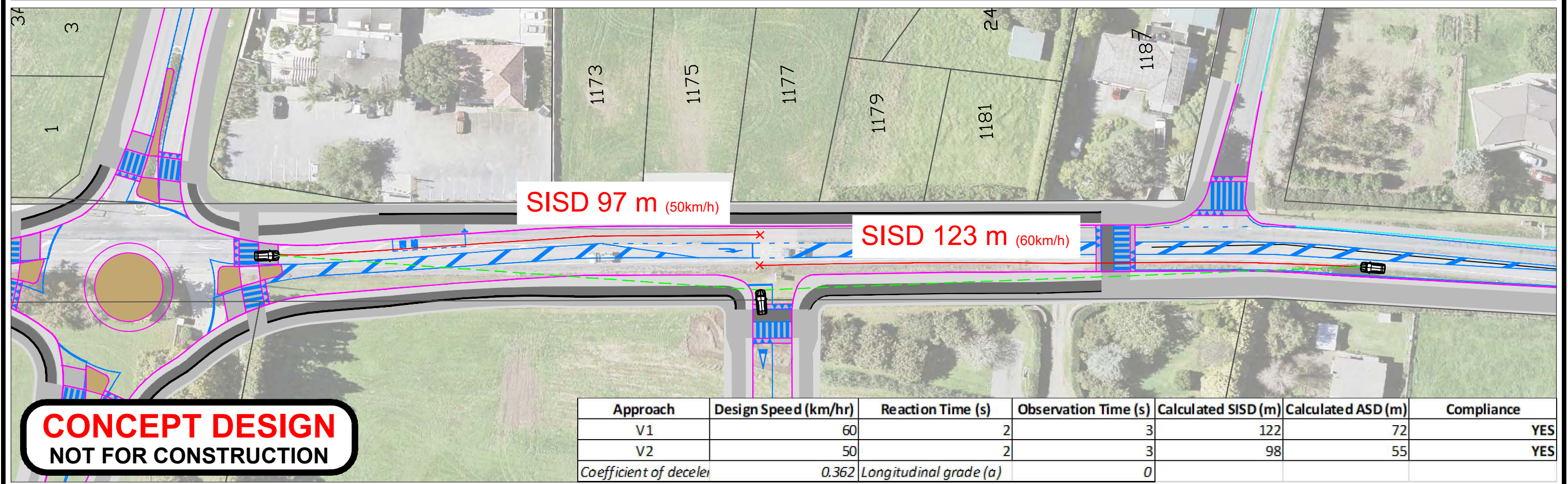
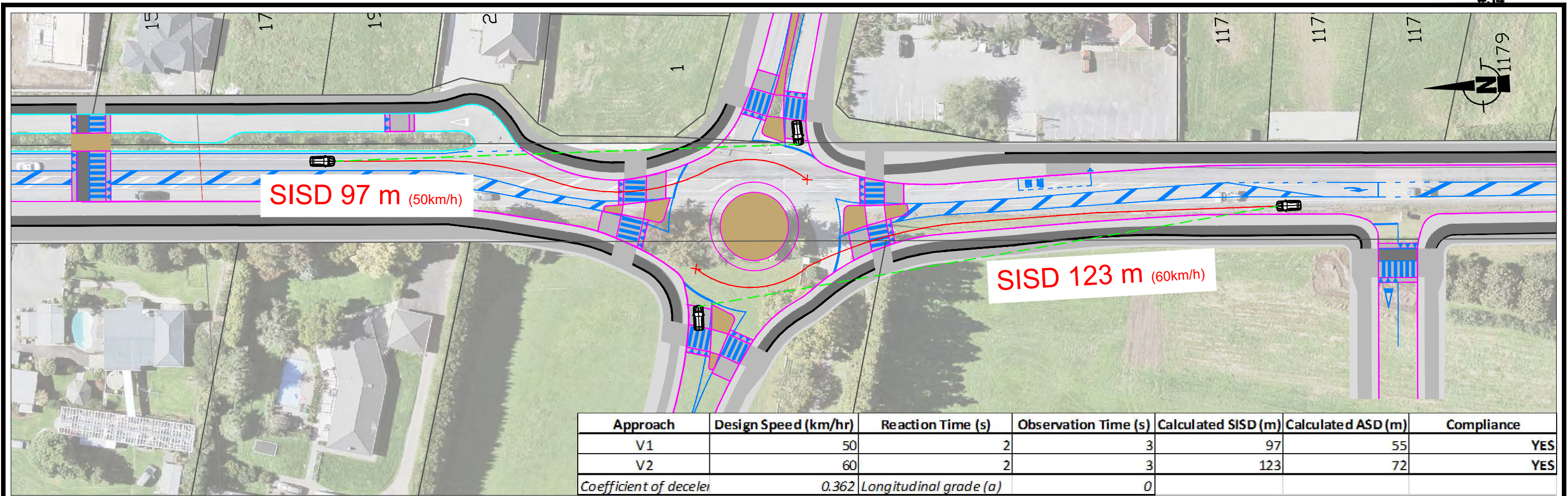




Approach	Design Speed (km/hr)	Reaction Time (s)	Observation Time (s)	Calculated SISD (m)	Calculated ASD (m)	Compliance
V1	60	2	3	123	72	YES
V2	60	2	3	123	72	YES
V3	50	2	3	97	55	YES
Coefficient of deceleration		0.362	Longitudinal grade (a)		0	

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CONCEPT DESIGN  
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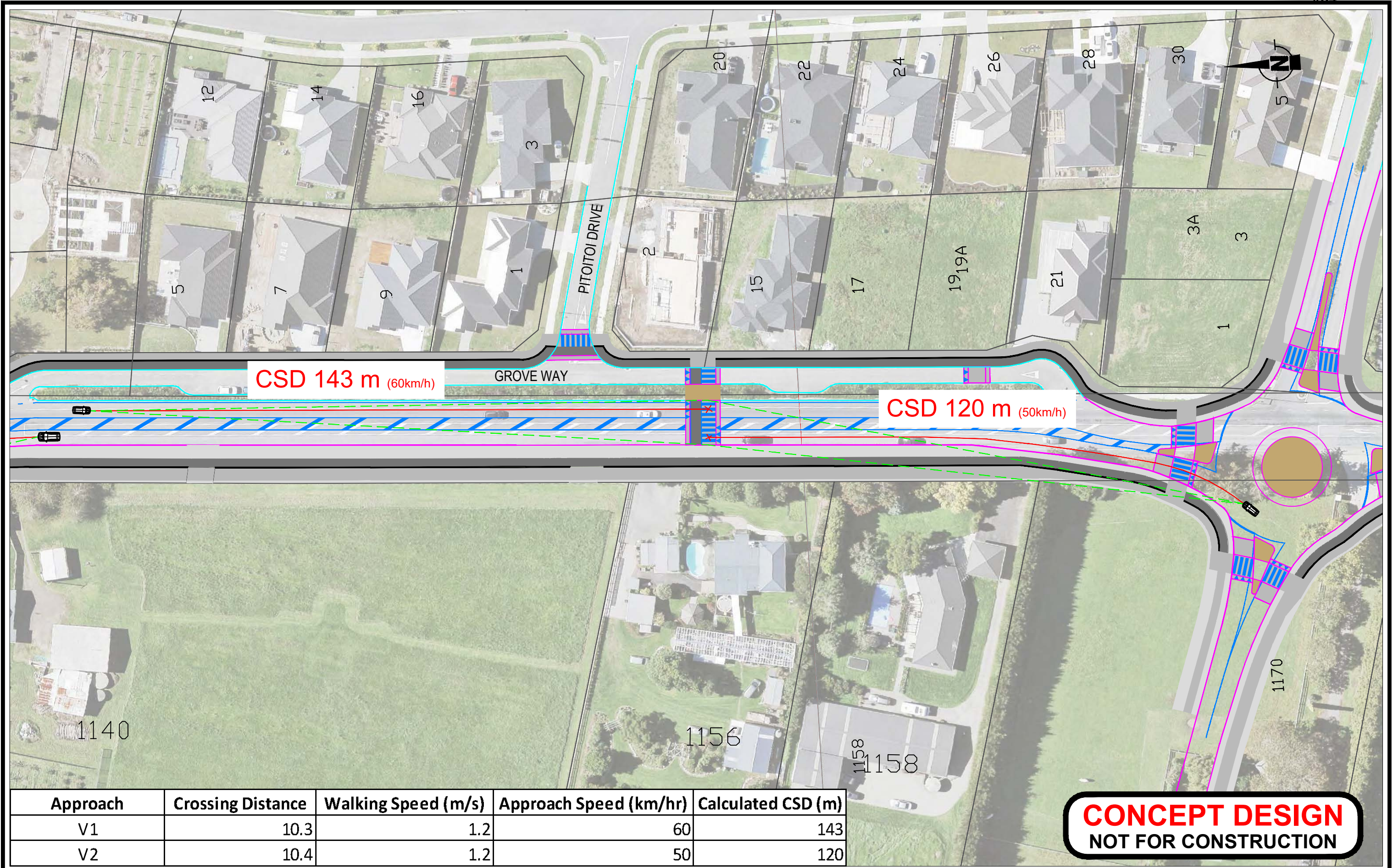


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rev	status	issued
A	First Issue- Draft Issue to AT	03/11/2021
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D	Issue for TA	13/12/2022

Riverhead Plan Change  
CVR Highway Intersection SISD

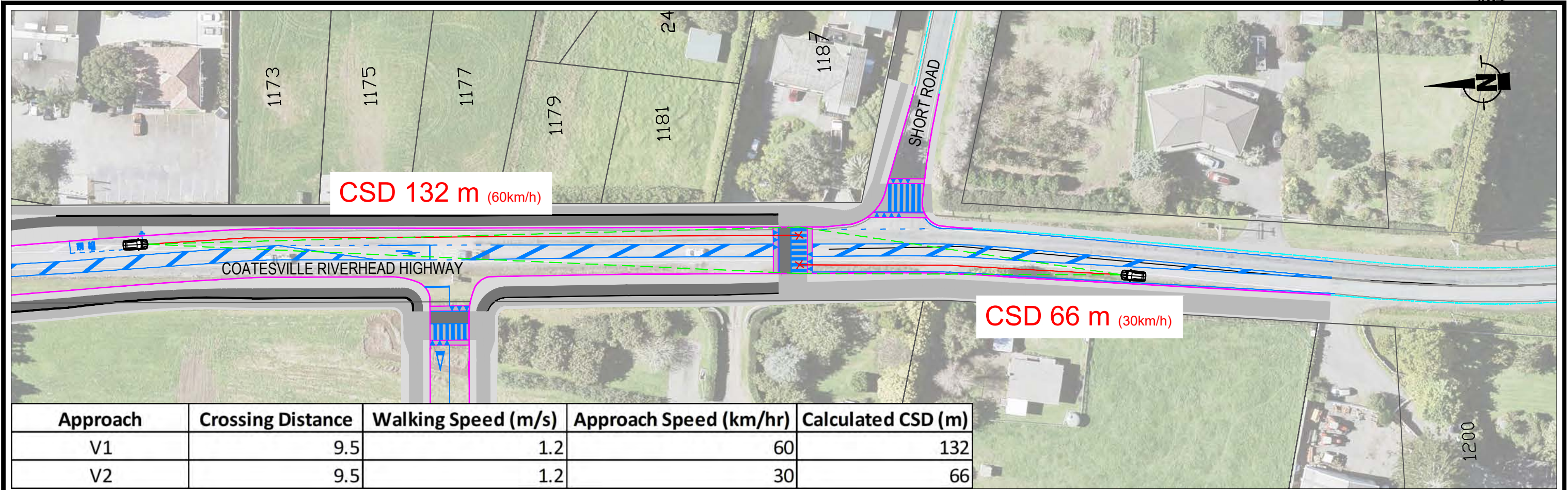




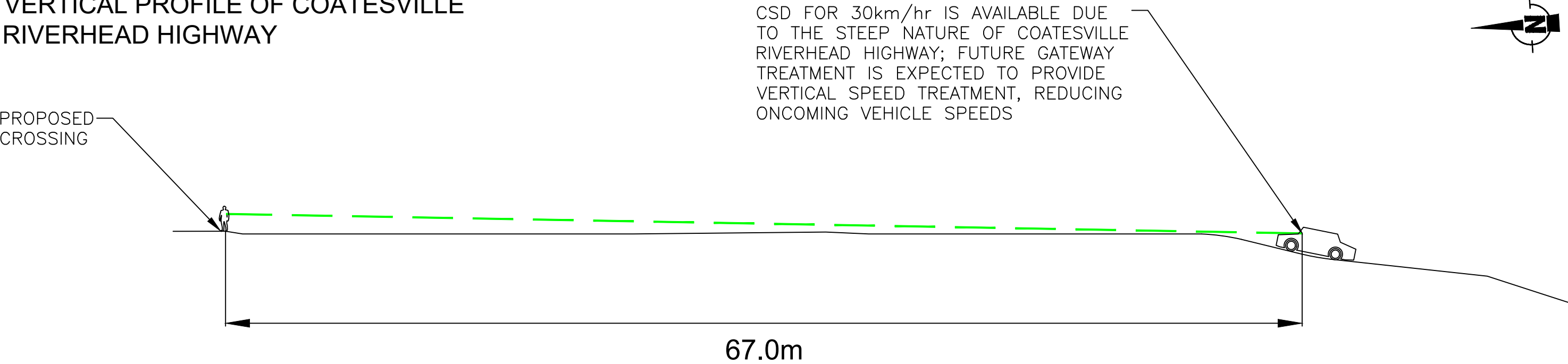
Approach	Crossing Distance	Walking Speed (m/s)	Approach Speed (km/hr)	Calculated CSD (m)
V1	10.3	1.2	60	143
V2	10.4	1.2	50	120

**CONCEPT DESIGN**  
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VERTICAL PROFILE OF COATESVILLE RIVERHEAD HIGHWAY



CONCEPT DESIGN  
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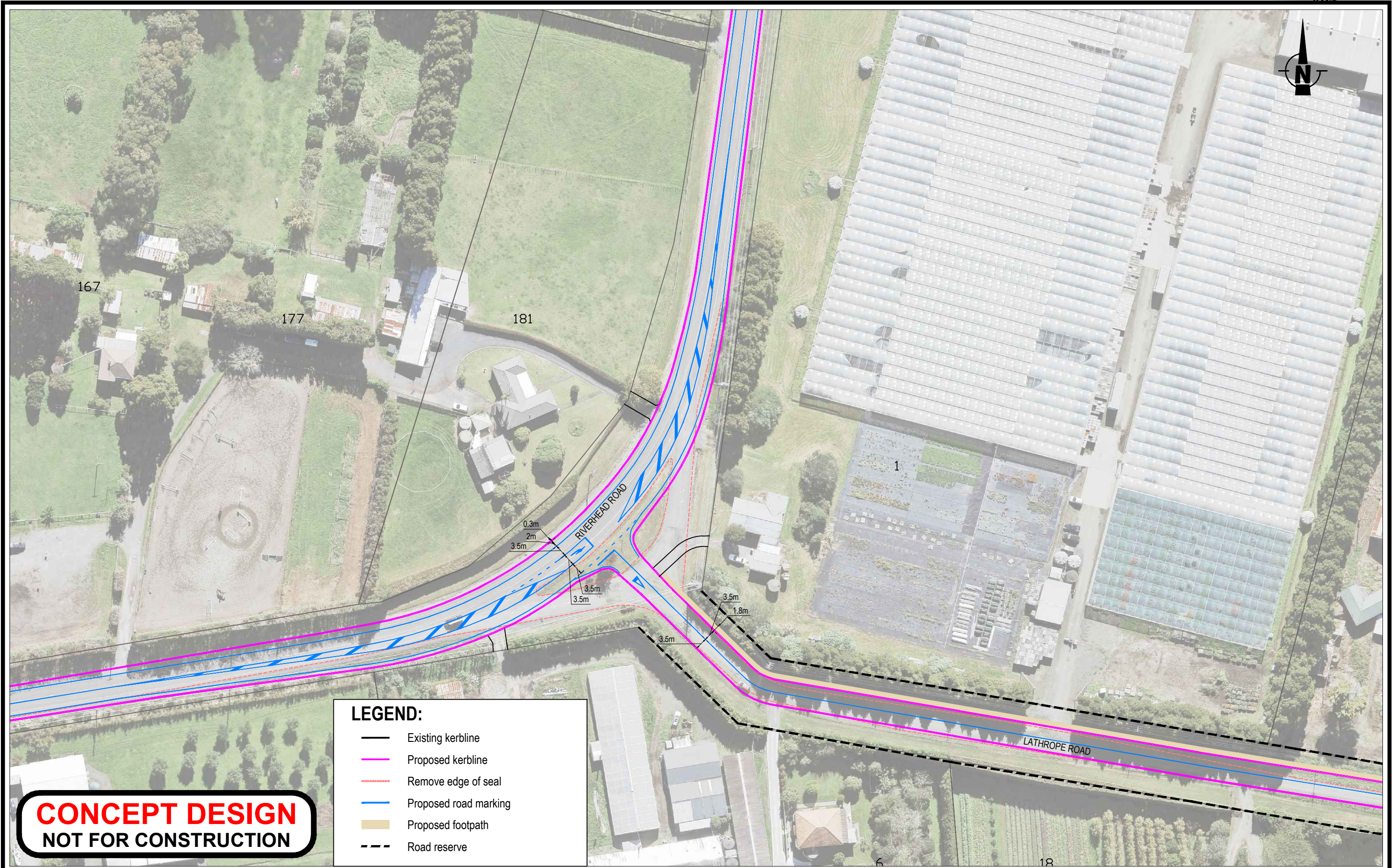


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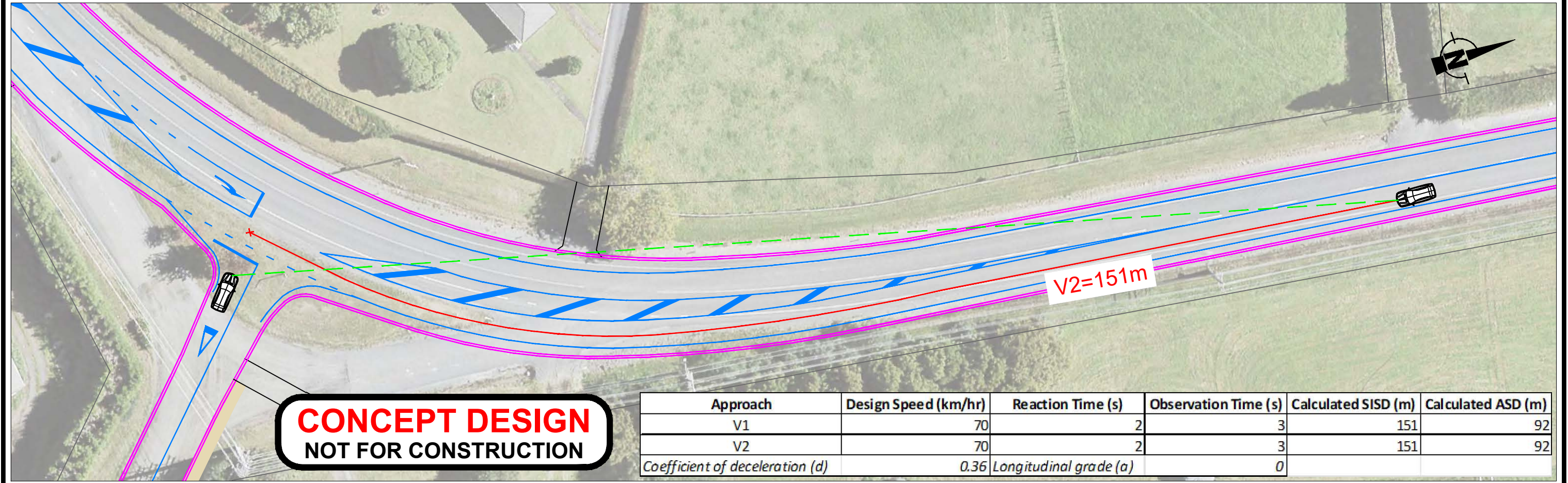
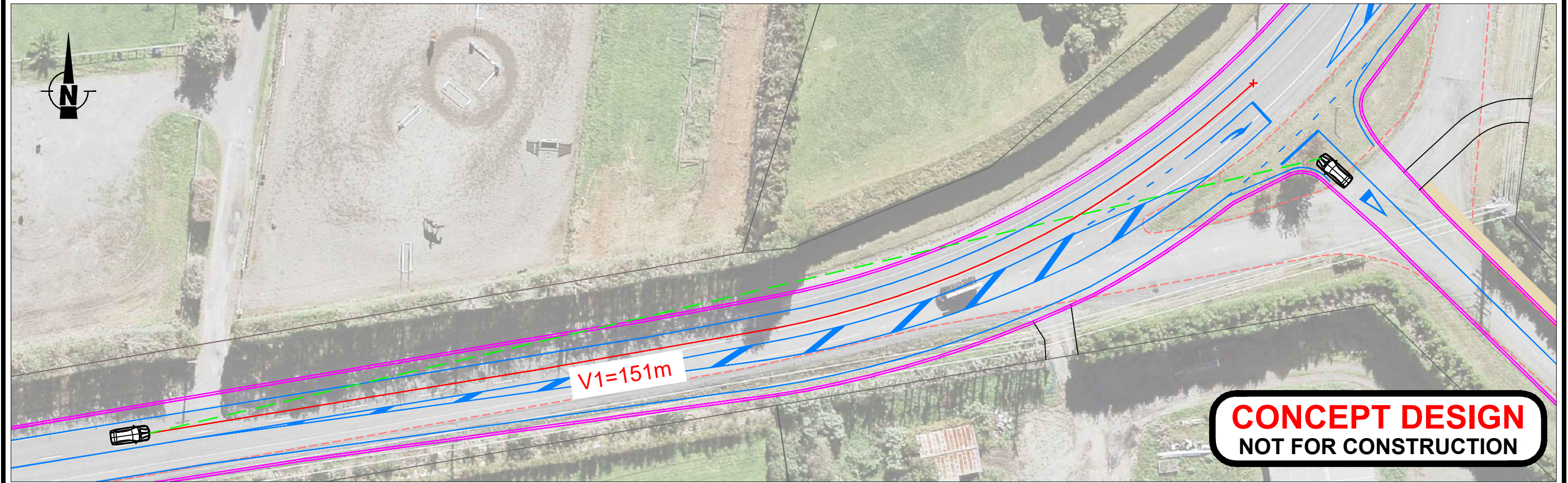
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C	Revised Issue	29/09/2022
D	Issue for TA	13/12/2022

Riverhead Plan Change  
Pedestrian Crossing Sight Distance (CSD)

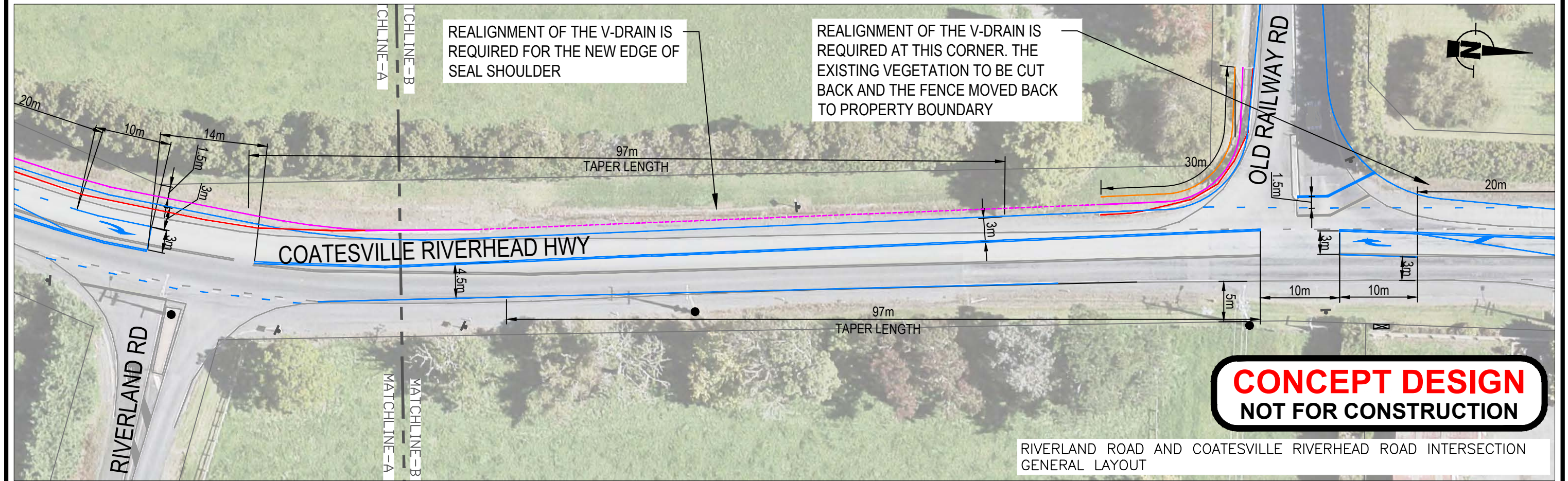
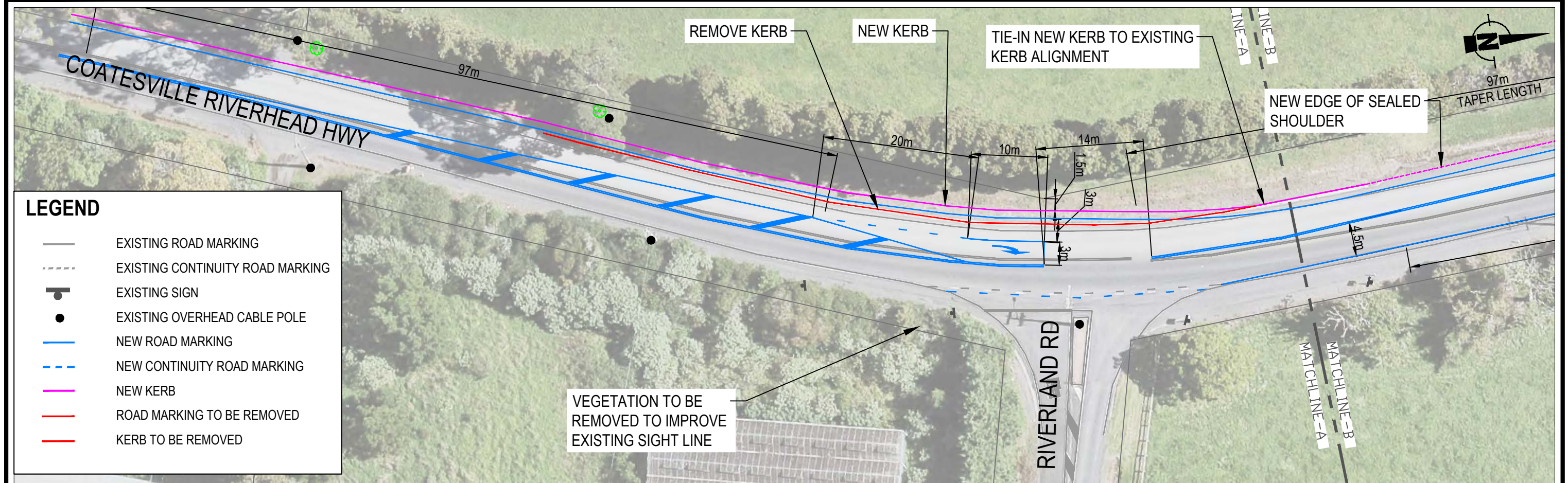












RevA

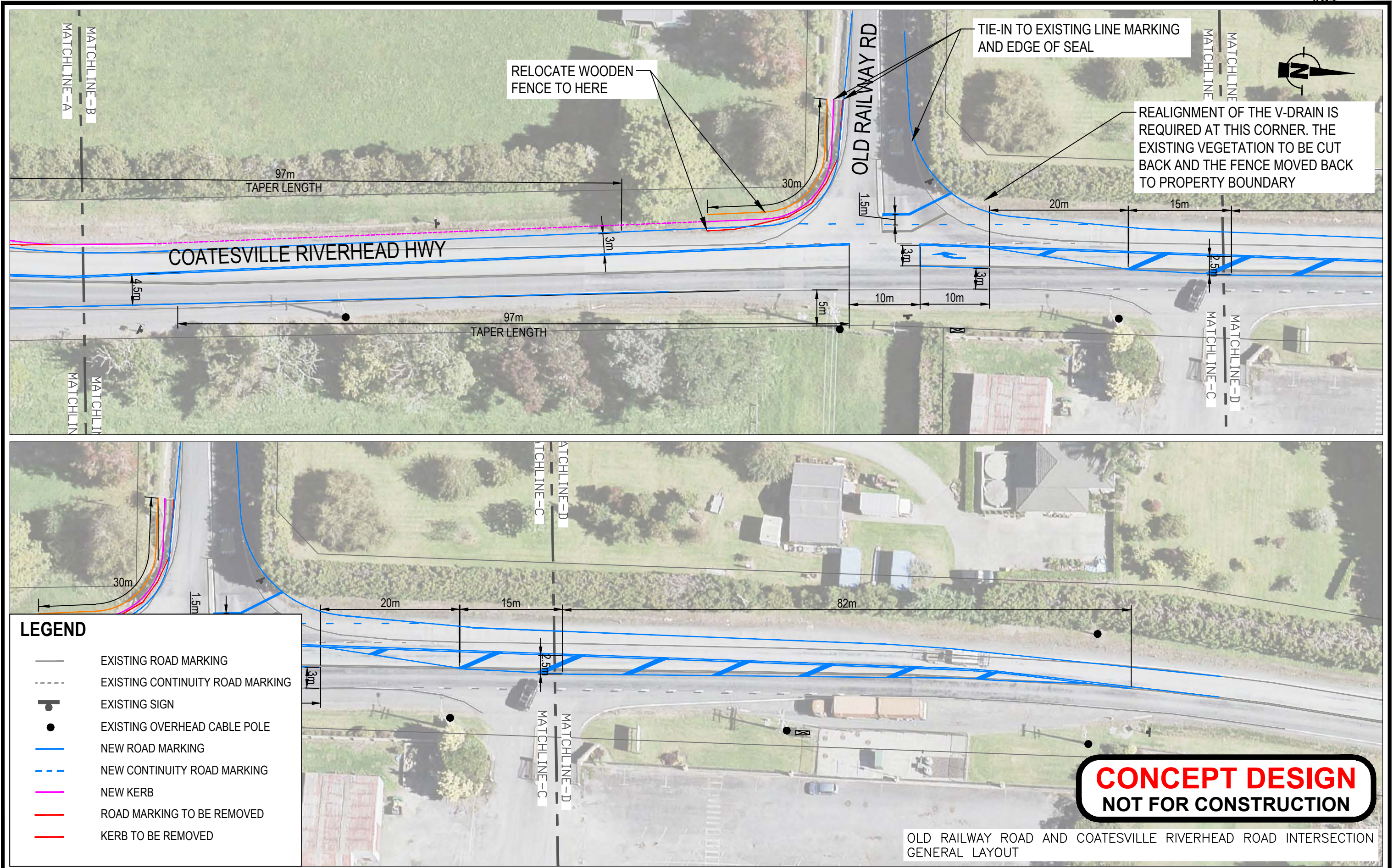
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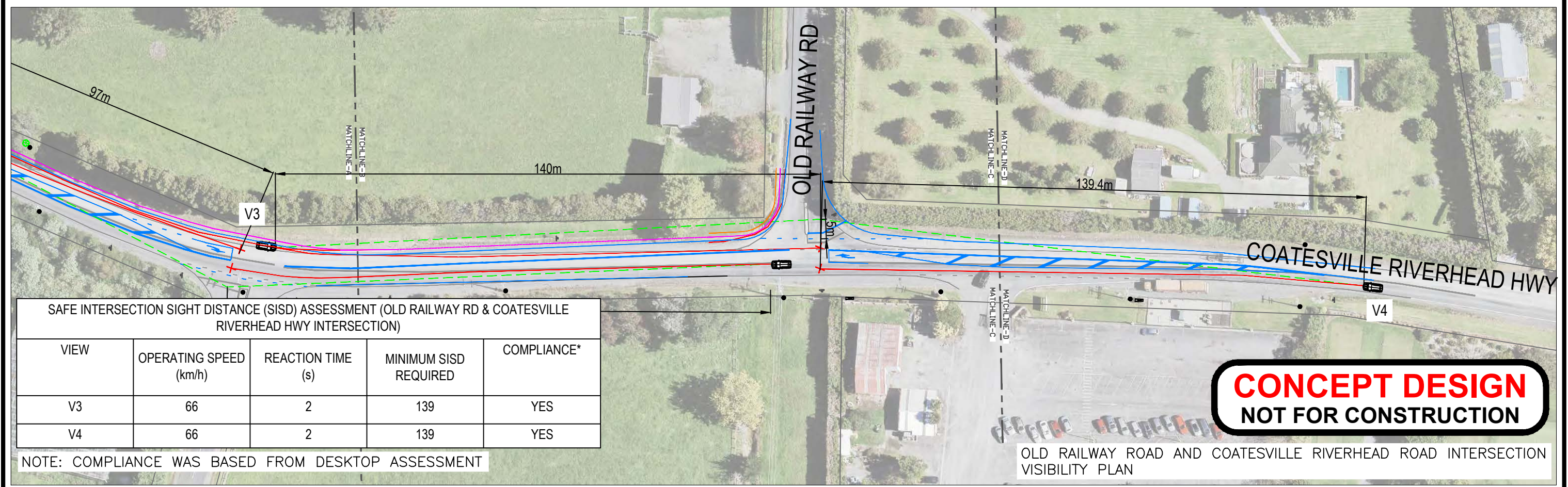
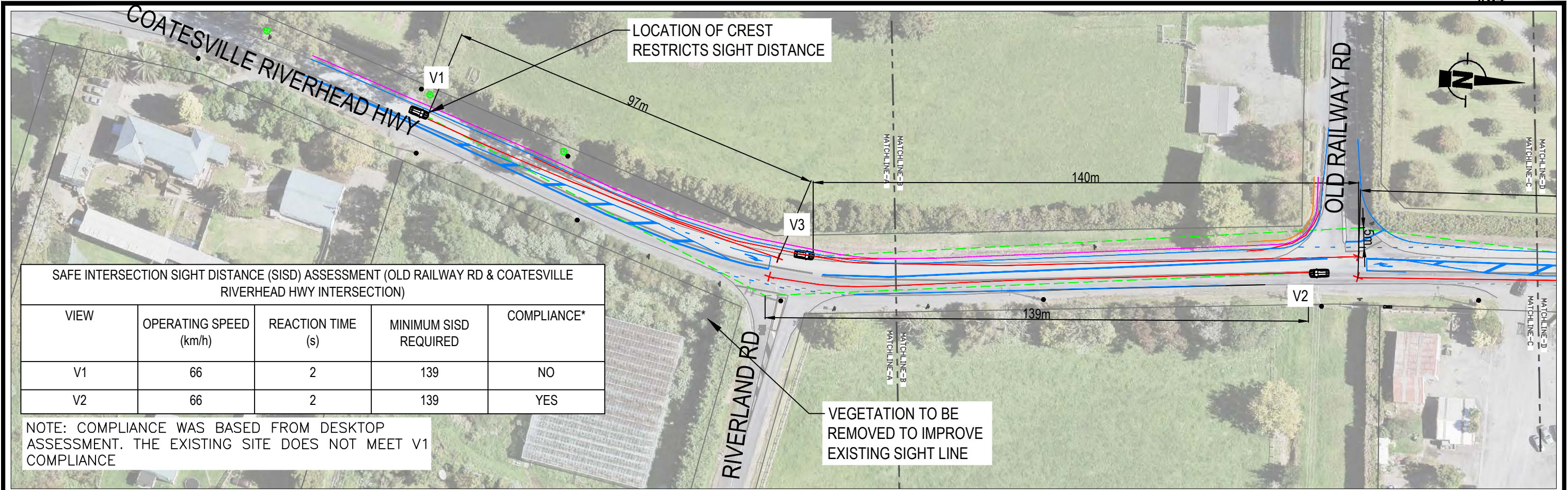
rev	status	issued
A	First Issue	13/12/2022

Riverhead Plan Change  
Riverland Rd and Old Railway Rd Right Turn Bay













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## APPENDIX D                      Coatesville-Riverhead Highway right turn bay assessment

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<b>PROJECT</b>	<b>RIVERHEAD PRIVATE PLAN CHANGE</b>
<b>SUBJECT</b>	<b>RIGHT TURN BAY TREATMENT REQUIREMENT</b>
<b>TO</b>	<b>KELSEY BERGIN, DARREN SOO (FLETCHERS)</b>
<b>FROM</b>	SHARMIN CHOUDHURY
<b>REVIEWED BY</b>	TERRY CHURCH
<b>DATE</b>	18 NOVEMBER 2022

---

## 1 PURPOSE OF NOTE

The Riverhead Landowner Group (RLG) is proposing a Private Plan Change that covers the Future Urban Zoned land in Riverhead. To respond to feedback received from Auckland Transport, Flow has reviewed the requirements for intersection upgrades to include right-turn bays at the Riverland Road intersection and the Old Railway Road intersection.

We have outlined, in this technical paper, the guidelines and criteria we use to determine the requirement for right-turn bays at intersections as well as indicated if the intersection upgrades are required now according to the current volumes using the intersection (that is, prior to any development within Riverhead), at the 60% development phase and at the 100% development phase.

## 2 SAFETY ISSUE

### 2.1 Safety issues with turning movements

Rear-ending crashes and side-impact crashes are the two typical crash types that take place when turning left and right at priority controlled intersections.

When vehicles slow down to turn, there is a risk that the following vehicle hits the rear of the turning vehicle (rear-ending crashes). The severity of these crashes increase as traffic volumes increase or the approach speed of the vehicle behind increases.

When vehicles turn right, there is a risk of the right-turning vehicle getting hit on the side, by a vehicle in the opposing direction (right-turn-against or side-impact crashes). Again, the severity of side-impact crashes increases in response to an increase in traffic volumes, or as the approach speed of the oncoming vehicle increases.

#### 2.1.1 Crashes at the Riverland Road intersection and the Old Railway Road intersection

The crash records of the past 5 years (2016 to 2021) indicate there have been 4 rear-end crashes involving vehicles turning right from Coatesville-Riverhead Highway into Old Railway Road, and 1 rear-end crash involving a vehicle turning right from Coatesville-Riverhead Highway into Riverland Road. Two of the rear-end crashes at the Old Railway Road intersection resulted in serious injuries.

From the crash records, we note the following

- ♦ **Right-turning** - All crashes that are related to turning movements from Coatesville-Riverhead Highway to either Riverland Road or Old Railway Road involved vehicles wanting to turn right into the side road
- ♦ **Left-turning** - There has been no record of rear-end crashes for vehicles turning left into Riverland Road or Old Railway Road
- ♦ **Side-impact crashes** - There have been no side-impact crashes at either intersection
- ♦ **Speed limit lowered** - There have been no turning movement crashes since the speed limit on Coatesville-Riverhead Highway (between SH16 and Riverhead village) was reduced to 60km/h.

Based on the above, we conclude the following

- ♦ **Rear-end crashes for left and right turning movements.** At the time of the crashes at the Riverland Road intersection and the Old Railway Road intersection, the posted speed limit on Coatesville-Riverhead Highway was higher (at 80km/h) which worsened the severity of the crashes. As the speed limit on Coatesville-Riverhead Highway adjacent to the intersections is now reduced to 60km/h, we expect that the frequency and severity of rear-end crashes will reduce and should they occur, will have a reduced severity.
- ♦ **Side impact crashes for right-turning movements.** When the traffic volumes increase along the Coatesville-Riverhead Highway (as a result of development), there is a risk that vehicles waiting to turn right, in trying not to cause further delay to the vehicles behind, would make unsafe right turn manoeuvres when there may be insufficient gaps within oncoming traffic. The angle of the crash, and the operational speed of around 65-70km/h, means there is a risk of a high severity of side-impact crashes.

With no inherent safety concern existing for left turning traffic, **our focus in this technical note is only on right-turn movements** with the objective to determine the requirement and timing for right-turn treatment at the Riverland Road intersection and the Old Railway Road intersection.

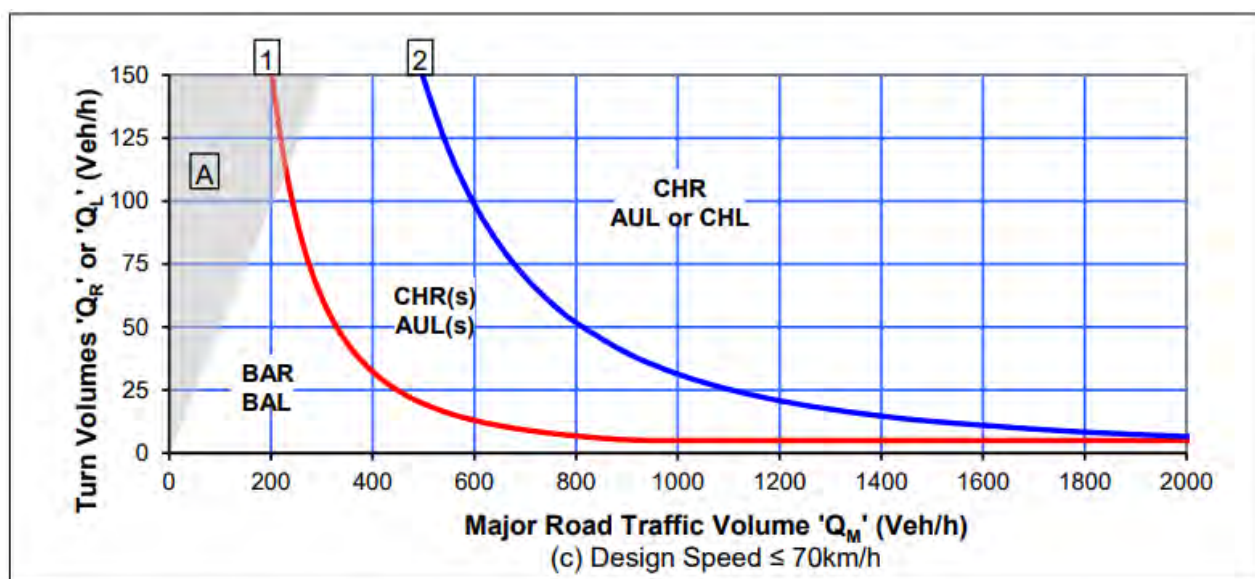
### 3 WARRANT FOR RIGHT TURN BAY TREATMENT

We refer to the Austroads' Guide to Traffic Management Part 6 which provides the warrants we use to determine the requirement for turn treatments at intersections. The warrants are for both urban and rural roads and apply to turning movements from the major road only (the road with priority) which in this case, is Coatesville-Riverhead Highway.

The warrants are typically based on the construction of intersections on new roads, however, they are also used as a reference for intervention levels when upgrading existing intersection turn treatments although it is also recognised that many existing intersections (particularly those on low-volume lower-order roads) are of a lower standard.

Considering the current speed limit is 60km/h along the Coatesville-Riverhead Highway, we have assumed a design speed of 70km/h. The warrant for turn treatments on roads at a design speed of 70km/h is shown in Figure 1.

Figure 1 – Warrant for turn treatments



Note: the minimum right-turn treatment for multilane roads is a CHR(s).

Source: TMR (2016a).

The warrant in the above figure above considers three types of right-turn treatments

- ♦ A basic right-turn treatment (BAR) provides a widened shoulder on the major road that allows through-movement vehicles, having slowed, to pass to the left of turning vehicles
- ♦ A channelised right-turn treatment with short lane (CHR(s)) separates the conflicting vehicle travel paths and provides a short length for the deceleration lane by assuming there is a 20% speed reduction at the start of the taper<sup>1</sup>
- ♦ A channelised right-turn treatment (CHR) provides a full-length deceleration lane by assuming no speed change across the intersection.

In the above figure, curve 1 (red) represents the boundary between a BAR and a (CHR(S)) turn treatment on two-lane two-way roads. Curve 2 (blue) represents the boundary between a CHR(S) and a CHR turn treatment.

<sup>1</sup> Austroads 2021: Guide to Road Design Part 4A: Unsignalised and Signalised Intersections, Section 5.2.1

## 4 PROPOSED DEVELOPMENT

### 4.1 Intersection assessment

The two intersections Auckland Transport has requested a safety assessment for and the location of both relative to the Riverhead Private plan Change are shown in Figure 2.

Figure 2 – Private plan change site and location of intersections under consideration



### 4.2 The intersections

Old Railway Road and Riverland Road intersect with Coatesville-Riverhead Highway and are located south of the Private Plan Change site. Each intersection currently operate as stop-controlled T-intersections with no medians, shoulder widening, or right turn bays on Coatesville-Riverhead Highway, as shown in Figure 3.



Figure 3 – Existing Layout of intersections

Old Railway Road intersection



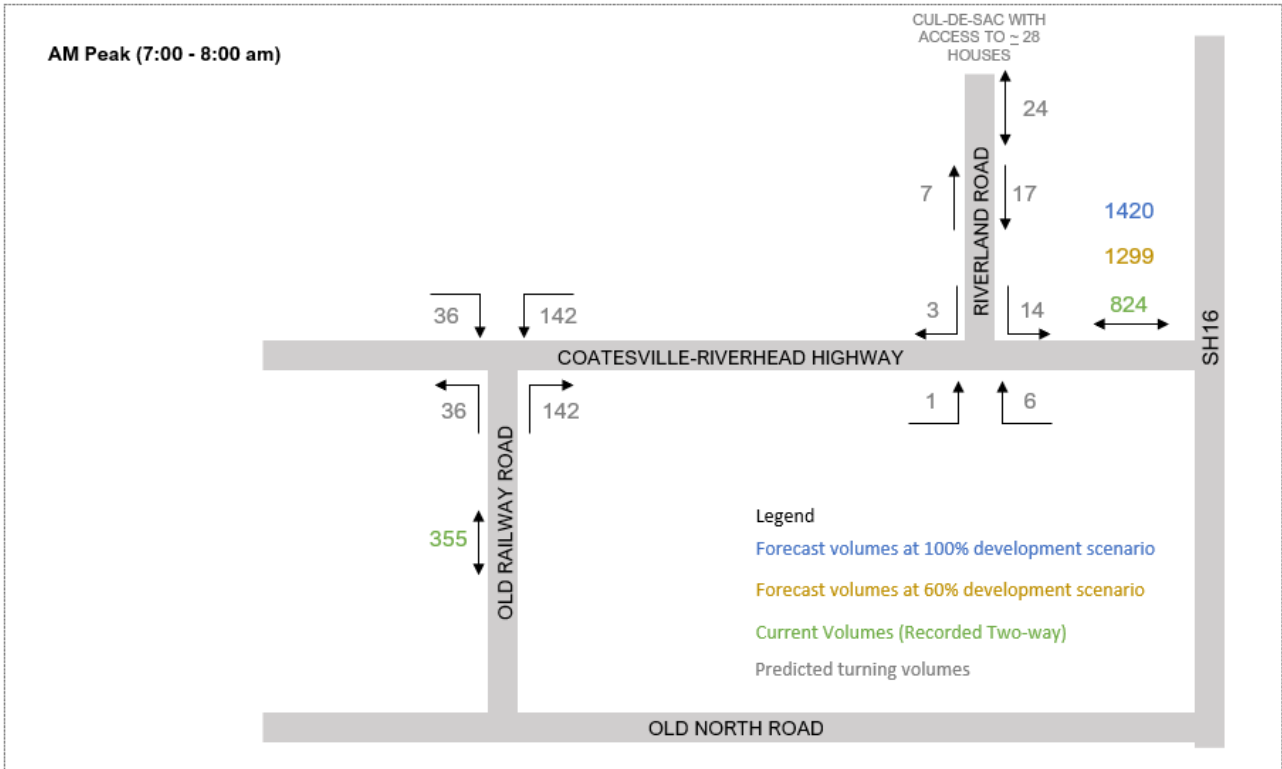
Riverland Road intersection

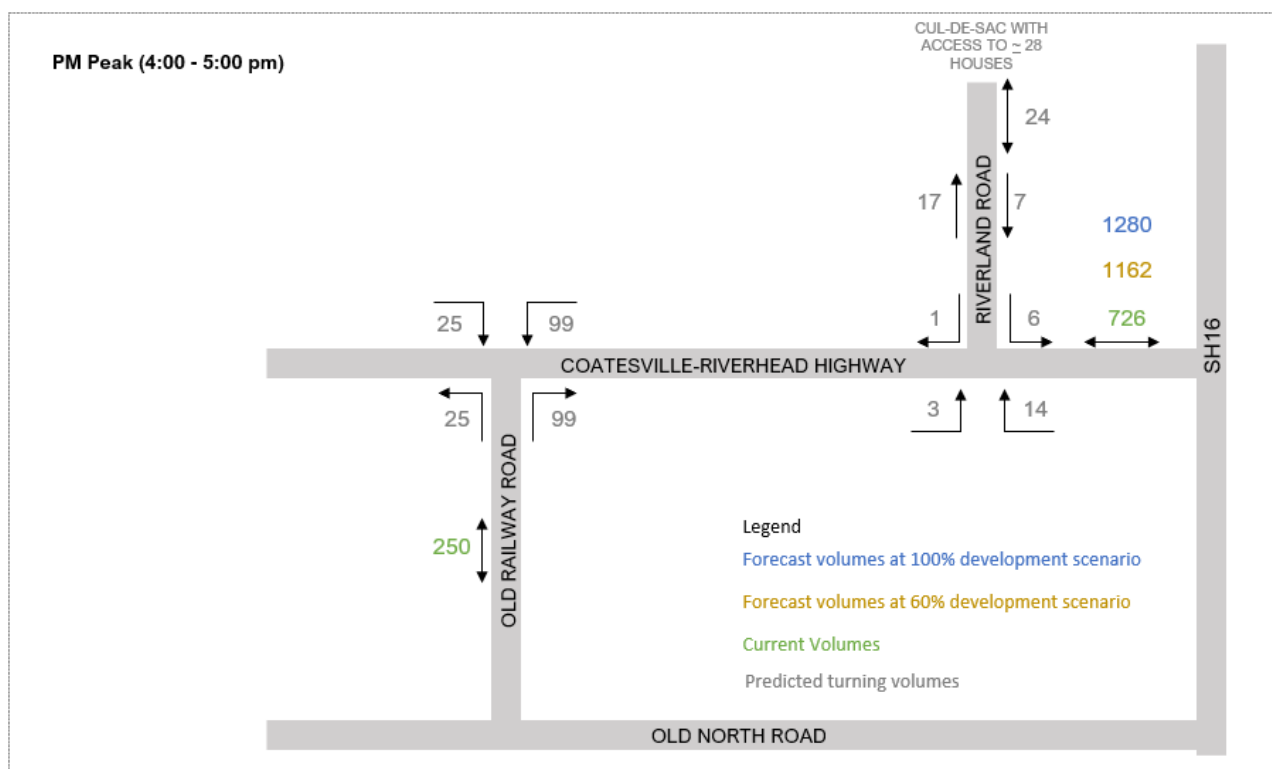


4.3 Traffic flows

The existing traffic flows along Coatesville-Riverhead Highway in the existing scenario, the 60% development phase, and the 100% development phase have been mapped in Figure 4 below.

Figure 4 – Peak hour traffic flows per scenario





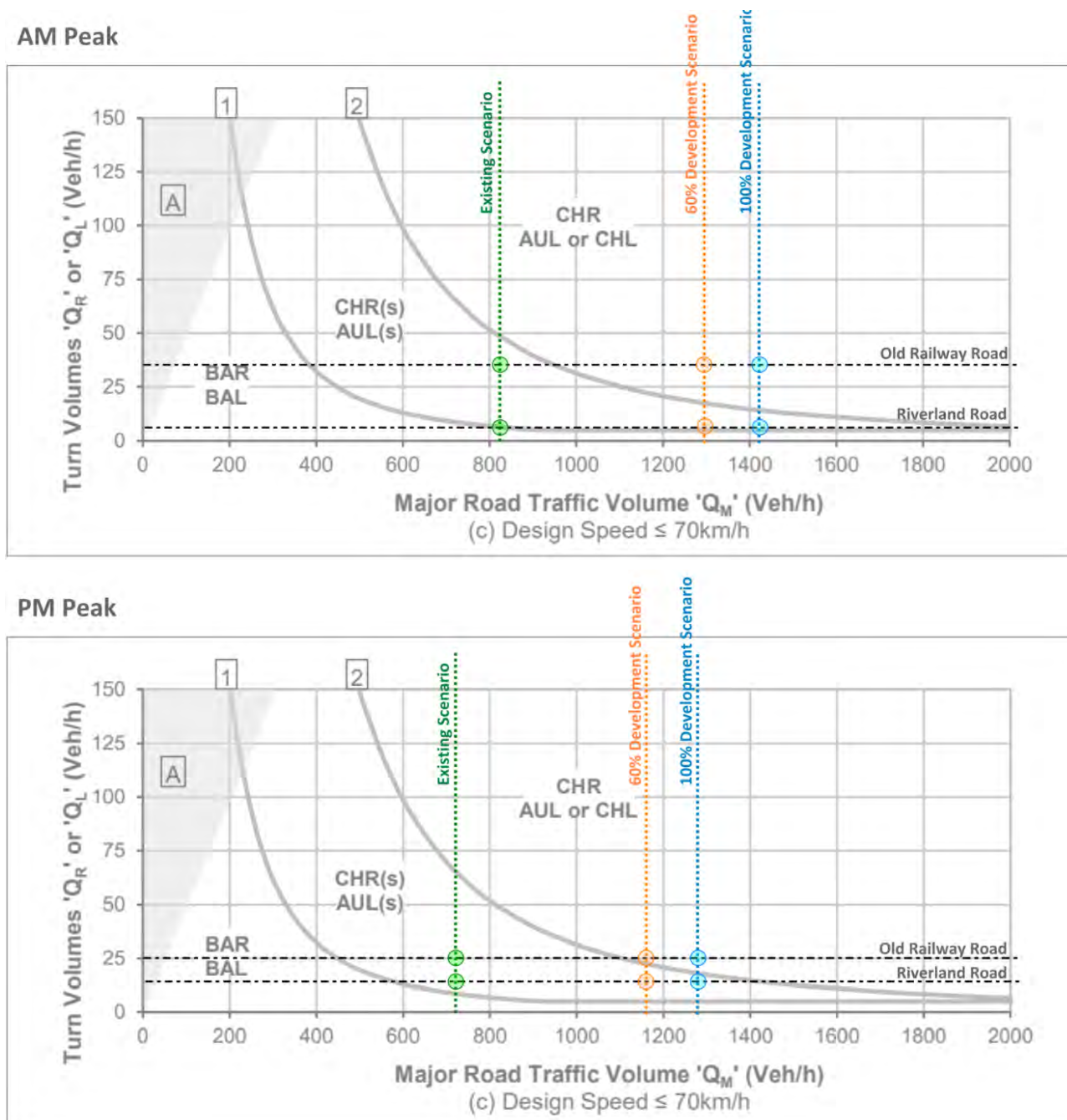
We have based the traffic volumes shown in the figure above on the following assumptions:

- ♦ Coatesville-Riverhead Highway volumes are based on Auckland Transport's traffic count data in May 2022, with forecast volumes being based on development yields associated with the Private Plan Change
- ♦ Old Railway Road volumes are based on Auckland Transport's traffic count data in March 2021 for Old Railway Road between Old North Road and Coatesville Riverhead Highway
- ♦ Volumes for Riverland assume a trip rate of 0.85 per dwelling. We have estimated 24 dwellings
- ♦ A 50% directional split is assumed along Old Railway Road and Riverland Road
- ♦ Riverland Road will experience 70% of its traffic going towards Coatesville-Riverhead Highway in the AM peak and vice-versa in the PM peak
- ♦ 80% of vehicles from the side roads will turn towards SH16 and the remainder will turn towards Riverhead.

## 4.4 The warrant for turn treatments

The current and predicted traffic volumes for each scenario (current, 60% development and 100% development) have been mapped onto the warrant as shown in Figure 5.

Figure 5 – Warrant maps for each scenario for both intersections



The warrant indicates that

- ♦ for the existing scenario, there is a requirement for a channelised turn treatment at the intersection with Riverland Road albeit the traffic demand is very low. There is however a high demand for a channelised treatment at the Old Railway Road intersection
- ♦ when increasing traffic volumes on Coatesville-Riverhead Highway (resulting from the uptake of development), the demand for a channelised turn treatment significantly increases.

## 5 SUMMARY

We have reviewed the requirement for right-turn bay treatments at the Coatesville-Riverhead Highway intersections with Old Railway Road and Riverland Road. Our review is based on the Austroads' Guide to Traffic Management Part 6 which provides the warrants for both urban and rural roads. The warrants are typically based on the construction of intersections on new roads, (greenfield sites) however, they are also used as a reference for intervention levels when upgrading existing intersection turn treatments. The guide recognises that many existing intersections are of a lower standard.

We reviewed the crashes involving traffic turning right or left, as well as the traffic flows and volumes for the existing scenario (no development), a 60% development scenario, and a 100% development scenario against the warrant and find the following

- ◆ At the Riverland Road intersection, the warrant indicates there is some demand for a channelised turn treatment in the existing scenario however the crash record indicates the current demand for it is low
- ◆ At the Old Railway Road intersection, the warrant indicates that the demand for a channelised turn treatment is high in the existing scenario
- ◆ In both the 60% development scenario and the 100% development scenario, the predicted increase in traffic flows indicate a high demand for channelised turn treatments at both intersections
- ◆ The increase in traffic using Coatesville-Riverhead Highway may also lead to an increase in delays experienced by turning vehicles and therefore an increase in risk to vehicles turning into the side roads.

Therefore, to achieve safe outcomes for each intersection, right-turn bays are recommended for the Old Railway Road intersection pre-development but for the Riverland Road intersection, right-turn bays may be provided at the 60% development scenario.

This technical note is focused solely on the safety implications due to the planned development, for right turn movements from Coatesville-Riverhead Highway to Old Railway Road and Riverland Road.

Reference: P:\frlx\015 Fletchers Riverhead Masterplan and Private Plan Change\Reporting\TN6A221118\_Right turn bay assessment.docx - Sharmin Choudhury

**Before you fill out the attached submission form, you should know:**

You need to include your full name, an email address, or an alternative postal address for your submission to be valid. Also provide a contact phone number so we can contact you for hearing schedules (where requested).

By taking part in this public submission process your submission will be made public. The information requested on this form is required by the Resource Management Act 1991 as any further submission supporting or opposing this submission is required to be forwarded to you as well as Auckland Council. Your name, address, telephone number, email address, signature (if applicable) and the content of your submission will be made publicly available in Auckland Council documents and on our website. These details are collected to better inform the public about all consents which have been issued through the Council.

Please note that your submission (or part of your submission) may be struck out if the authority is satisfied that at least one of the following applies to the submission (or part of the submission):

- It is frivolous or vexatious.
- It discloses no reasonable or relevant case.
- It would be an abuse of the hearing process to allow the submission (or the part) to be taken further.
- It contains offensive language.
- It is supported only by material that purports to be independent expert evidence, but has been prepared by a person who is not independent or who does not have sufficient specialised knowledge or skill to give expert advice on the matter.

## Submission on a notified proposal for policy statement or plan change or variation

Clause 6 of Schedule 1, Resource Management Act 1991  
FORM 5



Send your submission to [unitaryplan@aucklandcouncil.govt.nz](mailto:unitaryplan@aucklandcouncil.govt.nz) or post to :

Attn: Planning Technician  
Auckland Council  
Level 16, 135 Albert Street  
Private Bag 92300  
Auckland 1142

For office use only

Submission No:

Receipt Date:

### Submitter details

#### Full Name or Name of Agent (if applicable)

Mr/Mrs/Miss/Ms(Full  
Name)

Mrs Anna Johnston

#### Organisation Name (if submission is made on behalf of Organisation)

#### Address for service of Submitter

Unit K-6-3a, Residensi Duta Kiara, No 7 Jalan Duta Hartamas,

Kuala Lumpur 50480, Malaysia

Telephone:

60146236908

Email:

annaljohnston1977@gmail.com

Contact Person: (Name and designation, if applicable)

### Scope of submission

This is a submission on the following proposed plan change / variation to an existing plan:

Plan Change/Variation Number

PC 100 (Private)

Plan Change/Variation Name

Riverhead

The specific provisions that my submission relates to are:

(Please identify the specific parts of the proposed plan change / variation)

Plan provision(s)

Or

Property Address

19 Jelas Drive, Riverhead

Or

Map

Or

Other (specify)

### Submission

My submission is: (Please indicate whether you support or oppose the specific provisions or wish to have them amended and the reasons for your views)

I **support** the specific provisions identified above ☐

I **oppose** the specific provisions identified above ☒

I wish to have the provisions identified above amended Yes ☒ No ☐

The reasons for my views are:

Having lived in Riverhead for the past 8.5 years, the current infrastructure and what is being proposed by this plan is not sufficient to service an expansion of the community that is being suggested. The schooling and other services in the area also do not support development of this size in this small community.

(continue on a separate sheet if necessary)

I seek the following decision by Council:

Accept the proposed plan change / variation

☐

Accept the proposed plan change / variation with amendments as outlined below

☐

Decline the proposed plan change / variation

☒

35.1

If the proposed plan change / variation is not declined, then amend it as outlined below.

☐

I wish to be heard in support of my submission

☐

I do not wish to be heard in support of my submission

☐

If others make a similar submission, I will consider presenting a joint case with them at a hearing

☒

Anna Johnston

05/05/2024

Signature of Submitter

Date

(or person authorised to sign on behalf of submitter)

#### Notes to person making submission:

If you are making a submission to the Environmental Protection Authority, you should use Form 16B.

Please note that your address is required to be made publicly available under the Resource Management Act 1991, as any further submission supporting or opposing this submission is required to be forwarded to you as well as the Council.

If you are a person who could gain an advantage in trade competition through the submission, your right to make a submission may be limited by clause 6(4) of Part 1 of Schedule 1 of the Resource Management Act 1991.

I could ☐ /could not ☒ gain an advantage in trade competition through this submission.

**If you could gain an advantage in trade competition through this submission please complete the following:**

I am ☐ / am not ☐ directly affected by an effect of the subject matter of the submission that:

(a) adversely affects the environment; and

(b) does not relate to trade competition or the effects of trade competition.



**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Claire Kathleen Jones  
**Date:** Monday, 6 May 2024 11:16:40 am  
**Attachments:** [10-pc100-app-8-integrated-transport-assessment\\_20240506105722.700.pdf](#)

---

The following customer has submitted a Unitary Plan online submission.

#### **Contact details**

Full name of submitter: Claire Kathleen Jones

Organisation name:

Agent's full name:

Email address: fairview2010@gmail.com

Contact phone number:

Postal address:  
 23 Pitoitoi Drive  
 Riverhead  
 Auckland 0820

#### **Submission details**

##### **This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### **My submission relates to**

Rule or rules:

Property address:

Map or maps: Assessment 8 Integrated Transport

Other provisions:

Limited and not workable roading for traffic access to exit the Riverhead area. Need access to Highway 16 to be very much improved before this change can even begin

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

The traffic provisions for access to the main highway to travel North or South from Riverhead at present are severely stretched now and the local residents have been constantly faced with long queus when trying to travel anywhere. We are really tired of it and we do not need any more local traffic of construction trucks to make the situation worse. There is no provision in this proposal which will address this problem.

last Wednesday I left my home at 9.30AM to go to Henderson for an appointment. I missed the appointment because I sat in a crawling line of cars about 400metres long from Old Railway Rd to the round about on Highway 16 and then really slow to the Coatsville Road intersection and slow to the N W Motorway. it is unacceptable to think what sort of gridlock we would have if this projected plan change were to be approved at this time. We would have constant gridlock

I or we seek the following decision by council: Decline the plan change

36.1

Submission date: 6 May 2024

Supporting documents

10-pc100-app-8-integrated-transport-assessment\_20240506105722.700.pdf

### Attend a hearing

Do you wish to be heard in support of your submission? No

### Declaration

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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## **Riverhead Plan Change**

### **Integrated Transport Assessment**

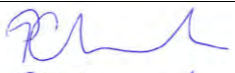

**October 2023**

**flow**

**TRANSPORTATION SPECIALISTS 241**

**Project:** Riverhead Private Plan Change  
**Title:** Integrated Transport Assessment  
**Document Reference:** P:\frlx\015 Fletchers Riverhead Masterplan and Private Plan Change\Reporting\R1F221212 Riverhead Plan Change.docx  
**Prepared by:** Harry Shepherd  
**Project Manager:** Terry Church  
**Reviewed by:** Terry Church

**Revisions:**

Date	Status	Reference	Approved by	Initials
2 December 2021	Draft to project team	R1A211202	T Church	
8 December 2021	Draft to Auckland Transport to support drawings	R1B211208	T Church	
1 June 2022	Updated draft to project team	R1C220601	T Church	
30 June 2022	Final	R1D220630	T Church	
6 December 2022	Notification draft	R1E221206	T Church	
12 December 2022	For Notification	R1F221212	T Church	
4 October 2023	For Notification post c25 acceptance	R1G231004	T Church	

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## SUMMARY OF OUR ASSESSMENT

Riverhead Landowner Group (Applicant) has engaged Flow Transportation Specialists Ltd (Flow) to assess the transport planning and traffic engineering matters relating to a Structure Plan and subsequent Private Plan Change (Proposal) for land zoned Future Urban, located in Riverhead, adjacent to Coatesville-Riverhead Highway and Riverhead Road (Site).

The Structure Plan and Plan Change Proposal includes the following elements that are material to transport matters

- ◆ Rezoning the Future Urban Zone land to a variety of zones, including
  - Residential – Mixed Housing Suburban and Terrace Housing and Apartment Buildings<sup>1</sup>
  - Business – Local Centre, providing for a supermarket, ancillary retail, café and offices
  - Business – Neighbourhood Centre, providing a smaller scale retail offering to the local neighbourhood
  - Rural – Mixed Rural
- ◆ Enabling of future activities and amenities including a potential school, early childhood centre, and open space.
- ◆ Upgrading the transport network within the Plan Change area which provides access to Riverhead and the development area, including
  - Upgrading the surrounding road network within the Plan Change area to improve road safety and provide new separated facilities for pedestrians and cyclists. These upgrades align with those being assessed by Auckland Transport and Te Tupu Ngātahi Supporting Growth for Coatesville-Riverhead Highway. Similar upgrades are also provided for Riverhead Road, with Lathrope Road also being sealed and a pedestrian path provided on the northern side. Upgrades are also included for Cambridge Road fronting the Site, with a pedestrian path also provided for along Queen Street to connect to Coatesville-Riverhead Highway.
  - Anticipated speed limit reductions (through Bylaw changes) by extending the existing 50 km/h speed limits on Coatesville-Riverhead Highway, Riverhead Road and Lathrope Road which front the extended urban area to enable safer speed environments for all road users, and provide new speed threshold treatments.
- ◆ Upgrading the following intersections to improve safety and facilitate active modes
  - Coatesville-Riverhead Highway / Riverhead Road – upgrade existing roundabout
  - Coatesville-Riverhead Highway / Riverhead Point Drive / new collector road – upgrade to a roundabout and construct a fourth west leg to provide a collector road into the site

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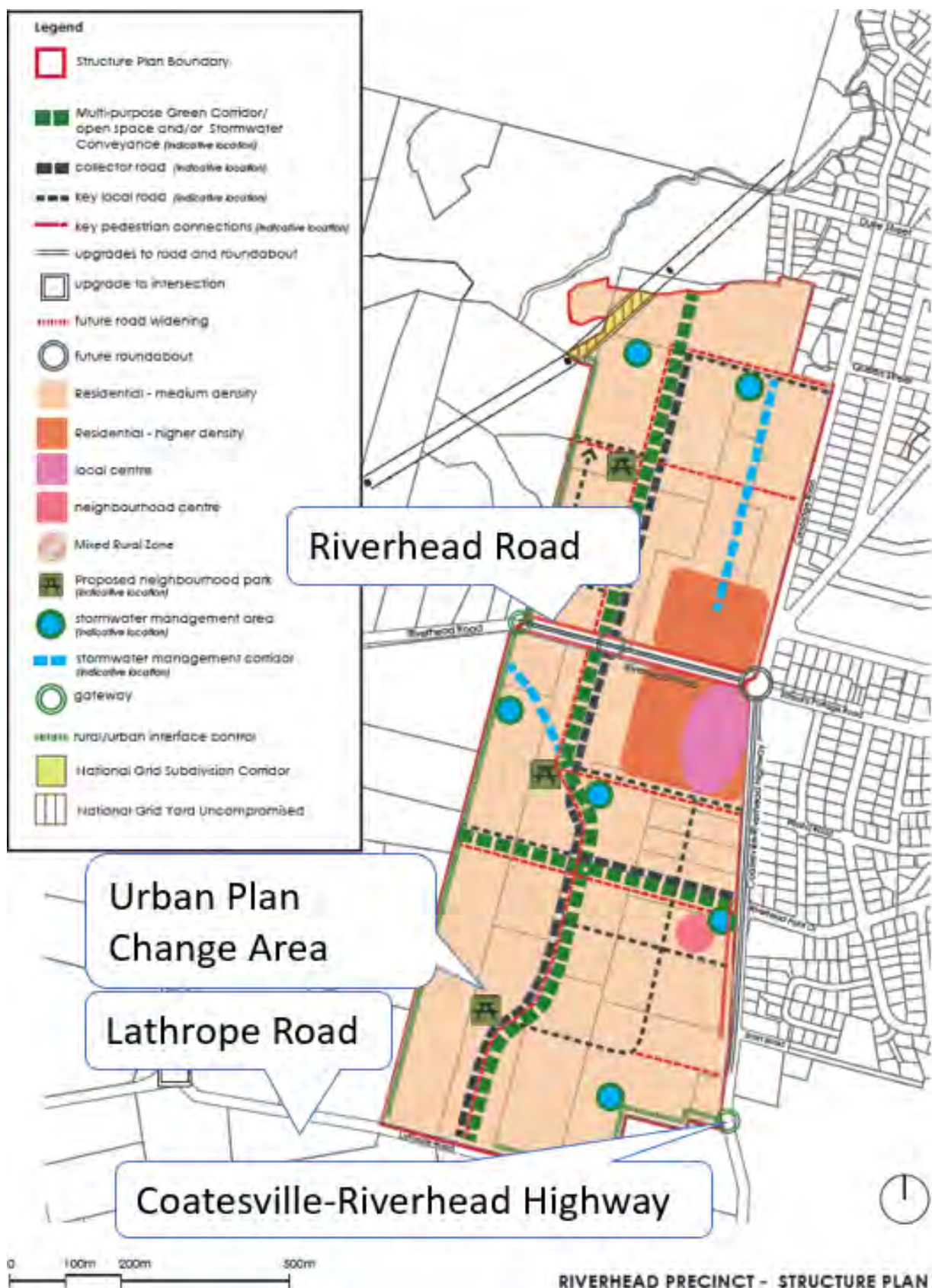
<sup>1</sup> Allowing up to 1,558 residential dwellings, a retirement village with some 310 apartments, 90 aged care beds, a childcare centre, a medical centre and supporting café and retail

- Coatesville-Riverhead Highway / new local road – construct a new local road access onto Coatesville-Riverhead Highway between Riverhead Point Drive and Short Road as a priority-controlled intersection
  - Riverhead Road / new collector road – construct a new roundabout west of Coatesville-Riverhead Highway. The new collector road will provide a north and south approach to the roundabout, providing a total of four approaches
  - Lathrope Road / Riverhead Road – upgrade the existing priority control intersection. Realign the Lathrope Road access into one point, and provide a right turn bay and a flush median on Riverhead Road
  - Right turn bays on Coatesville-Riverhead Highway will be required at the Riverland Road and Old Railway Road intersections.
- ◆ Precinct plan provisions, which ensure the necessary infrastructure upgrades are operational prior to relevant development being occupied. This includes the infrastructure upgrades outlined above and tying occupied development to the SH16 / Coatesville-Riverhead Highway intersection upgrade being progressed by Waka Kotahi, given the safety improvements this upgrade provides to all of Riverhead.

A plan showing the Site and general layout is included at Figure ES1.



Figure ES1: Proposed Structure Plan



Based on the analysis described in this report, we conclude that the Structure Plan and proposed Plan Change can enable activities that can operate safely and efficiently from a transportation perspective.



We conclude that

### Planning context

- ♦ The Plan change aligns well with the Auckland Plan and Auckland Unitary Plan transport objectives by providing people with choices of healthy and sustainable transport modes and encourages a range of activities. A full assessment of the relevant objectives and policies is provided in the section 32 report prepared by Barker & Associates
- ♦ The rezoning of Future Urban land will enable a range of complementary activities, including residential dwellings, a local centre, early learning childcare centres and a retirement village complex
- ♦ Provision of education options are being provided
- ♦ The Plan Change brings the development ahead of the 2028 – 2032 current schedule in the Future Urban Land Supply Strategy by three to four years although that timing is principally based on issues applying to Kumeu and Huapai that do not constrain Riverhead. We note that the roading improvements captured in the Precinct Provisions are all that is required prior to development being occupied.

### Local access and roads

- ♦ The sections of Riverhead Road and Coatesville-Riverhead Highway that front the plan change area and provide the entry points to Riverhead will receive full corridor upgrades within the vicinity of the Site as part of the Plan Change. This includes providing new dedicated facilities for pedestrians and cyclists on both sides of these roads, which will significantly improve active mode accessibility for existing and future residents of Riverhead
- ♦ Lathrope Road will be upgraded and sealed to provide a footpath on the northern side, and allow this road to be used as an external vehicle access route from the Site to Riverhead Road
- ♦ An internal road network will be provided to support the activities included in the Plan Change. Several new intersections will be constructed. Existing intersections in the local area will be upgraded. These intersections will be designed in accordance with Vision Zero and designed to safely accommodate all road users. The proposed Precinct Provisions set out the anticipated design elements of local roads, requiring low speed designs that offer a safe outcome to all users
- ♦ New footpaths on Queen Street and Cambridge Road will be provided to improve pedestrian connectivity
- ♦ Precinct Plan provisions will allow improved public transport facilities to be provided in the future
- ♦ It is anticipated that speed limits will be revised (through the Bylaw) on Riverhead Road and Coatesville-Riverhead Highway, as a result of urbanisation of the area. This will provide safety benefits for all road users and align with Vision Zero principles (see Section 6.1.1).

### Wider network

- ♦ There are existing capacity constraints on the road network, particularly on SH16. The section of SH16 south of the Site has funding to be upgraded by Waka Kotahi NZTA by 2025, which will increase capacity and improve safety from the Plan Change area. The Notice of Requirement for

this project has now been lodged with Auckland Council. The proposed Precinct Provisions include a requirement to ensure that this upgrade is provided before development is occupied

- ◆ There will be a noticeable number of trips generated by the development in time, but the impact on the wider network will be reduced by pass-by trips, multi-purpose trips, and trips that can be undertaken locally within Riverhead. All intersections within the Riverhead Plan Change area are anticipated to perform without any noticeable queue lengths or delays with the increased traffic volumes
- ◆ The SH16 / Coatesville-Riverhead Highway intersection is predicted to perform well, even when considering the full 100% Plan Change buildout by 2038, due to the Waka Kotahi upgrade
- ◆ Coatesville-Riverhead Highway is serviced by a bus route, which connects to the Westgate public transport hub and Albany station. The upgrades proposed on Coatesville-Riverhead Highway will include the provision of public transport infrastructure to support provision of increased services and encourage travel by public transport
- ◆ Right turn bays on Coatesville-Riverhead Highway will be required at the Riverland Road and Old Railway Road intersections, noting the Old Railway Road right turn bay is already required.

Overall, we are of the view that the Plan Change will enable development that aligns with or implements transport network upgrades as planned by Waka Kotahi and Auckland Transport. The upgrades proposed as part of the Plan Change will significantly improve accessibility for all transport modes in Riverhead.

We therefore consider that there are no transportation planning or traffic engineering reasons to preclude the implementation of the Plan Change as set out in the proposed Precinct Provisions.

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## APPENDICES

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## 1 WHAT THIS REPORT INCLUDES

Riverhead Landowner Group<sup>2</sup> (Applicant) has engaged Flow Transportation Specialists Ltd (Flow) to assess the transport planning and traffic engineering matters relating to a Structure Plan and Private Plan Change (Proposal) for land zoned Future Urban, located in Riverhead, adjacent to Coatesville-Riverhead Highway and Riverhead Road (Site). The Private Plan Change will consist of rezoning land from Future Urban to allow residential and local retail activities.

This Transport Assessment provides the following information

- ◆ A description of the Proposal, focussing on the transport matters
- ◆ An assessment of the Proposal against the relevant transport planning documents, including the Auckland Plan, Auckland Unitary Plan (Unitary Plan), Future Urban Land Supply Strategy and Future Connect
- ◆ The provision of background information to provide context to the transport assessment of the Proposal. This information includes
  - ◆ the Site location and immediate surrounding transport network, including traffic volumes
  - ◆ a description and assessment of the historic crash record of the immediate transport network
  - ◆ a description of the private vehicle, public transport and walking and cycling accessibility of the Site
- ◆ An assessment of the Proposal and potential transport effects with regard to
  - ◆ vehicle access
  - ◆ traffic generation and impacts on the surrounding transport network
  - ◆ safety impacts and upgrades
  - ◆ active mode and public transport provisions
- ◆ Outcomes in relation to the implementation of upgrades, including who is responsible for delivering the upgrade.

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<sup>2</sup> Consisting of Fletcher Living, Matvin Group, Neil Group

## 2 THE PLAN CHANGE PROPOSAL

The Proposal includes the following elements and infrastructure upgrades that are material to transport matters

- ◆ Rezoning the Future Urban Zone land to a variety of zones, including
  - Residential – Mixed Housing Suburban and Terrace Housing and Apartment Buildings
  - Business – Local Centre
  - Business – Neighbourhood Centre
  - Rural – Mixed Rural
- ◆ This will enable the following activities within the proposed urban zones<sup>3</sup>
  - Some 1,468 residential dwellings including
    - 385 lower density dwellings with the Mixed Housing Suburban zone
    - 775 medium density dwellings with the Mixed Housing Suburban zone
    - 100 dwellings in the Terrace House and Apartment Buildings zone
    - 208 retirement village villas.
  - A local centre, which could contain
    - a supermarket of up to 4,000 m<sup>2</sup>
    - ancillary retail of 650 m<sup>2</sup>
    - café of 600 m<sup>2</sup>
    - offices of up to 1,000 m<sup>2</sup>
    - medical centre up to 250 m<sup>2</sup>
  - A neighbourhood centre of approximately 300 m<sup>2</sup>
  - A retirement village complex, which could contain
    - Some 310 retirement village apartments (158 villas are included in the total number of retirement villas for residential dwellings above, which would bring the total to 468 if included here)
    - 90 aged care / dementia beds
    - A café of 450 m<sup>2</sup>
    - Retail of 150 m<sup>2</sup>
    - A childcare centre accommodating 100 children
    - A medical centre of 250 m<sup>2</sup>
  - A potential school could be provided, with an assumed capacity to accommodate some 1,100 students.

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<sup>3</sup> Based on anticipated development implemented over a 5-10 year period



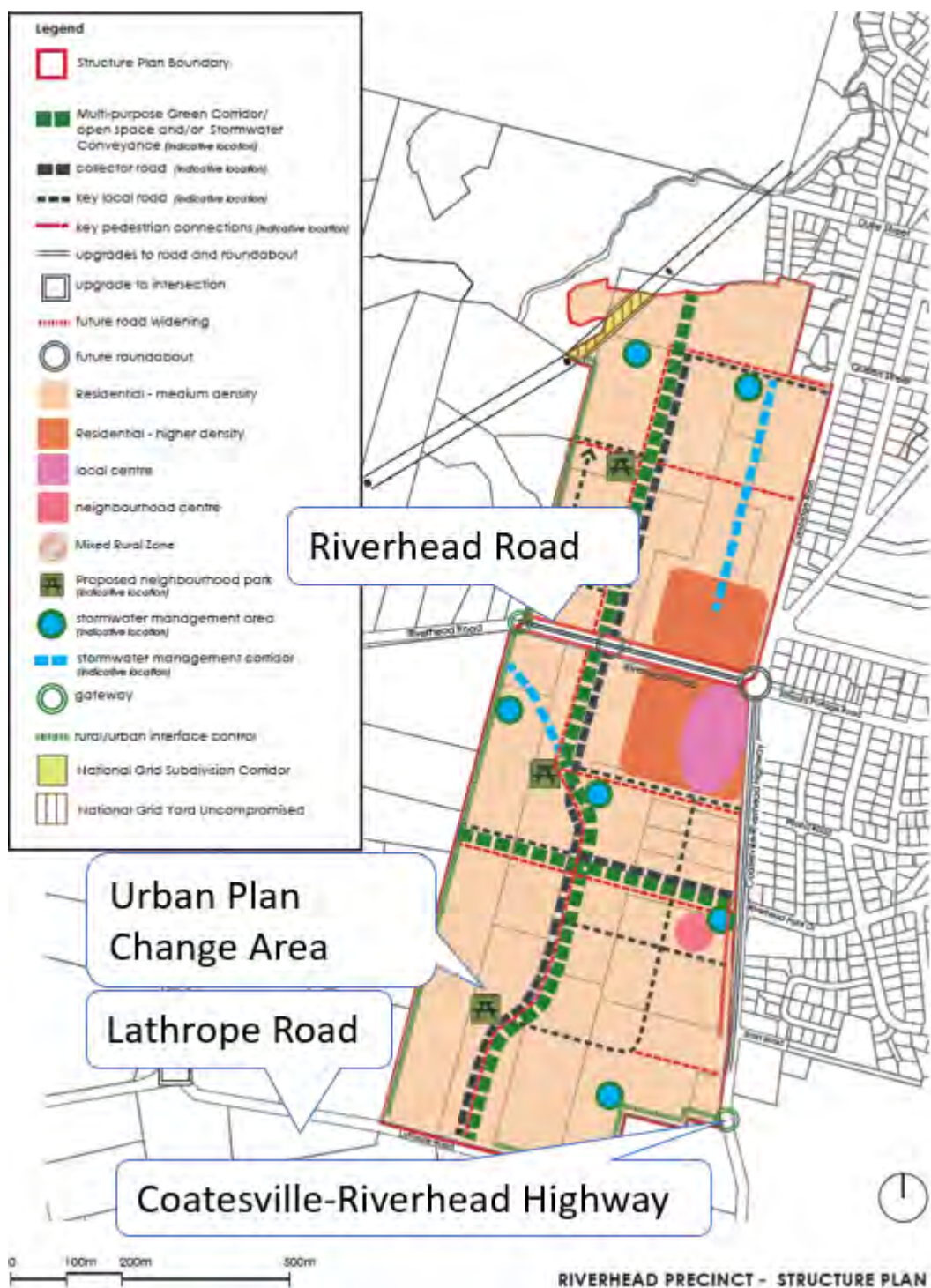
- ♦ Anticipated speed limit reductions through the Bylaw process (consistent with those being implemented fronting other new urban areas) on Coatesville-Riverhead Highway, Riverhead Road and Lathrope Road to 50 km/h, enabling safer speed environments for all road users, and provide new speed threshold treatments (referred to as 'gateways' in the Precinct Provisions)
  - Coatesville-Riverhead Highway – extend the existing 50 km/h speed limit further south and relocate the speed threshold treatment south of Short Road
  - Riverhead Road – reduce from 80 km/h to 50km/h in front of the Plan Change Site, and provide a new speed threshold treatment west of the Site
  - Lathrope Road – reduce from 60 km/h to 50 km/h
- ♦ Providing the following corridor upgrades to the surrounding road network to improve road safety and provide new separated facilities for pedestrians and cyclists. The Coatesville-Riverhead Highway upgrade aligns with that lodged by Auckland Transport and Te Tupu Ngātahi Supporting Growth, with the Riverhead upgrade being consistent with this design
  - Coatesville-Riverhead Highway – upgrade from Riverhead Road to 80 m south of Short Road to provide separated cycle lanes and pedestrians footpaths on each side
  - Riverhead Road – upgrade from Coatesville-Riverhead Highway to the eastern boundary of 307 Riverhead Road to provide separated cycle lanes and pedestrians footpaths on each side
  - Lathrope Road – upgrade the full length of Lathrope Road to provide a sealed carriageway and a footpath on the northern side
  - Cambridge Road – urbanise Cambridge Road fronting the Site, including a footpath on the western side of Cambridge Road and on the northern side of Queen Street
- ♦ Upgrading or constructing the following intersections to improve safety and facilitate active modes
  - Coatesville-Riverhead Highway / Riverhead Road – upgrade existing roundabout
  - Coatesville-Riverhead Highway / Riverhead Point Drive / new collector road – upgrade to a roundabout and construct a fourth west leg to provide a collector road into the site
  - Coatesville-Riverhead Highway / new local road – construct a new local road access onto Coatesville-Riverhead Highway between Riverhead Point Drive and Short Road as a priority-controlled intersection
  - Riverhead Road / new collector road – construct a new roundabout west of Coatesville-Riverhead Highway. The new collector road will provide a north and south approach to the roundabout, providing a total of four approaches
  - Lathrope Road / Riverhead Road – upgrade the existing priority control intersection. Realign the Lathrope Road access into one point, and provide a right turn bay and a flush median on Riverhead Road
  - Right turn bays on Coatesville-Riverhead Highway will be required at the Riverland Road and Old Railway Road intersections.

- ♦ Introducing Precinct Plan provisions, which include requirements for specific infrastructure upgrades to be provided prior to development being occupied. This includes the infrastructure upgrades outlined above, and the SH16 / Coatesville-Riverhead Highway intersection upgrade being progressed by Waka Kotahi, given the safety improvements this upgrade provides to all of Riverhead.

The Neighbourhood Design Statement, which forms part of the application provides further details about how the yields for the various activities have been established.

A diagram of the Structure and Plan Change is shown in Figure 1.

Figure 1: Proposed Structure Plan



## 3 STRATEGIC CONTEXT

### 3.1 Auckland Plan

The Auckland Plan is a long-term spatial plan for Auckland, with a 2050<sup>4</sup> outlook. It considers how we will address key challenges such as high population growth and shared prosperity.

There are six outcomes of the Auckland Plan, with transport and access being one. Within the transport and access outcome, there are three key directions

- ◆ Better connect people, places, goods and services
- ◆ Increase genuine travel choices for a healthy, vibrant and equitable Auckland
- ◆ Maximise safety and environmental protection.

The Riverhead Plan Change provides opportunity to align with these directions

- ◆ New active mode facilities for pedestrians and cyclists will provide genuine travel choices for current and future residents in Riverhead. This will also maximise safety for active modes
- ◆ People can be better connected to places, goods and services in Riverhead by providing a mix of new land uses, such as new local and neighbourhood centres, education facilities and residential accommodation for all age groups.

### 3.2 Auckland Unitary Plan

The Auckland Unitary Plan has the following region-wide transport objectives in Auckland<sup>5</sup>

- ◆ Land use and all modes of transport are integrated in a manner that enables
  - the benefits of an integrated transport network to be realised
  - the adverse effects of traffic generation on the transport network to be managed
- ◆ An integrated transport network including public transport, walking, cycling, private vehicles and freight is provided for
- ◆ Parking and loading support urban growth and the quality compact urban form
- ◆ The provision of safe and efficient parking, loading and access is commensurate with the character, scale and intensity of the zone
- ◆ Pedestrian safety and amenity along public footpaths are prioritised
- ◆ Road/rail crossings operate safely with neighbouring land use and development.

The Riverhead Plan Change align with several transport objectives of the Unitary Plan

- ◆ Achieving a quality compact urban form consistent with the Unitary Plan's hierarchy of centres

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<sup>4</sup> <https://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/our-plans-strategies/auckland-plan/Pages/default.aspx>

<sup>5</sup> <https://unitaryplan.aucklandcouncil.govt.nz/Images/Auckland%20Unitary%20Plan%20Operative/Chapter%20E%20Auckland-wide/4.%20Infrastructure/E27%20Transport.pdf>



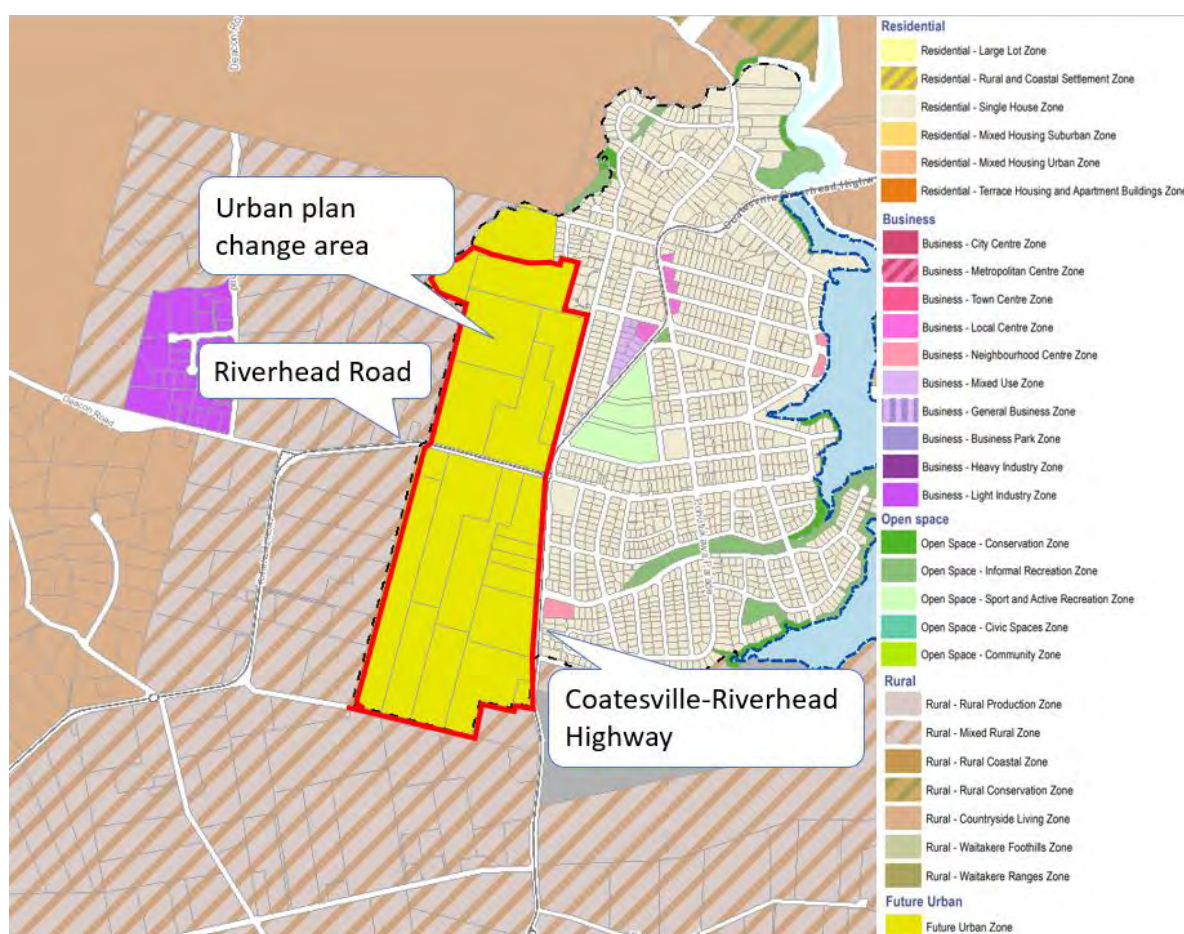
- ◆ Providing a mix of land use activities, including local and neighbourhood centres, can ensure that land use is integrated to minimise the need to travel longer distances to other areas
- ◆ Adverse effects of trip generation can be managed by providing upgrades to the local road network and providing new activities in Riverhead, allowing existing residents to undertake trips locally
- ◆ Providing new and upgraded facilities for walking and cycling can ensure that all modes of transport are provided in an integrated manner, and will increase opportunities for local active mode use
- ◆ Pedestrian safety and amenity can be improved by providing new and upgraded facilities.

The Section 32 report by Barker & Associates provides a full assessment against the transport policies and objectives of the Unitary Plan. We also note this Section 32 report provides an assessment against the relevant transport provisions of the National Policy Statement on Urban Development.

### 3.2.1 Site Context

The Unitary Plan zoning of the Site is shown in Figure 2. The Site is zoned Future Urban Zone.

Figure 2: Unitary Plan zoning<sup>6</sup>



<sup>6</sup> <https://unitaryplanmaps.aucklandcouncil.govt.nz/upviewer/>

Land to the north, west and south is primarily zoned for rural activities being Mixed Rural and Countryside Living zones. The existing Riverhead settlement is located to the east, which mostly consists of Residential – Single House Zone land.

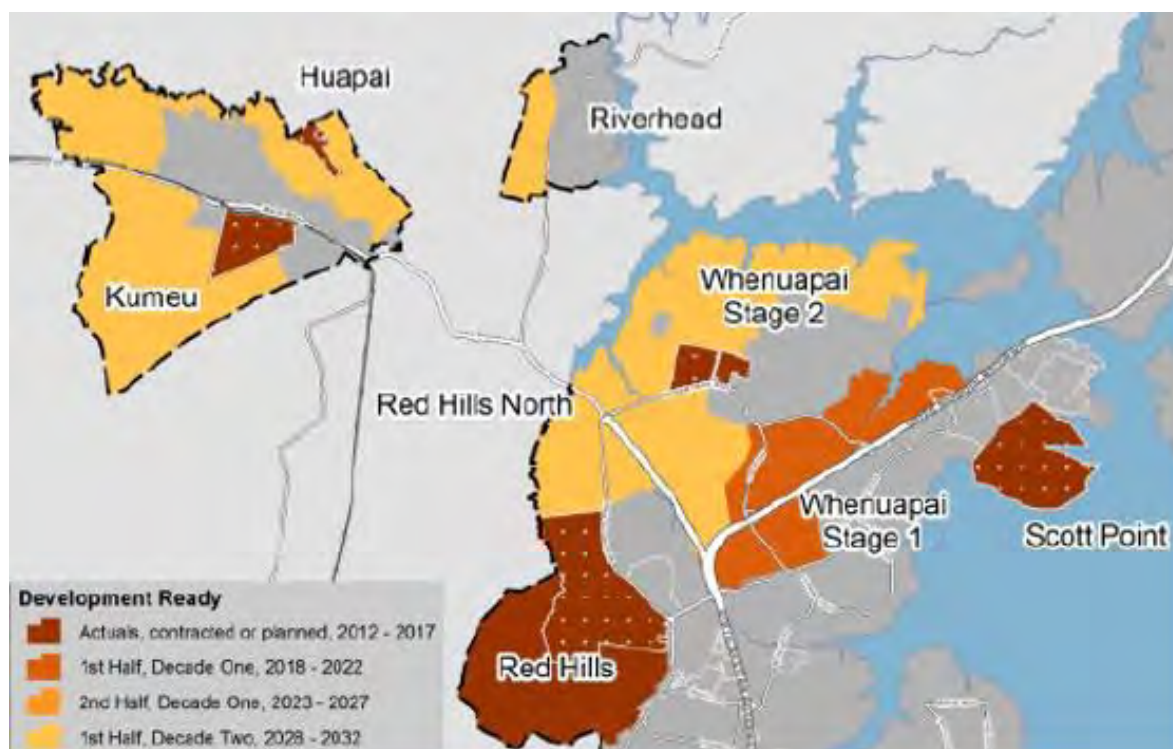
Riverhead Road and Coatesville-Riverhead Highway are classified as Arterial Roads under the Unitary Plan. This means that direct access onto these roads triggers Vehicle Access Restrictions, which is a Restricted Discretionary activity.

### 3.3 Future Urban Land Supply Strategy

The Future Urban Land Supply Strategy (FULSS)<sup>7</sup> is a non-statutory document which identifies a programme to sequence land over 30 years in Auckland. It is a strategy which assists with the ongoing supply of greenfield land for development. It determines sequencing and timing for when future urban areas will be ready for development to commence which requires necessary underpinning zoning and bulk infrastructure to be in place.

Figure 3 shows a map of the sequencing for Northwest Auckland. Riverhead is identified to be development ready between 2028 – 2032. This Plan Change would effectively bring development in Riverhead forward, ahead of the 2028 – 2032 schedule. However, it is noted that Riverhead is grouped with Kumeu and Huapai, whereas the constraints that are the basis for this schedule as identified in the FULSS, particularly those relating to transport can be appropriately managed as identified in this report. The key transport constraint for this particular area is the SH16 safety and capacity upgrades.

Figure 3: Future Urban Land Supply Strategy – Sequencing of Northwest Auckland



<sup>7</sup> <https://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/our-plans-strategies/topic-based-plans-strategies/housing-plans/Documents/future-urban-land-supply-strategy.pdf>

### 3.4 Future Connect

Auckland Transport's Future Connect programme sets out the long-term network plan for Auckland's integrated transport system, with the network plan helping to inform the 10-year investment programme. For Riverhead, Future Connect classifies the following for the first decade (2021-2031)

- ♦ Cycle and micro-mobility – Coatesville-Riverhead Highway and Riverhead Road as local (supporting) corridors. The network about Riverhead is not considered to be Regional, Major or Connector routes
- ♦ Public Transport – Coatesville-Riverhead Highway has a supporting local transit route highlighted, being that which connects Albany Station to Westgate Station. There are no Frequent or Strategic routes planned through Riverhead at this time.
- ♦ General Traffic – Coatesville-Riverhead Highway is a Primary Arterial, with Riverhead Road being a (supporting) Secondary Arterial. Both these corridors about the plan change area are proposed to be upgraded, with the upgrades reflecting these classifications
- ♦ Walking – Coatesville-Riverhead Highway is classified as being a Primary and Secondary classification fronting the Plan Change site, with Riverhead Road being a supporting tertiary route. Again, the corridor and intersection upgrades proposed will significantly improve the safety and provision for walking about Riverhead.

The Plan Change and recommended upgrades align with the network anticipated by Auckland Transport for Riverhead.

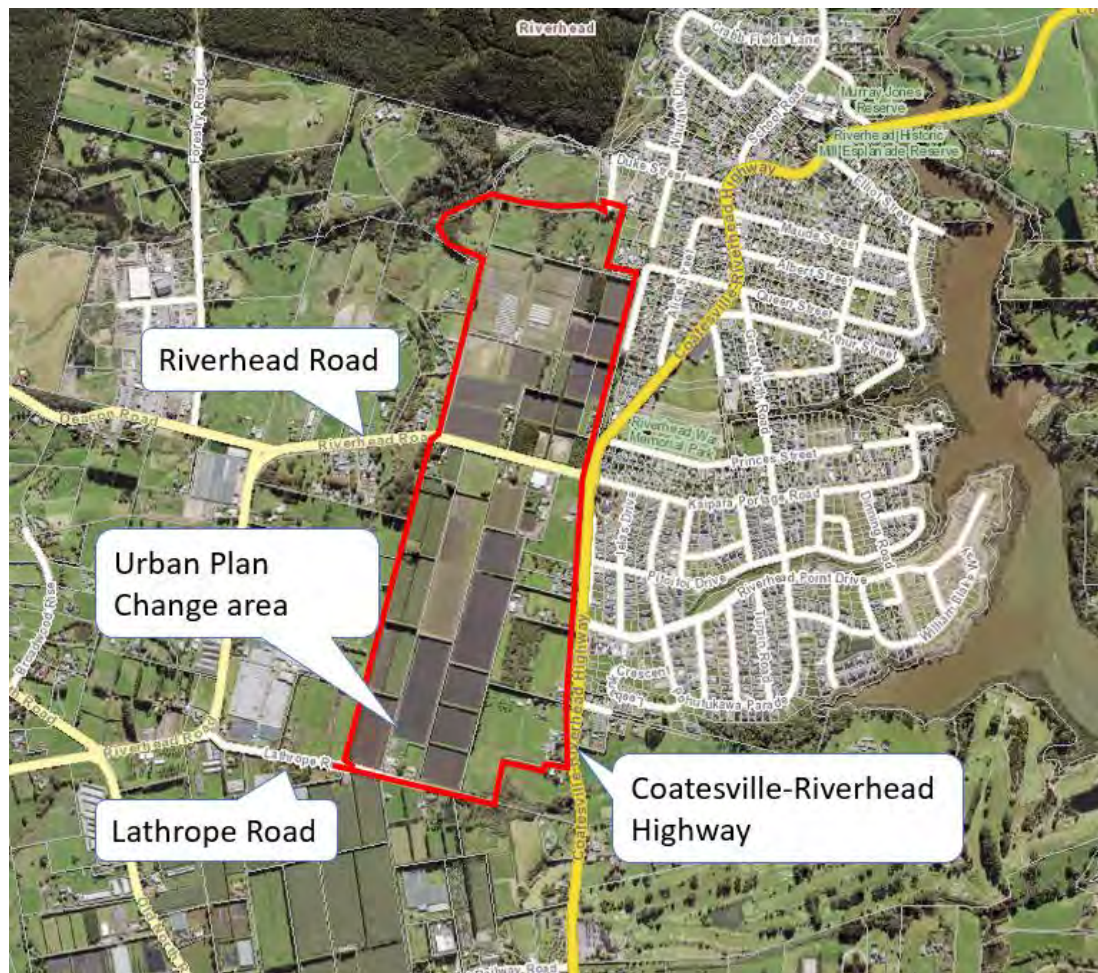


## 4 A DESCRIPTION OF THE EXISTING ENVIRONMENT

### 4.1 The Site and surrounding environment

The extent of the Urban Plan Change area is shown in Figure 4. While the Riverhead Landowner Group own or have rights to the majority of land within the Plan Change boundary, the Site comprises several smaller sites, which currently contain rural activities and some residential dwellings.

Figure 4: The site and immediate surrounds



We note that

- ◆ Land to the west and south is primarily rural in nature
- ◆ An industrial area is located west of the Site, near Deacon Road and Forestry Road
- ◆ The existing Riverhead residential area is located immediately east of the Site, which mostly consists of low density residential houses
- ◆ The Riverhead Forest is located north of the Site, which contains walking and cycling tracks
- ◆ The Kumeu town centre is located approximately 3-4 km west of the Site
- ◆ The Site has access points onto Riverhead Road, Coatesville-Riverhead Highway and Lathrope Road. The northern section of the Site also has access points onto Cambridge Road.

## 4.2 Existing roads

### 4.2.1 Coatesville-Riverhead Highway

Coatesville-Riverhead Highway is a 14 km long road which connects SH16 at its southern end to Dairy Flat and Albany to the northeast. It is primarily a two-lane rural road, with no formal footpaths.

Within the existing Riverhead town area and along the Site boundary, Coatesville-Riverhead Highway is constructed to a more urban standard on the eastern edge.

Figure 5 shows a photo of the urbanised section of Coatesville-Riverhead Highway along the Site boundary. There is one traffic lane in each direction separated by a painted flush median. There is no footpath along the west side of the road. Along the east side, a footpath is provided between Riverhead Road and Riverhead Point Drive along Grove Way, which is a frontage road giving access to local properties.

**Figure 5: Typical layout of urban section of Coatesville-Riverhead Highway (shown south of Grove Way entrance, looking north)**



### 4.2.2 Riverhead Road

Riverhead Road is currently a rural arterial road which connects Riverhead to Kumeu (via SH16) at its southwest end.

Riverhead Road typically has one traffic lane in each direction, with no dedicated footpaths or cycling facilities.



**Figure 6: Typical layout of Riverhead Road (shown west of Coatesville-Riverhead Highway, looking west)**



#### 4.2.3 Lathrope Road

A photo of Lathrope Road is shown in Figure 7. Lathrope Road is an unsealed rural road, which has no dedicated footpaths. It currently serves local properties and is a no exit road. Its intersection with Riverhead Road is the only external access point to the wider road network.

**Figure 7: Typical layout of Lathrope Road**



## 4.3 Existing traffic conditions

### 4.3.1 Coatesville-Riverhead Highway and Riverhead Road

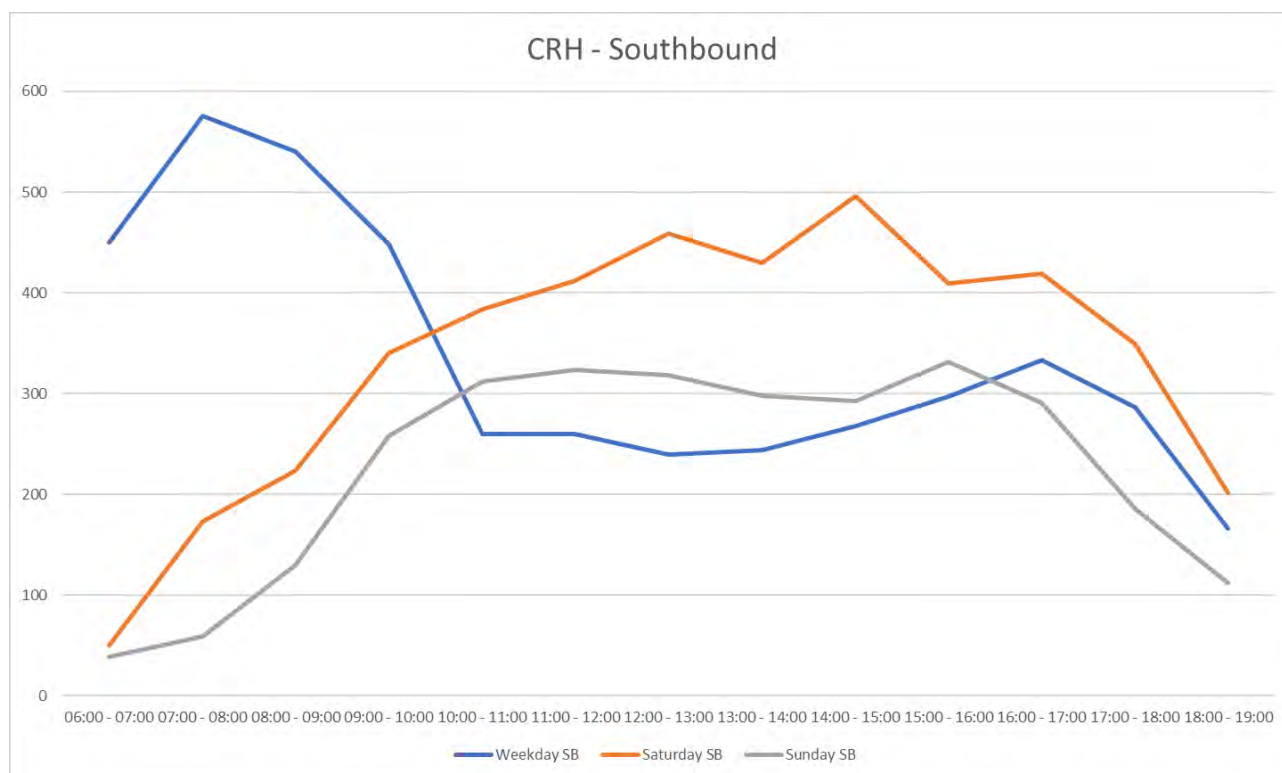
Daily and peak hour traffic count information available from the Auckland Transport traffic count database is presented in Table 1.

**Table 1: Auckland Transport traffic count data near the Site**

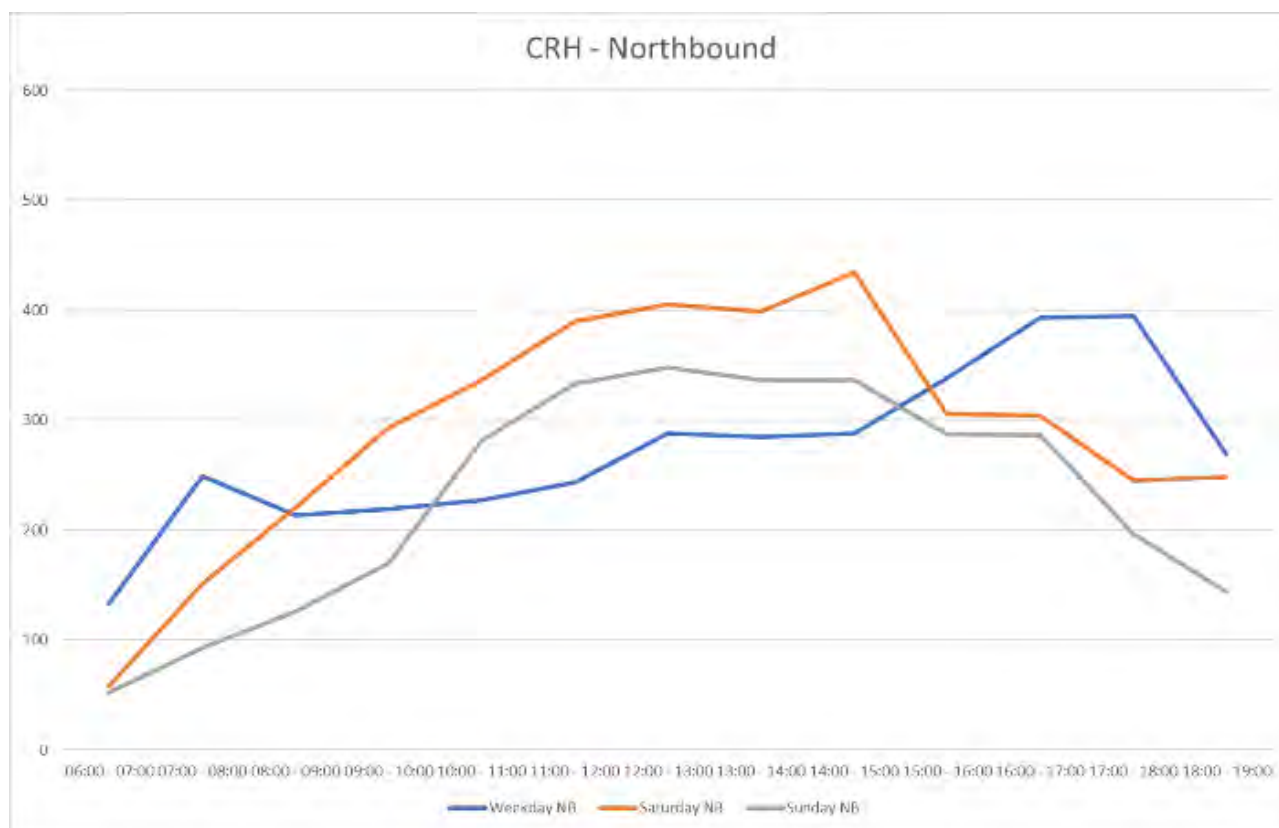
Location	Date	Weekday Average Daily Volume (vpd)	Morning Peak Hour Volume (vph)	Afternoon Peak Hour Volume (vph)
Riverhead Road (west of Coatesville-Riverhead Highway)	5/08/2022	6,754	776	794
Coatesville-Riverhead Highway (north of SH16)	5/08/2022	8,598	9271	793

We have obtained the profiles of the Coatesville-Riverhead Highway traffic counts. These traffic profiles for the average weekday, Saturday and Sunday are presented in Figure 8 and Figure 9.

**Figure 8: Coatesville-Riverhead Highway hourly traffic volumes, southbound direction**



**Figure 9: Coatesville-Riverhead Highway hourly traffic volumes, northbound direction**



The weekday peak periods are observed to be 7:00 to 8:00 am and 4:00 to 5:00 pm. We note that Saturday volumes on Coatesville-Riverhead Highway (southbound) are higher than the typical weekday (outside of the AM Peak hour), however the AM Peak volume is the busiest southbound volume.

#### 4.3.2 SH16

SH16, between Coatesville-Riverhead Highway and Brigham Creek Road, recorded an average of 22,900 vehicles per day in 2019 based on Waka Kotahi NZTA's traffic count system.

We have obtained traffic counts from Waka Kotahi's Traffic Management System (TMS) for a week, starting Monday 15 August 2022. Waka Kotahi collects traffic volumes on SH16 to the east and west of Coatesville-Riverhead Highway. As such, each of the sites have been assessed, allowing for the constraint at Coatesville-Riverhead Highway to be assessed and accounted for in our assessment.

When viewing the eastbound traffic profile either side of Coatesville-Riverhead Highway, the impact of the existing intersection at Coatesville-Riverhead Highway is evident. The profile of traffic to the west of Coatesville-Riverhead Highway shows the reduction in demand on the approach to Coatesville-Riverhead Highway intersection caused by motorists letting people in and therefore reducing the capacity of SH16 eastbound. Once through the intersection, the profile located to the east of the Coatesville-Riverhead Highway intersection resembles a profile more in keeping with traffic demands along the corridor, as shown in Figure 10 and Figure 11.

Figure 10: SH16 Eastbound traffic flow profile, west of Coatesville-Riverhead Highway

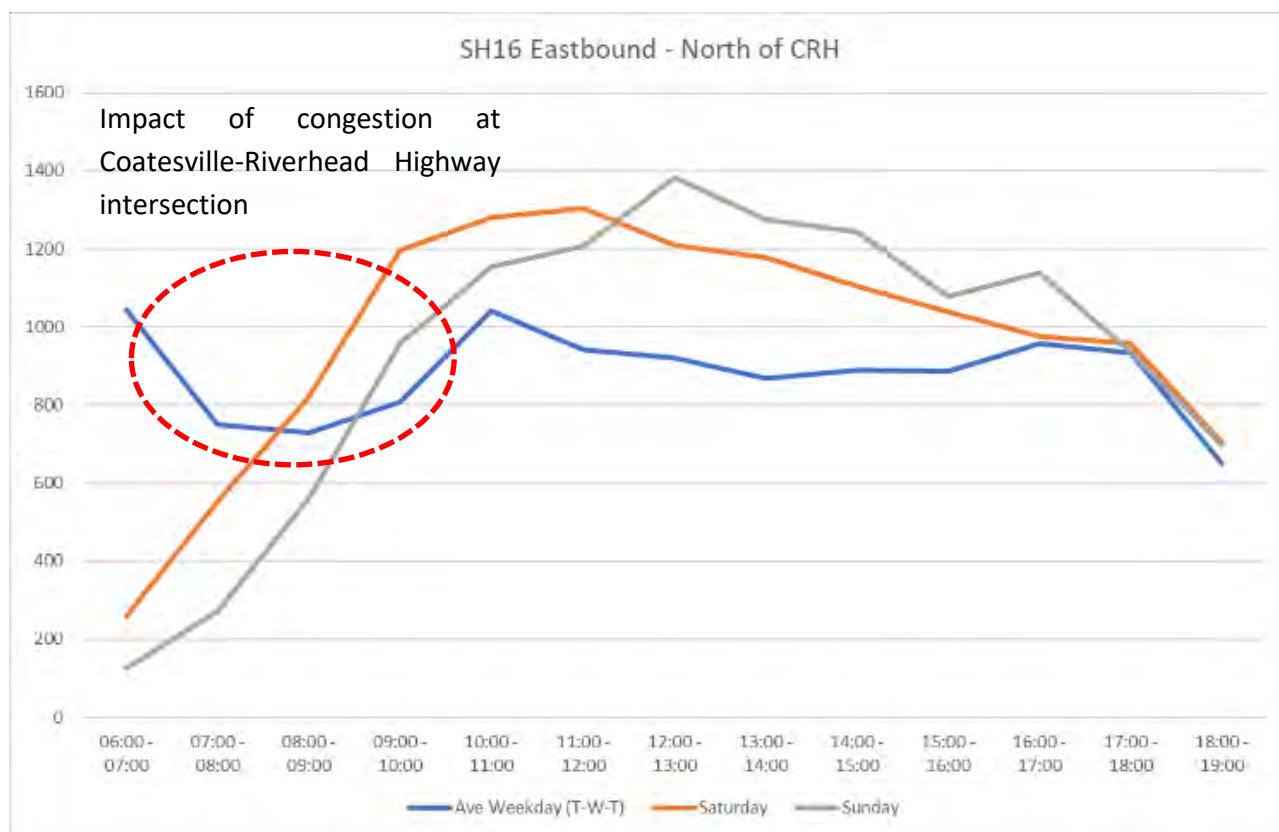
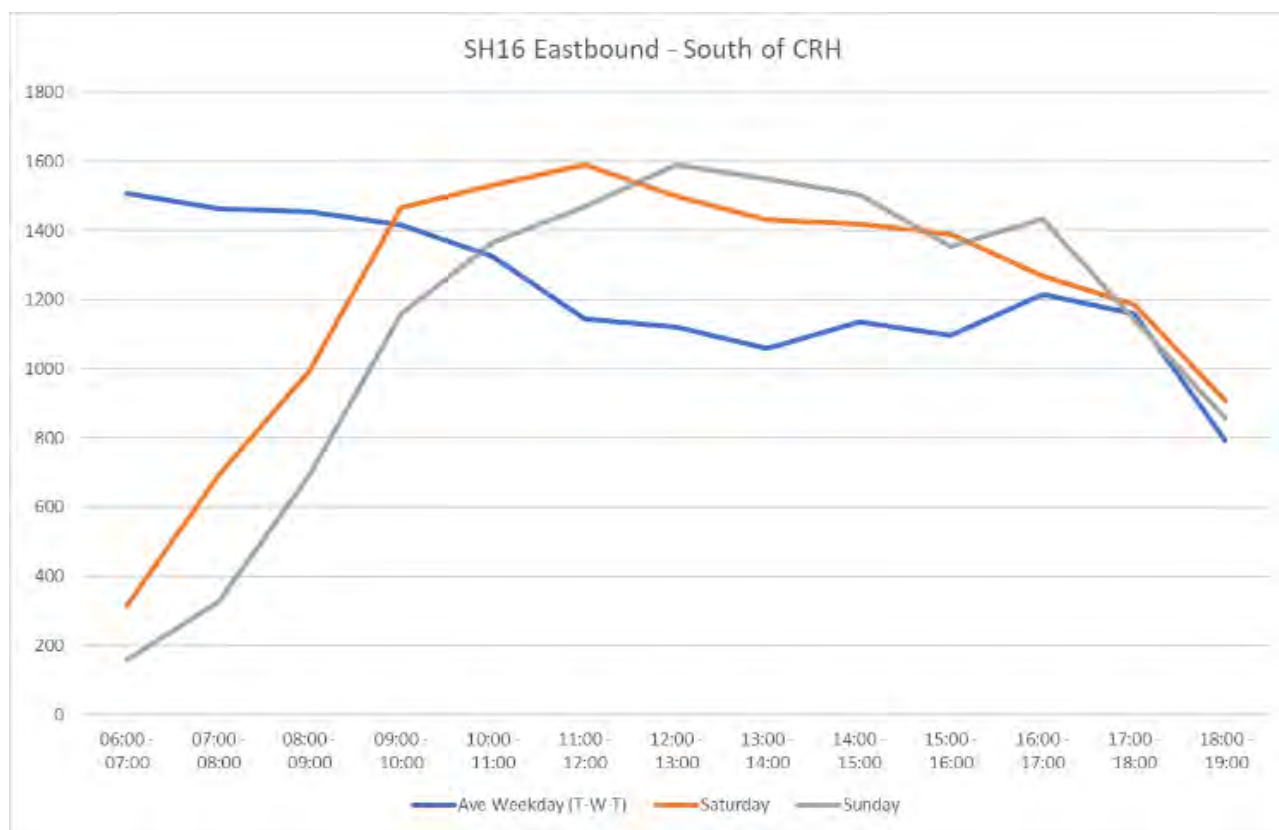


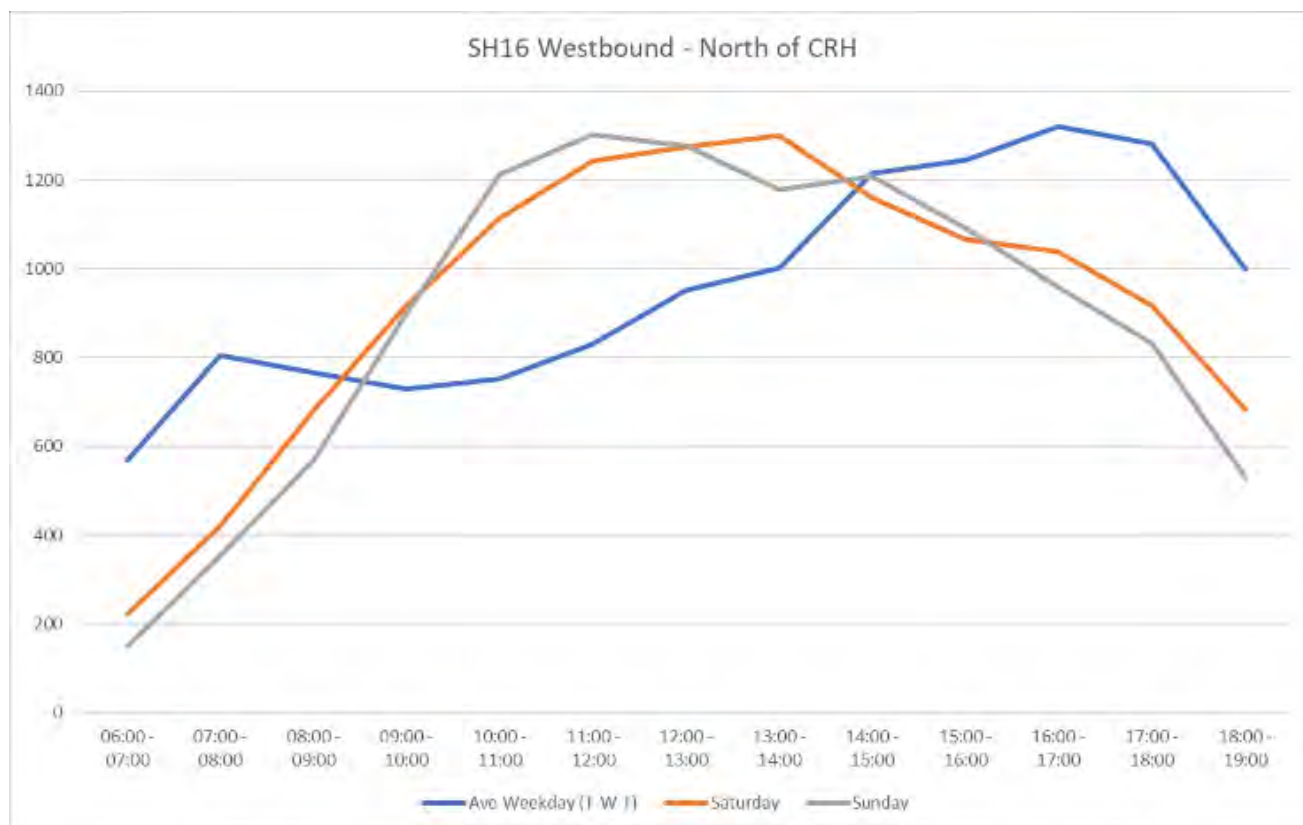
Figure 11: SH16 Eastbound traffic flow profile, east of Coatesville-Riverhead Highway





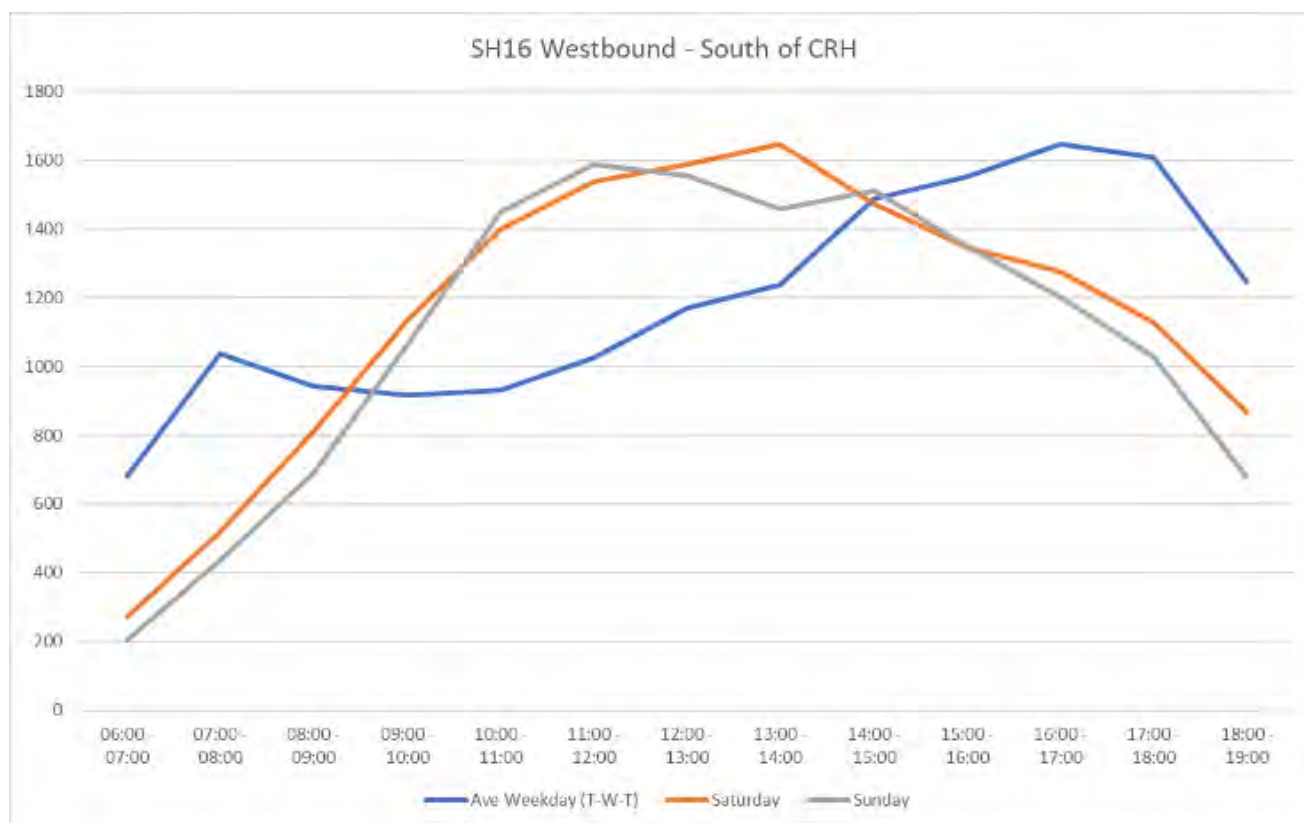
For the westbound direction, traffic profiles recorded to the west and east of Coatesville-Riverhead Highway are consistent, with the traffic volumes reducing by some 200 vehicles per hour, being the reduction in traffic turning right into Coatesville-Riverhead Highway. Westbound traffic profiles are summarised in Figure 12 (west) and Figure 13 (east), with the westbound traffic demand being 1,600 vehicles per hour.

**Figure 12: SH16 Westbound traffic flow profile, west of Coatesville-Riverhead Highway**





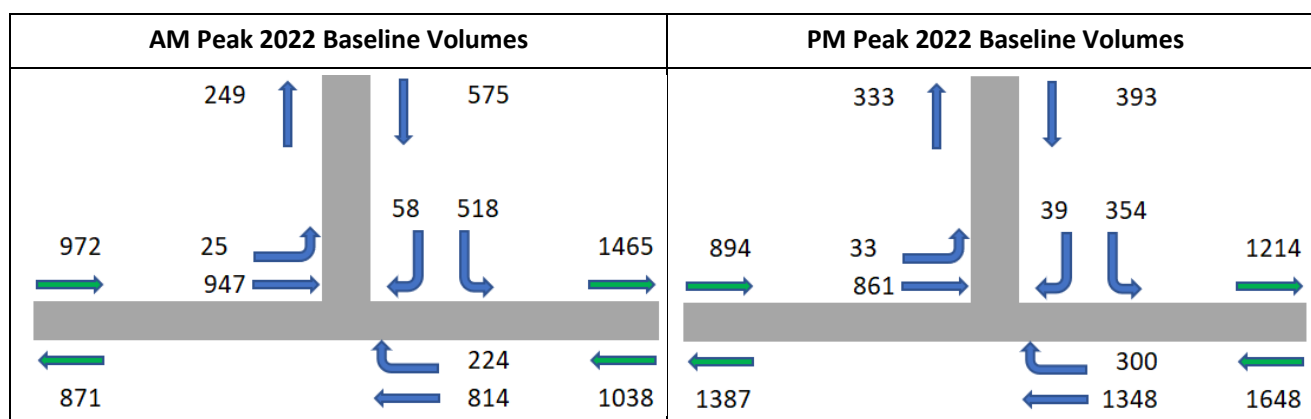
**Figure 13: SH16 Westbound traffic flow profile, east of Coatesville-Riverhead Highway**



#### 4.4 SH16 / Coatesville-Riverhead Highway intersection

The baseline traffic volumes for the SH16/Coatesville-Riverhead Highway intersection have been based on the above information. While the right turn from Coatesville-Riverhead Highway is currently banned, we have assumed the right turn movement remains open in our analysis, as the upgrade to a roundabout will reintroduce the right turn movement. The 2022 baseline volumes are shown in Figure 14.

**Figure 14: 2022 Baseline Traffic Volumes – SH16/Coatesville-Riverhead Highway intersection**



## 4.5 The existing road safety record

### 4.5.1 Immediate transport network

We have assessed the crash records from 2016 to 2020 (plus all available crashes up to mid/late 2021) for the surrounding roads obtained from the NZTA Crash Analysis System. With Covid restrictions impacting the 5 year sample data, earlier data has been used in this assessment. The search area is shown in Figure 15 and generally includes all the areas within the plan change that could have direct access to the road network.

Figure 15: Crash search history of Riverhead Plan Change Area, 2016 – 2021



A total of 19 crashes were reported, summarised as follows

- ◆ There was 1 fatal injury crash, 2 serious injury crashes, 6 minor injury crashes, and 10 non-injury crashes

- ♦ The fatal injury crash occurred on Riverhead Road near Deacon Road, where the driver of a car lost control as they travelled around the bend. The car flipped over as it went over a ditch, and collided with a concrete power pole
- ♦ 1 of the serious injury crashes occurred when a motorcyclist was travelling on Coatesville-Riverhead Highway and lost control as they drove up onto the grass berm. The driver hit a street pole, and was not wearing a helmet
- ♦ The other serious injury crash occurred when a vehicle turning left from Coatesville-Riverhead Highway into Riverhead Point Drive collided with a southbound cyclist
- ♦ 2 of the serious injury crashes involved cyclists
- ♦ No crashes involved pedestrians
- ♦ The most common crash type was loss of control around a bend, which consisted of 7 (37%) of the total 19 crashes
- ♦ The next most common crash types were loss of control on a straight section of road and rear-end / obstruction with 4 crashes (21%) each.

The crash history indicates that there are some existing road safety issues within the study area. The rural nature of the roads mean that they have higher vehicle speeds, and below standard facilities for active modes.

The Plan Change provides the opportunity to improve road safety by upgrading these facilities, as Riverhead further urbanises. This can be achieved by intersection and corridor upgrades, and speed limit reductions as are proposed for this Plan Change.

#### 4.5.2 Wider transport network

We have also assessed the crash records from 2016 to 2021 for the wider transport network around Riverhead. The search area is shown in Figure 16, and includes areas to the south of the Plan Change site. This includes Coatesville-Riverhead Highway, Old North Road and Old Railway Road.



Figure 16: Crash search history of wider transport network, 2016 – 2021



A total of 77 crashes were reported, summarised as follows

- ♦ There were 0 fatal injury crashes, 12 serious injury crashes, 26 minor injury crashes, and 39 non-injury crashes
- ♦ On Old North Road, 4 serious injury crashes were reported. There are also two clusters of crashes on Old North Road at the Old Railway Road intersection and at the horizontal bend 290 m south of this intersection. We note that speed cameras have now been installed on Old North Road, which will bring vehicle speeds down, and therefore reduce crash likelihood and severity
- ♦ On Coatesville-Riverhead Highway, 24 crashes were reported. 3 of these crashes were serious injury crashes, although we note that 1 of these is included in the immediate Plan Change area. We assess the intersections along Coatesville-Riverhead Highway and the requirement for right turn bay treatments further below
- ♦ 1 of the serious injury crashes involved a cyclist

- ◆ No crashes involved pedestrians
- ◆ The most common crash type was loss of control around a bend, which consisted of 30 (39%) of the total 19 crashes
- ◆ The next most common crash type was crossing / turning crashes, consisting of 28 (37%) of the total 77 crashes.

Like the crash history for the local Riverhead area, the crash history indicates that there are some existing road safety issues within the wider Riverhead network. The rural nature of the roads mean that they have higher vehicle speeds. We have considered these intersections and corridors further in our assessment.

#### 4.5.3 SH16/Coatesville Riverhead Highway Intersection

A key access point to the wider transport network for Riverhead is the SH16/Coatesville Riverhead Highway intersection. This intersection has a poor safety record and presents operational concerns throughout the day. The proposed upgrade to SH16 is discussed further at Section 5.1, with this section summarising the crash history for this site.

While the crash history has been assessed for 2016-2020 (inclusive), we note that there has been a recent change to the intersection layout which includes banning the right turn movement out of Coatesville-Riverhead Highway.

The search area is shown in Figure 17 and extends around 50 m from the approach lanes including the west approach slip lane.

**Figure 17: Crash search history of the SH16/Coatesville Riverhead Highway intersection, 2016 – 2020**





A total of 17 crashes were reported, summarised as follows

- ◆ There was 1 serious injury crash, 5 minor injury crashes, and 11 non-injury crashes
- ◆ The serious injury crash occurred in 2016 when a vehicle right turning out of Coatesville-Riverhead Highway collided with a southbound vehicle, 2 non-injury crashes occurred with the same movement
- ◆ 1 minor injury crash involved a motorcyclist losing control turning left from Coatesville-Riverhead Highway colliding with a vehicle intending on turning right into Coatesville-Riverhead Highway
- ◆ 3 minor injury crashes involved rear end incidents in the lefthand slip lane on Coatesville-Riverhead Highway
- ◆ The other minor injury crash involved a driver turning right into Coatesville-Riverhead Highway failing to give way to a motorcyclist although weather conditions were noted as heavy rain
- ◆ No crashes involved pedestrians or cyclists
- ◆ The most common crash type was rear end crashes, which consisted of 6 (35%) of the total 17 crashes. 1 occurred on SH16 while the other 5 occurred on Coatesville-Riverhead Highway
- ◆ The next most common crash types were right turning movements with 3 (18%) crashes.

The improvements being implemented by Waka Kotahi, which is outlined in Section 5.1 will assist in addressing the issues currently experienced at the intersection.

The Precinct Provisions recognise the existing safety issues, with a standard being included that requires the intersection upgrade to be completed prior to development within the Plan Change being occupied. This is to ensure occupied development traffic does not add to an existing problem and that a safe intersection is in place prior to increasing the population of the Riverhead area.

## 4.6 The Site's transport accessibility

### 4.6.1 Public transport accessibility

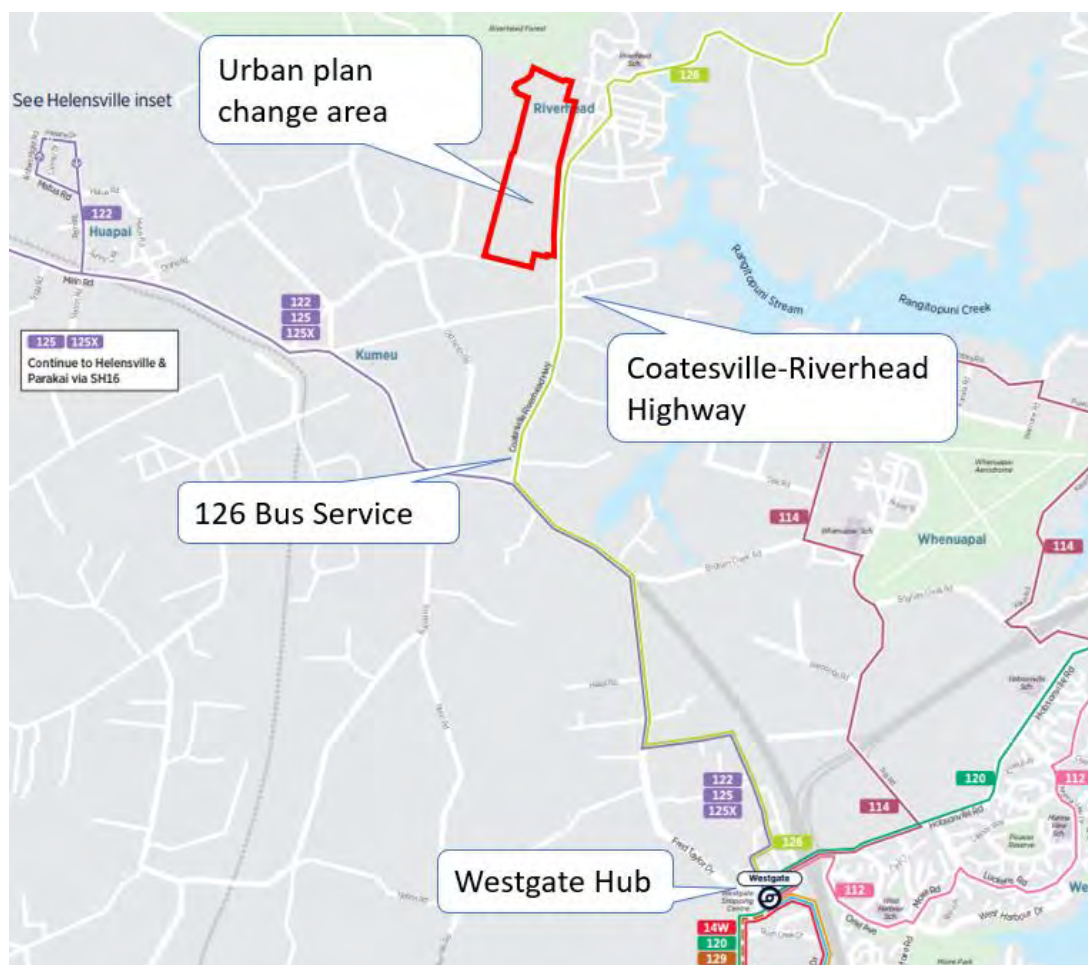
A map of the public transport network about the wider area is shown in Figure 18.

The Site is currently served by the 126 bus service, which connects Albany to Westgate via Riverhead. It typically operates at a frequency of one bus per hour per direction. We understand that Auckland Transport are looking to increase the frequency of this bus service in the future, with the increase in frequency subject to funding.

Based on the timetables, the service typically takes 15 – 20 minutes to travel between Riverhead and Westgate, and 20 – 25 minutes to travel between Riverhead and Albany Station.

This service connects to Westgate, which is a key connection point in the West Auckland public transport network. A number of bus services connect to Westgate, where a person using the 126 service can connect to, providing public transport access to the wider area.

**Figure 18: Public transport network in the wider area near the Site**



Overall, we consider that the Site will have adequate accessibility to the existing public transport network.

The Plan Change also provides the opportunity to improve public transport facilities, such as bus shelters, near the Site. The Plan Change provides connectivity between the site and Coatesville-Riverhead Highway, ensuring connectivity with existing bus facilities, with the upgrades both internal and external to the Precinct requiring the provision of bus infrastructure.

#### 4.6.2 Walking and cycling accessibility

Given the mostly rural nature of the site, there are currently limited active mode facilities available. We note that

- ◆ Within the existing Riverhead village, there are typically footpaths on both sides of the road
- ◆ Riverhead Road has no footpaths on either side of the road
- ◆ On Coatesville-Riverhead Highway, there is a footpath on the eastern side between Riverhead Road and Short Road
- ◆ There are no footpaths about the local road network northeast of the Plan Change area, namely those of Cambridge Road and Queen Street
- ◆ There are no dedicated cycling facilities in the local area.



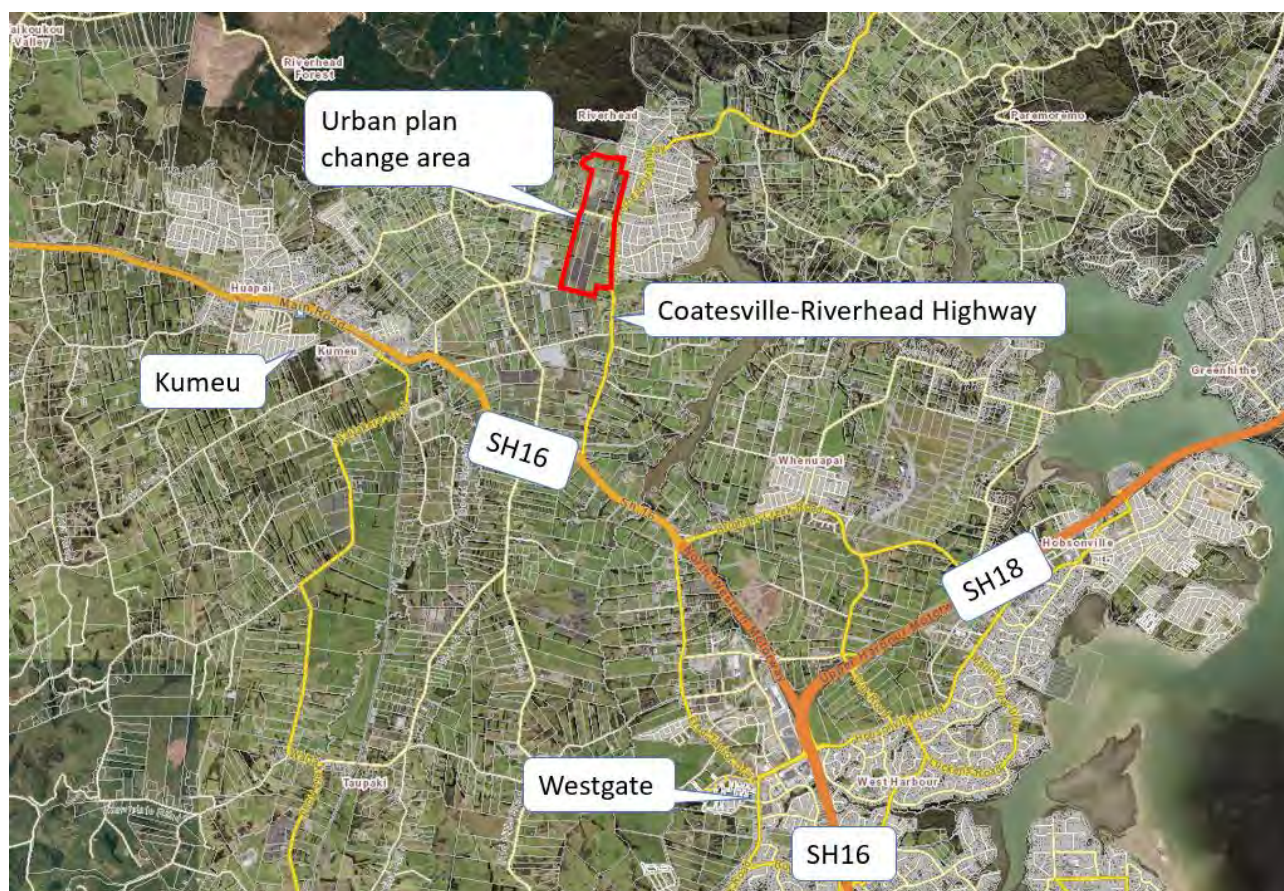
We understand that the Local Board is looking to address the ‘gaps’ in footpath provision about the surrounding road network to the plan change, with conceptual plans produced. The roads include Cambridge Road, George Street, Duke Street, Princes Street, York Terrace, Alice Street, Queen Street, and King Street. We are unsure as to the timing of these upgrades. Importantly however, the Local Board acknowledges the gaps in the existing footpath network which need to be addressed.

#### 4.6.3 Private vehicle accessibility

As shown in Figure 19, the Site is well-located with respect to providing vehicle accessibility to the State Highway network.

- ♦ SH16 is located approximately 2 km south of the Site, which can be accessed from the Site via Coatesville-Riverhead Highway, Old North Road or Riverhead Road
- ♦ SH16 provides connections to Kumeu to the west, and Westgate to the south
- ♦ SH16 connects to SH18 (via Brigham Creek Road or Trig Road) which provides a connection to Albany and the North Shore
- ♦ Coatesville-Riverhead Highway and Riverhead Road are arterial roads which provide connections about the local area. Coatesville-Riverhead Highway provides an alternative route to Albany.

Figure 19: Site location in the strategic transport network

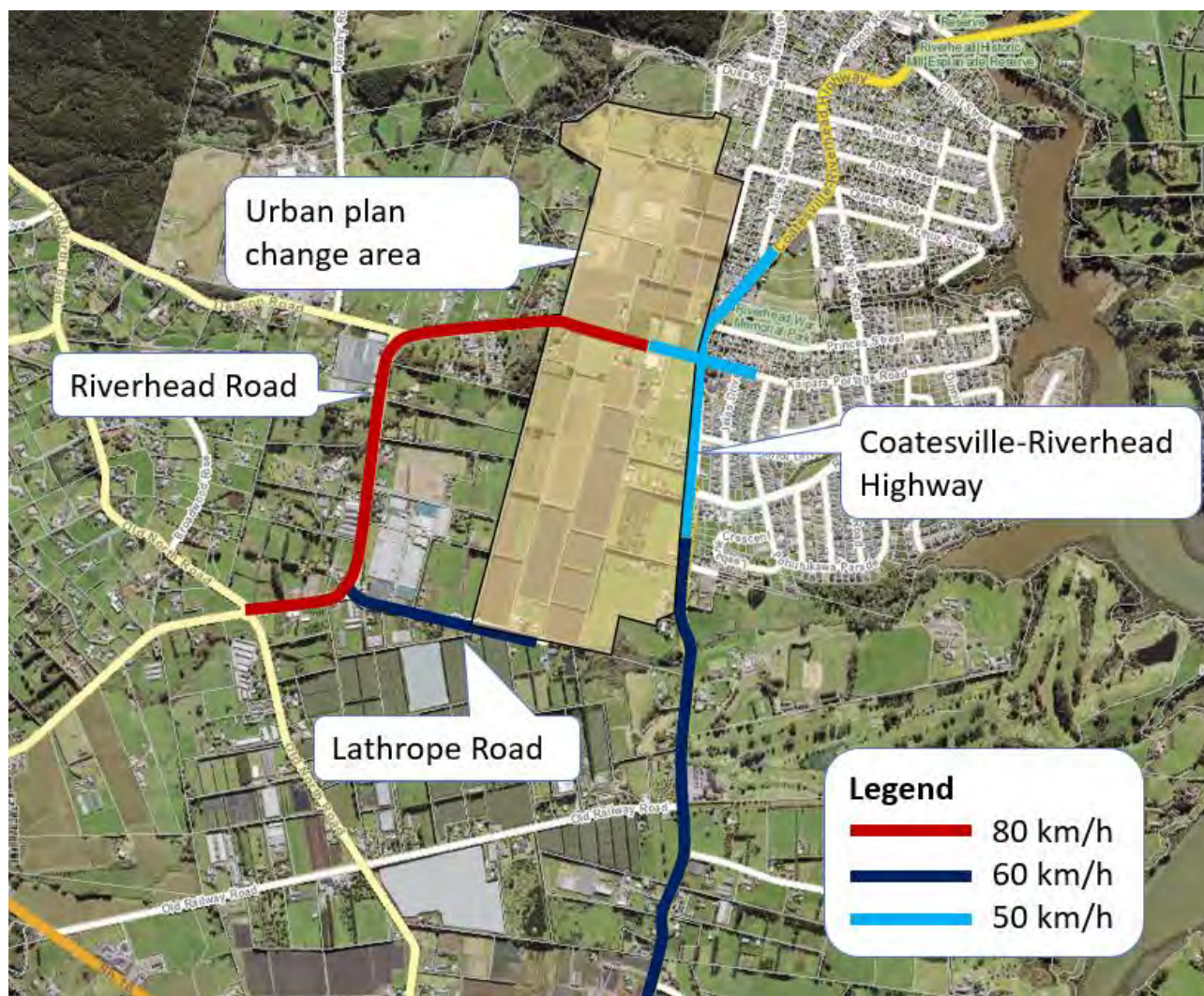




## 4.7 Existing speed limits

A diagram of the existing speed limits on Riverhead Road, Coatesville-Riverhead Highway and Lathrope Road is shown in Figure 20.

Figure 20: Existing speed limits near the Site



Riverhead Road currently has a posted speed limit of 80 km/h, which reduces to 50 km/h approximately 200 m east of Coatesville-Riverhead Highway. An 80 km/h speed limit requires a design speed environment of 90 km/h.

Coatesville-Riverhead Highway currently has a speed limit of 60 km/h, which reduces to 50 km/h approximately 90 m north of Short Road. This results in a speed environment of approximately 70 km/h and 60 km/h for these two sections respectively.

Lathrope Road has a posted speed limit of 60 km/h. It is an unsealed rural road which provides access to properties. The only connection point to the road network is at Riverhead Road at its west end.

Other roads within the Riverhead village and those that site to the northeast of the Plan Change Site generally have a speed limit of 50 km/h.

## 5 FUTURE ROAD NETWORK

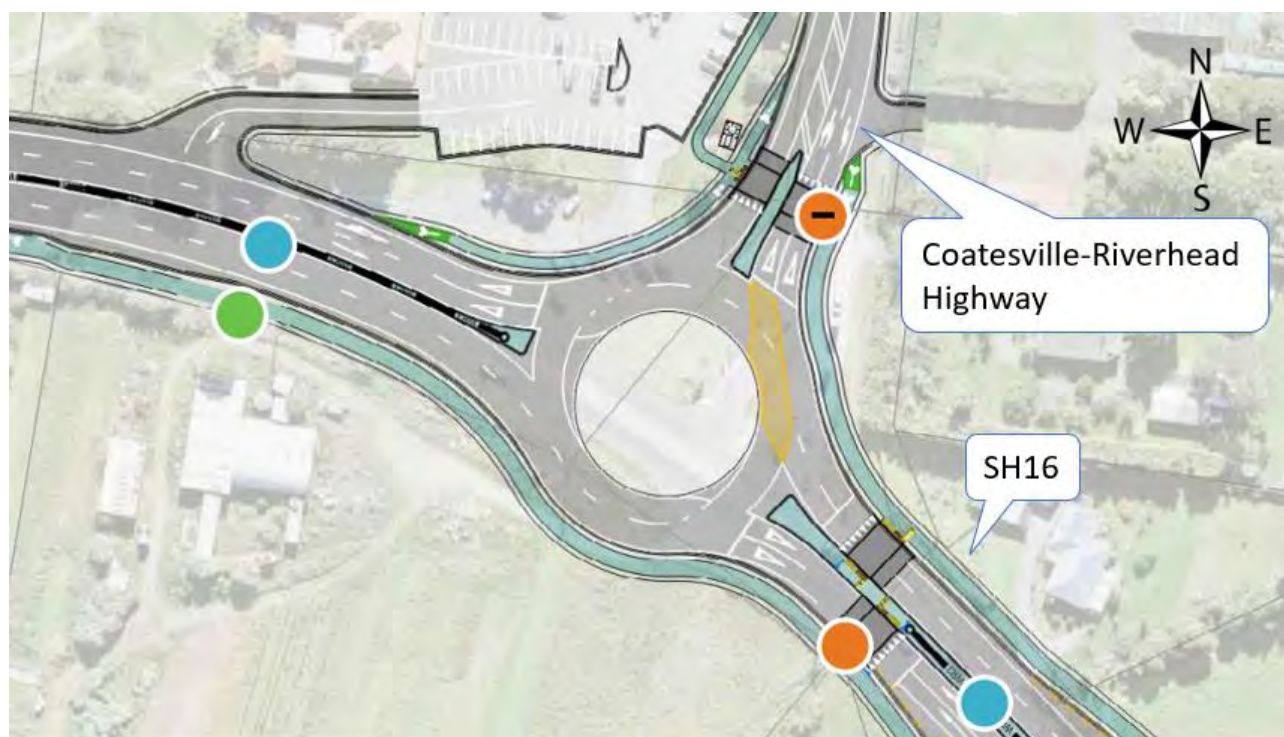
### 5.1 SH16 Brigham Creek to Waimauku Upgrade

This project, proposed under the Regional Land Transport Plan 2021-2031 (RLTP), will deliver safety and capacity improvements between Waimauku and the end of the North Western Motorway (SH16) at Brigham Creek Road.

The relevant components to the Plan Change include

- ◆ Safety improvements, with a new roundabout being located at the Coatesville-Riverhead Highway / SH16 intersection, as shown in Figure 21
- ◆ Upgrading the SH16 corridor to four traffic lanes between Brigham Creek Road to the Taupaki Roundabout, therefore removing the bottleneck experienced at the Coatesville-Riverhead Highway intersection citybound during the morning peak, and removing the two to one lane merge west of the SH16 / Brigham Creek Road / Fred Taylor Drive roundabout westbound, which causes congestion during the evening peak
- ◆ A shared path from Brigham Creek Road to Kumeu.

**Figure 21: SH16/Coatesville-Riverhead Highway Upgrade**



These upgrades will improve safety, increase capacity of the road network and alleviate congestion at the SH16/Coatesville-Riverhead Highway intersection, which is the main intersection used to access the state highway network from Riverhead. The planned upgrades along SH16 results in several consecutive roundabouts, being located at the Riverhead Road intersection, Old North Road intersection (existing), Coatesville-Riverhead Highway intersection and the SH16/Brigham Creek Road/Fred Taylor Drive intersection. As per the Waka Kotahi website, the upgrade provides a consistent intersection design,



provides priority to the right and is influenced by incoming traffic, but can also be signalised to adjust priority during peak traffic flows<sup>8</sup>.

As shown in the intersection layout in Figure 21, the design of the Coatesville-Riverhead Highway approach contains two southbound lanes on the approach to SH16. This consists of a dedicated left turning lane and a shared left/right turning lane from Coatesville-Riverhead Highway onto SH16, which will increase vehicle capacity from Riverhead.

The 2021 RLTP has this project having 'Priority 1 – Committed and Essential Funding' set out for 2021 to 2025 financial years. The RLTP includes some \$137.4 Million for this Waka Kotahi project.

As of late 2022, the detailed design has been completed and the resource consent has been lodged. The Notice of Requirement for Stage Two (Brigham Creek to Kumeu) has now been lodged with Auckland Council.

As this project provides critical safety and capacity upgrades to the external transport network, this upgrade is included within the proposed Precinct Provision as part of the Plan Change. As outlined in Section 8, any development within the Plan Change area undertaken prior to this upgrade would be a Restricted Discretionary Activity. This would ensure effects of any occupied development are appropriately assessed. This recognises the importance of ensuring a safe transport network exists prior to significantly increasing traffic demand about the Riverhead area. We also note that Waka Kotahi has recently implemented a right turn ban at the SH16/Coatesville-Riverhead Highway intersection which again improves safety at the intersection until such time as the roundabout is constructed.

## 5.2 SH16 Northwest Bus Improvements

This project, also proposed under the RLTP, will deliver infrastructure to allow a new Northwest Express bus service to operate along SH16, connecting Northwest Auckland with the central city. This project has also been classed as Priority 1 – Committed and Essential under the RLTP.

Interim bus interchange facilities are being delivered at Westgate, Lincoln Road and Te Atatu, with improved bus shoulder lanes along the North Western Motorway. A long-term rapid transit solution for the Northwest corridor is expected to follow in the future.

This facility will offer benefits for Riverhead in terms of transport choice and alleviated congestion citybound.

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<sup>8</sup> <https://www.nzta.govt.nz/assets/projects/sh16-brigham-creek-and-waimauku/SH16-Brigham-Creek-to-Waimauku-Coatesville-1-web.pdf>

<https://www.nzta.govt.nz/assets/projects/sh16-brigham-creek-and-waimauku/SH16-BC2W-walking-and-biking.pdf>

### 5.3 Te Tupu Ngātahi Supporting Growth Programme

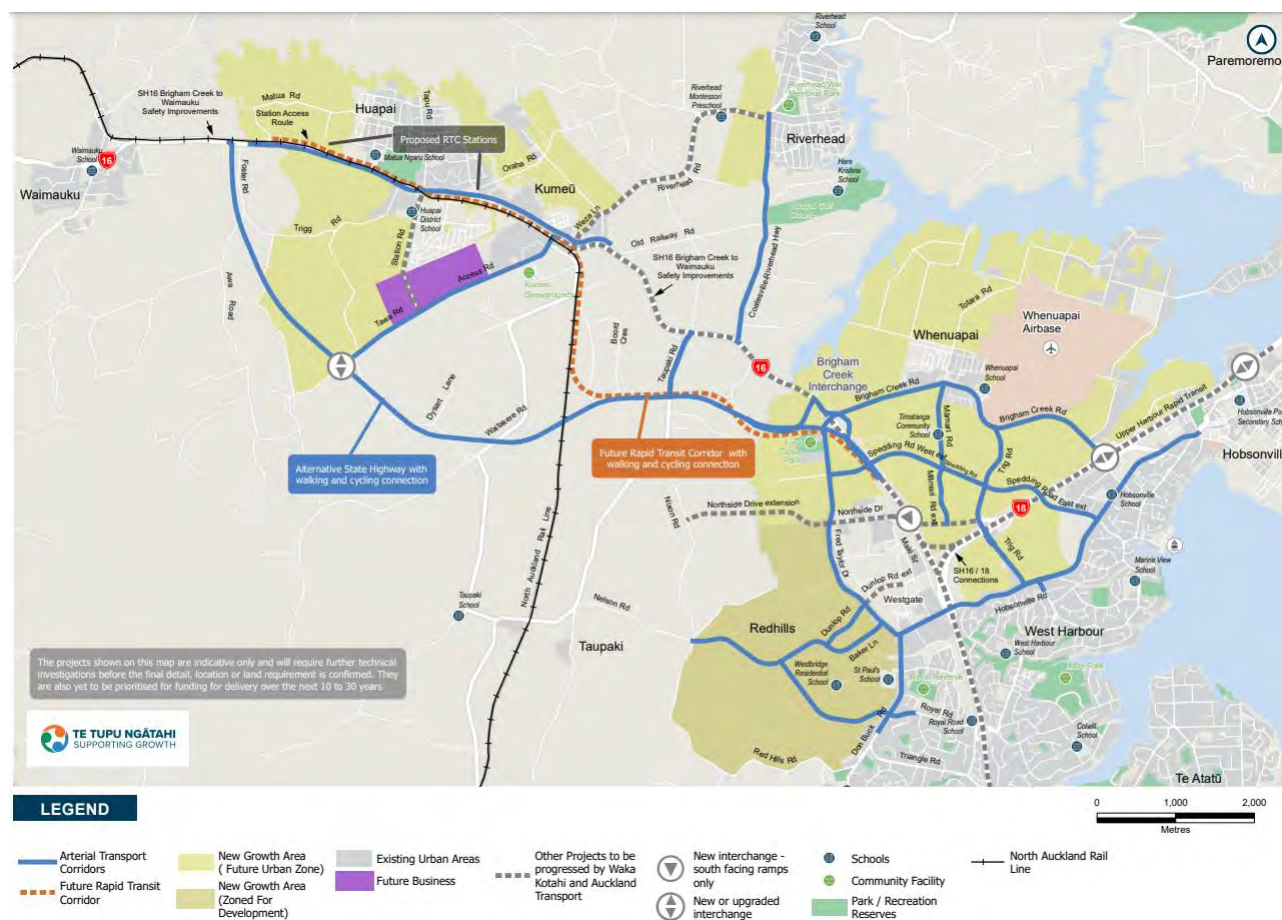
Road improvements as part of the Te Tupu Ngātahi Supporting Growth Programme are identified for Coatesville-Riverhead Highway (between SH16 and Riverhead Road). Safety improvements are also included on Coatesville-Riverhead Highway north of the Riverhead township.

The current designation process (with the designation lodged, notified and hearings underway in September/October 2023) focusses on Coatesville-Riverhead Highway, which includes the frontage of the Site. There are no dates as to when the Coatesville-Riverhead Highway upgrade will occur or what detailed design of the upgrade will consist of, with the current focus being to secure route protection by designation. The designation being sought for Coatesville-Riverhead Highway includes a 20 year lapse period. There is no funding currently allocated for construction.

As noted above, the role of Te Tupu Ngātahi Supporting Growth Programme is to secure the designations that enable the anticipated upgrades (from rural to urban) to occur at a future date. The role is not to construct the upgrades, with this being subject to future processes including funding availability. This Plan Change however presents an opportunity for key components to be delivered by developers, as a means of mitigating effects and ensuring a safe and efficient transport network exists when development comes online. As set out in the Implementation Plan, the developers propose to construct the roading upgrades fronting the Plan Change Site, transitioning the rural environment to urban and providing the infrastructure for future upgrades anticipated along Coatesville-Riverhead Highway to tie into.

A map of the indicative strategic transport network for Northwest Auckland identified by Te Tupu Ngātahi Supporting Growth Programme to support growth in this area is shown in Figure 22.

Figure 22: Supporting Growth Indicative Strategic Transport Network for Northwest Auckland<sup>10</sup>



## 6 PROPOSED ROAD NETWORK

### 6.1 Design philosophy

To assist with the design and development of the Plan Change, we have used several guiding documents and guidelines to form the overall design philosophy of the road network. This includes Auckland Transport's Roads and Streets Framework (RASf) and Transport Design Manual (TDM), and the Vision Zero principles.

#### 6.1.1 Vision Zero

Vision Zero is an ethics-based transport safety approach. Developed by Sweden in the late 1990s, responsibility for safety is placed on people who design and operate the transport system. The goal is to provide a safe system which accommodates human beings. It acknowledges that people in the transport system make mistakes, and people are vulnerable to high-impact forces in a crash. The Vision Zero system looks at the whole system to ensure everything works together to protect road users from forces that can cause traumatic injury.

<sup>10</sup><http://www.supportinggrowth.govt.nz/assets/supporting-growth/docs/Northwest-Auckland/North-West-Auckland-Strategic-Connections-Map.pdf>

Vision Zero for Tāmaki-Makaurau Auckland is a transport safety vision that states that there will be no deaths or serious injuries on our transport system by 2050<sup>11</sup>.

As transport system designers and operators, reducing the likelihood and severity of serious injury crashes from occurring aligns with the goals of Vision Zero. Measures to align with Vision Zero include speed limit reductions, as road users are much less likely to sustain serious injuries at lower speeds. It also encourages designs and intersections which minimise crash likelihood and severity, such as using roundabouts at intersections which reduce the likelihood of head-on crashes.

The proposed Plan Change provides the opportunity to make Riverhead a safer place for all road users by adopting Vision Zero principles. The roading and intersection upgrades proposed achieve this outcome external to the development, with the layout and functions of roads internal to the development presenting safe outcomes for all road users.

### 6.1.2 Roads and Streets Framework

The RASF is an Auckland Transport strategic planning tool used to guide the future planning and development of Auckland's roads, streets and places. It is used to inform any development design of a road or street and reflects the needs and catchment of the adjoining land use as well as the movement of people, goods and services<sup>12</sup>.

The RASF provides an approach for thinking about the movement and place functions of a road and identifies their level of significance in the context of the whole Auckland region. It is used as the first step in a process to identify the issues that must be addressed by a project.

As the Plan Change will provide a new internal road network and upgrade existing road corridors, the RASF is a useful tool to inform the requirements and typology for each road.

We note that the traffic on the internal local roads is expected to be very low, with those living and working in the area predominantly being the only people using the roads. That is, there would be a very low throughput of external traffic. As such, designing for low speed environments, with a focus on place, movement by active modes and safety is a key outcome achieved through the proposed planning provisions.

### 6.1.3 Transport Design Manual

Auckland Transport's Transport Design Manual (TDM) is a set of guides, codes and specifications that are specifically created for the Auckland region based on international best practice and robust common engineering theory<sup>13</sup>.

The TDM has three sections, design principles, engineering standards and specifications. Together, these sections allow end user outcomes, engineering design and construction requirements to be clearly identified and designed.

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<sup>11</sup> <https://at.govt.nz/projects-roadworks/vision-zero-for-the-greater-good/>

<sup>12</sup> <https://at.govt.nz/about-us/transport-plans-strategies/roads-and-streets-framework/>

<sup>13</sup> <https://at.govt.nz/about-us/manuals-guidelines/transport-design-manual/>



For the Riverhead Plan Change, the TDM can be used alongside the RASF to provide safe and appropriate transport infrastructure. We have designed our proposed upgrades for the Plan Change in accordance with the TDM, noting that future Resource Consents and Engineering Plan Approval applications will assess the TDM requirements in more detail.

## 6.2 Proposed speed limits

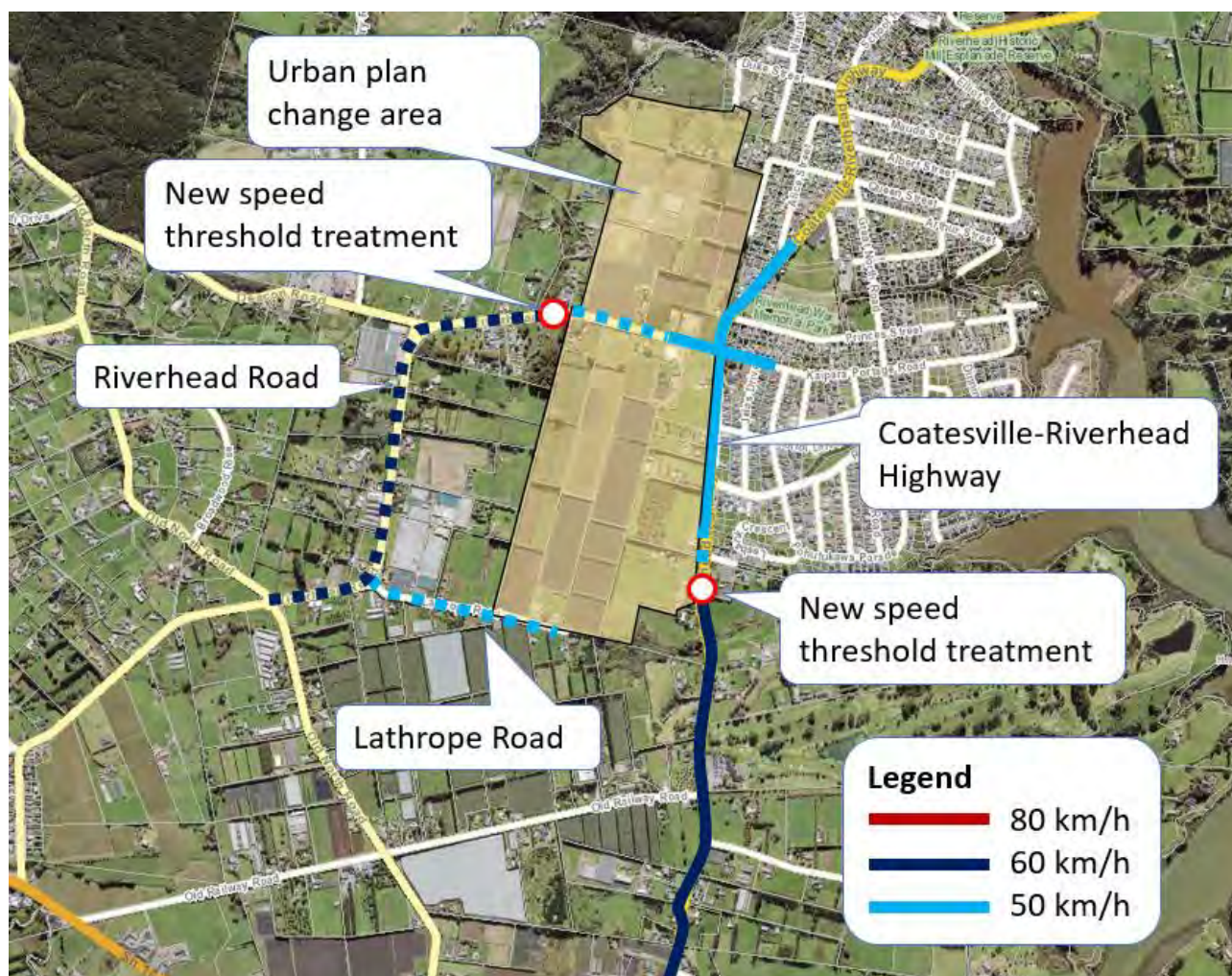
To support the Plan Change, we are proposing a series of speed limit reductions on sections of Riverhead Road, Coatesville-Riverhead Highway, and Lathrope Road. These changes will improve road safety for all users by reducing the likelihood and severity of crashes. They will also allow new intersections and private property access to be constructed in a safer manner.

A diagram of our proposed speed limits is shown in Figure 23. The existing speed limits are outlined in Section 4.7.

We note that each of the roads external to the Site play either an arterial function or a collector function. For the roads fronting the plan change area, while posted speed limits will be 50km/h, treatments will be used to slow vehicles and ensure a safe environment exists for all road users. Roads internal to the plan change area will have a focus on reducing speeds further, with treatments bringing speeds down to 30km/h, using measures consistent with the TDM. These measures will be addressed through future Engineering Plan Approval processes.

We also note that there is a formal bylaw process which Auckland Transport would need to undertake at the appropriate time to change existing external speed limits. This is a common exercise, with a number of speed change about the Region planned over the coming years. The change proposed in this assessment can be captured in future bylaws that align with the roading upgrades.

Figure 23: Proposed speed limits near the Site



The key changes are (shown in dashed lines above)

- ♦ Riverhead Road – moving the existing speed threshold treatment west by approximately 300 – 350 m, and reducing the posted speed limit fronting what will be an urban area to 50 km/h. The rural section west of this speed threshold treatment is proposed to be reduced from 80 km/h to 60 km/h.
- ♦ Coatesville-Riverhead Highway – moving the existing speed threshold treatment south by approximately 160 – 200 m and reducing the posted speed limit to 50 km/h
- ♦ Lathrope Road – lowering the speed limit from 60 km/h to 50 km/h.

These changes are intended to lower vehicle speeds when entering the expanded Riverhead urban area. This will provide safer vehicle speeds for all road users, including pedestrians and cyclists.

The speed limit changes will be accompanied by changes to the road reserve to ensure the road environment is safe and appropriate to the new speed limits.

Internal roads will be designed to a 30 km/h speed limit, which is in accordance with Vision Zero principles of creating survivable speeds for road users.

For Lathrope Road, the intent is to retain the current rural look and feel. While it will be sealed (as outlined later in Section 6.6), a possible outcome would be for the road to include edge beams, with swales and a footpath on the northern side. While taking this form, and based on its length, we consider that a 50 km/h speed is appropriate. This would provide a transition from Riverhead Road (which would be 60 km/h) and the local roads once turning into the Plan Change area, which will be designed to a 30 km/h speed limit.

The gateway treatments are intended to be physical measures. The design of the gateway treatments will take into consideration the transition from a rural to an urban road environment. The treatments will also consider the character of Riverhead as a smaller village with some rural characteristics. While we note that the design of the gateway treatments will be addressed at a subsequent detailed design stage, we anticipate they could include the following measures

- ◆ Kerb buildouts to narrow the carriageway width and lower vehicle speeds
- ◆ Trees or planting in the kerb buildouts to match Riverheads character
- ◆ A different coloured surface treatment of the carriageway, indicating that drivers should slow down
- ◆ Signage, displaying the speed limit and 'Riverhead' to ensure advance visibility to drivers.

In summary, the proposed speed limit reductions will improve safety for all existing and future road users in Riverhead. The reduction in speed will reduce the likelihood and severity of serious and fatal injury crashes, in accordance with Vision Zero.

### 6.3 Overview of the road network

A concept showing the proposed road network within the Site is included in Figure 24. We note

- ◆ The Site's proximity to Riverhead Road and Coatesville-Riverhead Highway as arterial roads
- ◆ New access points onto the arterial roads are limited through a few new collector roads, which will provide internal access to the wider Site.
- ◆ The intersections of the arterial roads and collector roads have been selected to ensure safe sight distances can be provided. The intersections will typically be roundabouts
- ◆ Walking and cycling facilities will be provided as part of the proposed road network.

The road network has been designed in accordance with the RASF by providing appropriate road typologies to accommodate their place and movement function within the future Riverhead road network

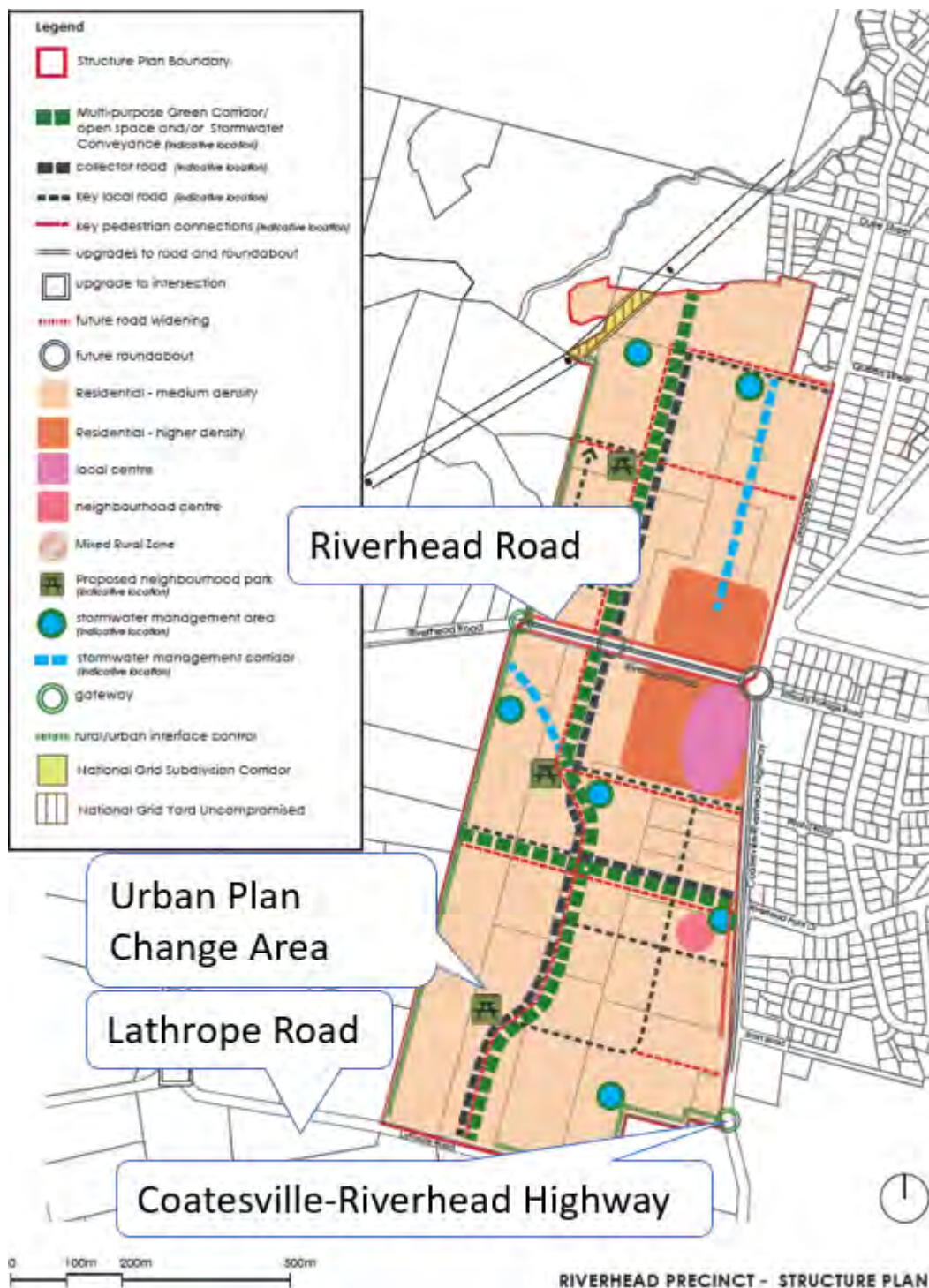
- ◆ Riverhead Road and Coatesville-Riverhead Highway provide higher movement functions, catering for public transport services and general traffic. They also provide the opportunity to provide new walking and cycling connections, as being investigated by Supporting Growth
- ◆ The new local and connector roads will generally facilitate trips within the Plan Change area and will have lower place and movement functions due to the smaller catchment of users. There will be some activities within the Site such as the potential school and local centre (containing a supermarket), which would result in a higher place function



- ♦ The internal road network has not been designed in detail at the Plan Change level, but the proposal aligns with the guidelines of the RASF and ensures both movement and place are accommodated in Riverhead.

We note that only key local roads are shown. Further local roads will be provided at subsequent detailed design stages, but we consider these are not necessary for the purposes of the Precinct Plan.

Figure 24: Site's proposed road network





## 6.4 Riverhead Road

The proposed cross-section for Riverhead Road is shown in Figure 25.

The road reserve will be widened from 20 m to 24 m to accommodate the following facilities

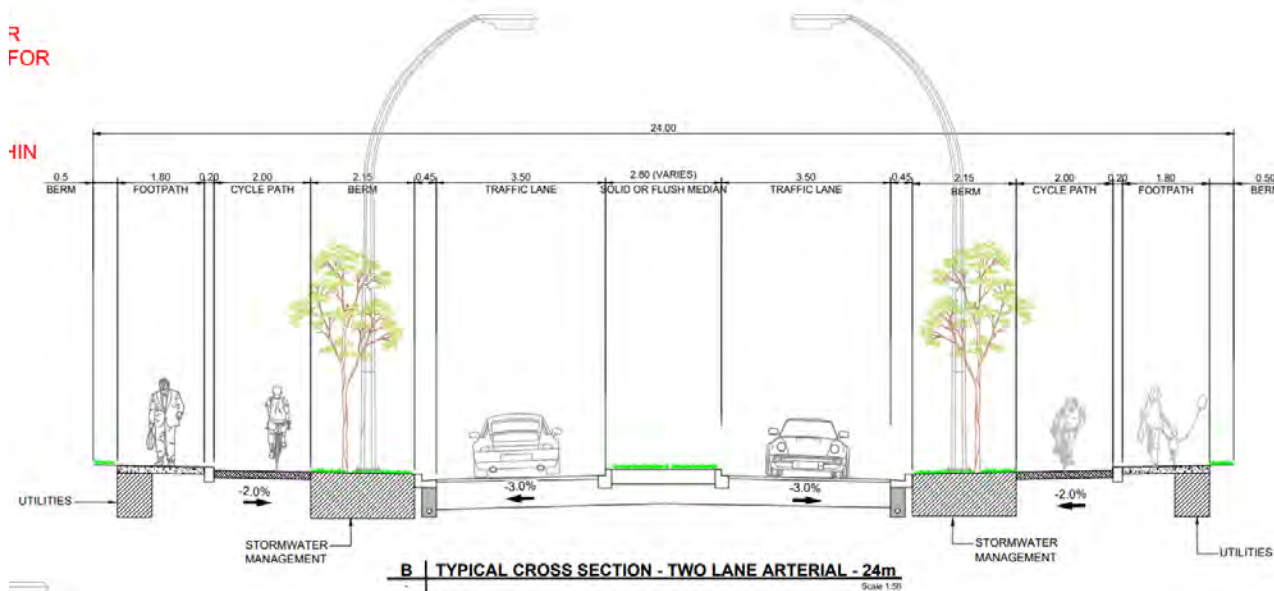
- ◆ One traffic lane in each direction, separated by a central median
- ◆ Front berms and back berms
- ◆ Dedicated 1.8 m footpaths and 2 m cycle paths, both separated from traffic lanes by the front berm.

These facilities will provide significant improvements for active mode accessibility. The upgrade will be applied from the Coatesville-Riverhead Highway roundabout, extending west to the new proposed roundabout on Riverhead Road. West of the new roundabout, the urban road upgrade will include a transition back to a rural environment through a new threshold treatment.

Riverhead Road provides for both local and regional movement as an arterial road. It needs to accommodate vehicle and freight movement, but also provides the opportunity to provide new and safe facilities for active modes. The proposed cross-section caters for these modes.

We understand that there is no expectation for buses to operate along Riverhead Road fronting the development site.

**Figure 25: Riverhead Road cross-section**



## 6.5 Coatesville-Riverhead Highway

The proposed upgrades on Coatesville-Riverhead Highway will generally be similar in principle to the upgrades described above for Riverhead Road. Both roads are arterial roads and need to cater for regional freight movements but also local walking and cycling trips in Riverhead. Coatesville-Riverhead Highway also needs to accommodate public transport movements.

Due to the existing layout of Coatesville-Riverhead Highway, a consistent cross-section along the corridor cannot be applied. This is largely due to Grove Way, which acts as a local frontage road to provide access to residential properties.

The layout for Coatesville-Riverhead Highway differs for the northern section (between Riverhead Road and Riverhead Point Drive) and the southern section (between Riverhead Point Drive and Small Road). Each section provides for active mode facilities according to that being investigated by Te Tupu Ngātahi Supporting Growth. We discuss each below.

#### **Northern section (between Riverhead Road and Riverhead Point Road)**

Our proposed layout for Coatesville-Riverhead Highway considers the existing layout of Grove Way. On the west side, separated pedestrian footpaths and cycle lanes can be provided, like on Riverhead Road. On the east side of Coatesville-Riverhead Highway, separated footpaths and cycle lanes can be provided through Grove Way. As Grove Way already contains a footpath, the existing grass berm would effectively be substituted with a cycle path.

Wider front berms (2.8m) on the west side can be provided due to the additional width that Grove Way allows. This provides the opportunity to plant more trees and landscaping along the corridor.

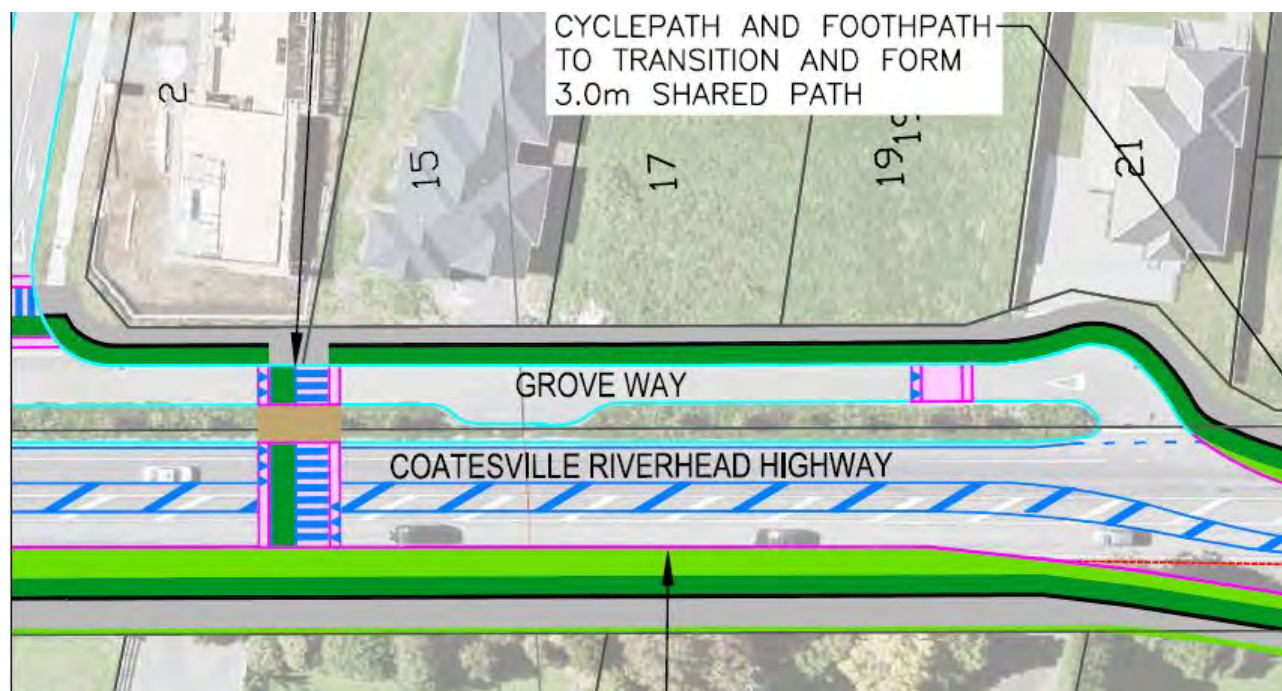
This section of Coatesville-Riverhead Highway may accommodate an access point into the local centre. This detail is not confirmed yet at the Plan Change stage and can be designed in the future to ensure that any access point is safe for all road users.

A raised table zebra crossing for pedestrians and cyclists will be provided south of Pitoitōi Drive. This will provide a new mid-block crossing point for active modes. This will improve accessibility in the area, as the current crossing points are located approximately 230 m north at Riverhead Road and 140 m south at Riverhead Point Drive. It will also provide a more direct connection for residents from Pitoitōi Road into the proposed local centre area. The crossing is located on a straight section of Coatesville-Riverhead Highway, which will allow safe sight distances to be provided for pedestrians.

Figure 26 shows a sample of the Coatesville-Riverhead Highway layout near Grove Way.

We consider that the upgrades will provide significant improvements for pedestrians and cyclists and make efficient use of the existing road corridor width. Providing separated facilities for active modes aligns with the goals of vision zero by isolating vulnerable road users from vehicle movements. As highlighted in the sample upgrade design, the upgrades can be accommodated within the existing road reserve, with localised widening required about key intersections only.

**Figure 26: Coatesville-Riverhead Highway proposed upgrade**



**Southern section (between Riverhead Point Road and Short Road)**

We understand that Te Tupu Ngātahi Supporting Growth propose a shared path along Coatesville-Riverhead Highway between SH16 (to the south) and Riverhead. We have therefore incorporated this element into the design, with the tie in point about Short Road. We note that Te Tupu Ngātahi Supporting Growth is classifying this as a shared path as a placeholder to protect land for the facilities via designation. The 4.0 m width allows for separated facilities to be provided in the future (1.8 m footpath + 2.0 m cycle lane + 0.2 m kerb) which would be addressed through detailed design. The width provides flexibility to provide these facilities in the future.

Separated pedestrian and cycle facilities on both sides will be provided up to Short Road. A raised zebra crossing for active modes will be provided north of Short Road to allow pedestrians and cyclists to cross safely. As shown in Appendix C, Crossing Sight Distance can be provided for pedestrians. Due to the vertical geometry on Coatesville-Riverhead Highway, a speed environment of 30 km/h will need to be achieved for this crossing. This could be achieved through the design of the threshold treatment and by raising the zebra crossing. These features can be developed further in the detailed design stage,

Figure 27 and Figure 28 show samples of the Coatesville-Riverhead Highway, south of Riverhead Point Drive. Minor localised widening is required on the western boundary of Coatesville-Riverhead Highway about the new intersections and to tie into the shared path proposed by Te Tupu Ngātahi Supporting Growth.

We consider that the upgrades will provide significant improvements for pedestrians and cyclists and makes efficient use of the existing road corridor width.



Figure 27: Coatesville-Riverhead Highway - proposed upgrade south of Riverhead Point Road, 1 of 2

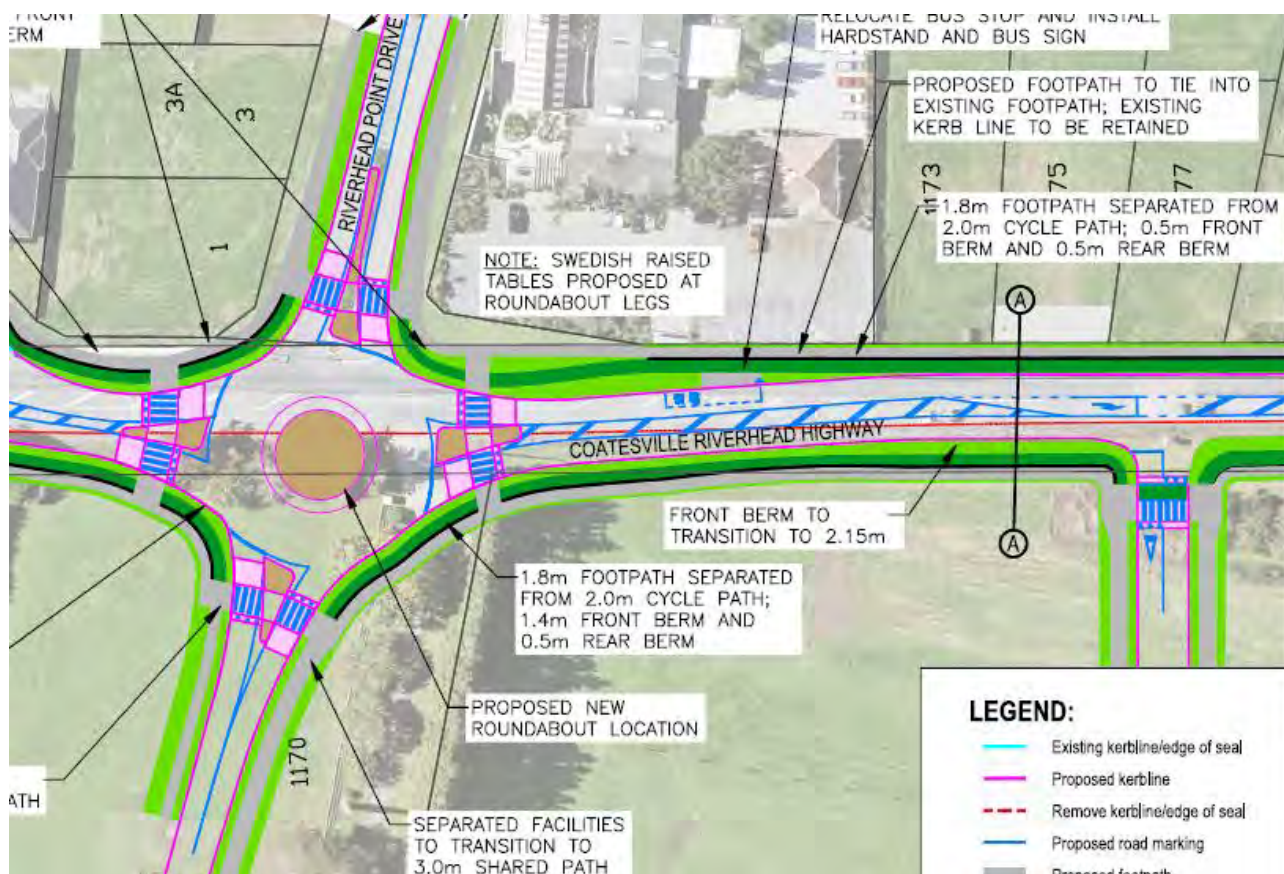
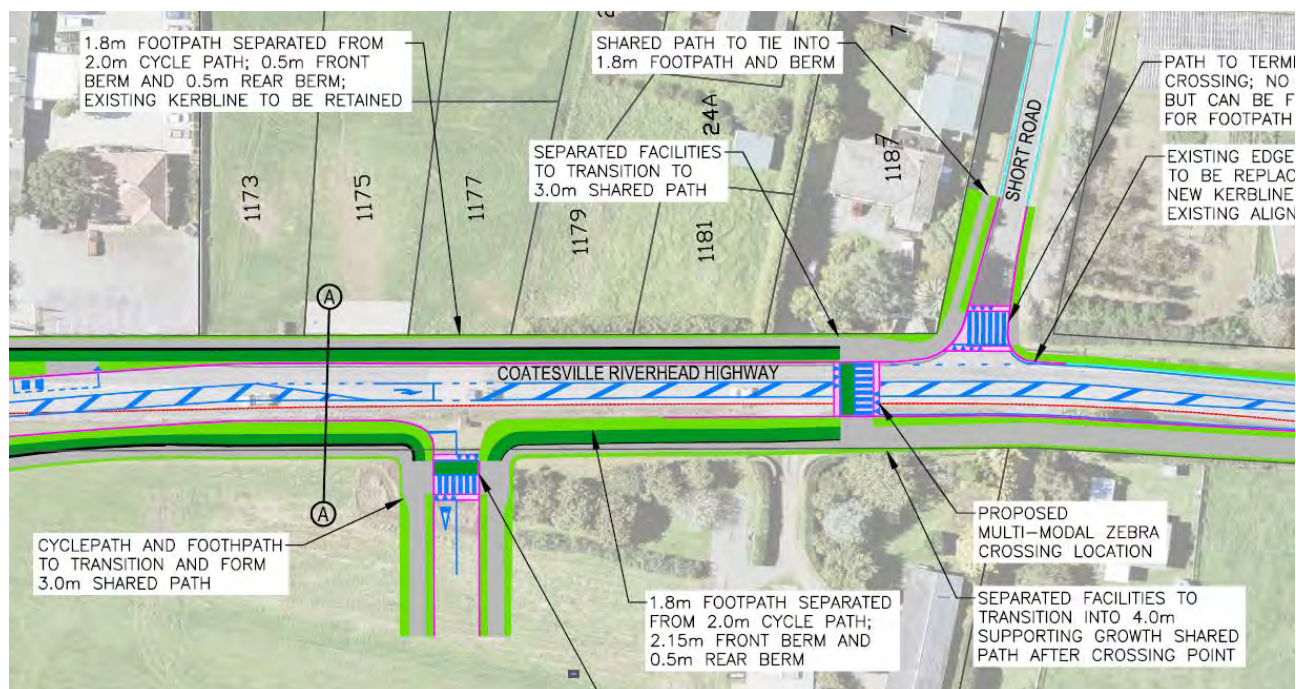


Figure 28: Coatesville-Riverhead Highway - proposed upgrade south of Riverhead Point Road, 2 of 2



Based on information from Auckland Transport, we understand that Coatesville-Riverhead Highway is planned to be an over-dimension route in the future. This can be addressed at the detailed design stage, when designing elements such as the roundabouts. We note that our vehicle tracking currently accommodates a 19.45 m semi-trailer truck.



With buses operating along Coatesville-Riverhead Highway, the existing bus stops will need to be retained or altered slightly to work in with the upgrade proposed. These details can be assessed at detailed design, with the Precinct Provisions highlighting the need to provide for bus infrastructure.

### North of Riverhead Road

Outside of the northern and southern sections, a new pedestrian crossing facility will be provided. As outlined in the Precinct Provisions, an additional crossing will be required between Edward Street and Princes Street. The exact location of the crossing will be confirmed at a later consenting stage.

## 6.6 Lathrope Road

Lathrope Road is an unsealed road. To support the Plan Change, we propose to upgrade Lathrope Road by providing a sealed carriageway, allowing one traffic lane in each direction. This will allow vehicles to use Lathrope Road as a viable access point to reach the wider road network.

There are currently no footpaths provided on Lathrope Road. We propose that the northern side of Lathrope Road will contain a footpath to provide some pedestrian facilities, noting that all of the adjacent properties on Lathrope Road are zoned rural, and there are no activities to connect to. The proposed footpath provides some future proofing of the road for new activities.

As outlined in Section 6.2, we propose that Lathrope Road will have a speed limit reduction from 60 km/h to 50 km/h. The intent is to retain the current rural look and feel. Lathrope Road will effectively provide a transition from Riverhead Road (which would be 60 km/h) and the local roads once turning into the Plan Change area (designed to a 30 km/h).

Auckland Transport have indicated Lathrope Road to be part of a future bus route. The Precinct Provisions acknowledge this and require bus provision to be considered during the design phase of the upgrade. This is specified in the road function and design elements table for external roads, included as Appendix 2 of the Precinct Provisions.

**Figure 29: Proposed Lathrope Road layout**



## 6.7 Cambridge Road and Queen Street

Cambridge Road runs alongside the eastern boundary of the site to the north of Riverhead Road. Currently rural in nature, Cambridge Road will be upgraded fronting the Site to ensure it is safe and in keeping with the anticipated development that will be located alongside.

Along the development frontage, Cambridge Road (south of Queen Street) will be upgraded to an urban standard, including

- ◆ a 6 m wide carriageway
- ◆ vehicle crossings to access activities that front Cambridge Road
- ◆ a pedestrian footpath along the development frontage, up to Queen Street.

While the detail of the upgrade can be worked through at detailed design and Engineering Plan Approval, upgrading Cambridge Road similar to that provided along the recently upgraded sections of Duke Street is considered appropriate given the challenging environment presented on the eastern side of Cambridge Road, where the berm sits higher than the road level and rises towards the north.

With Cambridge Road being upgraded and a new pedestrian facility being included on the western side (between Queen Street and Riverhead Road), a pedestrian path is also proposed on the northern side of Queen Street (between Coatesville-Riverhead Highway and Cambridge Road) on the existing grass

berm, connecting the development site to the existing Riverhead area, as well as existing bus stops, War Memorial Park and playground, the existing village and the new local centre.

As mentioned earlier, we understand that the Local Board is looking to address the 'gaps' in footpath provision about the surrounding road network to the plan change, with includes the above road sections. The provisions require the developer to deliver the upgrades discussed above, which in turn reduces the extent of the works the Local Board plans to undertake.

## 6.8 New internal local roads and collector roads

Internal roads will have road reserve widths ranging between 18 m (local) to 25 m (collector without adjacent open space reserve). The Precinct Provisions include a road function and design elements table (Appendix 1) that sets the key outcomes of each road type internal to the development. We note that the detailed layout for each road will be subject to future resource consent stages, with the Precinct table providing guidance to the outcomes sought.

### 6.8.1 Local roads

Local roads will be designed to achieve a speed limit of 30 km/h, providing a safe environment for all road users. Local roads will accommodate front and back berms, footpaths and two-way vehicle movement. The front berms can be used for landscaping and street furniture.

With a design speed of 30km/h, there is no requirement for dedicated cycle facilities to be provided on these roads. The Precinct Plan does however indicate routes where key pedestrian and cycling routes pass through the Precinct where safe facilities will be provided.

We note that the local road volumes will generally be very low, with most local roads for this development serving residential traffic only. The potential school would be the only high traffic generator around the new residential development.

The local road and collector road layout is designed in a way that will mean there is limited through traffic internal to the development. Riverhead Road and Coatesville-Riverhead Highway will carry out this function. This will keep the internal local road traffic volumes low, providing a safer environment for all road users. With regard to the local centre, this is located on the periphery of the development, and therefore traffic will generally remain on the outer of the residential streets.

### 6.8.2 Collector roads

The collector roads will provide separated walking and cycle facilities which connect to the proposed facilities on Riverhead Road and Coatesville-Riverhead Highway.

The design speed is 40km/h and could include two traffic lanes, separated cycle lanes and footpaths on both sides, front berms for street trees, street furniture and optional indented parking bays.

The Precinct Provisions also require bus facilities to be considered during subsequent design phases.

While the proposed collector roads will generally carry low volumes compared to other collector roads in Auckland, they have been designated collector roads for the purposes of ensuring Precinct Plan provisions can be made.

## 6.9 Intersection designs

The following major intersections are proposed to either be upgraded or constructed to support the Plan Change

- ♦ Coatesville-Riverhead Highway / Riverhead Road – upgrade existing roundabout
- ♦ Coatesville-Riverhead Highway / Riverhead Point Drive – upgrade to roundabout with fourth leg
- ♦ Coatesville-Riverhead Highway / Site access – provide new priority control intersection between Riverhead Point Drive and Short Road
- ♦ Riverhead Road / Site access (330 m west of Coatesville-Riverhead Highway) – new intersection with new north and south approach roads
- ♦ Riverhead Road / Lathrope Road – update existing priority control intersection.

All of these intersections will involve at least one arterial road. We have considered what the intersection upgrades will possibly include and are designed to accommodate 17.9 m semi-trailer trucks.

Apart from Riverhead Road / Lathrope Road intersection, all intersection upgrades will provide new and separated facilities for pedestrians and cyclists. Swedish table crossing points will be provided on each approach leg of the roundabouts to allow pedestrians and cyclists to safely cross. The permitter of the roundabouts allow the option for either separated pedestrian and cycle lanes, or shared paths. The desired outcome can be addressed during detailed design and Engineering Plan Approval.

The Coatesville-Riverhead Highway / Site access intersection between Riverhead Point Drive and Short Road is proposed to be a priority-controlled intersection. It will cater for a small number of trips within the Site, with the intersection at Riverhead Point Drive being designed as the primary collector road into the site. This intersection will contain a raised table across the Site approach leg to prioritise pedestrians and cyclists that will use the shared path on Coatesville-Riverhead Highway.

Riverhead Road / Lathrope Road is proposed to be upgraded to a priority-controlled intersection based on a lower speed environment discussed earlier. The two existing access points into Lathrope Road will be consolidated into one point, which will provide drivers with improved visibility of Riverhead Road. A right turn bay and median will also be provided on Riverhead Road to facilitate vehicle turning movements. This will allow Lathrope Road to safely accommodate the level of traffic anticipated to use this as an external access point. The current intersection layout is unsuitable for higher volumes of traffic and does not enable safe levels of visibility. The proposed design provides sufficient visibility for vehicles on Riverhead Road, Lathrope Road and the right turn bay given the proposed speed limit changes.

Detailed design and assessments such as road safety audits can be undertaken at future stages.

At the Plan Change level, the intersection designs show that all transport modes can be accommodated within the proposed road reserve boundaries. Localised intersection widening is required, however the



designs have assumed all localised road widening to occur within the current road reserve or within land that sits within the Plan Change boundary.

## 6.10 Coatesville-Riverhead Highway right turn bay treatments

We have reviewed the requirements for intersection upgrades to include right-turn bays at the Riverland Road intersection and the Old Railway Road intersections on Coatesville-Riverhead Highway.

We have outlined, in the technical note attached as Appendix D, the guidelines and criteria we use to determine the requirement for right-turn bays at intersections as well as indicated if the intersection upgrades are required now according to the current volumes using the intersection (that is, prior to any development within Riverhead), at the 60% development phase and at the 100% development phase.

We reviewed the crashes involving traffic turning right or left, as well as the traffic flows and volumes for these scenarios against Austroads warrants and find the following

- ♦ At the Riverland Road intersection, the warrant indicates there is some demand for a channelised turn treatment in the existing scenario however the crash record indicates the current demand for it is low
- ♦ At the Old Railway Road intersection, the warrant indicates that the demand for a channelised turn treatment is high in the existing scenario
- ♦ In both the 60% development scenario and the 100% development scenario, the predicted increase in traffic flows indicate a high demand for channelised turn treatments at both intersections
- ♦ The increase in traffic using Coatesville-Riverhead Highway may also lead to an increase in delays experienced by turning vehicles and therefore an increase in risk to vehicles turning into the side roads.

Therefore, to achieve safe outcomes for each intersection, right-turn bays are recommended for the Old Railway Road intersection pre-development but for the Riverland Road intersection, right-turn bays may be provided at the 60% development scenario.

We note that for the Old Railway Road intersection, Auckland Transport were planning to upgrade this intersection based on the existing conditions. We understand that the associated safety programme has been put on hold due to funding constraints. However, this intersection still requires upgrading due to existing conditions.

Concept plans of the right turn bays are provided in Appendix C.

## 7 DESCRIPTION AND ASSESSMENT OF THE PROPOSAL

### 7.1 Access assessment of the proposal

#### 7.1.1 Vehicle access

The road network will provide several new roads and intersections to support the Plan Change. This will provide suitable access for Site users. The roads will also allow existing residents to access the new activities, such as the proposed local centre and education facilities.

The upgrade of Lathrope Road provides a viable access point to travel towards SH16 to the south via Old North Road and Riverhead Road. This will relieve pressure on Coatesville-Riverhead Highway and Riverhead Road as the primary access routes.

#### 7.1.2 Visibility

All intersections and accesses have been designed to achieve the Safe Intersection Sight Distance (SISD) in Austroads. This is based on the revised operating speed limit on the roads recommended earlier within this report. In addition to providing safety benefits, the proposed reduction in speed limits provides more flexibility to safely locate intersections.

The main constraints for visibility are

- ♦ On Riverhead Road, the horizontal and vertical curvature 450 m west of the existing Coatesville-Riverhead Highway roundabout
- ♦ On Coatesville-Riverhead Highway, the main constraint is the horizontal and vertical curvature south of Short Road.

The proposed intersections comply with the visibility standards, assuming that the speed limits can be reduced to a safe and more appropriate level. We note that the speed limits will need to be amended through the bylaw at the appropriate time.

#### 7.1.3 Vehicle access restrictions

Coatesville-Riverhead Highway and Riverhead Road are classified as arterial roads in the Unitary Plan. This means that vehicle access restrictions will apply, which would trigger restricted discretionary activity criteria for any private vehicle access on these roads.

The Plan Change is not proposing direct vehicle accesses onto the arterial roads. Instead, they will be subject to future resource consents.

The proposed road network is designed to minimise the need for any direct access onto arterial roads, and will instead funnel traffic through new local and collector roads. We note that no specific provisions to restrict access onto collector roads is proposed or considered necessary, given they will be low volume in the context of other collector roads in Auckland.

#### 7.1.4 Pedestrian and cycle access

The following facilities will be provided for pedestrians and cyclists

- ♦ Corridor and intersection upgrades on Coatesville-Riverhead Highway and Riverhead Road, providing separated footpaths and cycle lanes and new mid-block crossing facilities (See Section 6.4 and 6.5)
- ♦ Footpaths on both sides of all local roads and collector roads. The collector roads will have separated cycle lanes
- ♦ Upgraded footpaths on Queen Street and Cambridge Street.

The internal road network will be designed to have low vehicle speeds, to provide safe environments for all users.

These will ensure that both current and future residents will have a range of safe and viable transport choices for travel within Riverhead. The separated facilities align with Vision Zero by minimising conflict points with vehicles.

#### 7.1.5 Public transport access

As outlined in Section 4.6.1, Riverhead is served by one bus route which connects to Albany and Westgate. There are several bus stops on Coatesville-Riverhead Highway along the eastern boundary of the Site.

The Plan Change will support public transport by providing safe and convenient pedestrian connections to the bus stops. Upgrades to public transport shelters can be provided as part of the proposed corridor upgrades on Coatesville-Riverhead Highway, with these being worked through at detailed design. The Precinct Provisions will enable public transport facilities to be provided on Coatesville-Riverhead Highway, Riverhead Road, Lathrope Road and the new internal collector roads.

The increased catchment of residents enabled by the plan change will also support public transport by increasing demand for services, which could result in services becoming more frequent in the future, if additional funding becomes available.

## 7.2 Trip generation and distribution of the Proposal

### 7.2.1 Trip generation rates

The following weekday peak hour vehicle trip rates are applicable to this Proposal.

#### **Residential dwellings**

The RTA “Guide to Traffic Generating Developments” (RTA Guide) contains trip generation rates for residential dwellings.

- ♦ Dwelling houses – 0.85 trips per dwelling
- ♦ Medium density residential flat building, larger units or townhouses – 0.5 to 0.65 trips per dwelling.

We have adopted the following rates for the Plan Change, assuming 100% buildout in the long term (by 2038). We note that the calculations are based on a slightly higher residential yield of 1,560 dwellings

which reflects an earlier calculation. As such, the traffic modelling analysis provides a conservative assessment of the predicted effects.

- ♦ Lower density dwellings – 0.75 trips per dwelling
- ♦ Medium / high density dwellings – 0.60 trips per dwelling.

The trip rates we have adopted are similar to the RTA Guide rates. For the lower density rates, we have used a slightly lower rate of 0.75 trips per dwelling.

- ♦ This is because residents in Riverhead will likely travel outside of the peak hours more, given congestion on the wider network.
- ♦ It is important to note in responding to this request that the development of Riverhead is going to occur over a number of years (10 years or so)
- ♦ We also highlight that our underlying assumptions have retained today's (2022) volumes as background traffic. With the Plan Change introducing employment, including a local centre that offers the opportunity for a major retail offering, such as a supermarket, there is a strong likelihood that an element of existing traffic (which currently leaves Riverhead) will now remain in Riverhead to undertake their daily needs.

We acknowledge that trip rates may be higher in the short term to medium account for the availability of non-private vehicle transport modes. As a result, we have adopted the following trip rates for the residential activities as a sensitivity test

- ♦ Lower density dwellings – 0.95 trips per dwelling
- ♦ Medium / high density dwellings – 0.70 trips per dwelling.

### **School**

We have adopted the following rates for the potential school. For the purpose of this assessment, we have assumed it will be a primary school

- ♦ AM peak – 0.65 trips per student
- ♦ PM peak – 0.15 trips per student.

The PM peak rate is lower than the AM rate, as the PM school peak hour occurs at a different time compared to the network PM peak.

### **Childcare centre**

We have adopted rates of 1 trip per child during the peak periods for the childcare centre. The RTA Guide provides trip rates ranging from 0.5 – 1.4 trips per child, so we have adopted the upper mid-range of 1 trip per child.

### **Supermarket**

For the proposed supermarket activity, we have adopted a rate of 11.6 trips per 100 m<sup>2</sup>. This is based on the RTA Guide peak hour rate for supermarkets on a Thursday evening and converting from GLFA to



GFA. We note that in reality the AM rate would likely be lower, but we have used this rate conservatively for both peak periods.

### **Retail**

The RTA Guide provides weekday supporting retail trip rates of 5.6 trips per 100 m<sup>2</sup> for weekdays. We have adopted this trip rate for both peak periods, as the proposed retail activities will primarily be small local shops, which will support existing and proposed land uses such as the proposed supermarket.

### **Offices**

We have adopted a trip rate of 2 trips per 100 m<sup>2</sup> for office activities, based on the RTA Guide rates.

### **Retirement village and aged care facilities**

For all of the retirement village and aged care facilities, we have adopted rates of 0.2 trips per unit for both peak hours. This is based on the upper range of the RTA Guide rate of 0.1 – 0.2 trips per unit for housing for aged and disabled persons.

### **Café**

For the café activities, we have adopted a rate of 7.6 trips per 100 m<sup>2</sup>. This is based on average trip rates from the NZ Trips Database for the PM peak period.

### **Medical centre**

For the medical centre, we have assumed a flat rate trip assumption of 30 vehicles per hour for both peak hour periods. We note that the medical centre is relatively small and will primarily support the retirement village and aged care facility activities.

### **Neighbourhood centre**

While the neighbourhood centre will consist of approximately 300 m<sup>2</sup> GFA, we have not included it in our modelling assessment. We note that the neighbourhood centre will predominantly serve the local area through convenience retail and services and is not expected to generate external vehicle trips. Given the walking and cycling upgrades that will be provided, many trips to the neighbourhood centre can be taken without a vehicle. Those that are vehicle related, will most likely be pass-by trips.

### 7.2.2 Trip generation volumes

The anticipated trip generation of the development is shown in Table 2. This shows the total raw number of trips, without any internalisation factors considered.

**Table 2: Weekday peak hour trip generation (unfactored)**

Activity	Size	Trip rate		Trip generation (vph)	
		AM	PM	AM	PM
Residential – lower dwelling houses	440 units	0.75 / dwelling	0.75 / dwelling	330	330
Residential – medium / higher density	910 units	0.60 / dwelling	0.60 / dwelling	545	545
Primary school	1,100 students	0.65 / student	0.15 / student	715	165
Childcare centre	100 children	1 / child	1 / child	100	100
Supermarket	4,000 m <sup>2</sup>	11.6 / 100 m <sup>2</sup>	11.6 / 100 m <sup>2</sup>	465	465
Retail	650 m <sup>2</sup>	5.6 / 100 m <sup>2</sup>	5.6 / 100 m <sup>2</sup>	35	35
Offices	1,000 m <sup>2</sup>	2 / 100 m <sup>2</sup>	2 / 100 m <sup>2</sup>	20	20
Retirement village	518 units	0.2 / unit	0.2 / unit	105	105
Aged care facility	90 beds	0.2 / unit	0.2 / unit	20	20
Café	600 m <sup>2</sup>	7.6 / 100 m <sup>2</sup>	7.6 / 100 m <sup>2</sup>	45	45
Medical Centre	250 m <sup>2</sup>	30 trips	30 trips	30	30
<b>Total</b>				<b>2,410</b>	<b>1,860</b>

In reality, the number of trips generated external to the Plan Change Site will be lower, due to the following factors

- ♦ Internal trips within Riverhead – some trips can be completed internally within Riverhead, which will not generate any traffic on the wider road network. These are trips which can be completed locally due to a range of activities being provided
- ♦ Pass-by trips – these are trips where a person stops by at a destination on their way to another destination, meaning the trip is not a new trip added onto the network
- ♦ Multi-purpose trips – these are trips where a person can visit multiple destinations in one trip, for example a local centre. This will reduce the number of new trips on the network as one trip can replace several.

Table 3 shows the factors we have adopted for each activity.

**Table 3: Peak hour trip generation factors**

Activity	Internal trips within Riverhead (%)	Pass-by trips (%)	Multi-purpose trips (%)
Residential – dwelling houses	20%	0%	0%
Residential – medium / higher density	20%	0%	0%
Primary school	80%	0%	0%
Childcare centre	80%	0%	0%
Supermarket	90%	40%	10%
Retail	70%	35%	10%
Offices	20%	0%	0%
Retirement village	20%	0%	0%
Aged care facility	20%	0%	0%
Café	70%	40%	10%
Medical Centre	50%	0%	0%

Multi-purpose factors have only been applied to trips generated by retail type activities within the plan change area, including supermarket, retail and café.

Reference has been made to the ITE Trip Generation Handbook to source typical pass-by trip rates for these uses, with

- ♦ Table 5.6 (Land Use 820 – Shopping Centre) having an overall average pass-by rate of 34%. The supporting graph and statistics at Figure 5.5 suggest the smaller the centre, the higher the pass-by percentage
- ♦ Table 5.10 (Land Use 850 – Supermarkets) having an overall average pass-by rate of 35%, with the range sitting between 20% and 55%.

While Table 3 provides rates for pass-by trips, our modelling provided no additional volume reductions for pass-by trips for simplicity. This means that the modelling is conservative, as including pass-by trips would result in a reduction in through trips. We have used rates of 35% to 40% for the retail elements of the plan change, noting also that the vast majority of users will be from within Riverhead which doesn't currently have a major supermarket.

Multi-purpose factors have only been applied to trips generated by retail type activities within the plan change area, including supermarket, retail and café. Table 3 of the ITE Journal, dated January 2011 sets out internal capture rates for various land use pairs. We have adopted a 10% value, again only being attributed to the retail component of the plan change, with the ITE noting the following multi-purpose rates

- ♦ To Retail, From Residential 10%
- ♦ To Retail, From Office 8%

With regard to internal capture percentages, we have assumed percentages based on our judgement. We note that the internal capture percentage still generates traffic that is assigned to the local network, but the traffic is predicted to remain in Riverhead, whether that is for recreation, school pickup and drop off, childcare, shopping, visiting friends etc. External trips are assumed to leave Riverhead and use the wider transport network.

For the purpose of our modelling assessment, we have ignored pass-by trips, noting that these will be only from the supermarket, retail and café activities internal to Riverhead.

Table 4 and Table 5 shows the trip generation volumes, updated with these factors. This shows

- ♦ New trips, which accounts for the reduction of multi-purpose trips
- ♦ New external trips, which is new trips with that will be generated externally outside of Riverhead. These trips will have an effect on the wider road network.

For the purpose of our modelling assessment, we have ignored pass-by trips, noting that these will be only from the supermarket, retail and café activities internal to Riverhead.

**Table 4: Factored peak hour trip generation, AM peak**

Activity	Multi-purpose trips	New trips (unfactored minus multi-purpose)	New external trips (new trips reduced by internal trip proportion)
Residential – dwelling houses	0	330	265
Residential – medium density	0	545	435
Primary school	0	715	145
Childcare centre	0	100	20
Supermarket	45	410	40
Retail	5	30	10
Offices	0	20	15
Retirement village	0	105	85
Aged care facility	0	20	15
Café	5	40	10
Medical Centre	0	30	15
<b>Total</b>	<b>55</b>	<b>2,355</b>	<b>1,055</b>



**Table 5: Factored peak hour trip generation, PM peak**

Activity	Multi-purpose trips	New trips (unfactored minus multi-purpose)	New external trips (new trips reduced by internal trip proportion)
Residential – dwelling houses	0	330	265
Residential – medium density	0	545	435
Primary school	0	165	35
Childcare centre	0	100	20
Supermarket	45	465	40
Retail	5	35	10
Offices	0	20	15
Retirement village	0	105	85
Aged care facility	0	20	15
Café	5	45	10
Medical Centre	0	30	15
<b>Total</b>	<b>55</b>	<b>1,860</b>	<b>945</b>

These factors show that there will be a reasonable reduction of external trips generated by the Plan Change. The number of new external trips is noticeably lower compared to the unfactored trip volumes, which demonstrates that trips can be undertaken locally with the range of proposed activities.

### 7.2.3 Trip distribution

Appendix A show the trip distribution about the immediate roading network for the AM and PM peak hours. The diagrams show the total volumes of traffic with the Plan Change implemented, for the 2038 year. The volumes in brackets show the anticipated increase due to the trip generation of the Plan Change. While we have undertaken a spreadsheet assessment to distribute traffic, the distributions have been informed by the Northwest SATURN traffic model.

The trips have been grouped and distributed into four quadrants. The quadrants are

- ◆ North East – which essentially covers the proposed retirement village and Matvin land holdings
- ◆ North West – which is residential development, which is predominantly made up by Neil Group land holdings
- ◆ Southern commercial – being the commercial elements that are located south of Riverhead Road
- ◆ Southern residential – being the residential development located to the south of Riverhead Road which is predominantly made up by Fletcher land holdings.

External trips to the wider area beyond the immediate Riverhead catchment are based on 'new external trips' in Table 4 and Table 5. For the purposes of our modelling assessment, we have ignored pass-by trips, noting that these will only be from the supermarket, retail and café activities internal to Riverhead.

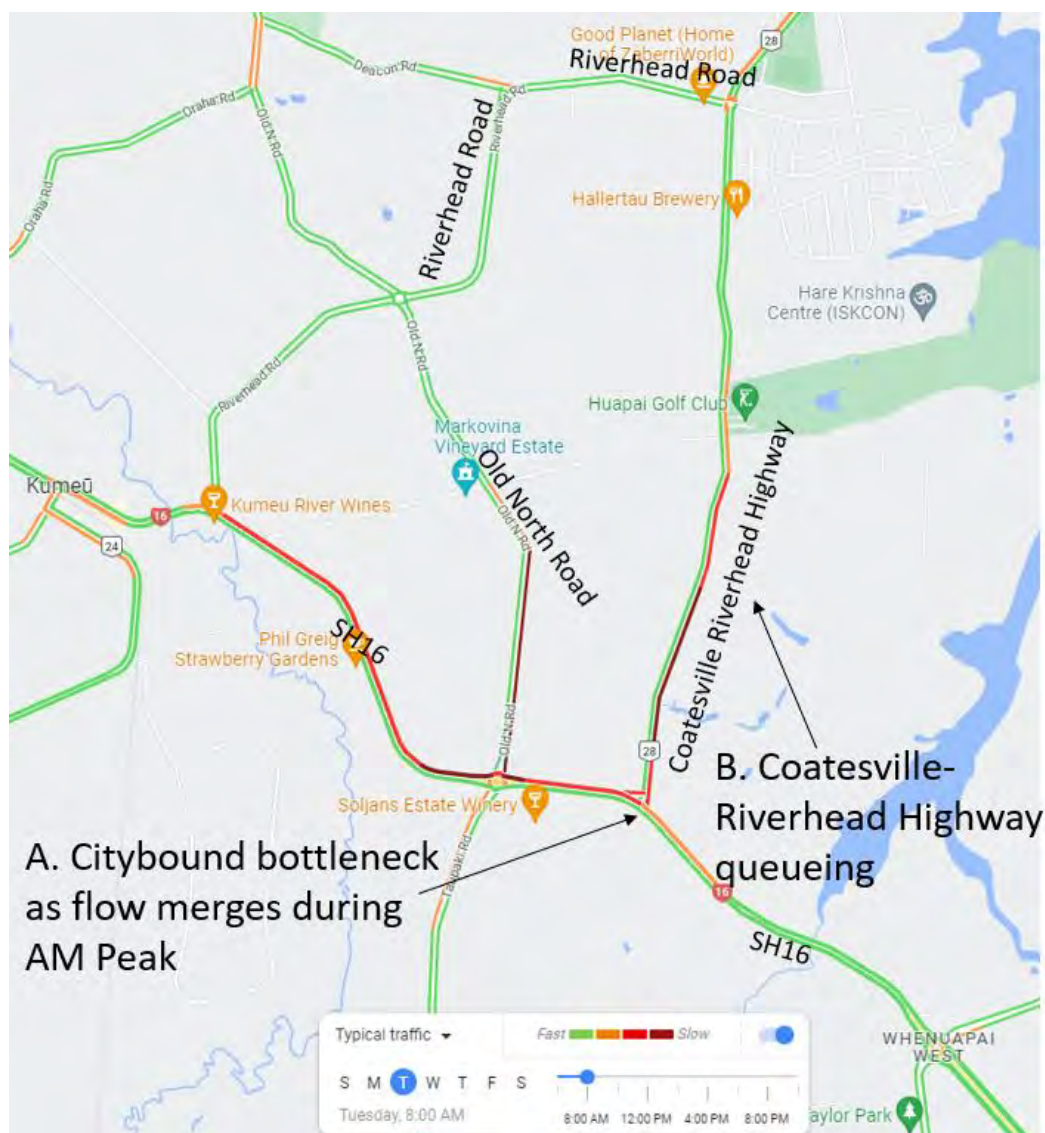
### 7.3 Existing network operation

Coatesville-Riverhead Highway and Old North Road (via Riverhead Road) connect the Site to SH16, providing access to the east and west. SH16 experiences congestion heading citybound in the morning peak and westbound in the evening peak. Congestion is also experienced during weekend periods, however we anticipate the performance of the network will be improved on weekends following the SH16 upgrade. As the weekend includes a number of discretionary trips, our focus has been on the weekday morning and evening peak periods, where the higher conflicting volumes occur.

During the morning peak, the congestion is caused by two busy traffic streams coming together at the Coatesville-Riverhead Highway intersection with SH16 (labelled "A" on Figure 30). Traffic on SH16 generally allows traffic from Riverhead to join, therefore causing queues that tail back towards Kumeu. Once traffic merges on SH16, traffic speeds increase going towards the city as shown by green in Figure 30 below.

The congestion on SH16 results in queuing on Coatesville-Riverhead Highway (labelled "B" on Figure 30). Based on the typical weekday morning commuter period, the queues reach the Huapai Golf Club, approximately 1.8 km from SH16. On the Coatesville-Riverhead Highway southbound approach, right turns out are restricted, meaning only left turns onto SH16 occur.

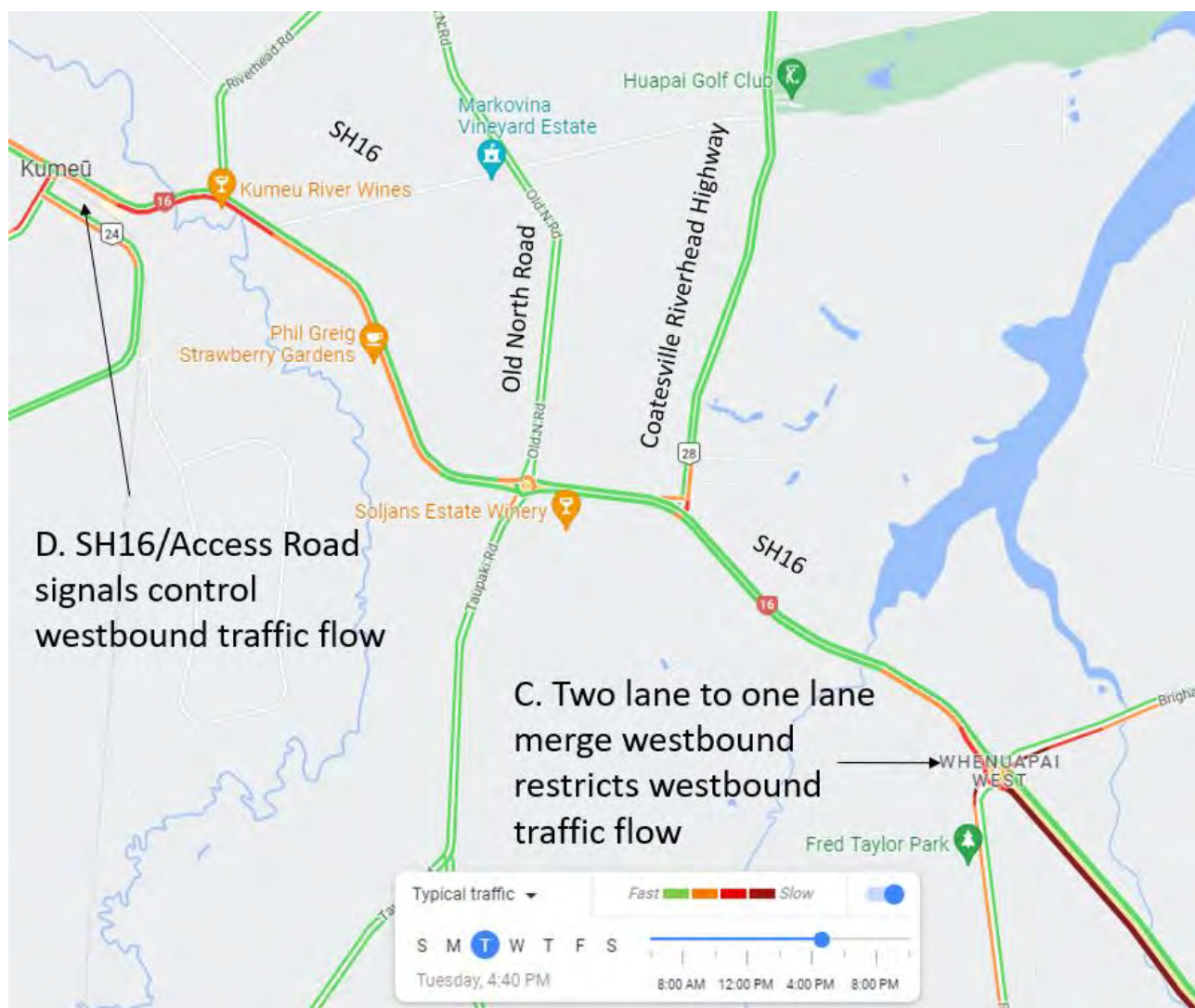
Figure 30: AM Peak Typical Commuter (8:00 am)



During the evening peak, large queues are experienced at the SH16/Brigham Creek Road/Fred Taylor Drive roundabout (labelled “C” on Figure 31), due to the heavy westbound demand. While turning movements between Brigham Creek Road and SH16 west have priority over the SH16 westbound movement, a key constraint at the intersection is the downstream merge from two lanes to one lane.

Once clear, traffic experiences acceptable conditions until approaching Kumeu, where the Access Road/SH16 signalised intersection governs the performance of traffic entering Kumeu and further west (labelled “D” on Figure 31).

**Figure 31: PM Peak Typical Commuter (4:40 pm)**



## 7.4 Modelling methodology

### 7.4.1 Summary of modelling methodology

To assess the traffic effects of the Plan Change, we have assessed the performance of key intersections using the SIDRA intersection modelling software.

We have assessed the following two scenarios in the weekday AM and PM peak hour periods as our primary scenarios

- ◆ 2038 base without Plan Change
- ◆ 2038 with Plan Change.

As sensitivity tests for the Coatesville-Riverhead Highway intersection, we have also tested the following scenarios (in addition to the primary scenarios above)

- ◆ 2031 Plan Change scenario which reflects 60% development complete with sensitivity trip rates
- ◆ Full build Plan Change scenario (background traffic for 2038) and reflects sensitivity trip rates for the residential activities, outlined in Section 7.2.1.



We have assessed the following intersections

- ♦ SH16 / Coatesville-Riverhead Highway
- ♦ Lathrope Road / Riverhead Road
- ♦ Riverhead Road / Site collector road
- ♦ Coatesville-Riverhead Highway / Riverhead Road
- ♦ Coatesville-Riverhead Highway / Riverhead Point Drive / Site collector road
- ♦ Coatesville-Riverhead Highway / Site access (south of Riverhead Point Drive)
- ♦ Riverhead Road / Old North Road
- ♦ Old North Road / Old Railway Road.

The intersection layouts assume all proposed upgrades have been completed in both scenarios.

The SIDRA intersection layouts and movement summary results of the peak periods are provided in Appendix B.

#### 7.4.2 Methodology for network traffic volumes and network assumptions

Forecast traffic volumes have been sourced from Auckland Transport's Supporting Growth Northwest SATURN traffic model. This model relies on inputs from the higher tier Auckland Macro Strategic Model (MSM) which includes forecast land use and infrastructure assumptions (I11.5 land use scenario).

The Northwest SATURN traffic model was obtained from the Auckland Forecast Centre, with various versions being presented. We have used the Reference Case scenario on the basis that the other models provided included infrastructure upgrades, such as the Alternative State Highway (Kumeu Bypass) or Whenuapai Upgrades, being the Spedding Road connection which relieves pressure from the SH16/Brigham Creek Road roundabout.

The roading upgrades included in the 2028 Reference Case include

- ♦ SH16 4-laning between Brigham Creek and Old North Road roundabout
- ♦ Upgrade of the SH16/Coatesville-Riverhead Highway intersection to a roundabout
- ♦ Upgrade of the Main Road/Access Road intersection
- ♦ Upgrade of the Main Road/Station Road intersection to traffic signals
- ♦ Inclusion of the local road network being established about the Redhills development area.

No changes to the default land use assumptions were made for public transport availability.

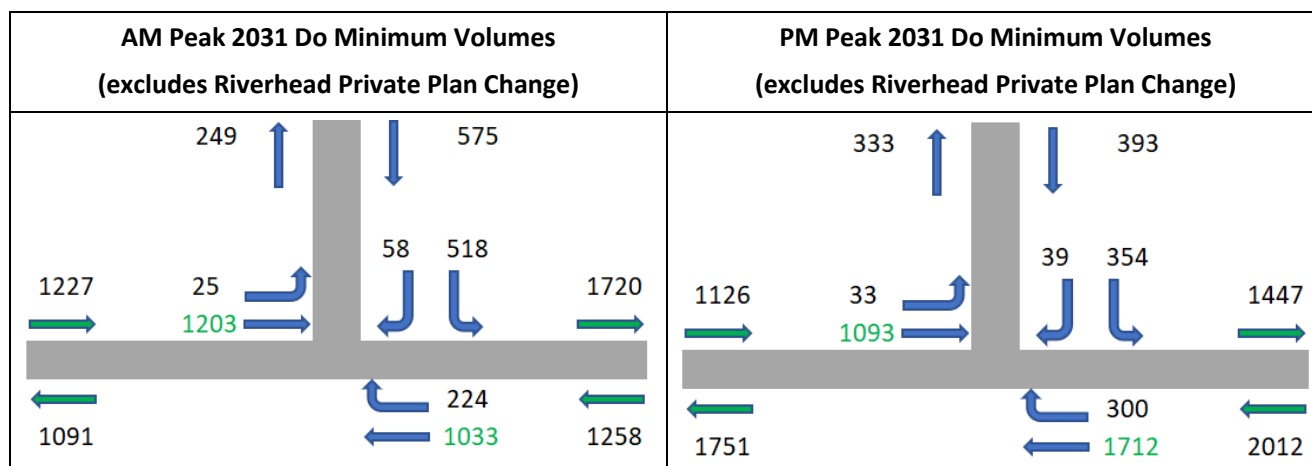
The Northwest SATURN traffic model, and higher tier MSM assumes growth about Kumeu and Huapai, but does not include growth within Riverhead, as the MSM aligns with the Future Urban Land Supply Strategy, which has growth in Riverhead starting in 2028. As such, an increase in housing is not projected until 2033 (being the next defined forecast year). Importantly however, growth is assumed in Kumeu and Huapai, with the volumes in the 2028 and 2038 forecast traffic model on SH16 being (on average) some 3% higher (annual arithmetic growth rate) when referenced against 2022 observed volumes.

Volumes predicted in the Northwest model for Coatesville-Riverhead Highway are very low and are therefore not a reliable source for the purposes of this assessment. That is, for 2028 and 2038, volumes on Coatesville-Riverhead Highway are lighter than 2022 volumes. We also note that the current volumes experience an element of rat running, and as such, the distribution of traffic using Coatesville-Riverhead Highway may reduce slightly when the SH16 constraint is addressed through the upgrade. We however have taken a worst case approach, whereby the existing volume on Coatesville-Riverhead Highway is assumed to remain unchanged.

Using the growth in traffic predicted on SH16 resulting from development further west (Kumeu and Huapai), we have developed a Do Minimum 2031 volume for the SH16/Coatesville-Riverhead Highway intersection. This is the volume predicted to use the intersection should the Riverhead Private Plan Change progress in line with the Future Urban Land Supply Strategy, where traffic associated with consented activities within the plan change area would be expected to be added to the network. The 2031 projected demand also forms as a basis where 60% of the development (ie the land holdings currently controlled by the Riverhead Landowner Group) could be completed by.

The volumes predicted for 2031 are set out in Figure 32, with the growth in through traffic on SH16 (eastbound and westbound) being comparable to the background volumes predicted in 2028 within the Northwest SATURN traffic model.

Figure 32: 2031 Do Minimum Traffic Volumes – SH16/Coatesville-Riverhead Highway intersection



The westbound volume in the PM Peak has been capped at 1,730 vehicles per hour on the basis that a westbound volume of some 2,400 vehicles per hour is likely to be the maximum hourly volume for traffic passing through the Brigham Creek roundabout located at the end of the Northwest Motorway. The analysis allows some additional 800 vehicles per hour over the current westbound demand, being 1,600 vehicles per hour in the PM Peak.

## 7.5 Traffic effects – SH16 / Coatesville-Riverhead Highway intersection

The intersection layouts assume a 3-leg roundabout with the proposed Waka Kotahi upgrades. This includes

- Two through traffic lanes from SH16 (east) to SH16 (west)
- Two through traffic lanes from SH16 (west) to SH16 (east)
- Two left turn lanes (with the second left turn lane being shared with the right turn) from Coatesville-Riverhead Highway to SH16 (east). The second lane is understood to be a short lane approximately 40 m long.
- A relatively large internal diameter (30 m) which we assume is required given location of the roundabout on SH16 and the need to allow trucks to circulate together in adjacent lanes.

### 7.5.1 2031 Do Minimum – Background growth and SH16 upgrade

The 2031 Do Minimum scenario reflects no development within Riverhead but includes growth about Kumeu and Huapai and the upgrade of the intersection to a roundabout consistent with the SH16 Brigham Creek to Waimauku project being completed by Waka Kotahi.

Table 6 summarises the predicted performance of the SH16/Coatesville-Riverhead Highway intersection. The roundabout is predicted to operate well within capacity, with relatively small queues on each of the approaches.

**Table 6: 2031 Do Minimum SIDRA Modelling Results – No Riverhead Development**

Approach	AM Peak			PM Peak		
	LOS	DoS (v/c)	Queue (m)	LOS	DoS (v/c)	Queue (m)
SH16 (East)	LOS A	0.40	25 m	LOS A	0.63	60 m
Coatesville-Riverhead Highway	LOS B	0.40	15 m	LOS A	0.27	10 m
SH16 (West)	LOS A	0.46	25 m	LOS A	0.45	25 m
<b>Total Intersection</b>	<b>LOS A</b>	<b>0.46</b>	<b>25 m</b>	<b>LOS A</b>	<b>0.63</b>	<b>60 m</b>

### 7.5.2 2038 Plan Change Scenario – Full Build 100% Plan Change Development

This test assumes the full build (100%) Plan Change scenario. The modelling assumes background growth out to 2038 and reflects long term trip rates.

Table 7 summarises the predicted performance of the SH16/Coatesville-Riverhead Highway intersection. The roundabout is predicted to operate within capacity when accommodating 100% development, with queue lengths remaining within 100m for the busier trafficked movements (Coatesville-Riverhead Highway in the AM and SH16 (east) in the PM). The intersection operates at LOS B, with the predicted queues considered satisfactory, such that no concerns are raised with the operation of the roundabout long term.

We also note that this scenario excludes the potential long term Alternative State Highway (also referred to as the Kumeu Bypass) which would remove a large number of vehicles from the intersection.

**Table 7: 2038 Plan Change SIDRA Modelling Results – Full Build (100%) Development/Long Term trip rates**

Approach	AM Peak			PM Peak		
	LOS	DoS (v/c)	Queue (m)	LOS	DoS (v/c)	Queue (m)
SH16 (East)	LOS A	0.52	40 m	LOS A	0.74	95 m
Coatesville-Riverhead Highway	LOS C	0.88	75 m	LOS B	0.56	30 m
SH16 (West)	LOS B	0.62	50 m	LOS B	0.68	65 m
<b>Total Intersection</b>	<b>LOS B</b>	<b>0.88</b>	<b>75 m</b>	<b>LOS B</b>	<b>0.74</b>	<b>95 m</b>

### 7.5.3 2031 Plan Change Sensitivity – 60% Plan Change Development

This Plan Change scenario reflects 60% development with sensitivity residential trip rates for the short/medium term.

Table 8 summarises the predicted performance of the SH16/Coatesville-Riverhead Highway intersection. The roundabout is predicted to operate well within capacity when accommodating 60% development, with queue lengths generally increasing by 10-25 m across each approach. The predicted queues are considered satisfactory and do not raise any concerns with the operation of the roundabout.

**Table 8: 2031 Plan Change SIDRA Modelling Results – 60% Development/Sensitivity Trip Rates**

Approach	AM Peak			PM Peak		
	LOS	DoS (v/c)	Queue (m)	LOS	DoS (v/c)	Queue (m)
SH16 (East)	LOS A	0.47	35 m	LOS A	0.72	85 m
Coatesville-Riverhead Highway	LOS B	0.69	40 m	LOS B	0.44	20 m
SH16 (West)	LOS A	0.54	35 m	LOS B	0.56	40 m
<b>Total Intersection</b>	<b>LOS A</b>	<b>0.69</b>	<b>40 m</b>	<b>LOS A</b>	<b>0.72</b>	<b>85 m</b>

### 7.5.4 2038 Plan Change Sensitivity Test – Full Build 100% Plan Change Development

This test assumes the full build (100%) Plan Change scenario, with a sensitivity test assuming background growth out to 2038, and higher residential vehicle trip rates being applied to a long term horizon.

Table 9 summarises the predicted performance of the SH16/Coatesville-Riverhead Highway intersection. With the higher trip rates applied to the plan change area, the roundabout is predicted to operate within capacity, with a practicable degree of saturation of 95%. This is still acceptable, with LOS D being predicted for the Coatesville-Riverhead Highway approach during the AM peak. Queue lengths remain satisfactory, such that no concerns are predicted with the operation of the roundabout long term.

As with the previous scenario, we note that this scenario is based on higher trip rates and excludes the potential long term Alternative State Highway (also referred to as the Kumeu Bypass) which would remove a large number of vehicles from the intersection if constructed.



**Table 9: 2038 Plan Change Sensitivity SIDRA Modelling Results – Full Build (100%) Development/Sensitivity trip rates**

Approach	AM Peak			PM Peak		
	LOS	DoS (v/c)	Queue (m)	LOS	DoS (v/c)	Queue (m)
SH16 (East)	LOS A	0.53	45 m	LOS A	0.76	105 m
Coatesville-Riverhead Highway	LOS D	0.95	125 m	LOS B	0.60	35 m
SH16 (West)	LOS B	0.63	50 m	LOS B	0.72	80 m
<b>Total Intersection</b>	<b>LOS B</b>	<b>0.95</b>	<b>125 m</b>	<b>LOS B</b>	<b>0.76</b>	<b>105 m</b>

## 7.6 Traffic effects – local Riverhead intersections

### 7.6.1 Lathrope Road / Riverhead Road

The intersection layout assumes a priority control intersection with a right turn bay on Riverhead Road.

The intersection is anticipated to perform well in both peak periods and scenarios. All approaches are predicted to operate at LOS A and B, which indicates minimal delays being experienced. Queue lengths are expected to be minimal.

### 7.6.2 Riverhead Road / Site collector road

The intersection layout assumes a 4-leg roundabout with single lane approaches.

All legs are anticipated to operate at LOS A or LOS B, with negligible delays and queue lengths.

### 7.6.3 Coatesville-Riverhead Highway / Riverhead Road

The intersection layout assumes a 4-leg roundabout with single lane approaches. The geometry of the roundabout reflects the proposed upgrades to this intersection.

The intersection is expected to perform adequately with the plan change.

We note the following of the results

- ◆ Most approaches are anticipated to operate well at LOS A to C
- ◆ In the AM peak with the plan change, Kaipara Portage Road is predicted to operate at LOS D and E, with approximately 50 seconds of delays
- ◆ The 95<sup>th</sup> percentile queue lengths in the AM peak are predicted to be 120 – 150 m on the Kaipara Portage Road and Coatesville-Riverhead Highway southbound approaches
- ◆ We note that our modelling internal to Riverhead is conservative, as we haven't directly accounted for reduction in through traffic due to pass-by trips. These will be largely generated by the retail activities from the centres, which are expected to be close to this intersection. If the pass-by trips are considered, then there would be less traffic at this intersection. Nevertheless, we consider the performance is acceptable given these issues would only be for the AM peak hour, and the delays and queue lengths are not excessive.

#### 7.6.4 Coatesville-Riverhead Highway / Riverhead Point Drive / Site collector road

The intersection layout assumes a 4-leg roundabout with single lane approaches.

All legs are anticipated to operate at LOS A to C, with negligible delays.

The 95<sup>th</sup> percentile queues are expected to be very minor. In the AM peak period with the Plan Change, the queue length is up to 120 m on the Coatesville-Riverhead Highway southbound approach.

#### 7.6.5 Coatesville-Riverhead Highway / Site access (south of Riverhead Point Drive)

The intersection layout assumes a 3-leg priority control intersection with a right turn bay on Coatesville-Riverhead Highway.

With the Plan Change scenario, the Coatesville-Riverhead Highway movements are expected to perform without any issues, with LOS A for all movements on this road. Without the Plan Change, there would be no traffic on the site access road.

Some small delays are expected on the Site access approach with the Plan Change, which has a single lane. In the AM peak periods, LOS F and average delays of around 50 seconds are predicted on this approach. We note that vehicles using this approach have the option of using the Coatesville-Riverhead Highway / Riverhead Point Drive roundabout to avoid potential delays. We consider that this level of delay is acceptable, and will not affect the performance of Coatesville-Riverhead Highway.

#### 7.6.6 Riverhead Road / Old North Road

We have assumed the existing intersection layout, with one lane on each approach and departure.

The intersection is predicted to perform without any issues in the peak periods with the Plan Change, with LOS A and B.

#### 7.6.7 Old North Road / Old Railway Road

We have assumed the existing priority-controlled intersection layout. No turning bays on Old North Road are included. For the Old Railway Road approaches, we have assumed there is short space available for a vehicle to turn left in addition to another vehicle travelling straight or turning right.

The intersection is predicted to perform without any issues in the peak periods with the Plan Change, with LOS A and B on Old North Road.

On the Old Railway Road approaches, some delays of up to 40 seconds are predicted with LOS D or E. We note that the turning volumes on Old Railway Road are predicted to be minimal.

### 7.7 Summary of modelling results

In summary, all intersections within the Riverhead Plan Change area (and surrounding road network) are anticipated to perform without any noticeable queue lengths or delays with the increased traffic volumes. All intersections have been adequately designed to accommodate the level of traffic anticipated by the Plan Change.

We have also assessed the SH16 / Coatesville-Riverhead Highway intersection across multiple scenarios, including a worse case 100% buildout in 2038 with higher sensitivity trip generation rates. We note that the intersection is predicted to perform well, for each of the scenarios tested.

## 7.8 Wider network effects

With regard to the wider network, we have considered the safety of intersections further afield which are predicted to experience an increase in traffic volumes as a result of the Plan Change. For Coatesville-Riverhead Highway an additional 550-600 vehicles per hour are predicted (two-way), with some 180-210 vehicles per hour (two-way) predicted for Old North Road.

A summary of the safety outcomes of wider local road intersections is set out in Table 10.

**Table 10: Wider intersection assessment**

Intersection	Current Layout	Expected change and effect
Coatesville-Riverhead Highway / Short Road	Short Road is a minor cul-de-sac providing access to a small number of properties. There have been two reported crashes, with each related to turning right into Short Road.	The Plan Change proposes moving the threshold treatment and therefore reducing the speed limit fronting Short Road, as well as urbanising Coatesville-Riverhead Highway about the Short Road intersection. Furthermore, a raised crossing is proposed north of Short Road on Coatesville-Riverhead Highway. We expect these changes will slow vehicles about the Short Road intersection and improve safety.
Coatesville-Riverhead Highway / Old Railway Road	There have been 8 crashes at this intersection since 2016, with 3 crashes being serious in nature. We note that the speed limit has recently been reduced for Coatesville-Riverhead Highway and that there have been no reported crashes since Jan 2020.	See Section 6.10 for assessment. A right turn bay is required based on the existing traffic conditions. This is reflected in the Precinct Provisions.
Coatesville-Riverhead Highway / Riverland Road	Riverland Road is a stop-controlled intersection which serves 15 to 20 properties. Three crashes have occurred at the intersection (in 2016 and 2017 – all turning right) With Coatesville-Riverhead Highway having horizontal and vertical curves approaching the intersection, the recent reduction in speed limit on Coatesville-	See Section 6.10 for assessment. A right turn bay is required based on a 60% buildout scenario of the development. This is reflected in the Precinct Provisions.

Intersection	Current Layout	Expected change and effect
	Riverhead Highway provides greater safety for traffic turning into Riverland Road.	
Coatesville-Riverhead Highway / Moontide Road	Moontide Road is a stop-controlled intersection with a formed right turn bay. It serves 10 to 15 properties. Five crashes have occurred at the intersection, with one being a serious crash. No reported crashes have occurred since 2019.	The current intersection design is considered safe and we anticipate the reduced speed limit on Coatesville-Riverhead Highway will assist in catering for the additional traffic expected by the Plan Change through the intersection. We also note this intersection currently includes a right turn bay on Coatesville-Riverhead Highway.
Coatesville-Riverhead Highway / Brigham Lane	Located north of the Coatesville-Riverhead Highway intersection with SH16, the speed of traffic on Coatesville-Riverhead Highway through the intersection is slow, as vehicles either slow for the intersection (when queues are not present) or are queued on the approach to the intersection. A shoulder exists to allow northbound traffic to pass any vehicles turning right. Four crashes have occurred at this intersection since 2016, with 1 being minor injury.	Vehicle speeds on Coatesville-Riverhead Highway are low. We anticipate no change in operation of this intersection as a result of the Plan Change and do not consider any works are required in the immediate future.
Old North Road / Old Railway Road	A number of crashes have occurred at the Old North Road/Old Railway Road, with the current intersection presenting a safety issue. Currently a stop controlled cross road intersection, most crashes are those crossing the intersection. Speed interventions have been located at the intersection, including markings on Old Railway Road (both approaches) and a speed camera on Old North Road.	The Plan Change predicts some additional 180-210 vehicles travelling on Old North Road during the AM and PM peak hours. While good visibility exists at the intersection, the Plan Change is adding traffic to the priority route, rather than the crossing route. The SIDRA results outlined in Section 7.6.7 shows that the intersection will perform sufficiently with the additional traffic included. We would add that the current intersection does have a safety concern, with a longer-term upgrade needing to address the current concern. The footprint of the intersection however is small



Intersection	Current Layout	Expected change and effect
		and will likely require additional land for Auckland Transport to implement the necessary upgrade required.

## 8 PROPOSED PRECINCT PLAN PROVISIONS

### 8.1 Precinct Provisions

A Precinct is proposed as part of the Plan Change. The Precinct allows specific standards and assessment criteria to be included in the Unitary Plan, so that development of Riverhead can be managed appropriately.

The Precinct includes provisions that limit any dwellings within the Riverhead Plan Change area from being occupied prior to the SH16 / Coatesville – Riverhead Highway intersection from being upgraded. This is a key transport move in terms of safety and capacity for the Riverhead area. The intersection upgrade is proposed by Waka Kotahi and is currently scheduled to be completed by 2025. The Notice of Requirement has been lodged with Auckland Council. Should the intersection not be upgraded, matters of discretion are included in the precinct provisions such that any occupied development will be required to address the safety of the surrounding transport network, including at the SH16 / Coatesville-Riverhead Highway intersection.

The Precinct Plan provisions includes requirements to upgrade Riverhead Road, Coatesville-Riverhead Highway, Lathrope Road and Cambridge Road fronting the Site prior to any development being completed which would use these roads. Further, the implementation of a footpath on Queen Street is required that connects the plan change area through the existing Riverhead village and public transport facilities at the time development occurs. This will ensure that development will have safe infrastructure available in the local Riverhead area at the time development becomes occupied. As noted above, other localised footpaths are being proposed by the Local Board to address the ‘gaps’ in the existing network.

Proposed Standards related to transport, as set out in IX6.1 of the precinct provisions include

- (1) Prior to occupation of a dwelling within the Riverhead Precinct, the following transport infrastructure must be constructed and operational:
  - (a) Upgrade of the Coatesville-Riverhead Highway / Main Road (SH16) intersection to a roundabout, as part of the SH16 Bringham Creek to Waimauku project, led by Waka Kotahi NZ Transport Agency.
- (2) Prior to occupation of a building on a site with vehicle access to and/or from Coatesville-Riverhead Highway, the following road infrastructure upgrades must be constructed and operational:
  - (a) Upgrade and urbanise Coatesville-Riverhead Highway from 80m south of Short Road to the Coatesville-Riverhead Highway / Riverhead Road roundabout, including walking/cycling infrastructure, gateway treatment and public transport infrastructure in accordance with IX.10.3 Riverhead: Precinct plan 3 and IX.11.2 Appendix 2; and
  - (b) Upgrade and urbanise the Coatesville-Riverhead Highway / Riverhead Road roundabout, in accordance with IX.10.3 Riverhead: Precinct plan 3 and IX.11.2 Appendix 2.
- (3) Prior to occupation of a building on a site with vehicle access to and/or from Riverhead Road, the following road infrastructure upgrades must be constructed and operational:
  - (a) Upgrade and urbanise Coatesville-Riverhead Highway from 80m south of Short Road to the Coatesville-Riverhead Highway / Riverhead Road roundabout, including

- walking/cycling infrastructure, gateway treatment and public transport infrastructure in accordance with IX.10.3 Riverhead: Precinct plan 3 and IX.11.2 Appendix 2; and
- (b) Upgrade and urbanise the Coatesville-Riverhead Highway / Riverhead Road roundabout, in accordance with IX.10.3 Riverhead: Precinct plan 3 and IX.11.2 Appendix 2; and
  - (c) Upgrade and urbanise Riverhead Road, from the eastern boundary of 307 Riverhead Road to Coatesville-Riverhead Highway, including walking/cycling infrastructure, gateway threshold treatment, and public transport infrastructure in accordance with IX.10.3 Riverhead: Precinct plan 3.
- (4) Prior to occupation of a building on a site with vehicle access to and/or from Lathrope Road, the following road infrastructure upgrades must be constructed and operational:
- (a) Upgrade Lathrope Road between Riverhead Road and the new access point, in accordance with IX.10.3 Riverhead: Precinct plan 3 and IX.11.2 Appendix 2; and
  - (b) Upgrade the Riverhead Road/Lathrope Road intersection to a Give-Way controlled intersection, in accordance with IX.10.3 Riverhead: Precinct plan 3 and IX.11.2 Appendix 2.
- (5) Prior to occupation of a building on a site with vehicle access to and/or from Cambridge Road, the following road infrastructure upgrades must be constructed and operational:
- (a) A new footpath on the western side of Cambridge Road between Queen Street and Riverhead Road in accordance with IX.10.3 Riverhead: Precinct plan 3;
  - (b) Upgrade and urbanise the existing carriageway of the formed portion of Cambridge Road south of Queen Street to an urban standard, in accordance IX.10.3 Riverhead: Precinct Plan 3;
  - (c) A new footpath on the northern side of Queen Street between Coatesville-Riverhead Highway and Cambridge Road in accordance with IX.10.3 Riverhead: Precinct plan 3; and
  - (d) An additional pedestrian crossing facility on Coatesville-Riverhead Highway between Edward Street and Princes Street.

In addition to the above upgrades, standard IX6.2 includes a road widening requirement of 2m on land adjoining Riverhead Road. This allows the Riverhead Road reserve to be widened from 20m to 24m, providing sufficient space to accommodate the upgrades required.

Localised road widening is required about new intersections on Riverhead Road and Coatesville-Riverhead Highway, with the extent of the widening to be addressed at detailed design. We note that the current Notice of Requirement process being undertaken by Supporting Growth has landed on an extent of designation which allows for the roundabout design discussed in this report. This is captured in Appendix 2 of the Precinct Provisions (refer to the Precinct provisions appended with the Plan Change documentation to review Appendix 2).

## 8.2 Infrastructure Implementation Plan

A summary of the proposed implementation plan for transport infrastructure is provided in Table 11.

As mentioned previously, it is anticipated that the SH16 / Coatesville-Riverhead Highway upgrade will be completed before any development within the Site occurs. This project is being delivered by Waka Kotahi and is scheduled to be completed by 2025.

The 2025 timeframe aligns with the anticipated date for buildings starting to be occupied on Site, with a development timeframe of 5-10 years (2030-35) for the key stakeholders. Should development come online earlier, the provisions ensure any proposals are adequately assessed, ensuring that a safe transport network exists prior to occupation of buildings.

The proposed corridor and intersection upgrades of Coatesville-Riverhead Highway, Riverhead Road, Lathrope Road, Cambridge Road and supporting footpath connections will be undertaken by the applicant, Riverhead Landowner Group. Each of these upgrades will be undertaken prior to any development connecting to these roads.

**Table 11: Infrastructure implementation plan**

Infrastructure upgrade	Implementation timing / trigger point	Party responsible
SH16 / Coatesville-Riverhead Highway	2025 –Prior to occupation of a dwelling within Riverhead Precinct	Waka Kotahi
Coatesville-Riverhead Highway corridor and intersections (Riverhead Road to 80 m south of Short Road)	Prior to occupation of a building on a site with a vehicle access to and/or from Coatesville-Riverhead Highway, or Riverhead Road	Riverhead Landowner Group
Riverhead Road corridor and intersections (Coatesville-Riverhead Highway to eastern boundary of 307 Riverhead Road)	Prior to occupation of a building on a site with a vehicle access to and/or from Riverhead Road	Riverhead Landowner Group
Lathrope Road corridor and Lathrope Road / Riverhead Road intersection	Prior to occupation of a building on a site with a vehicle access to and/or from Lathrope Road	Riverhead Landowner Group
Urbanise Cambridge Road fronting the development site and provide a footpath on the western side (between Queen Street and Riverhead Road)	Prior to occupation of a building on a site with a vehicle access to and/or from Cambridge Road	Riverhead Landowner Group
Provide a new footpath on the northern side of Queen Street (Cambridge Road to Coatesville-Riverhead Highway)	Prior to occupation of a building on a site with a vehicle access to and/or from Cambridge Road	Riverhead Landowner Group
Additional pedestrian crossing on Coatesville-Riverhead Highway between Edward Street and Princes Street	Prior to occupation of a building on a site with a vehicle access to and/or from Cambridge Road	Riverhead Landowner Group



Infrastructure upgrade	Implementation timing / trigger point	Party responsible
Coatesville-Riverhead Highway / Old Railway Road and Riverland Road intersections – provide right turn bay upgrades	Prior to occupation of dwellings within Riverhead Precinct	Riverhead Landowner Group

## 9 CONCLUSIONS

Based on the analysis described in this report, we conclude that the Structure Plan and proposed Riverhead Plan Change can enable activities that can operate safely and efficiently from a transportation perspective. We conclude that

- ♦ The Plan change aligns well with the Auckland Plan and Auckland Unitary Plan transport objectives by providing people with choices of healthy and sustainable transport modes, and encouraging a range of activities (assessed in further detail in the Section 32 report by Barkers & Associates)
- ♦ The rezoning of Future Urban land will enable a range of complementary activities, including residential dwellings, a local centre, early learning childcare centres and a retirement village complex and provisions support social facilities, including education facilities
- ♦ The Plan Change brings the development ahead of the 2028 – 2032 current schedule in the Future Urban Land Supply Strategy, by four or so years although that timing is principally based on issues applying to Kumeu and Huapai that do not constrain Riverhead. We note that the roading improvements captured in the Precinct Provisions are all that required. The Plan Change requires these to be in place prior to development being occupied
- ♦ The sections of Riverhead Road and Coatesville-Riverhead Highway that front the plan change area and provide the entry points to Riverhead will receive full corridor upgrades within the vicinity of the Site as part of the Plan Change. This includes providing new dedicated facilities for pedestrians and cyclists on both sides, which will significantly improve active mode accessibility for existing and future residents of Riverhead
- ♦ Lathrope Road will be upgraded and sealed to provide a footpath and allow this to be used as an external vehicle access route from the Site
- ♦ Anticipated speed limit reductions on Riverhead Road and Coatesville-Riverhead Highway will provide safety benefits for all road users and align with Vision Zero principles
- ♦ An internal road network will be provided to support the activities included in the Plan Change. Several new intersections will be constructed, while existing intersections in the local area will be upgraded. These intersections will be designed in accordance with Vision Zero, and designed to safely accommodate all road users. The proposed Precinct Provisions set out the anticipated design elements of local roads, requiring low speed designs that offers a safe outcome to all users
- ♦ New footpaths will be provided on Cambridge Road and Queen Street to provide facilities for pedestrians, as no footpaths currently exist along sections of these roads
- ♦ Right turn bays on Coatesville-Riverhead Highway will be required at the Riverland Road and Old Railway Road intersections, noting the Old Railway Road right turn bay is already required
- ♦ There are existing capacity constraints on the road network, particularly on SH16. The section of SH16 south of the Site has funding to be upgraded by Waka Kotahi NZTA by 2025, which will increase capacity and improve safety to all Riverhead residents. The proposed Precinct Provisions include a standard to ensure that this upgrade is provided before development is occupied
- ♦ There will be a noticeable number of trips generated by the development, but the impact on the wider network will be reduced by-pass trips, multi-purpose trips, and trips that can be undertaken

locally within Riverhead. All intersections within the Riverhead Plan Change area are anticipated to perform without any noticeable queue lengths or delays with the increased traffic volumes

- ♦ The SH16 / Coatesville-Riverhead Highway intersection is predicted to perform well, even when considering the full 100% Plan Change buildout by 2038, due to the Waka Kotahi upgrade
- ♦ Coatesville-Riverhead Highway is serviced by a bus route, which connects to the Westgate public transport hub and Albany station. The upgrades proposed on Coatesville-Riverhead Highway will include the provision of public transport infrastructure to support and encourage travel by public transport.

Overall, we are of the view that the Plan Change will enable development that aligns with or implements transport network upgrades as planned by Waka Kotahi and Auckland Transport. The upgrades proposed as part of the Plan Change will significantly improve accessibility for all transport modes in Riverhead and will supplement upgrades to SH16 proposed by 2025.

We therefore consider that there are no transportation planning or traffic engineering reasons to preclude the implementation of the Plan Change as intended.

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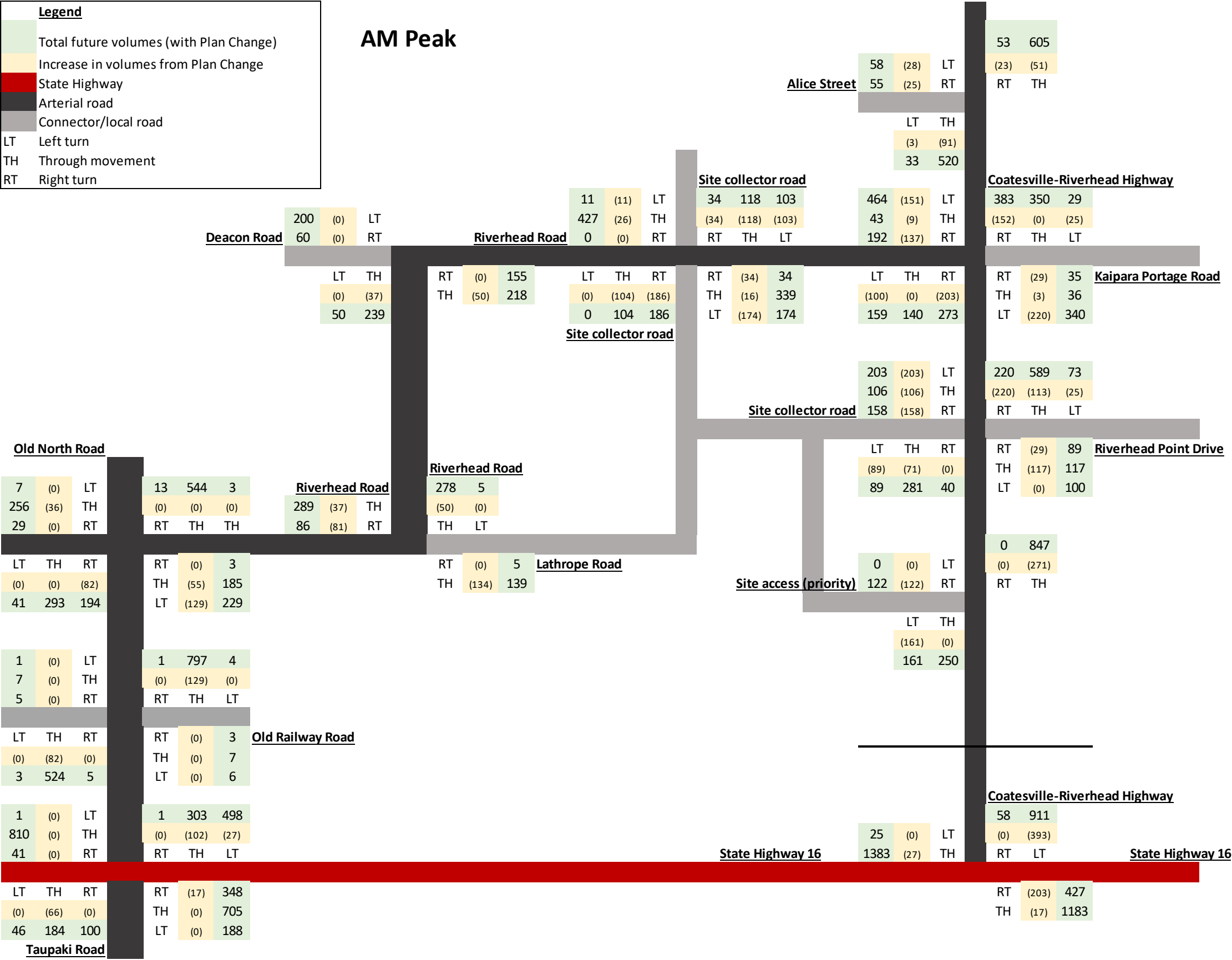
## APPENDIX A

## Trip distribution diagrams

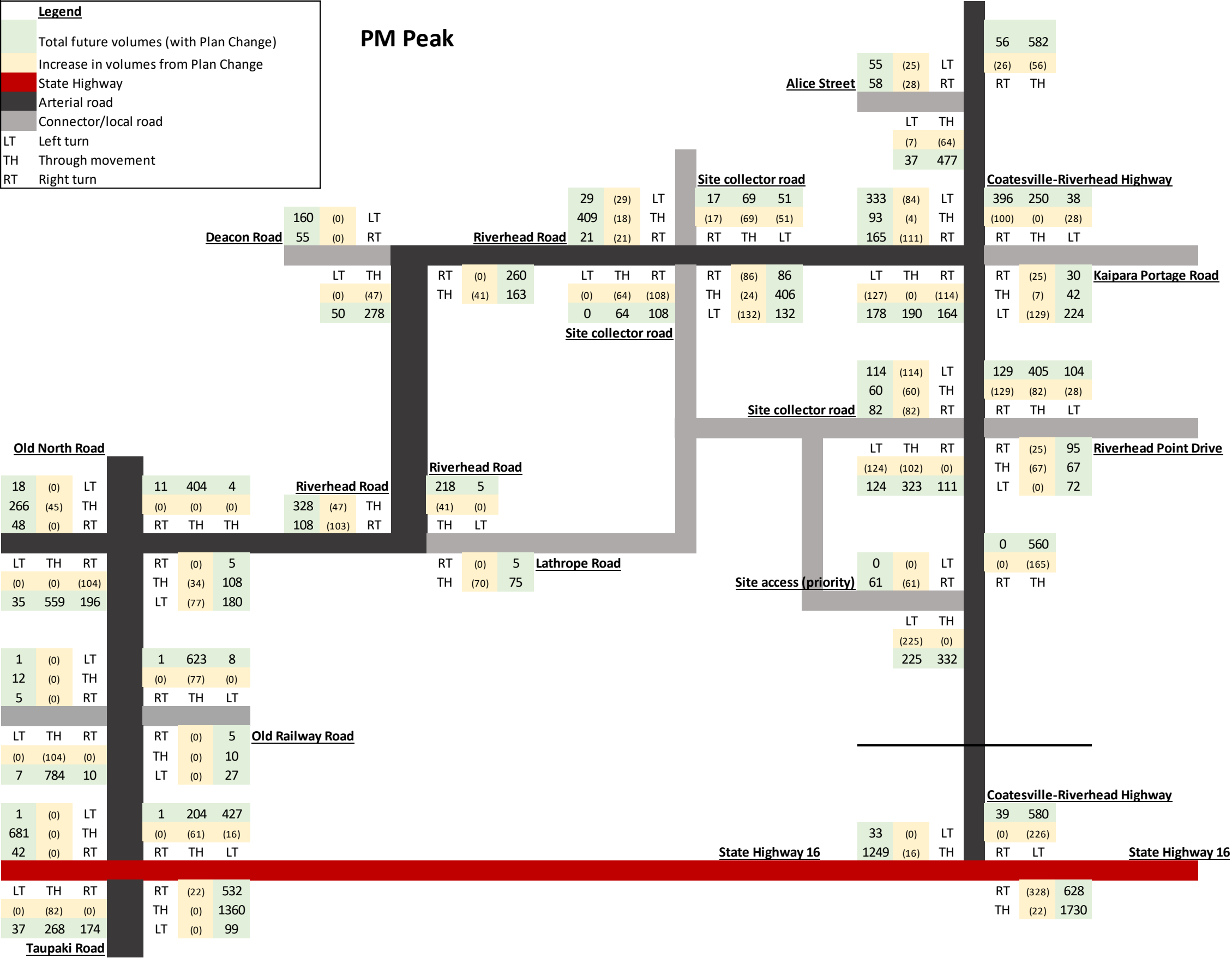
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Full Build Trip Distribution Diagram –AM Peak with Plan Change



Full Build Trip Distribution Diagram –PM Peak with Plan Change



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## APPENDIX B

## SIDRA modelling outputs

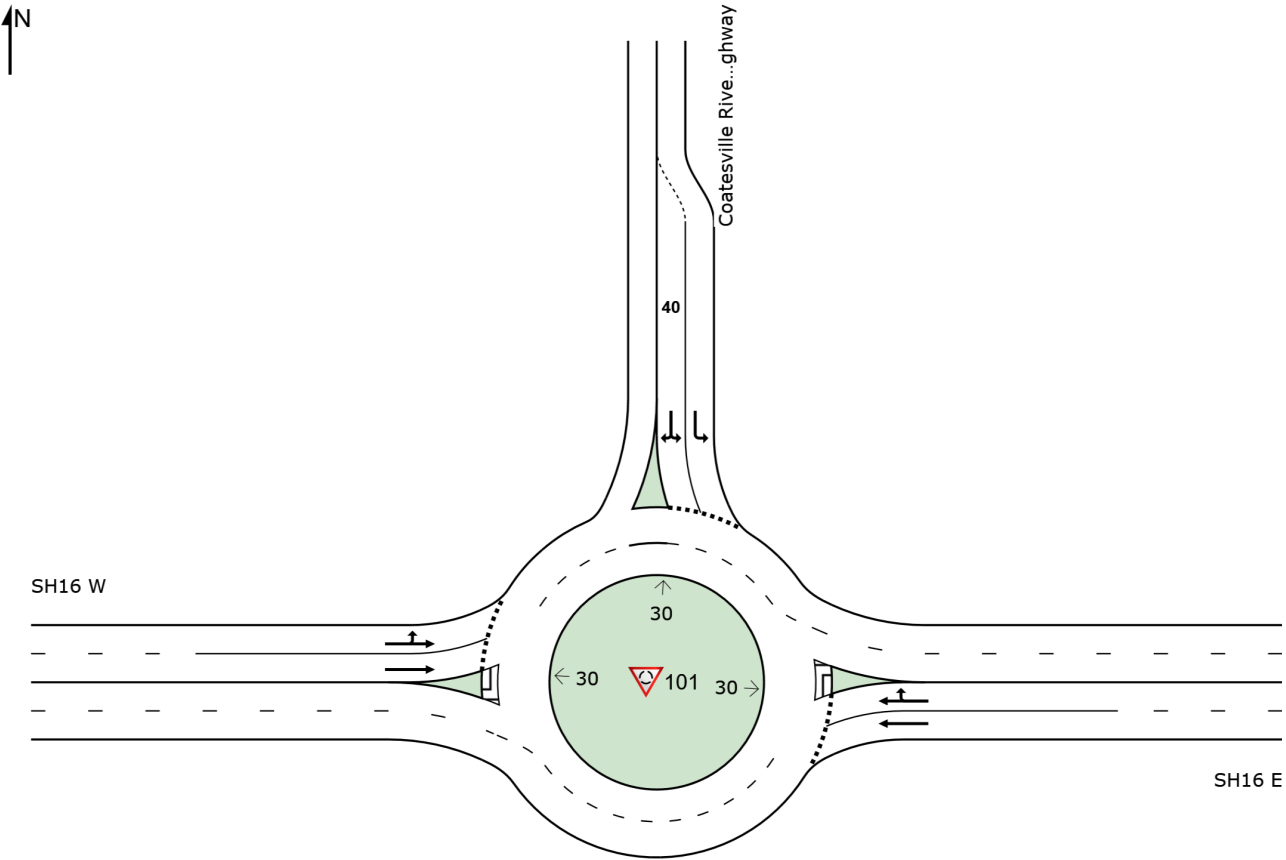
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SITE LAYOUT

Site: 101 [SH16/Coatesville-Riverhead Highway 2031 (Site Folder: Base\_AM)]

New Site  
Site Category: (None)  
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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## MOVEMENT SUMMARY

 **Site: 101 [SH16/Coatesville-Riverhead Highway 2031 (Site Folder: Base\_AM)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
v/csec														
East: SH16 E														
5	T1	1034	9.0	1034	9.0	0.407	6.4	LOS A	3.5	26.5	0.29	0.48	0.29	65.3
6	R2	224	6.0	224	6.0	0.407	12.2	LOS B	3.4	25.5	0.30	0.54	0.30	64.3
Approach		1258	8.5	1258	8.5	0.407	7.4	LOS A	3.5	26.5	0.29	0.49	0.29	65.1
North: Coatesville Riverhead Highway														
7	L2	518	6.0	518	6.0	0.408	9.8	LOS A	2.3	16.8	0.76	0.92	0.85	61.7
9	R2	58	6.0	58	6.0	0.408	16.9	LOS B	2.1	15.5	0.76	0.93	0.86	61.6
Approach		576	6.0	576	6.0	0.408	10.5	LOS B	2.3	16.8	0.76	0.92	0.85	61.7
West: SH16 W														
10	L2	25	6.0	25	6.0	0.460	6.7	LOS A	3.5	26.2	0.50	0.56	0.50	63.0
11	T1	1203	9.0	1203	9.0	0.460	7.4	LOS A	3.5	26.2	0.52	0.57	0.52	64.3
Approach		1228	8.9	1228	8.9	0.460	7.4	LOS A	3.5	26.2	0.52	0.57	0.52	64.3
All Vehicles		3062	8.2	3062	8.2	0.460	8.0	LOS A	3.5	26.5	0.47	0.61	0.49	64.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [SH16/Coatesville-Riverhead Highway 2031 (Site Folder: Base\_PM)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
v/c														

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [SH16/Coatesville-Riverhead Highway 60% 2031  
(Site Folder: Clause 23 Scenarios\_Future\_AM)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
East: SH16 E														
5	T1	1049	9.0	1049	9.0	0.468	6.4	LOS A	4.5	34.1	0.32	0.48	0.32	65.0
6	R2	397	6.0	397	6.0	0.468	12.3	LOS B	4.4	32.6	0.33	0.57	0.33	63.0
Approach		1446	8.2	1446	8.2	0.468	8.0	LOS A	4.5	34.1	0.32	0.51	0.32	64.4
North: Coatesville Riverhead Highway														
7	L2	820	6.0	820	6.0	0.688	13.2	LOS B	5.4	39.9	0.89	1.05	1.24	58.5
9	R2	58	6.0	58	6.0	0.688	20.7	LOS C	4.8	35.6	0.88	1.05	1.25	58.4
Approach		878	6.0	878	6.0	0.688	13.7	LOS B	5.4	39.9	0.89	1.05	1.24	58.4
West: SH16 W														
10	L2	25	6.0	25	6.0	0.536	7.8	LOS A	4.4	32.8	0.69	0.65	0.69	61.8
11	T1	1224	9.0	1224	9.0	0.536	8.8	LOS A	4.4	32.8	0.71	0.70	0.73	63.0
Approach		1249	8.9	1249	8.9	0.536	8.8	LOS A	4.4	32.9	0.71	0.70	0.72	63.0
All Vehicles		3573	7.9	3573	7.9	0.688	9.7	LOS A	5.4	39.9	0.60	0.71	0.69	62.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [SH16/Coatesville-Riverhead Highway 60% 2031  
(Site Folder: Clause 23 Scenarios\_Future\_PM)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
East: SH16 E														
5	T1	1730	9.0	1730	9.0	0.716	6.4	LOS A	11.2	84.5	0.38	0.46	0.38	64.6
6	R2	553	6.0	553	6.0	0.716	12.3	LOS B	10.9	80.8	0.42	0.53	0.42	62.9
Approach		2283	8.3	2283	8.3	0.716	7.9	LOS A	11.2	84.5	0.39	0.47	0.39	64.2
North: Coatesville Riverhead Highway														
7	L2	537	6.0	537	6.0	0.440	9.7	LOS A	2.7	19.7	0.81	0.93	0.90	61.8
9	R2	39	6.0	39	6.0	0.440	16.7	LOS B	2.5	18.1	0.80	0.95	0.91	62.3
Approach		576	6.0	576	6.0	0.440	10.2	LOS B	2.7	19.7	0.81	0.93	0.90	61.8
West: SH16 W														
10	L2	33	6.0	33	6.0	0.561	9.6	LOS A	5.4	40.5	0.82	0.81	0.91	60.9
11	T1	1107	9.0	1107	9.0	0.561	10.8	LOS B	5.4	40.5	0.83	0.84	0.94	62.1
Approach		1140	8.9	1140	8.9	0.561	10.8	LOS B	5.4	40.5	0.83	0.84	0.94	62.1
All Vehicles		3999	8.1	3999	8.1	0.716	9.0	LOS A	11.2	84.5	0.57	0.64	0.62	63.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [SH16/Coatesville Riverhead Highway (Site Folder: Future\_AM - 2038 100%)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
East: SH16 E														
5	T1	1183	9.0	1183	9.0	0.521	6.4	LOS A	5.5	41.8	0.35	0.48	0.35	64.8
6	R2	427	6.0	427	6.0	0.521	12.3	LOS B	5.4	40.0	0.37	0.56	0.37	62.9
Approach		1610	8.2	1610	8.2	0.521	8.0	LOS A	5.5	41.8	0.35	0.50	0.35	64.3
North: Coatesville Riverhead Highway														
7	L2	911	6.0	911	6.0	0.877	23.8	LOS C	10.2	75.1	0.98	1.26	1.99	50.1
9	R2	58	6.0	58	6.0	0.877	32.7	LOS C	8.8	64.4	0.96	1.25	2.01	49.1
Approach		969	6.0	969	6.0	0.877	24.3	LOS C	10.2	75.1	0.98	1.26	2.00	50.0
West: SH16 W														
10	L2	25	6.0	25	6.0	0.621	9.0	LOS A	6.3	47.6	0.77	0.76	0.85	61.2
11	T1	1383	9.0	1383	9.0	0.621	10.1	LOS B	6.3	47.6	0.79	0.79	0.89	62.5
Approach		1408	8.9	1408	8.9	0.621	10.1	LOS B	6.3	47.6	0.79	0.79	0.89	62.4
All Vehicles		3987	7.9	3987	7.9	0.877	12.7	LOS B	10.2	75.1	0.66	0.79	0.94	59.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [SH16/Coatesville Riverhead Highway (Site Folder: Future\_PM - 2038 100%)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
East: SH16 E														
5	T1	1730	9.0	1730	9.0	0.740	6.5	LOS A	12.7	96.0	0.41	0.45	0.41	64.4
6	R2	628	6.0	628	6.0	0.740	12.4	LOS B	12.2	90.4	0.45	0.52	0.45	62.5
Approach		2358	8.2	2358	8.2	0.740	8.0	LOS A	12.7	96.0	0.42	0.47	0.42	63.9
North: Coatesville Riverhead Highway														
7	L2	580	6.0	580	6.0	0.557	11.8	LOS B	3.8	28.3	0.89	1.00	1.07	59.8
9	R2	39	6.0	39	6.0	0.557	18.9	LOS B	3.4	25.3	0.87	1.00	1.07	60.1
Approach		619	6.0	619	6.0	0.557	12.3	LOS B	3.8	28.3	0.89	1.00	1.07	59.8
West: SH16 W														
10	L2	33	6.0	33	6.0	0.680	12.7	LOS B	8.7	65.5	0.94	0.96	1.22	59.2
11	T1	1249	9.0	1249	9.0	0.680	14.2	LOS B	8.7	65.5	0.94	1.00	1.25	59.5
Approach		1282	8.9	1282	8.9	0.680	14.2	LOS B	8.7	65.5	0.94	1.00	1.25	59.5
All Vehicles		4259	8.1	4259	8.1	0.740	10.5	LOS B	12.7	96.0	0.64	0.71	0.77	61.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 Site: 101 [SH16/Coatesville-Riverhead Highway 100%<sub>sens2</sub>  
2038 (Site Folder: Clause 23 Scenarios\_Future\_AM)]

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
East: SH16 E														
5	T1	1184	9.0	1184	9.0	0.529	6.4	LOS A	5.7	43.2	0.35	0.48	0.35	64.8
6	R2	449	6.0	449	6.0	0.529	12.3	LOS B	5.6	41.4	0.37	0.57	0.37	62.8
Approach		1633	8.2	1633	8.2	0.529	8.0	LOS A	5.7	43.2	0.36	0.50	0.36	64.2
North: Coatesville Riverhead Highway														
7	L2	978	6.0	978	6.0	0.953	40.4	LOS D	17.1	125.9	0.99	1.57	3.11	40.8
9	R2	58	6.0	58	6.0	0.953	50.8	LOS E	14.3	105.4	0.99	1.55	3.12	39.6
Approach		1036	6.0	1036	6.0	0.953	41.0	LOS D	17.1	125.9	0.99	1.57	3.12	40.8
West: SH16 W														
10	L2	25	6.0	25	6.0	0.634	9.4	LOS A	6.7	50.8	0.80	0.79	0.90	61.1
11	T1	1387	9.0	1387	9.0	0.634	10.6	LOS B	6.7	50.8	0.81	0.82	0.94	62.3
Approach		1412	8.9	1412	8.9	0.634	10.6	LOS B	6.7	50.8	0.81	0.82	0.94	62.3
All Vehicles		4081	7.9	4081	7.9	0.953	17.3	LOS B	17.1	125.9	0.68	0.88	1.26	55.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [SH16/Coatesville-Riverhead Highway 100%<sub>sens2</sub> 2038 (Site Folder: Clause 23 Scenarios\_Future\_PM)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
East: SH16 E														
5	T1	1730	9.0	1730	9.0	0.758	6.5	LOS A	13.9	105.1	0.43	0.45	0.43	64.3
6	R2	686	6.0	686	6.0	0.758	12.4	LOS B	13.2	97.9	0.48	0.52	0.48	62.2
Approach		2416	8.1	2416	8.1	0.758	8.2	LOS A	13.9	105.1	0.44	0.47	0.44	63.6
North: Coatesville Riverhead Highway														
7	L2	615	6.0	615	6.0	0.608	12.8	LOS B	4.4	32.5	0.91	1.02	1.14	58.9
9	R2	39	6.0	39	6.0	0.608	20.0	LOS B	3.9	28.9	0.89	1.02	1.14	59.1
Approach		654	6.0	654	6.0	0.608	13.2	LOS B	4.4	32.5	0.91	1.02	1.14	58.9
West: SH16 W														
10	L2	33	6.0	33	6.0	0.724	15.0	LOS B	10.5	79.0	0.99	1.06	1.42	57.1
11	T1	1251	9.0	1251	9.0	0.724	16.8	LOS B	10.5	79.0	0.99	1.09	1.45	57.2
Approach		1284	8.9	1284	8.9	0.724	16.7	LOS B	10.5	79.0	0.99	1.09	1.45	57.2
All Vehicles		4354	8.1	4354	8.1	0.758	11.5	LOS B	13.9	105.1	0.67	0.74	0.84	60.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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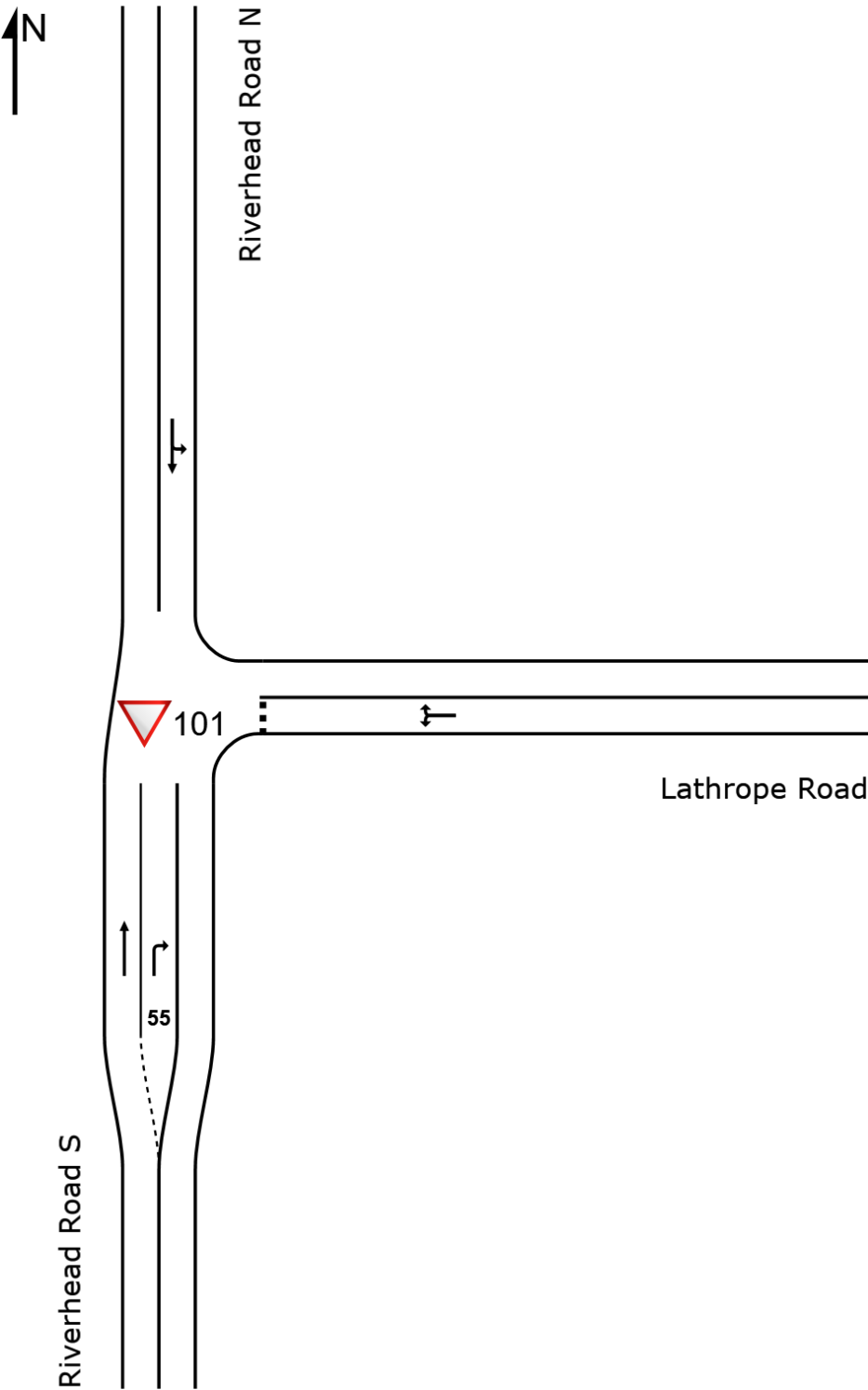


SITE LAYOUT

▽ Site: 101 [Lathrope Road / Riverhead Road (Site Folder: Base\_AM)]

New Site  
Site Category: (None)  
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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## MOVEMENT SUMMARY

▽ Site: 101 [Lathrope Road / Riverhead Road (Site Folder: Base\_AM)]

New Site

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %	v/c	sec		[ Veh. veh	Dist ] m				km/h
South: Riverhead Road S														
2	T1	252	6.0	265	6.0	0.141	0.0	LOSA	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	5	0.0	5	0.0	0.004	5.3	LOSA	0.0	0.1	0.34	0.52	0.34	45.5
Approach		257	5.9	271	5.9	0.141	0.1	NA	0.0	0.1	0.01	0.01	0.01	59.6
East: Lathrope Road														
4	L2	5	0.0	5	0.0	0.012	6.3	LOSA	0.0	0.3	0.41	0.60	0.41	52.1
6	R2	5	0.0	5	0.0	0.012	8.9	LOSA	0.0	0.3	0.41	0.60	0.41	51.6
Approach		10	0.0	11	0.0	0.012	7.6	LOSA	0.0	0.3	0.41	0.60	0.41	51.8
North: Riverhead Road N														
7	L2	5	0.0	5	0.0	0.131	5.5	LOSA	0.0	0.0	0.00	0.01	0.00	58.0
8	T1	228	6.0	240	6.0	0.131	0.0	LOSA	0.0	0.0	0.00	0.01	0.00	59.6
Approach		233	5.9	245	5.9	0.131	0.2	NA	0.0	0.0	0.00	0.01	0.00	59.5
All Vehicles		500	5.8	526	5.8	0.141	0.3	NA	0.0	0.3	0.01	0.02	0.01	59.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

▽ Site: 101 [Lathrope Road / Riverhead Road (Site Folder: Base\_PM)]

New Site

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %	v/c	sec		[ Veh. veh	Dist ] m				km/h
South: Riverhead Road S														
2	T1	282	6.0	297	6.0	0.158	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	5	0.0	5	0.0	0.003	5.1	LOS A	0.0	0.1	0.29	0.51	0.29	45.6
Approach		287	5.9	302	5.9	0.158	0.1	NA	0.0	0.1	0.01	0.01	0.01	59.6
East: Lathrope Road														
4	L2	5	0.0	5	0.0	0.012	6.1	LOS A	0.0	0.3	0.36	0.59	0.36	52.2
6	R2	5	0.0	5	0.0	0.012	8.7	LOS A	0.0	0.3	0.36	0.59	0.36	51.7
Approach		10	0.0	11	0.0	0.012	7.4	LOS A	0.0	0.3	0.36	0.59	0.36	51.9
North: Riverhead Road N														
7	L2	5	0.0	5	0.0	0.102	5.5	LOS A	0.0	0.0	0.00	0.02	0.00	57.9
8	T1	177	6.0	186	6.0	0.102	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.5
Approach		182	5.8	192	5.8	0.102	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.4
All Vehicles		479	5.7	504	5.7	0.158	0.3	NA	0.0	0.3	0.01	0.02	0.01	59.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

▽ Site: 101 [Lathrope Road / Riverhead Road (Site Folder: Future\_AM - 2038 100%)]

New Site

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
						v/c	sec							km/h
South: Riverhead Road S														
2	T1	289	6.0	304	6.0	0.163	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	86	0.0	91	0.0	0.067	5.6	LOS A	0.3	2.1	0.39	0.59	0.39	45.4
Approach		375	4.6	395	4.6	0.163	1.3	NA	0.3	2.1	0.09	0.13	0.09	55.8
East: Lathrope Road														
4	L2	139	0.0	146	0.0	0.128	6.6	LOS A	0.5	3.7	0.39	0.62	0.39	52.4
6	R2	5	0.0	5	0.0	0.128	11.6	LOS B	0.5	3.7	0.39	0.62	0.39	51.9
Approach		144	0.0	152	0.0	0.128	6.8	LOS A	0.5	3.7	0.39	0.62	0.39	52.4
North: Riverhead Road N														
7	L2	5	0.0	5	0.0	0.159	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	58.0
8	T1	278	6.0	293	6.0	0.159	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.6
Approach		283	5.9	298	5.9	0.159	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.6
All Vehicles		802	4.2	844	4.2	0.163	1.9	NA	0.5	3.7	0.11	0.18	0.11	56.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: P:\frlx\015 Fletchers Riverhead Masterplan and Private Plan Change\SIDRA\Riverhead Sidra 221129.sip9

## MOVEMENT SUMMARY

▽ Site: 101 [Lathrope Road / Riverhead Road (Site Folder: Future\_PM - 2038 100%)]

New Site

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
South: Riverhead Road S														
2	T1	328	6.0	345	6.0	0.185	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	108	0.0	114	0.0	0.079	5.4	LOS A	0.4	2.5	0.35	0.57	0.35	45.5
Approach		436	4.5	459	4.5	0.185	1.4	NA	0.4	2.5	0.09	0.14	0.09	55.5
East: Lathrope Road														
4	L2	75	0.0	79	0.0	0.070	6.3	LOS A	0.3	1.9	0.33	0.59	0.33	52.6
6	R2	5	0.0	5	0.0	0.070	11.3	LOS B	0.3	1.9	0.33	0.59	0.33	52.1
Approach		80	0.0	84	0.0	0.070	6.6	LOS A	0.3	1.9	0.33	0.59	0.33	52.6
North: Riverhead Road N														
7	L2	5	0.0	5	0.0	0.125	5.5	LOS A	0.0	0.0	0.00	0.01	0.00	58.0
8	T1	218	6.0	229	6.0	0.125	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.5
Approach		223	5.9	235	5.9	0.125	0.2	NA	0.0	0.0	0.00	0.01	0.00	59.5
All Vehicles		739	4.4	778	4.4	0.185	1.6	NA	0.4	2.5	0.09	0.15	0.09	56.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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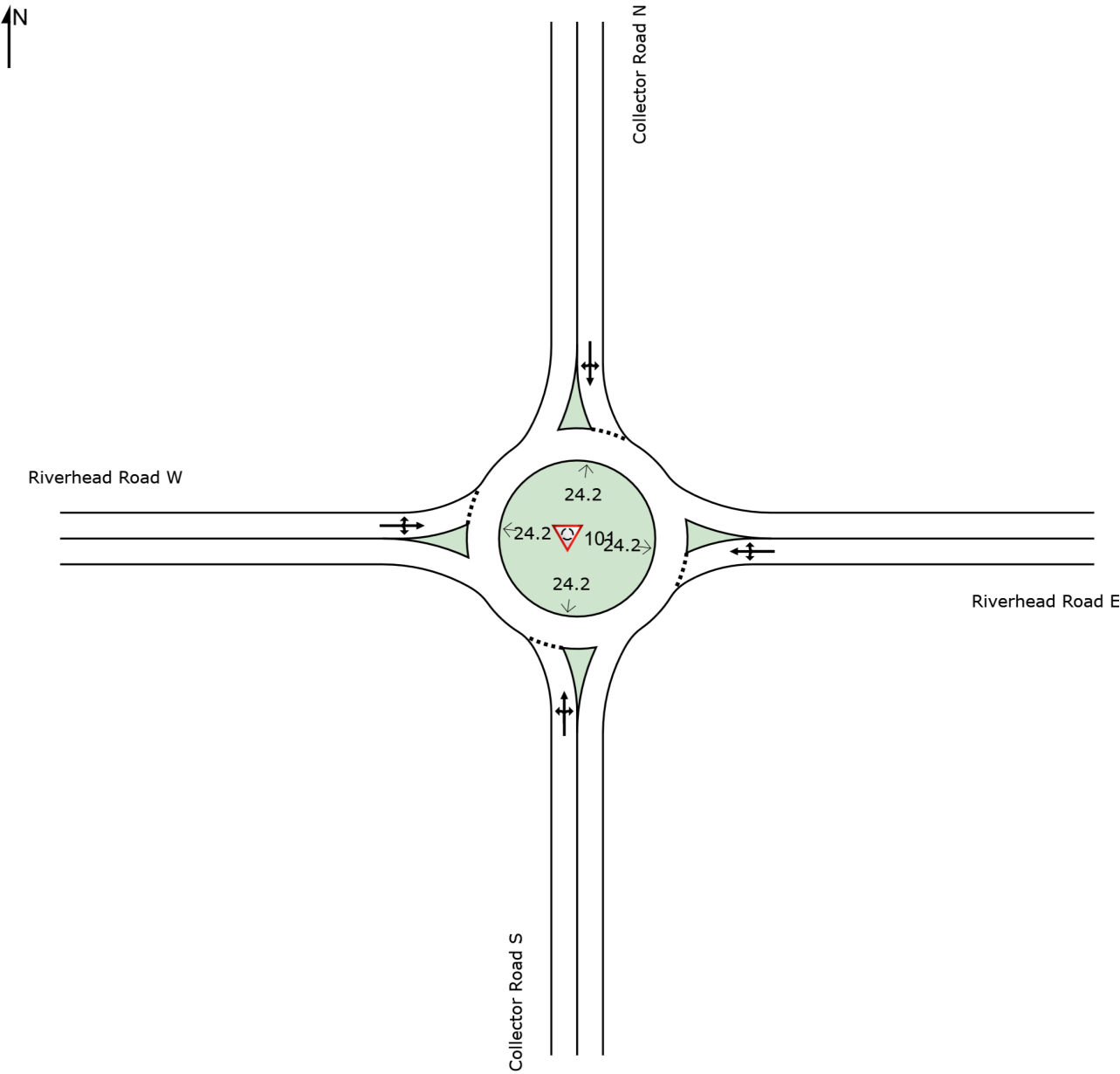
Project: P:\frlx\015 Fletchers Riverhead Masterplan and Private Plan Change\SIDRA\Riverhead Sidra 221129.sip9

SITE LAYOUT

Site: 101 [Riverhead Road/Site collector road (Site Folder: Base\_AM)]

New Site  
Site Category: (None)  
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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## MOVEMENT SUMMARY

 Site: 101 [Riverhead Road/Site collector road (Site Folder: Base\_AM)]

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
South: Collector Road S														
1	L2	1	6.0	1	6.0	0.003	4.1	LOSA	0.0	0.1	0.44	0.46	0.44	46.3
2	T1	1	6.0	1	6.0	0.003	3.9	LOSA	0.0	0.1	0.44	0.46	0.44	47.5
3	R2	1	6.0	1	6.0	0.003	8.9	LOSA	0.0	0.1	0.44	0.46	0.44	47.8
Approach		3	6.0	3	6.0	0.003	5.6	LOSA	0.0	0.1	0.44	0.46	0.44	47.2
East: Riverhead Road E														
4	L2	1	6.0	1	6.0	0.203	2.6	LOSA	1.2	9.0	0.04	0.28	0.04	48.4
5	T1	323	6.0	340	6.0	0.203	2.5	LOSA	1.2	9.0	0.04	0.28	0.04	49.7
6	R2	1	6.0	1	6.0	0.203	7.4	LOSA	1.2	9.0	0.04	0.28	0.04	50.0
Approach		325	6.0	342	6.0	0.203	2.5	LOSA	1.2	9.0	0.04	0.28	0.04	49.7
North: Collector Road N														
7	L2	1	6.0	1	6.0	0.003	4.5	LOSA	0.0	0.1	0.49	0.48	0.49	46.1
8	T1	1	6.0	1	6.0	0.003	4.3	LOSA	0.0	0.1	0.49	0.48	0.49	47.3
9	R2	1	6.0	1	6.0	0.003	9.3	LOSA	0.0	0.1	0.49	0.48	0.49	47.6
Approach		3	6.0	3	6.0	0.003	6.1	LOSA	0.0	0.1	0.49	0.48	0.49	47.0
West: Riverhead Road W														
10	L2	1	6.0	1	6.0	0.251	2.6	LOSA	1.6	11.6	0.04	0.28	0.04	48.4
11	T1	402	6.0	423	6.0	0.251	2.5	LOSA	1.6	11.6	0.04	0.28	0.04	49.7
12	R2	1	6.0	1	6.0	0.251	7.4	LOSA	1.6	11.6	0.04	0.28	0.04	50.0
Approach		404	6.0	425	6.0	0.251	2.5	LOSA	1.6	11.6	0.04	0.28	0.04	49.7
All Vehicles		735	6.0	774	6.0	0.251	2.5	LOSA	1.6	11.6	0.04	0.28	0.04	49.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: P:\frlx\015 Fletchers Riverhead Masterplan and Private Plan Change\SIDRA\Riverhead Sidra 221129.sip9



## MOVEMENT SUMMARY

 **Site: 101 [Riverhead Road/Site collector road (Site Folder: Base\_PM)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES [ Total HV ] veh/h %		DEMAND FLOWS [ Total HV ] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [ Veh. Dist ] veh m		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Collector Road S														
1	L2	1	6.0	1	6.0	0.003	4.4	LOS A	0.0	0.1	0.47	0.47	0.47	46.2
2	T1	1	6.0	1	6.0	0.003	4.2	LOS A	0.0	0.1	0.47	0.47	0.47	47.4
3	R2	1	6.0	1	6.0	0.003	9.2	LOS A	0.0	0.1	0.47	0.47	0.47	47.7
Approach		3	6.0	3	6.0	0.003	5.9	LOS A	0.0	0.1	0.47	0.47	0.47	47.1
East: Riverhead Road E														
4	L2	1	6.0	1	6.0	0.239	2.6	LOS A	1.5	11.0	0.04	0.28	0.04	48.4
5	T1	382	6.0	402	6.0	0.239	2.5	LOS A	1.5	11.0	0.04	0.28	0.04	49.7
6	R2	1	6.0	1	6.0	0.239	7.4	LOS A	1.5	11.0	0.04	0.28	0.04	50.0
Approach		384	6.0	404	6.0	0.239	2.5	LOS A	1.5	11.0	0.04	0.28	0.04	49.7
North: Collector Road N														
7	L2	1	6.0	1	6.0	0.003	4.5	LOS A	0.0	0.1	0.48	0.48	0.48	46.2
8	T1	1	6.0	1	6.0	0.003	4.3	LOS A	0.0	0.1	0.48	0.48	0.48	47.3
9	R2	1	6.0	1	6.0	0.003	9.3	LOS A	0.0	0.1	0.48	0.48	0.48	47.6
Approach		3	6.0	3	6.0	0.003	6.0	LOS A	0.0	0.1	0.48	0.48	0.48	47.0
West: Riverhead Road W														
10	L2	1	6.0	1	6.0	0.245	2.6	LOS A	1.5	11.4	0.04	0.28	0.04	48.4
11	T1	392	6.0	413	6.0	0.245	2.5	LOS A	1.5	11.4	0.04	0.28	0.04	49.7
12	R2	1	6.0	1	6.0	0.245	7.4	LOS A	1.5	11.4	0.04	0.28	0.04	50.0
Approach		394	6.0	415	6.0	0.245	2.5	LOS A	1.5	11.4	0.04	0.28	0.04	49.7
All Vehicles		784	6.0	825	6.0	0.245	2.5	LOS A	1.5	11.4	0.04	0.28	0.04	49.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [Riverhead Road/Site collector road (Site Folder: Future\_AM - 2038 100%)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
						v/c	sec							km/h
South: Collector Road S														
1	L2	10	6.0	11	6.0	0.333	5.3	LOS A	2.2	16.1	0.66	0.70	0.66	45.0
2	T1	104	6.0	109	6.0	0.333	5.2	LOS A	2.2	16.1	0.66	0.70	0.66	46.1
3	R2	186	6.0	196	6.0	0.333	10.1	LOS B	2.2	16.1	0.66	0.70	0.66	46.3
Approach		300	6.0	316	6.0	0.333	8.3	LOS A	2.2	16.1	0.66	0.70	0.66	46.2
East: Riverhead Road E														
4	L2	174	6.0	183	6.0	0.468	3.8	LOS A	3.9	28.5	0.53	0.46	0.53	46.6
5	T1	339	6.0	357	6.0	0.468	3.6	LOS A	3.9	28.5	0.53	0.46	0.53	47.8
6	R2	34	6.0	36	6.0	0.468	8.6	LOS A	3.9	28.5	0.53	0.46	0.53	48.1
Approach		547	6.0	576	6.0	0.468	4.0	LOS A	3.9	28.5	0.53	0.46	0.53	47.4
North: Collector Road N														
7	L2	103	6.0	108	6.0	0.348	7.2	LOS A	2.4	17.6	0.79	0.80	0.79	45.3
8	T1	118	6.0	124	6.0	0.348	7.0	LOS A	2.4	17.6	0.79	0.80	0.79	46.5
9	R2	34	6.0	36	6.0	0.348	12.0	LOS B	2.4	17.6	0.79	0.80	0.79	46.8
Approach		255	6.0	268	6.0	0.348	7.7	LOS A	2.4	17.6	0.79	0.80	0.79	46.0
West: Riverhead Road W														
10	L2	11	6.0	12	6.0	0.463	5.0	LOS A	3.5	25.4	0.68	0.57	0.68	46.0
11	T1	427	6.0	449	6.0	0.463	4.9	LOS A	3.5	25.4	0.68	0.57	0.68	47.2
12	R2	10	6.0	11	6.0	0.463	9.8	LOS A	3.5	25.4	0.68	0.57	0.68	47.5
Approach		448	6.0	472	6.0	0.463	5.0	LOS A	3.5	25.4	0.68	0.57	0.68	47.2
All Vehicles		1550	6.0	1632	6.0	0.468	5.7	LOS A	3.9	28.5	0.64	0.59	0.64	46.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [Riverhead Road/Site collector road (Site Folder: Future\_PM - 2038 100%)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
South: Collector Road S														
1	L2	10	6.0	11	6.0	0.220	5.8	LOS A	1.4	10.0	0.67	0.72	0.67	44.9
2	T1	64	6.0	67	6.0	0.220	5.6	LOS A	1.4	10.0	0.67	0.72	0.67	45.9
3	R2	108	6.0	114	6.0	0.220	10.6	LOS B	1.4	10.0	0.67	0.72	0.67	46.2
Approach		182	6.0	192	6.0	0.220	8.6	LOS A	1.4	10.0	0.67	0.72	0.67	46.0
East: Riverhead Road E														
4	L2	132	6.0	139	6.0	0.489	3.4	LOS A	4.1	30.4	0.43	0.43	0.43	46.7
5	T1	406	6.0	427	6.0	0.489	3.3	LOS A	4.1	30.4	0.43	0.43	0.43	47.9
6	R2	86	6.0	91	6.0	0.489	8.2	LOS A	4.1	30.4	0.43	0.43	0.43	48.2
Approach		624	6.0	657	6.0	0.489	4.0	LOS A	4.1	30.4	0.43	0.43	0.43	47.7
North: Collector Road N														
7	L2	51	6.0	54	6.0	0.172	5.9	LOS A	1.0	7.7	0.68	0.67	0.68	45.9
8	T1	69	6.0	73	6.0	0.172	5.7	LOS A	1.0	7.7	0.68	0.67	0.68	47.1
9	R2	17	6.0	18	6.0	0.172	10.7	LOS B	1.0	7.7	0.68	0.67	0.68	47.4
Approach		137	6.0	144	6.0	0.172	6.4	LOS A	1.0	7.7	0.68	0.67	0.68	46.7
West: Riverhead Road W														
10	L2	29	6.0	31	6.0	0.437	4.5	LOS A	3.1	23.1	0.59	0.51	0.59	46.3
11	T1	409	6.0	431	6.0	0.437	4.3	LOS A	3.1	23.1	0.59	0.51	0.59	47.5
12	R2	21	6.0	22	6.0	0.437	9.3	LOS A	3.1	23.1	0.59	0.51	0.59	47.8
Approach		459	6.0	483	6.0	0.437	4.6	LOS A	3.1	23.1	0.59	0.51	0.59	47.4
All Vehicles		1402	6.0	1476	6.0	0.489	5.0	LOS A	4.1	30.4	0.54	0.52	0.54	47.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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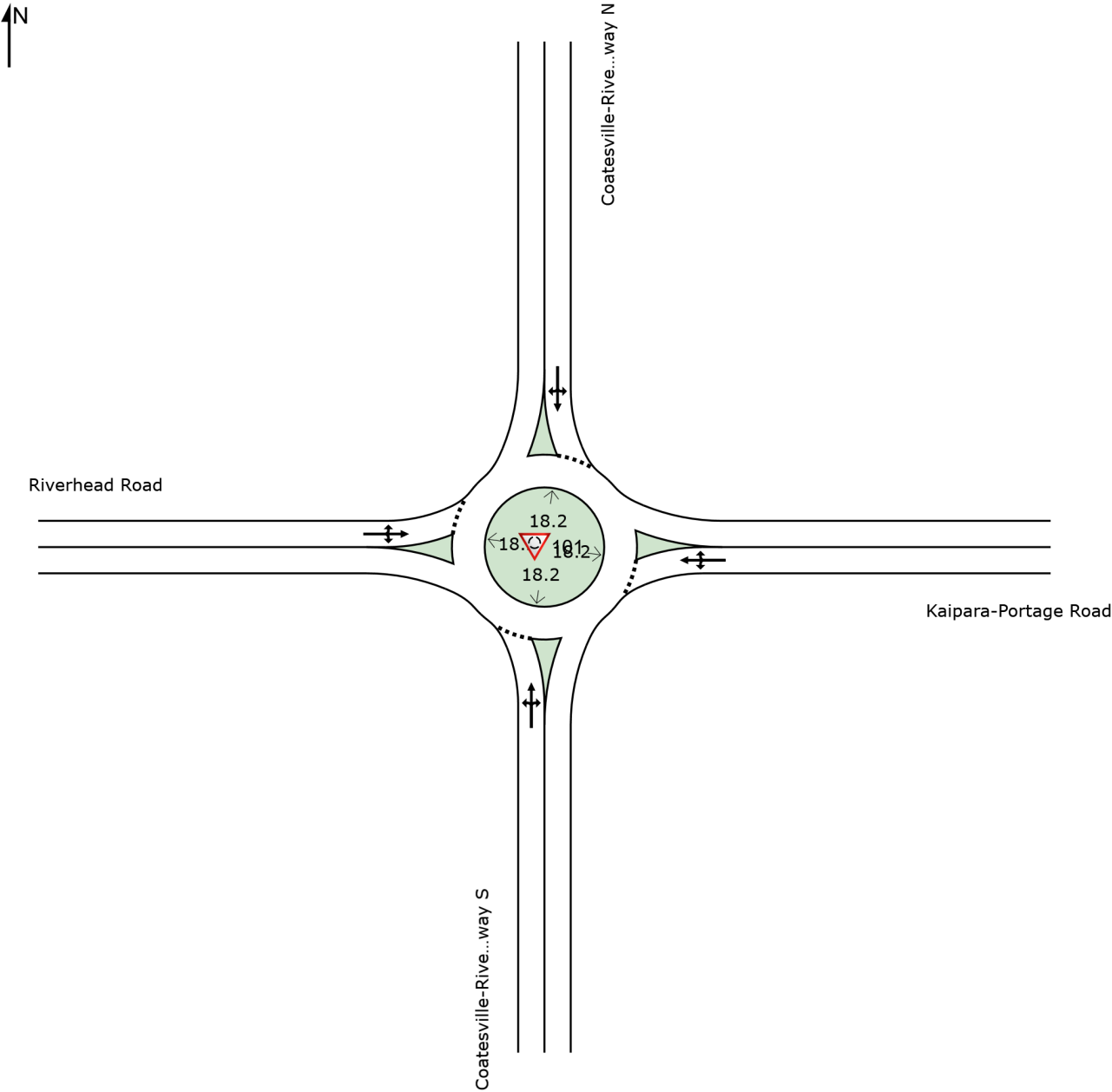
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SITE LAYOUT

Site: 101 [Coatesville-Riverhead Highway/Riverhead Road  
(Site Folder: Base\_AM)]

New Site  
Site Category: (None)  
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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## MOVEMENT SUMMARY

 **Site: 101 [Coatesville-Riverhead Highway/Riverhead Road  
(Site Folder: Base\_AM)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %				[ Veh. veh	Dist ] m				
						v/c	sec							km/h
South: Coatesville-Riverhead Highway S														
1	L2	60	6.0	63	6.0	0.276	4.8	LOS A	1.7	12.5	0.53	0.59	0.53	45.8
2	T1	140	6.0	147	6.0	0.276	4.7	LOS A	1.7	12.5	0.53	0.59	0.53	46.8
3	R2	70	6.0	74	6.0	0.276	9.1	LOS A	1.7	12.5	0.53	0.59	0.53	46.9
Approach		270	6.0	284	6.0	0.276	5.9	LOS A	1.7	12.5	0.53	0.59	0.53	46.6
East: Kaipara-Portage Road														
4	L2	120	6.0	126	6.0	0.231	7.5	LOS A	1.5	10.8	0.75	0.77	0.75	45.2
5	T1	33	6.0	35	6.0	0.231	7.5	LOS A	1.5	10.8	0.75	0.77	0.75	46.2
6	R2	6	6.0	6	6.0	0.231	11.8	LOS B	1.5	10.8	0.75	0.77	0.75	46.3
Approach		159	6.0	167	6.0	0.231	7.7	LOS A	1.5	10.8	0.75	0.77	0.75	45.4
North: Coatesville-Riverhead Highway N														
7	L2	4	6.0	4	6.0	0.504	4.3	LOS A	3.9	29.0	0.51	0.56	0.51	45.6
8	T1	350	6.0	368	6.0	0.504	4.3	LOS A	3.9	29.0	0.51	0.56	0.51	46.6
9	R2	231	6.0	243	6.0	0.504	8.6	LOS A	3.9	29.0	0.51	0.56	0.51	46.7
Approach		585	6.0	616	6.0	0.504	6.0	LOS A	3.9	29.0	0.51	0.56	0.51	46.6
West: Riverhead Road														
10	L2	313	6.0	329	6.0	0.383	4.5	LOS A	2.7	19.6	0.53	0.58	0.53	46.3
11	T1	35	6.0	37	6.0	0.383	4.5	LOS A	2.7	19.6	0.53	0.58	0.53	47.3
12	R2	54	6.0	57	6.0	0.383	8.8	LOS A	2.7	19.6	0.53	0.58	0.53	47.4
Approach		402	6.0	423	6.0	0.383	5.1	LOS A	2.7	19.6	0.53	0.58	0.53	46.5
All Vehicles		1416	6.0	1491	6.0	0.504	5.9	LOS A	3.9	29.0	0.55	0.59	0.55	46.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [Coatesville-Riverhead Highway/Riverhead Road  
(Site Folder: Base\_PM)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %				[ Veh. veh	Dist ] m				
						v/c	sec							km/h
South: Coatesville-Riverhead Highway S														
1	L2	51	6.0	54	6.0	0.317	5.3	LOS A	2.0	15.0	0.61	0.63	0.61	45.7
2	T1	190	6.0	200	6.0	0.317	5.3	LOS A	2.0	15.0	0.61	0.63	0.61	46.7
3	R2	50	6.0	53	6.0	0.317	9.6	LOS A	2.0	15.0	0.61	0.63	0.61	46.8
Approach		291	6.0	306	6.0	0.317	6.0	LOS A	2.0	15.0	0.61	0.63	0.61	46.5
East: Kaipara-Portage Road														
4	L2	95	6.0	100	6.0	0.191	7.0	LOS A	1.2	8.8	0.73	0.73	0.73	45.4
5	T1	35	6.0	37	6.0	0.191	7.0	LOS A	1.2	8.8	0.73	0.73	0.73	46.4
6	R2	5	6.0	5	6.0	0.191	11.3	LOS B	1.2	8.8	0.73	0.73	0.73	46.5
Approach		135	6.0	142	6.0	0.191	7.2	LOS A	1.2	8.8	0.73	0.73	0.73	45.7
North: Coatesville-Riverhead Highway N														
7	L2	10	6.0	11	6.0	0.504	4.6	LOS A	4.0	29.2	0.56	0.60	0.56	45.2
8	T1	250	6.0	263	6.0	0.504	4.5	LOS A	4.0	29.2	0.56	0.60	0.56	46.2
9	R2	296	6.0	312	6.0	0.504	8.9	LOS A	4.0	29.2	0.56	0.60	0.56	46.3
Approach		556	6.0	585	6.0	0.504	6.8	LOS A	4.0	29.2	0.56	0.60	0.56	46.2
West: Riverhead Road														
10	L2	249	6.0	262	6.0	0.389	4.8	LOS A	2.7	20.1	0.57	0.60	0.57	46.1
11	T1	89	6.0	94	6.0	0.389	4.7	LOS A	2.7	20.1	0.57	0.60	0.57	47.1
12	R2	54	6.0	57	6.0	0.389	9.1	LOS A	2.7	20.1	0.57	0.60	0.57	47.2
Approach		392	6.0	413	6.0	0.389	5.4	LOS A	2.7	20.1	0.57	0.60	0.57	46.5
All Vehicles		1374	6.0	1446	6.0	0.504	6.3	LOS A	4.0	29.2	0.59	0.62	0.59	46.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [Coatesville-Riverhead Highway/Riverhead Road  
(Site Folder: Future\_AM - 2038 100%)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %				[ Veh. veh	Dist ] m				
						v/c	sec							km/h
South: Coatesville-Riverhead Highway S														
1	L2	159	6.0	159	6.0	0.678	9.8	LOS A	7.8	57.2	0.92	0.99	1.14	43.1
2	T1	140	6.0	140	6.0	0.678	9.8	LOS A	7.8	57.2	0.92	0.99	1.14	43.9
3	R2	273	6.0	273	6.0	0.678	14.1	LOS B	7.8	57.2	0.92	0.99	1.14	44.0
Approach		572	6.0	572	6.0	0.678	11.9	LOS B	7.8	57.2	0.92	0.99	1.14	43.7
East: Kaipara-Portage Road														
4	L2	340	6.0	340	6.0	0.888	47.8	LOS D	16.6	122.5	1.00	1.69	2.56	30.1
5	T1	36	6.0	36	6.0	0.888	47.7	LOS D	16.6	122.5	1.00	1.69	2.56	30.6
6	R2	35	6.0	35	6.0	0.888	52.1	LOS E	16.6	122.5	1.00	1.69	2.56	30.6
Approach		411	6.0	411	6.0	0.888	48.1	LOS D	16.6	122.5	1.00	1.69	2.56	30.2
North: Coatesville-Riverhead Highway N														
7	L2	29	6.0	29	6.0	0.899	23.8	LOS C	20.8	153.4	1.00	1.51	2.10	37.1
8	T1	350	6.0	350	6.0	0.899	23.8	LOS C	20.8	153.4	1.00	1.51	2.10	37.7
9	R2	383	6.0	383	6.0	0.899	28.1	LOS C	20.8	153.4	1.00	1.51	2.10	37.8
Approach		762	6.0	762	6.0	0.899	25.9	LOS C	20.8	153.4	1.00	1.51	2.10	37.7
West: Riverhead Road														
10	L2	464	6.0	464	6.0	0.815	14.2	LOS B	13.3	97.6	1.00	1.17	1.49	41.3
11	T1	43	6.0	43	6.0	0.815	14.2	LOS B	13.3	97.6	1.00	1.17	1.49	42.1
12	R2	192	6.0	192	6.0	0.815	18.5	LOS B	13.3	97.6	1.00	1.17	1.49	42.2
Approach		699	6.0	699	6.0	0.815	15.4	LOS B	13.3	97.6	1.00	1.17	1.49	41.6
All Vehicles		2444	6.0	2444	6.0	0.899	23.4	LOS C	20.8	153.4	0.98	1.32	1.78	38.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [Coatesville-Riverhead Highway/Riverhead Road  
(Site Folder: Future\_PM - 2038 100%)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %				[ Veh. veh	Dist ] m				
						v/c	sec							km/h
South: Coatesville-Riverhead Highway S														
1	L2	178	6.0	187	6.0	0.693	10.8	LOS B	8.2	60.0	0.94	1.04	1.22	42.9
2	T1	190	6.0	200	6.0	0.693	10.8	LOS B	8.2	60.0	0.94	1.04	1.22	43.8
3	R2	164	6.0	173	6.0	0.693	15.1	LOS B	8.2	60.0	0.94	1.04	1.22	43.8
Approach		532	6.0	560	6.0	0.693	12.1	LOS B	8.2	60.0	0.94	1.04	1.22	43.5
East: Kaipara-Portage Road														
4	L2	224	6.0	236	6.0	0.603	15.8	LOS B	6.0	44.0	1.00	1.15	1.33	40.9
5	T1	42	6.0	44	6.0	0.603	15.8	LOS B	6.0	44.0	1.00	1.15	1.33	41.7
6	R2	30	6.0	32	6.0	0.603	20.1	LOS C	6.0	44.0	1.00	1.15	1.33	41.7
Approach		296	6.0	312	6.0	0.603	16.3	LOS B	6.0	44.0	1.00	1.15	1.33	41.1
North: Coatesville-Riverhead Highway N														
7	L2	38	6.0	40	6.0	0.803	13.5	LOS B	12.5	92.3	0.99	1.14	1.45	41.1
8	T1	250	6.0	263	6.0	0.803	13.5	LOS B	12.5	92.3	0.99	1.14	1.45	41.9
9	R2	396	6.0	417	6.0	0.803	17.8	LOS B	12.5	92.3	0.99	1.14	1.45	42.0
Approach		684	6.0	720	6.0	0.803	16.0	LOS B	12.5	92.3	0.99	1.14	1.45	41.9
West: Riverhead Road														
10	L2	333	6.0	351	6.0	0.695	9.3	LOS A	8.3	61.2	0.91	0.95	1.12	43.7
11	T1	93	6.0	98	6.0	0.695	9.3	LOS A	8.3	61.2	0.91	0.95	1.12	44.6
12	R2	165	6.0	174	6.0	0.695	13.6	LOS B	8.3	61.2	0.91	0.95	1.12	44.7
Approach		591	6.0	622	6.0	0.695	10.5	LOS B	8.3	61.2	0.91	0.95	1.12	44.1
All Vehicles		2103	6.0	2214	6.0	0.803	13.5	LOS B	12.5	92.3	0.96	1.06	1.28	42.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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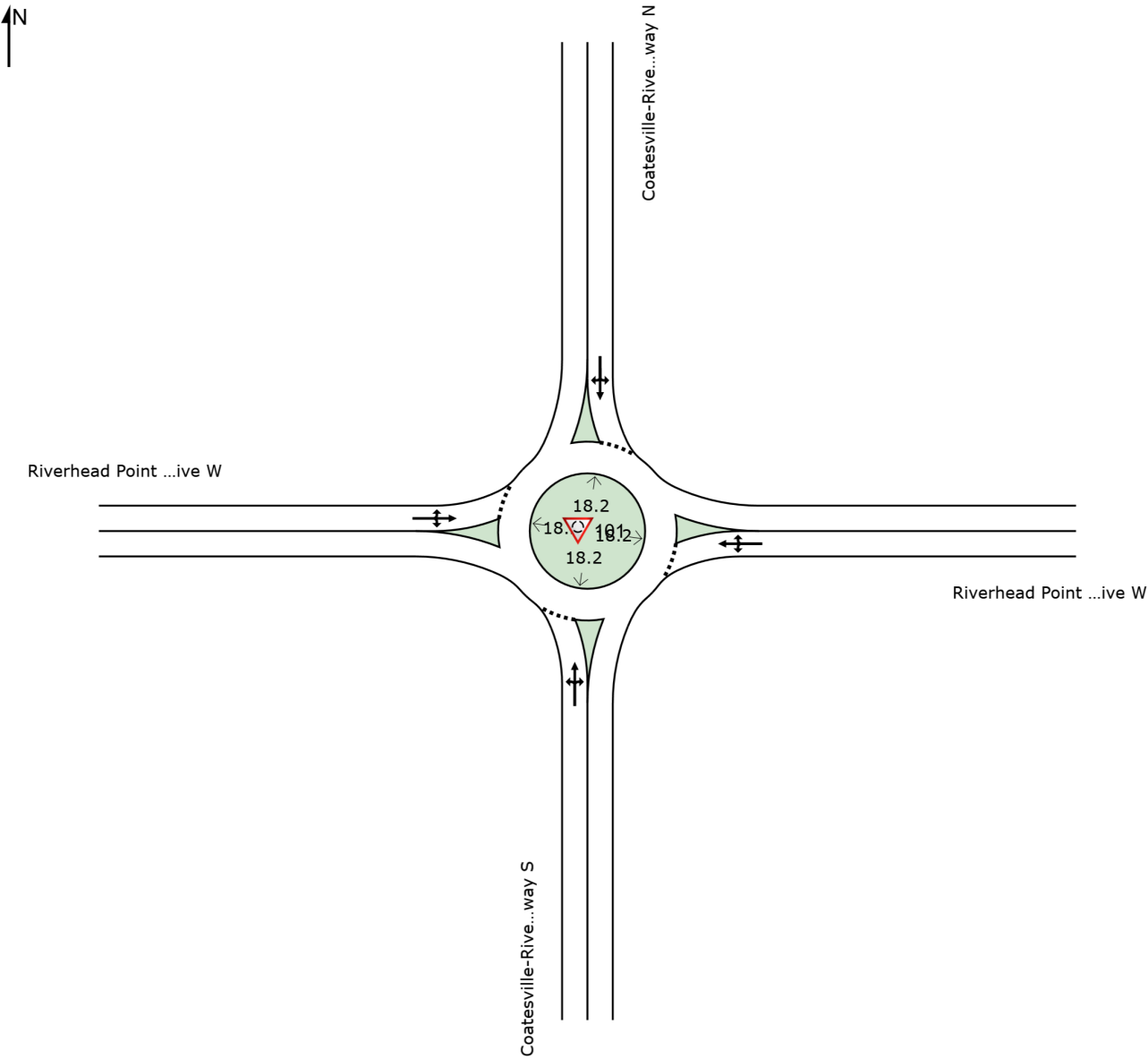
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SITE LAYOUT

Site: 101 [Coatesville-Riverhead Highway/Riverhead Point Drive/Site collector road (Site Folder: Base\_AM)]

New Site  
Site Category: (None)  
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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## MOVEMENT SUMMARY

 **Site: 101 [Coatesville-Riverhead Highway/Riverhead Point Drive/Site collector road (Site Folder: Base\_AM)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %				[ Veh. veh	Dist ] m				
						v/c	sec							km/h
South: Coatesville-Riverhead Highway S														
1	L2	1	6.0	1	6.0	0.197	3.3	LOS A	1.2	9.1	0.25	0.40	0.25	46.8
2	T1	210	6.0	221	6.0	0.197	3.3	LOS A	1.2	9.1	0.25	0.40	0.25	47.8
3	R2	40	6.0	42	6.0	0.197	7.6	LOS A	1.2	9.1	0.25	0.40	0.25	47.9
Approach		251	6.0	264	6.0	0.197	4.0	LOS A	1.2	9.1	0.25	0.40	0.25	47.8
East: Riverhead Point Drive W														
4	L2	100	6.0	105	6.0	0.191	6.0	LOS A	1.1	8.0	0.62	0.70	0.62	45.2
5	T1	1	6.0	1	6.0	0.191	6.0	LOS A	1.1	8.0	0.62	0.70	0.62	46.2
6	R2	60	6.0	63	6.0	0.191	10.3	LOS B	1.1	8.0	0.62	0.70	0.62	46.3
Approach		161	6.0	169	6.0	0.191	7.6	LOS A	1.1	8.0	0.62	0.70	0.62	45.6
North: Coatesville-Riverhead Highway N														
7	L2	48	6.0	51	6.0	0.377	3.2	LOS A	2.6	19.5	0.21	0.35	0.21	47.2
8	T1	476	6.0	501	6.0	0.377	3.2	LOS A	2.6	19.5	0.21	0.35	0.21	48.3
9	R2	1	6.0	1	6.0	0.377	7.6	LOS A	2.6	19.5	0.21	0.35	0.21	48.4
Approach		525	6.0	553	6.0	0.377	3.2	LOS A	2.6	19.5	0.21	0.35	0.21	48.2
West: Riverhead Point Drive W														
10	L2	1	6.0	1	6.0	0.003	4.5	LOS A	0.0	0.1	0.45	0.48	0.45	45.9
11	T1	1	6.0	1	6.0	0.003	4.4	LOS A	0.0	0.1	0.45	0.48	0.45	47.0
12	R2	1	6.0	1	6.0	0.003	8.8	LOS A	0.0	0.1	0.45	0.48	0.45	47.0
Approach		3	6.0	3	6.0	0.003	5.9	LOS A	0.0	0.1	0.45	0.48	0.45	46.6
All Vehicles		940	6.0	989	6.0	0.377	4.2	LOS A	2.6	19.5	0.29	0.42	0.29	47.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [Coatesville-Riverhead Highway/Riverhead Point Drive/Site collector road (Site Folder: Base\_PM)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %				[ Veh. veh	Dist ] m				
South: Coatesville-Riverhead Highway S														
1	L2	1	6.0	1	6.0	0.261	3.4	LOS A	1.7	12.5	0.28	0.46	0.28	46.3
2	T1	221	6.0	233	6.0	0.261	3.4	LOS A	1.7	12.5	0.28	0.46	0.28	47.4
3	R2	111	6.0	117	6.0	0.261	7.7	LOS A	1.7	12.5	0.28	0.46	0.28	47.4
Approach		333	6.0	351	6.0	0.261	4.8	LOS A	1.7	12.5	0.28	0.46	0.28	47.4
East: Riverhead Point Drive W														
4	L2	72	6.0	76	6.0	0.151	4.9	LOS A	0.8	6.2	0.52	0.63	0.52	45.5
5	T1	1	6.0	1	6.0	0.151	4.9	LOS A	0.8	6.2	0.52	0.63	0.52	46.5
6	R2	70	6.0	74	6.0	0.151	9.2	LOS A	0.8	6.2	0.52	0.63	0.52	46.6
Approach		143	6.0	151	6.0	0.151	7.0	LOS A	0.8	6.2	0.52	0.63	0.52	46.1
North: Coatesville-Riverhead Highway N														
7	L2	76	6.0	80	6.0	0.330	3.7	LOS A	2.1	15.7	0.35	0.42	0.35	46.8
8	T1	323	6.0	340	6.0	0.330	3.7	LOS A	2.1	15.7	0.35	0.42	0.35	47.8
9	R2	1	6.0	1	6.0	0.330	8.0	LOS A	2.1	15.7	0.35	0.42	0.35	47.9
Approach		400	6.0	421	6.0	0.330	3.7	LOS A	2.1	15.7	0.35	0.42	0.35	47.6
West: Riverhead Point Drive W														
10	L2	1	6.0	1	6.0	0.003	5.0	LOS A	0.0	0.1	0.51	0.50	0.51	45.7
11	T1	1	6.0	1	6.0	0.003	5.0	LOS A	0.0	0.1	0.51	0.50	0.51	46.7
12	R2	1	6.0	1	6.0	0.003	9.3	LOS A	0.0	0.1	0.51	0.50	0.51	46.8
Approach		3	6.0	3	6.0	0.003	6.4	LOS A	0.0	0.1	0.51	0.50	0.51	46.4
All Vehicles		879	6.0	925	6.0	0.330	4.7	LOS A	2.1	15.7	0.35	0.47	0.35	47.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [Coatesville-Riverhead Highway/Riverhead Point Drive/Site collector road (Site Folder: Future\_AM - 2038 100%)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %				[ Veh. veh	Dist ] m				
						v/c	sec							km/h
South: Coatesville-Riverhead Highway S														
1	L2	89	6.0	89	6.0	0.455	6.2	LOS A	3.2	23.8	0.72	0.72	0.72	45.4
2	T1	281	6.0	281	6.0	0.455	6.1	LOS A	3.2	23.8	0.72	0.72	0.72	46.4
3	R2	40	6.0	40	6.0	0.455	10.5	LOS B	3.2	23.8	0.72	0.72	0.72	46.5
Approach		410	6.0	410	6.0	0.455	6.6	LOS A	3.2	23.8	0.72	0.72	0.72	46.2
East: Riverhead Point Drive W														
4	L2	100	6.0	100	6.0	0.722	26.6	LOS C	8.5	62.2	1.00	1.27	1.62	36.3
5	T1	117	6.0	117	6.0	0.722	26.6	LOS C	8.5	62.2	1.00	1.27	1.62	36.9
6	R2	89	6.0	89	6.0	0.722	30.9	LOS C	8.5	62.2	1.00	1.27	1.62	37.0
Approach		306	6.0	306	6.0	0.722	27.8	LOS C	8.5	62.2	1.00	1.27	1.62	36.7
North: Coatesville-Riverhead Highway N														
7	L2	73	6.0	73	6.0	0.845	11.9	LOS B	15.9	117.1	1.00	1.03	1.35	42.5
8	T1	589	6.0	589	6.0	0.845	11.8	LOS B	15.9	117.1	1.00	1.03	1.35	43.4
9	R2	220	6.0	220	6.0	0.845	16.2	LOS B	15.9	117.1	1.00	1.03	1.35	43.5
Approach		882	6.0	882	6.0	0.845	12.9	LOS B	15.9	117.1	1.00	1.03	1.35	43.3
West: Riverhead Point Drive W														
10	L2	203	6.0	203	6.0	0.513	6.6	LOS A	4.1	30.2	0.75	0.79	0.79	44.9
11	T1	106	6.0	106	6.0	0.513	6.6	LOS A	4.1	30.2	0.75	0.79	0.79	45.9
12	R2	158	6.0	158	6.0	0.513	10.9	LOS B	4.1	30.2	0.75	0.79	0.79	46.0
Approach		467	6.0	467	6.0	0.513	8.1	LOS A	4.1	30.2	0.75	0.79	0.79	45.5
All Vehicles		2065	6.0	2065	6.0	0.845	12.8	LOS B	15.9	117.1	0.89	0.95	1.14	43.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [Coatesville-Riverhead Highway/Riverhead Point Drive/Site collector road (Site Folder: Future\_PM - 2038 100%)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %				[ Veh. veh	Dist ] m				
South: Coatesville-Riverhead Highway S														
1	L2	124	6.0	131	6.0	0.567	5.8	LOS A	4.8	35.4	0.70	0.70	0.73	45.4
2	T1	323	6.0	340	6.0	0.567	5.8	LOS A	4.8	35.4	0.70	0.70	0.73	46.4
3	R2	111	6.0	117	6.0	0.567	10.1	LOS B	4.8	35.4	0.70	0.70	0.73	46.4
Approach		558	6.0	587	6.0	0.567	6.7	LOS A	4.8	35.4	0.70	0.70	0.73	46.1
East: Riverhead Point Drive W														
4	L2	72	6.0	76	6.0	0.346	7.6	LOS A	2.4	17.5	0.81	0.83	0.81	44.3
5	T1	67	6.0	71	6.0	0.346	7.6	LOS A	2.4	17.5	0.81	0.83	0.81	45.3
6	R2	95	6.0	100	6.0	0.346	11.9	LOS B	2.4	17.5	0.81	0.83	0.81	45.3
Approach		234	6.0	246	6.0	0.346	9.4	LOS A	2.4	17.5	0.81	0.83	0.81	45.0
North: Coatesville-Riverhead Highway N														
7	L2	104	6.0	109	6.0	0.616	5.8	LOS A	5.7	42.1	0.71	0.68	0.74	45.3
8	T1	405	6.0	426	6.0	0.616	5.7	LOS A	5.7	42.1	0.71	0.68	0.74	46.3
9	R2	129	6.0	136	6.0	0.616	10.1	LOS B	5.7	42.1	0.71	0.68	0.74	46.4
Approach		638	6.0	672	6.0	0.616	6.6	LOS A	5.7	42.1	0.71	0.68	0.74	46.2
West: Riverhead Point Drive W														
10	L2	114	6.0	120	6.0	0.341	6.8	LOS A	2.3	16.8	0.75	0.78	0.75	44.9
11	T1	60	6.0	63	6.0	0.341	6.8	LOS A	2.3	16.8	0.75	0.78	0.75	45.8
12	R2	82	6.0	86	6.0	0.341	11.1	LOS B	2.3	16.8	0.75	0.78	0.75	45.9
Approach		256	6.0	269	6.0	0.341	8.2	LOS A	2.3	16.8	0.75	0.78	0.75	45.4
All Vehicles		1686	6.0	1775	6.0	0.616	7.3	LOS A	5.7	42.1	0.73	0.72	0.75	45.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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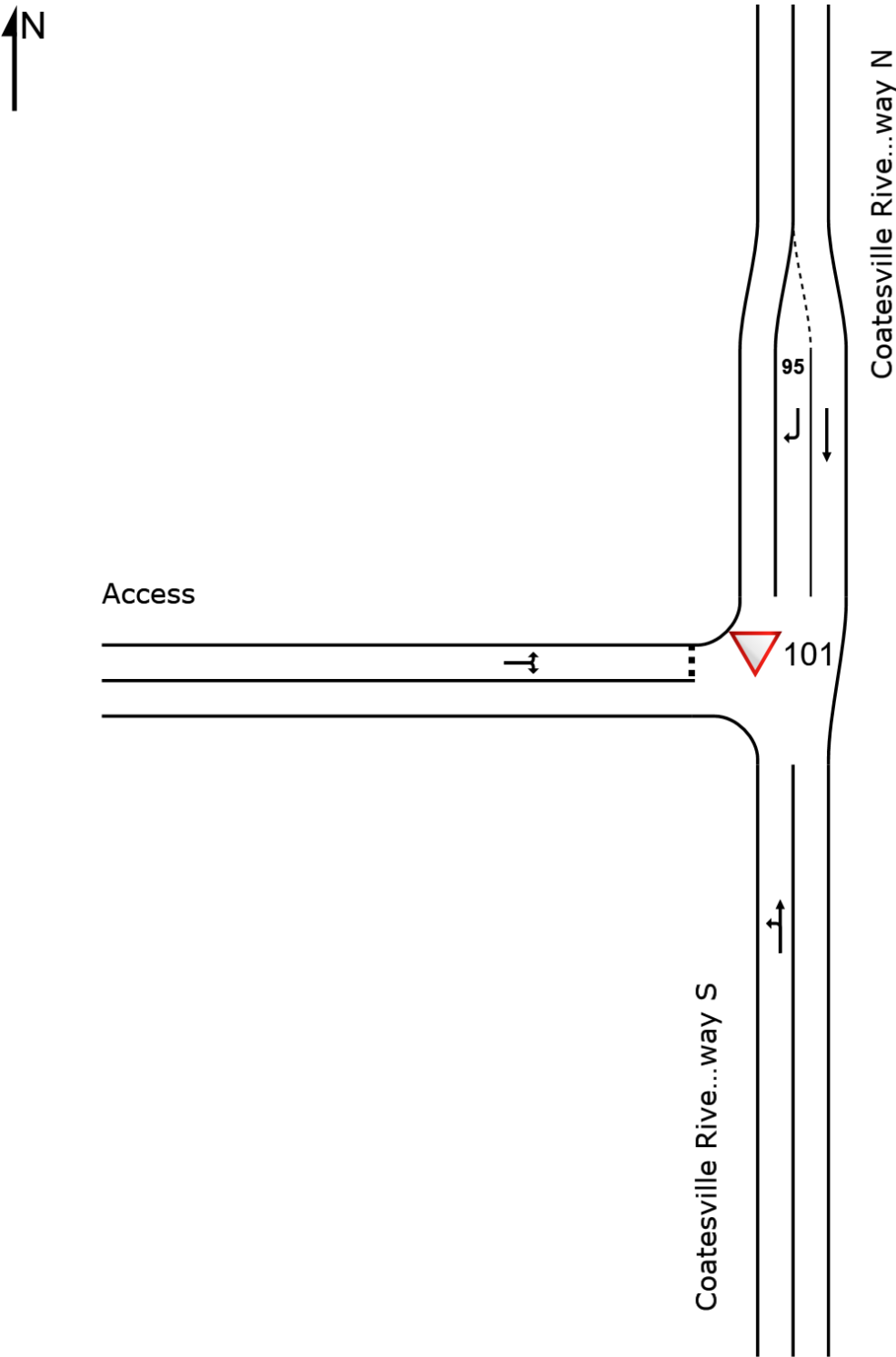
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SITE LAYOUT

▽ Site: 101 [Coatesville-Riverhead Highway/Site access  
(priority) (Site Folder: Base\_AM)]

New Site  
Site Category: (None)  
Give-Way (Two-Way)

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## MOVEMENT SUMMARY

▼ Site: 101 [Coatesville-Riverhead Highway/Site access  
(priority) (Site Folder: Base\_AM)]

New Site

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %	v/c	sec		[ Veh. veh	Dist m				km/h
South: Coatesville Riverhead Highway S														
1	L2	1	6.0	1	6.0	0.141	4.7	LOS A	0.0	0.0	0.00	0.00	0.00	49.3
2	T1	250	6.0	263	6.0	0.141	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		251	6.0	264	6.0	0.141	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.9
North: Coatesville Riverhead Highway N														
8	T1	576	6.0	606	6.0	0.323	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
9	R2	1	6.0	1	6.0	0.001	5.4	LOS A	0.0	0.0	0.36	0.50	0.36	45.3
Approach		577	6.0	607	6.0	0.323	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.8
West: Access														
10	L2	1	6.0	1	6.0	0.004	5.5	LOS A	0.0	0.1	0.51	0.59	0.51	43.7
12	R2	1	6.0	1	6.0	0.004	14.0	LOS B	0.0	0.1	0.51	0.59	0.51	43.3
Approach		2	6.0	2	6.0	0.004	9.7	LOS A	0.0	0.1	0.51	0.59	0.51	43.5
All Vehicles		830	6.0	874	6.0	0.323	0.1	NA	0.0	0.1	0.00	0.00	0.00	49.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

▼ Site: 101 [Coatesville-Riverhead Highway/Site access  
(priority) (Site Folder: Base\_PM)]

New Site

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %	v/c	sec		[ Veh. veh	Dist m				km/h
South: Coatesville Riverhead Highway S														
1	L2	1	6.0	1	6.0	0.187	4.7	LOS A	0.0	0.0	0.00	0.00	0.00	49.3
2	T1	332	6.0	349	6.0	0.187	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		333	6.0	351	6.0	0.187	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.9
North: Coatesville Riverhead Highway N														
8	T1	395	6.0	416	6.0	0.222	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
9	R2	1	6.0	1	6.0	0.001	5.8	LOS A	0.0	0.0	0.42	0.51	0.42	45.2
Approach		396	6.0	417	6.0	0.222	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.9
West: Access														
10	L2	1	6.0	1	6.0	0.004	5.8	LOS A	0.0	0.1	0.52	0.59	0.52	44.3
12	R2	1	6.0	1	6.0	0.004	11.5	LOS B	0.0	0.1	0.52	0.59	0.52	43.9
Approach		2	6.0	2	6.0	0.004	8.7	LOS A	0.0	0.1	0.52	0.59	0.52	44.1
All Vehicles		731	6.0	769	6.0	0.222	0.1	NA	0.0	0.1	0.00	0.00	0.00	49.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

▼ Site: 101 [Coatesville-Riverhead Highway/Site access  
(priority) (Site Folder: Future\_AM - 2038 100%)]

New Site

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %	v/c	sec		[ Veh. veh	Dist ] m				km/h
South: Coatesville Riverhead Highway S														
1	L2	161	6.0	161	6.0	0.224	4.7	LOS A	0.0	0.0	0.00	0.21	0.00	48.2
2	T1	250	6.0	250	6.0	0.224	0.1	LOS A	0.0	0.0	0.00	0.21	0.00	48.7
Approach		411	6.0	411	6.0	0.224	1.9	NA	0.0	0.0	0.00	0.21	0.00	48.5
North: Coatesville Riverhead Highway N														
8	T1	847	6.0	847	6.0	0.451	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	49.7
9	R2	5	6.0	5	6.0	0.004	6.1	LOS A	0.0	0.1	0.45	0.56	0.45	45.2
Approach		852	6.0	852	6.0	0.451	0.2	NA	0.0	0.1	0.00	0.00	0.00	49.7
West: Access														
10	L2	5	6.0	5	6.0	0.751	28.0	LOS D	3.8	28.1	0.94	1.25	1.90	29.2
12	R2	122	6.0	122	6.0	0.751	52.2	LOS F	3.8	28.1	0.94	1.25	1.90	29.0
Approach		127	6.0	127	6.0	0.751	51.2	LOS F	3.8	28.1	0.94	1.25	1.90	29.0
All Vehicles		1390	6.0	1390	6.0	0.751	5.4	NA	3.8	28.1	0.09	0.18	0.17	46.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

▼ Site: 101 [Coatesville-Riverhead Highway/Site access  
(priority) (Site Folder: Future\_PM - 2038 100%)]

New Site

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %	v/c	sec		[ Veh. veh	Dist m				km/h
South: Coatesville Riverhead Highway S														
1	L2	225	6.0	237	6.0	0.319	4.7	LOS A	0.0	0.0	0.00	0.22	0.00	48.1
2	T1	332	6.0	349	6.0	0.319	0.1	LOS A	0.0	0.0	0.00	0.22	0.00	48.6
Approach		557	6.0	586	6.0	0.319	2.0	NA	0.0	0.0	0.00	0.22	0.00	48.4
North: Coatesville Riverhead Highway N														
8	T1	560	6.0	589	6.0	0.314	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
9	R2	5	6.0	5	6.0	0.006	7.2	LOS A	0.0	0.2	0.54	0.62	0.54	44.6
Approach		565	6.0	595	6.0	0.314	0.2	NA	0.0	0.2	0.00	0.01	0.00	49.8
West: Access														
10	L2	5	6.0	5	6.0	0.278	7.5	LOS A	1.0	7.5	0.82	0.95	0.94	38.6
12	R2	61	6.0	64	6.0	0.278	21.8	LOS C	1.0	7.5	0.82	0.95	0.94	38.3
Approach		66	6.0	69	6.0	0.278	20.7	LOS C	1.0	7.5	0.82	0.95	0.94	38.3
All Vehicles		1188	6.0	1251	6.0	0.319	2.2	NA	1.0	7.5	0.05	0.16	0.05	48.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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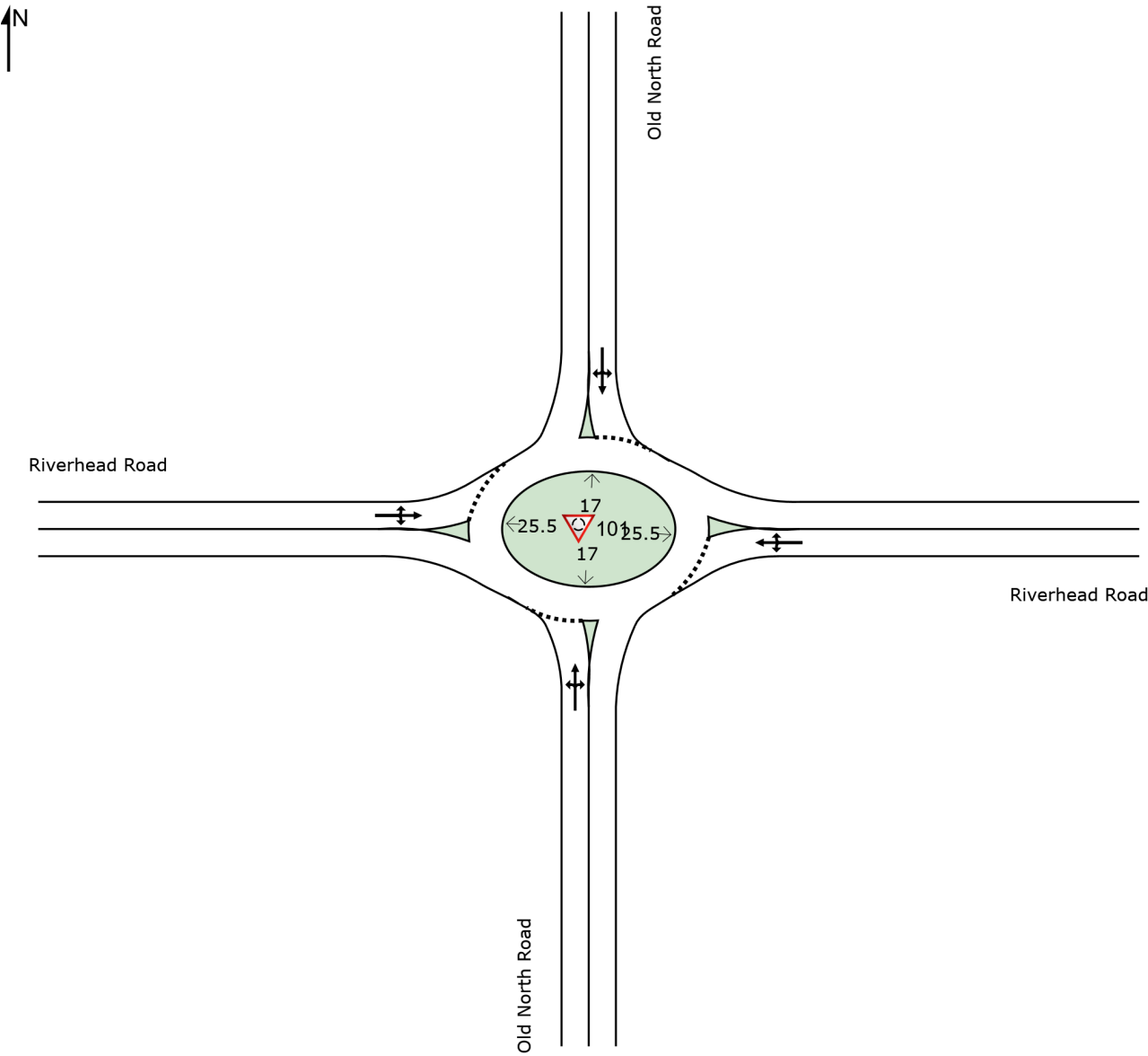
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SITE LAYOUT

Site: 101 [Riverhead Road/Old North Road (Site Folder: Base\_AM)]

New Site  
Site Category: (None)  
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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## MOVEMENT SUMMARY

 **Site: 101 [Riverhead Road/Old North Road (Site Folder: Base\_AM)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %	v/c	sec		[ Veh. veh	Dist ] m				km/h
South: Old North Road														
1	L2	41	6.0	43	6.0	0.398	4.1	LOS A	3.0	22.2	0.48	0.50	0.48	45.9
2	T1	293	6.0	308	6.0	0.398	3.7	LOS A	3.0	22.2	0.48	0.50	0.48	47.2
3	R2	112	6.0	118	6.0	0.398	8.4	LOS A	3.0	22.2	0.48	0.50	0.48	47.2
Approach		446	6.0	469	6.0	0.398	4.9	LOS A	3.0	22.2	0.48	0.50	0.48	47.1
East: Riverhead Road														
4	L2	100	6.0	105	6.0	0.329	6.6	LOS A	2.3	17.1	0.80	0.78	0.80	45.7
5	T1	130	6.0	137	6.0	0.329	6.8	LOS A	2.3	17.1	0.80	0.78	0.80	46.6
6	R2	3	6.0	3	6.0	0.329	11.5	LOS B	2.3	17.1	0.80	0.78	0.80	47.0
Approach		233	6.0	245	6.0	0.329	6.8	LOS A	2.3	17.1	0.80	0.78	0.80	46.2
North: Old North Road														
7	L2	3	6.0	3	6.0	0.629	8.0	LOS A	6.3	46.2	0.80	0.82	0.93	45.1
8	T1	544	6.0	573	6.0	0.629	7.6	LOS A	6.3	46.2	0.80	0.82	0.93	46.3
9	R2	13	6.0	14	6.0	0.629	12.3	LOS B	6.3	46.2	0.80	0.82	0.93	46.3
Approach		560	6.0	589	6.0	0.629	7.7	LOS A	6.3	46.2	0.80	0.82	0.93	46.3
West: Riverhead Road														
10	L2	7	6.0	7	6.0	0.287	5.2	LOS A	1.8	13.4	0.64	0.63	0.64	46.0
11	T1	221	6.0	233	6.0	0.287	5.3	LOS A	1.8	13.4	0.64	0.63	0.64	46.8
12	R2	29	6.0	31	6.0	0.287	10.0	LOS B	1.8	13.4	0.64	0.63	0.64	47.2
Approach		257	6.0	271	6.0	0.287	5.8	LOS A	1.8	13.4	0.64	0.63	0.64	46.9
All Vehicles		1496	6.0	1575	6.0	0.629	6.4	LOS A	6.3	46.2	0.68	0.69	0.73	46.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [Riverhead Road/Old North Road (Site Folder: Base\_PM)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
South: Old North Road														
1	L2	35	6.0	37	6.0	0.544	3.9	LOS A	5.1	37.5	0.44	0.44	0.44	46.2
2	T1	559	6.0	588	6.0	0.544	3.5	LOS A	5.1	37.5	0.44	0.44	0.44	47.5
3	R2	92	6.0	97	6.0	0.544	8.1	LOS A	5.1	37.5	0.44	0.44	0.44	47.6
Approach		686	6.0	722	6.0	0.544	4.1	LOS A	5.1	37.5	0.44	0.44	0.44	47.5
East: Riverhead Road														
4	L2	103	6.0	108	6.0	0.219	5.4	LOS A	1.4	10.2	0.67	0.66	0.67	46.4
5	T1	74	6.0	78	6.0	0.219	5.5	LOS A	1.4	10.2	0.67	0.66	0.67	47.3
6	R2	5	6.0	5	6.0	0.219	10.2	LOS B	1.4	10.2	0.67	0.66	0.67	47.6
Approach		182	6.0	192	6.0	0.219	5.6	LOS A	1.4	10.2	0.67	0.66	0.67	46.8
North: Old North Road														
7	L2	4	6.0	4	6.0	0.484	6.1	LOS A	3.6	26.7	0.72	0.68	0.73	45.5
8	T1	404	6.0	425	6.0	0.484	5.8	LOS A	3.6	26.7	0.72	0.68	0.73	46.7
9	R2	11	6.0	12	6.0	0.484	10.4	LOS B	3.6	26.7	0.72	0.68	0.73	46.7
Approach		419	6.0	441	6.0	0.484	5.9	LOS A	3.6	26.7	0.72	0.68	0.73	46.7
West: Riverhead Road														
10	L2	18	6.0	19	6.0	0.405	7.8	LOS A	2.9	21.2	0.83	0.84	0.84	44.9
11	T1	221	6.0	233	6.0	0.405	7.9	LOS A	2.9	21.2	0.83	0.84	0.84	45.8
12	R2	48	6.0	51	6.0	0.405	12.6	LOS B	2.9	21.2	0.83	0.84	0.84	46.1
Approach		287	6.0	302	6.0	0.405	8.7	LOS A	2.9	21.2	0.83	0.84	0.84	45.8
All Vehicles		1574	6.0	1657	6.0	0.544	5.6	LOS A	5.1	37.5	0.61	0.60	0.62	46.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [Riverhead Road/Old North Road (Site Folder: Future\_AM - 2038 100%)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
South: Old North Road														
1	L2	41	6.0	43	6.0	0.507	4.7	LOS A	4.3	31.7	0.63	0.58	0.63	45.3
2	T1	293	6.0	308	6.0	0.507	4.3	LOS A	4.3	31.7	0.63	0.58	0.63	46.6
3	R2	194	6.0	204	6.0	0.507	9.0	LOS A	4.3	31.7	0.63	0.58	0.63	46.6
Approach		528	6.0	556	6.0	0.507	6.1	LOS A	4.3	31.7	0.63	0.58	0.63	46.5
East: Riverhead Road														
4	L2	229	6.0	241	6.0	0.603	10.0	LOS B	6.1	45.0	0.94	1.02	1.16	44.1
5	T1	185	6.0	195	6.0	0.603	10.1	LOS B	6.1	45.0	0.94	1.02	1.16	44.9
6	R2	3	6.0	3	6.0	0.603	14.8	LOS B	6.1	45.0	0.94	1.02	1.16	45.2
Approach		417	6.0	439	6.0	0.603	10.1	LOS B	6.1	45.0	0.94	1.02	1.16	44.5
North: Old North Road														
7	L2	3	6.0	3	6.0	0.712	11.9	LOS B	8.5	62.9	0.92	1.05	1.25	43.0
8	T1	544	6.0	573	6.0	0.712	11.5	LOS B	8.5	62.9	0.92	1.05	1.25	44.2
9	R2	13	6.0	14	6.0	0.712	16.2	LOS B	8.5	62.9	0.92	1.05	1.25	44.2
Approach		560	6.0	589	6.0	0.712	11.7	LOS B	8.5	62.9	0.92	1.05	1.25	44.2
West: Riverhead Road														
10	L2	7	6.0	7	6.0	0.360	6.0	LOS A	2.5	18.3	0.74	0.72	0.74	45.6
11	T1	256	6.0	269	6.0	0.360	6.1	LOS A	2.5	18.3	0.74	0.72	0.74	46.5
12	R2	29	6.0	31	6.0	0.360	10.8	LOS B	2.5	18.3	0.74	0.72	0.74	46.8
Approach		292	6.0	307	6.0	0.360	6.5	LOS A	2.5	18.3	0.74	0.72	0.74	46.5
All Vehicles		1797	6.0	1892	6.0	0.712	8.8	LOS A	8.5	62.9	0.81	0.85	0.96	45.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 **Site: 101 [Riverhead Road/Old North Road (Site Folder: Future\_PM - 2038 100%)]**

New Site

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %				[ Veh. veh	Dist ] m				
South: Old North Road														
1	L2	35	6.0	37	6.0	0.659	4.4	LOS A	7.2	53.1	0.61	0.51	0.61	45.5
2	T1	559	6.0	588	6.0	0.659	4.0	LOS A	7.2	53.1	0.61	0.51	0.61	46.8
3	R2	196	6.0	206	6.0	0.659	8.6	LOS A	7.2	53.1	0.61	0.51	0.61	46.8
Approach		790	6.0	832	6.0	0.659	5.2	LOS A	7.2	53.1	0.61	0.51	0.61	46.7
East: Riverhead Road														
4	L2	180	6.0	189	6.0	0.359	5.7	LOS A	2.5	18.6	0.74	0.71	0.74	46.2
5	T1	108	6.0	114	6.0	0.359	5.8	LOS A	2.5	18.6	0.74	0.71	0.74	47.1
6	R2	5	6.0	5	6.0	0.359	10.6	LOS B	2.5	18.6	0.74	0.71	0.74	47.5
Approach		293	6.0	308	6.0	0.359	5.9	LOS A	2.5	18.6	0.74	0.71	0.74	46.6
North: Old North Road														
7	L2	4	6.0	4	6.0	0.563	9.2	LOS A	5.1	37.3	0.85	0.91	1.00	44.5
8	T1	404	6.0	425	6.0	0.563	8.8	LOS A	5.1	37.3	0.85	0.91	1.00	45.6
9	R2	11	6.0	12	6.0	0.563	13.4	LOS B	5.1	37.3	0.85	0.91	1.00	45.7
Approach		419	6.0	441	6.0	0.563	8.9	LOS A	5.1	37.3	0.85	0.91	1.00	45.6
West: Riverhead Road														
10	L2	18	6.0	19	6.0	0.559	12.4	LOS B	5.3	39.0	0.96	1.08	1.21	42.6
11	T1	266	6.0	280	6.0	0.559	12.5	LOS B	5.3	39.0	0.96	1.08	1.21	43.4
12	R2	48	6.0	51	6.0	0.559	17.2	LOS B	5.3	39.0	0.96	1.08	1.21	43.7
Approach		332	6.0	349	6.0	0.559	13.2	LOS B	5.3	39.0	0.96	1.08	1.21	43.4
All Vehicles		1834	6.0	1931	6.0	0.659	7.6	LOS A	7.2	53.1	0.75	0.74	0.83	45.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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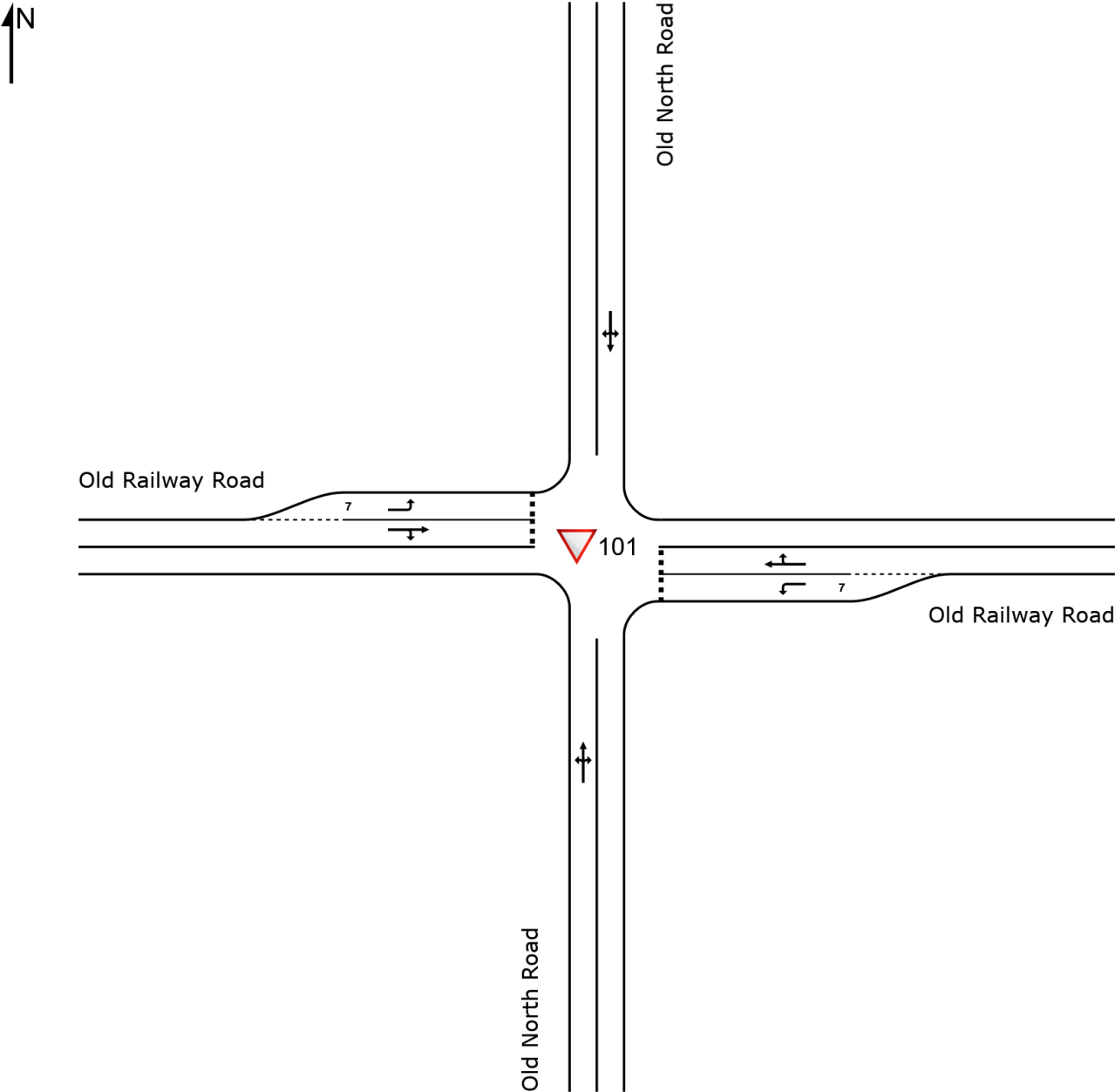
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SITE LAYOUT

▽ Site: 101 [Old North Road/Old Railway Road (Site Folder: Base\_AM)]

New Site  
Site Category: (None)  
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.





## MOVEMENT SUMMARY

Site: 101 [Old North Road/Old Railway Road (Site Folder: Base\_AM)]

New Site

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %	v/c	sec		[ Veh. veh	Dist ] m				km/h
South: Old North Road														
1	L2	3	6.0	3	6.0	0.257	8.9	LOS A	0.1	1.0	0.03	0.01	0.03	57.2
2	T1	442	6.0	465	6.0	0.257	0.1	LOS A	0.1	1.0	0.03	0.01	0.03	69.4
3	R2	5	6.0	5	6.0	0.257	10.0	LOS A	0.1	1.0	0.03	0.01	0.03	56.9
Approach		450	6.0	474	6.0	0.257	0.3	NA	0.1	1.0	0.03	0.01	0.03	69.1
East: Old Railway Road														
4	L2	6	6.0	6	6.0	0.009	9.2	LOS A	0.0	0.2	0.57	0.69	0.57	50.7
5	T1	7	6.0	7	6.0	0.045	15.7	LOS C	0.1	1.0	0.81	0.91	0.81	40.8
6	R2	3	6.0	3	6.0	0.045	21.7	LOS C	0.1	1.0	0.81	0.91	0.81	42.8
Approach		16	6.0	17	6.0	0.045	14.4	LOS B	0.1	1.0	0.72	0.83	0.72	44.5
North: Old North Road														
7	L2	4	6.0	4	6.0	0.378	5.4	LOS A	0.0	0.2	0.00	0.00	0.00	57.5
8	T1	668	6.0	703	6.0	0.378	0.0	LOS A	0.0	0.2	0.00	0.00	0.00	69.8
9	R2	1	6.0	1	6.0	0.378	7.9	LOS A	0.0	0.2	0.00	0.00	0.00	57.2
Approach		673	6.0	708	6.0	0.378	0.1	NA	0.0	0.2	0.00	0.00	0.00	69.7
West: Old Railway Road														
10	L2	1	6.0	1	6.0	0.001	6.4	LOS A	0.0	0.0	0.46	0.53	0.46	45.5
11	T1	7	6.0	7	6.0	0.056	15.8	LOS C	0.2	1.2	0.82	0.91	0.82	39.8
12	R2	5	6.0	5	6.0	0.056	21.0	LOS C	0.2	1.2	0.82	0.91	0.82	39.4
Approach		13	6.0	14	6.0	0.056	17.1	LOS C	0.2	1.2	0.79	0.88	0.79	40.0
All Vehicles		1152	6.0	1213	6.0	0.378	0.5	NA	0.2	1.2	0.03	0.03	0.03	68.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

▼ Site: 101 [Old North Road/Old Railway Road (Site Folder: Base\_PM)]

New Site

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
South: Old North Road														
1	L2	7	6.0	7	6.0	0.398	8.2	LOS A	0.3	2.1	0.04	0.01	0.05	57.1
2	T1	680	6.0	716	6.0	0.398	0.2	LOS A	0.3	2.1	0.04	0.01	0.05	69.2
3	R2	10	6.0	11	6.0	0.398	9.4	LOS A	0.3	2.1	0.04	0.01	0.05	56.8
Approach		697	6.0	734	6.0	0.398	0.4	NA	0.3	2.1	0.04	0.01	0.05	68.8
East: Old Railway Road														
4	L2	27	6.0	28	6.0	0.034	8.2	LOS A	0.1	0.9	0.52	0.70	0.52	51.4
5	T1	10	6.0	11	6.0	0.086	19.7	LOS C	0.3	1.9	0.86	0.93	0.86	38.9
6	R2	5	6.0	5	6.0	0.086	26.9	LOS D	0.3	1.9	0.86	0.93	0.86	40.7
Approach		42	6.0	44	6.0	0.086	13.2	LOS B	0.3	1.9	0.64	0.78	0.64	46.4
North: Old North Road														
7	L2	8	6.0	8	6.0	0.312	5.7	LOS A	0.0	0.3	0.01	0.01	0.01	57.4
8	T1	546	6.0	575	6.0	0.312	0.0	LOS A	0.0	0.3	0.01	0.01	0.01	69.6
9	R2	1	6.0	1	6.0	0.312	10.7	LOS B	0.0	0.3	0.01	0.01	0.01	57.1
Approach		555	6.0	584	6.0	0.312	0.1	NA	0.0	0.3	0.01	0.01	0.01	69.4
West: Old Railway Road														
10	L2	1	6.0	1	6.0	0.002	8.2	LOS A	0.0	0.0	0.57	0.60	0.57	44.5
11	T1	12	6.0	13	6.0	0.098	19.7	LOS C	0.3	2.1	0.86	0.93	0.86	38.2
12	R2	5	6.0	5	6.0	0.098	27.1	LOS D	0.3	2.1	0.86	0.93	0.86	37.8
Approach		18	6.0	19	6.0	0.098	21.1	LOS C	0.3	2.1	0.85	0.91	0.85	38.4
All Vehicles		1312	6.0	1381	6.0	0.398	1.0	NA	0.3	2.1	0.06	0.05	0.06	67.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

▼ Site: 101 [Old North Road/Old Railway Road (Site Folder: Future\_AM - 2038 100%)]

New Site

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %	v/c	sec		[ Veh. veh	Dist ] m				km/h
South: Old North Road														
1	L2	3	6.0	3	6.0	0.305	11.6	LOS B	0.2	1.5	0.04	0.01	0.04	57.2
2	T1	524	6.0	552	6.0	0.305	0.2	LOS A	0.2	1.5	0.04	0.01	0.04	69.3
3	R2	5	6.0	5	6.0	0.305	12.9	LOS B	0.2	1.5	0.04	0.01	0.04	56.9
Approach		532	6.0	560	6.0	0.305	0.4	NA	0.2	1.5	0.04	0.01	0.04	69.0
East: Old Railway Road														
4	L2	6	6.0	6	6.0	0.012	10.7	LOS B	0.0	0.3	0.66	0.76	0.66	49.7
5	T1	7	6.0	7	6.0	0.072	24.1	LOS C	0.2	1.5	0.89	0.95	0.89	37.0
6	R2	3	6.0	3	6.0	0.072	32.7	LOS D	0.2	1.5	0.89	0.95	0.89	38.6
Approach		16	6.0	17	6.0	0.072	20.7	LOS C	0.2	1.5	0.80	0.88	0.80	41.3
North: Old North Road														
7	L2	4	6.0	4	6.0	0.451	5.9	LOS A	0.0	0.3	0.00	0.00	0.01	57.5
8	T1	797	6.0	839	6.0	0.451	0.0	LOS A	0.0	0.3	0.00	0.00	0.01	69.8
9	R2	1	6.0	1	6.0	0.451	9.5	LOS A	0.0	0.3	0.00	0.00	0.01	57.2
Approach		802	6.0	844	6.0	0.451	0.1	NA	0.0	0.3	0.00	0.00	0.01	69.7
West: Old Railway Road														
10	L2	1	6.0	1	6.0	0.001	6.9	LOS A	0.0	0.0	0.50	0.55	0.50	45.2
11	T1	7	6.0	7	6.0	0.090	24.3	LOS C	0.3	1.9	0.89	0.95	0.89	36.0
12	R2	5	6.0	5	6.0	0.090	32.3	LOS D	0.3	1.9	0.89	0.95	0.89	35.7
Approach		13	6.0	14	6.0	0.090	26.0	LOS D	0.3	1.9	0.86	0.92	0.86	36.4
All Vehicles		1363	6.0	1435	6.0	0.451	0.7	NA	0.3	1.9	0.03	0.02	0.04	68.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

Site: 101 [Old North Road/Old Railway Road (Site Folder: Future\_PM - 2038 100%)]

New Site

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %	v/c	sec		[ Veh. veh	Dist ] m				km/h
South: Old North Road														
1	L2	7	6.0	7	6.0	0.457	9.7	LOS A	0.4	2.8	0.04	0.01	0.06	57.1
2	T1	784	6.0	825	6.0	0.457	0.2	LOS A	0.4	2.8	0.04	0.01	0.06	69.1
3	R2	10	6.0	11	6.0	0.457	11.3	LOS B	0.4	2.8	0.04	0.01	0.06	56.8
Approach		801	6.0	843	6.0	0.457	0.4	NA	0.4	2.8	0.04	0.01	0.06	68.8
East: Old Railway Road														
4	L2	27	6.0	28	6.0	0.038	8.9	LOS A	0.1	1.0	0.55	0.74	0.55	50.9
5	T1	10	6.0	11	6.0	0.132	29.0	LOS D	0.4	2.7	0.91	0.96	0.91	35.1
6	R2	5	6.0	5	6.0	0.132	38.9	LOS E	0.4	2.7	0.91	0.96	0.91	36.5
Approach		42	6.0	44	6.0	0.132	17.3	LOS C	0.4	2.7	0.68	0.82	0.68	44.1
North: Old North Road														
7	L2	8	6.0	8	6.0	0.356	6.4	LOS A	0.1	0.4	0.01	0.01	0.01	57.4
8	T1	623	6.0	656	6.0	0.356	0.0	LOS A	0.1	0.4	0.01	0.01	0.01	69.6
9	R2	1	6.0	1	6.0	0.356	13.4	LOS B	0.1	0.4	0.01	0.01	0.01	57.1
Approach		632	6.0	665	6.0	0.356	0.1	NA	0.1	0.4	0.01	0.01	0.01	69.4
West: Old Railway Road														
10	L2	1	6.0	1	6.0	0.002	9.4	LOS A	0.0	0.0	0.65	0.64	0.65	43.9
11	T1	12	6.0	13	6.0	0.151	29.3	LOS D	0.4	3.1	0.92	0.96	0.92	34.3
12	R2	5	6.0	5	6.0	0.151	40.0	LOS E	0.4	3.1	0.92	0.96	0.92	34.1
Approach		18	6.0	19	6.0	0.151	31.2	LOS D	0.4	3.1	0.90	0.94	0.91	34.7
All Vehicles		1493	6.0	1572	6.0	0.457	1.1	NA	0.4	3.1	0.06	0.04	0.07	67.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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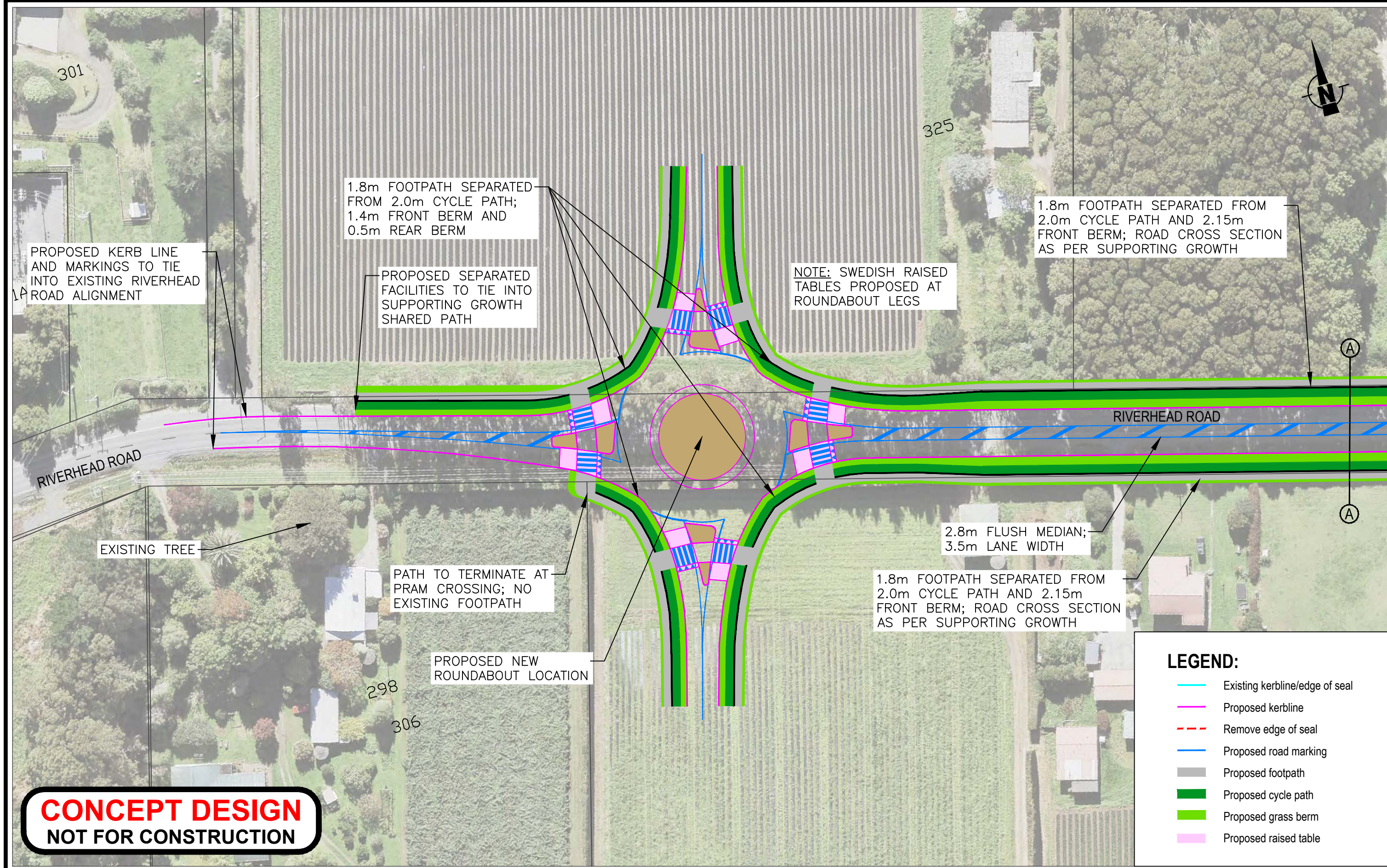
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# APPENDIX C

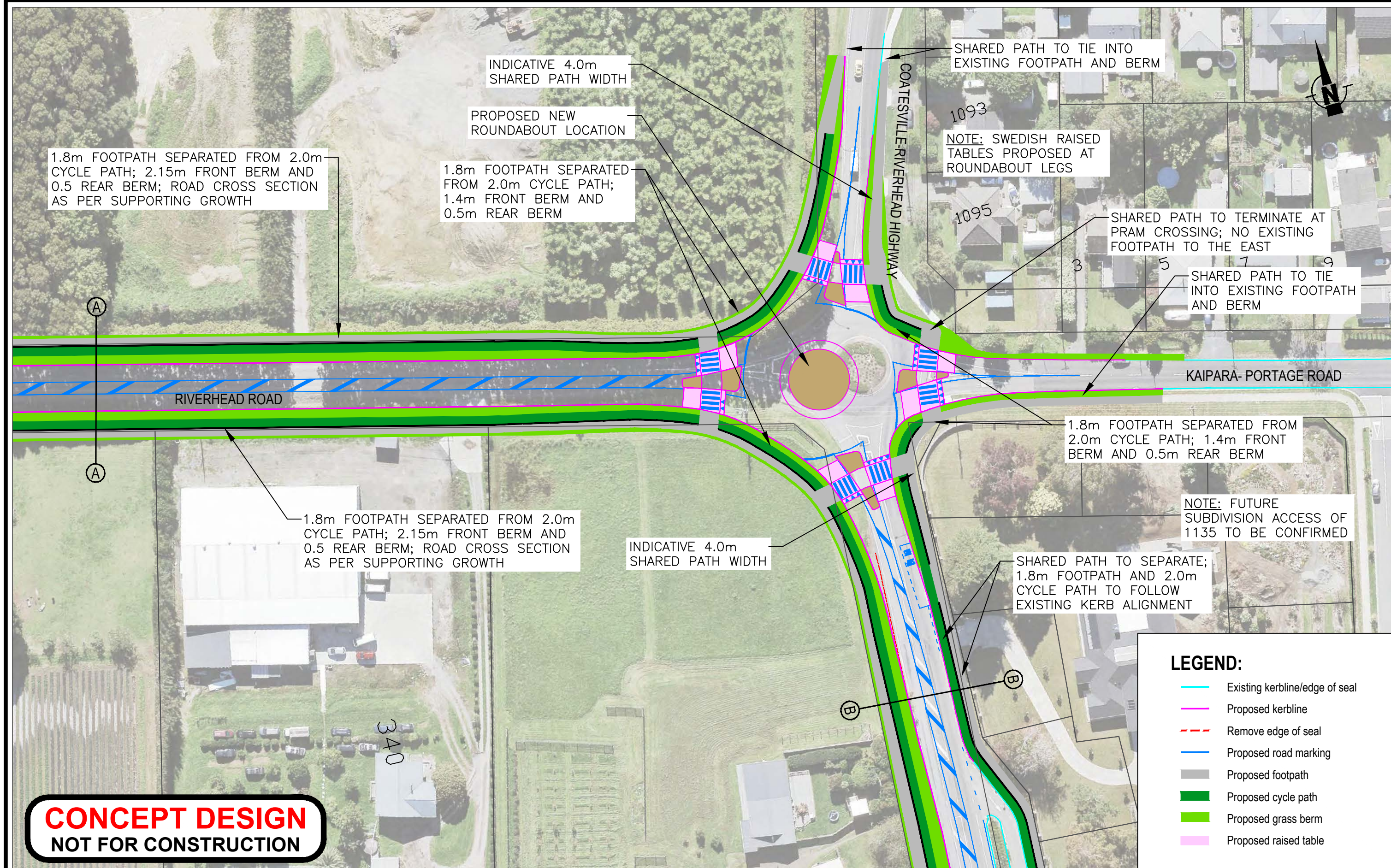
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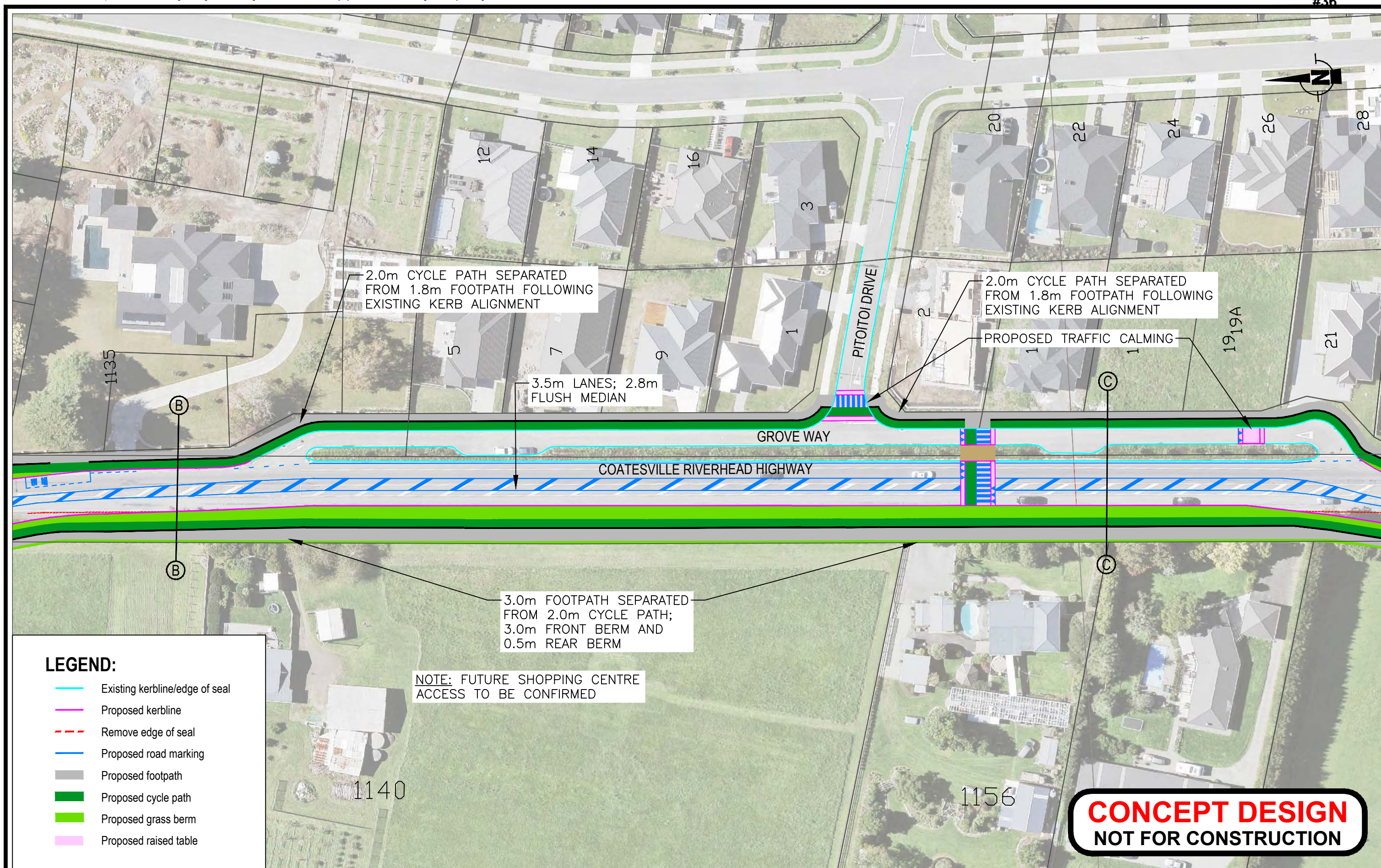


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revision: D	date: 13/12/2022 checked: TC

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A	First Issue- Draft Issue to AT	03/11/2021
B	Issue to Fletchers	14/02/2022
C	Revised Issue	29/09/2022
D	Issue for TA	13/12/2022

## Riverhead Plan Change Pedestrian & Cycle facilities Concept Design





LEGEND:

- Existing kerbline/edge of seal
- Proposed kerbline
- Remove edge of seal
- Proposed road marking
- Proposed footpath
- Proposed cycle path
- Proposed grass berm
- Proposed raised table

NOTE: FUTURE SHOPPING CENTRE ACCESS TO BE CONFIRMED

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ref: FRLX015-D-010 drawn: CS  
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C	Revised Issue	29/09/2022
D	Issue for TA	13/12/2022

Riverhead Plan Change  
Pedestrian & Cycle facilities Concept Design

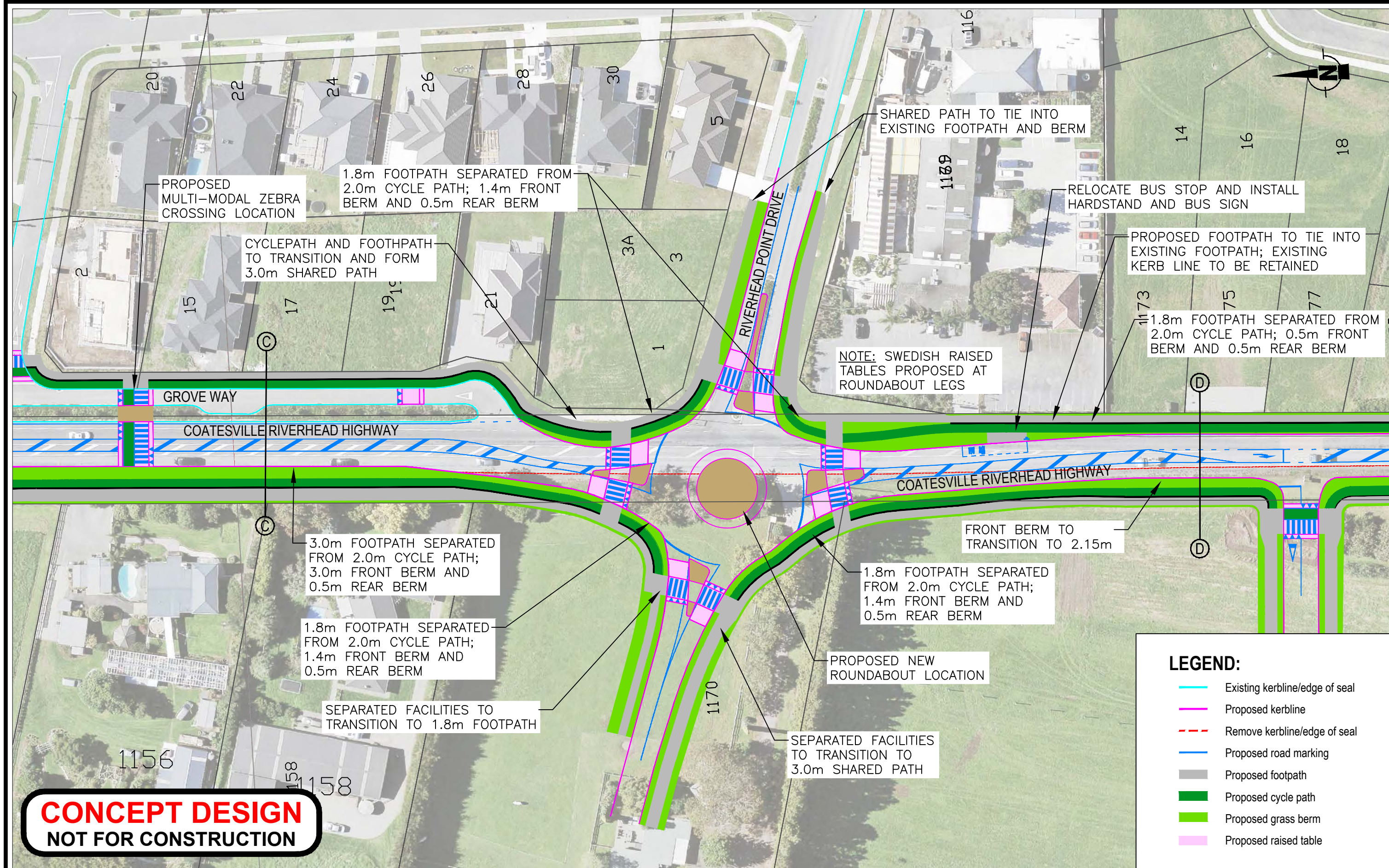
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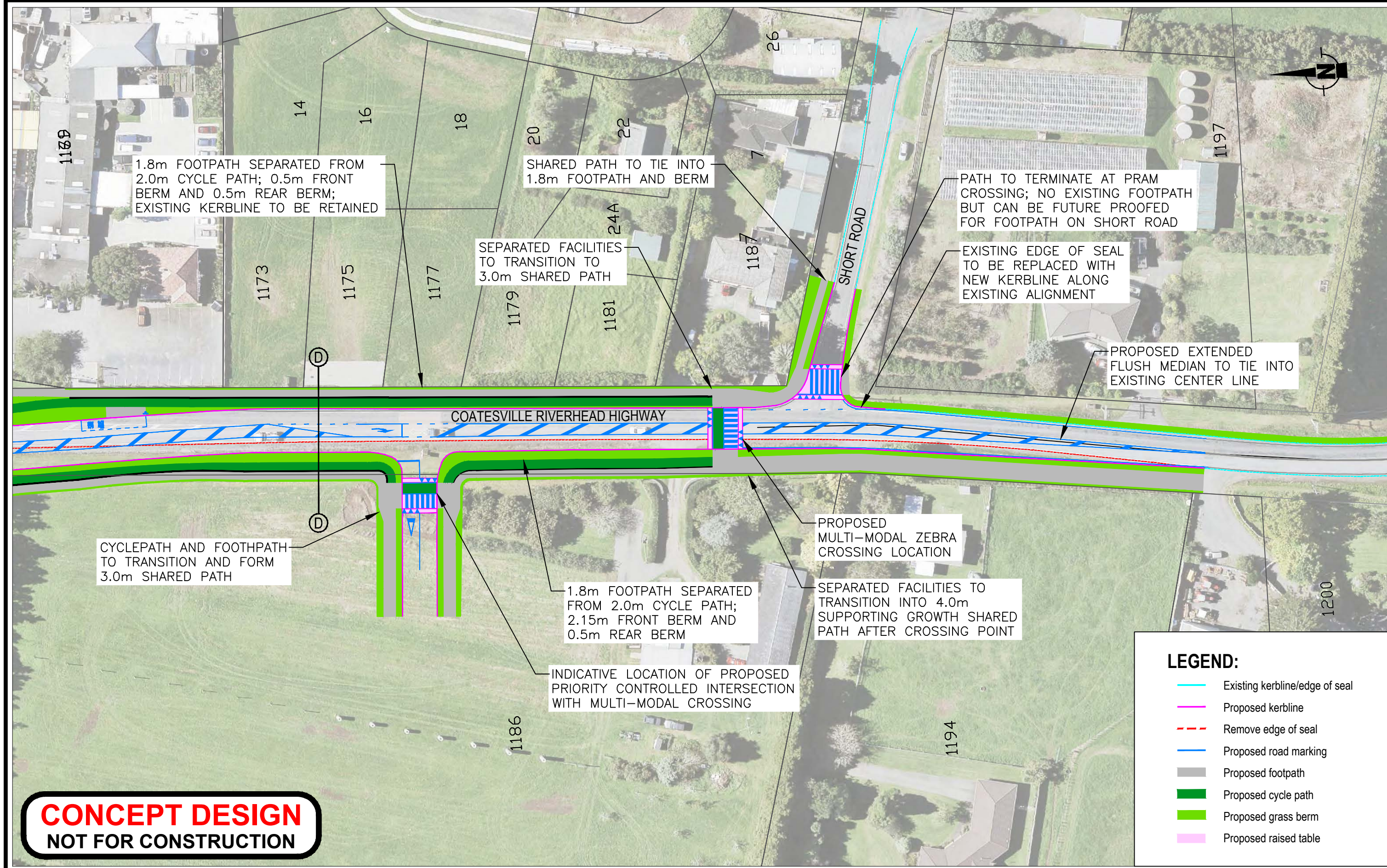
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Riverhead Plan Change  
Pedestrian & Cycle facilities Concept Design

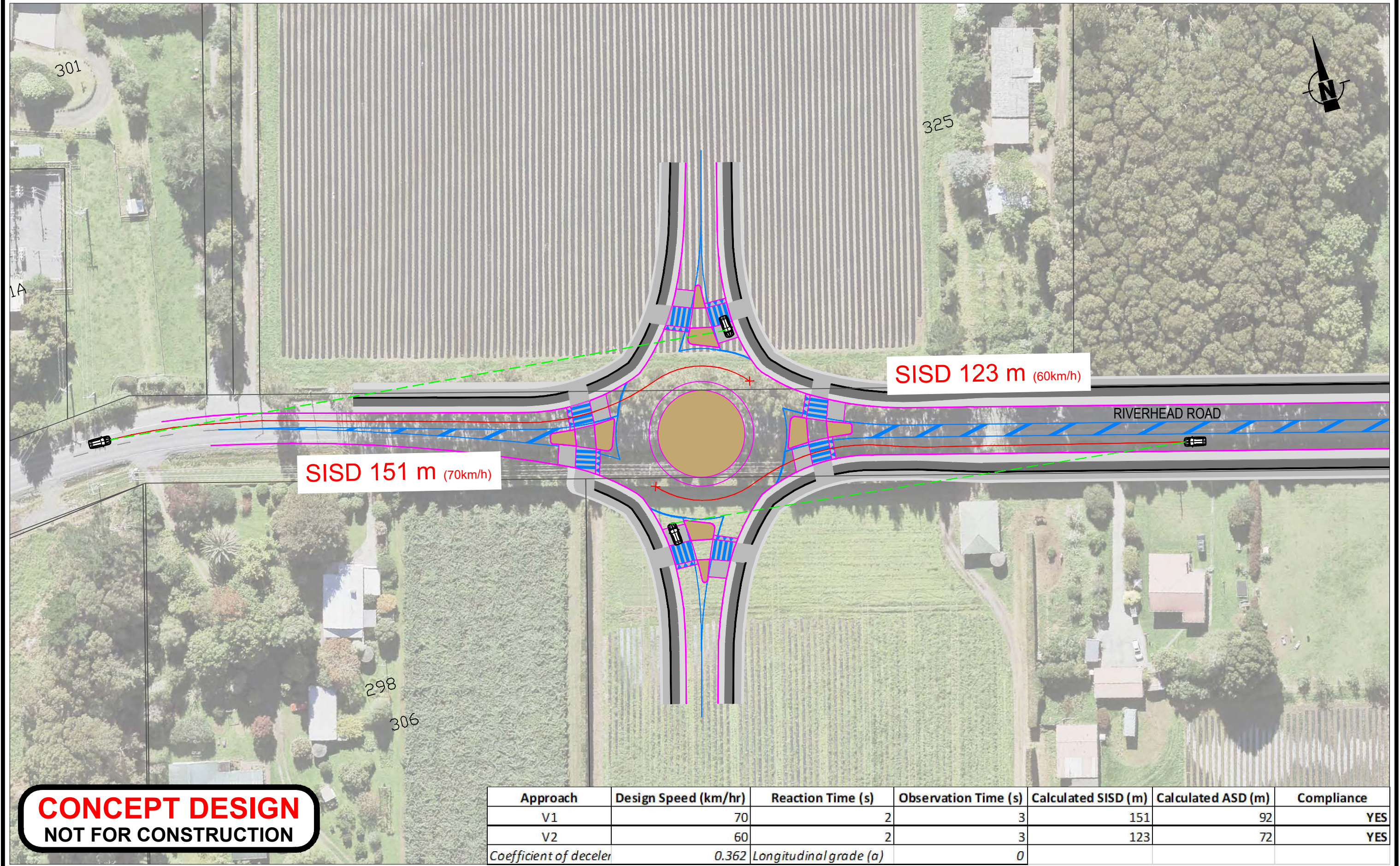
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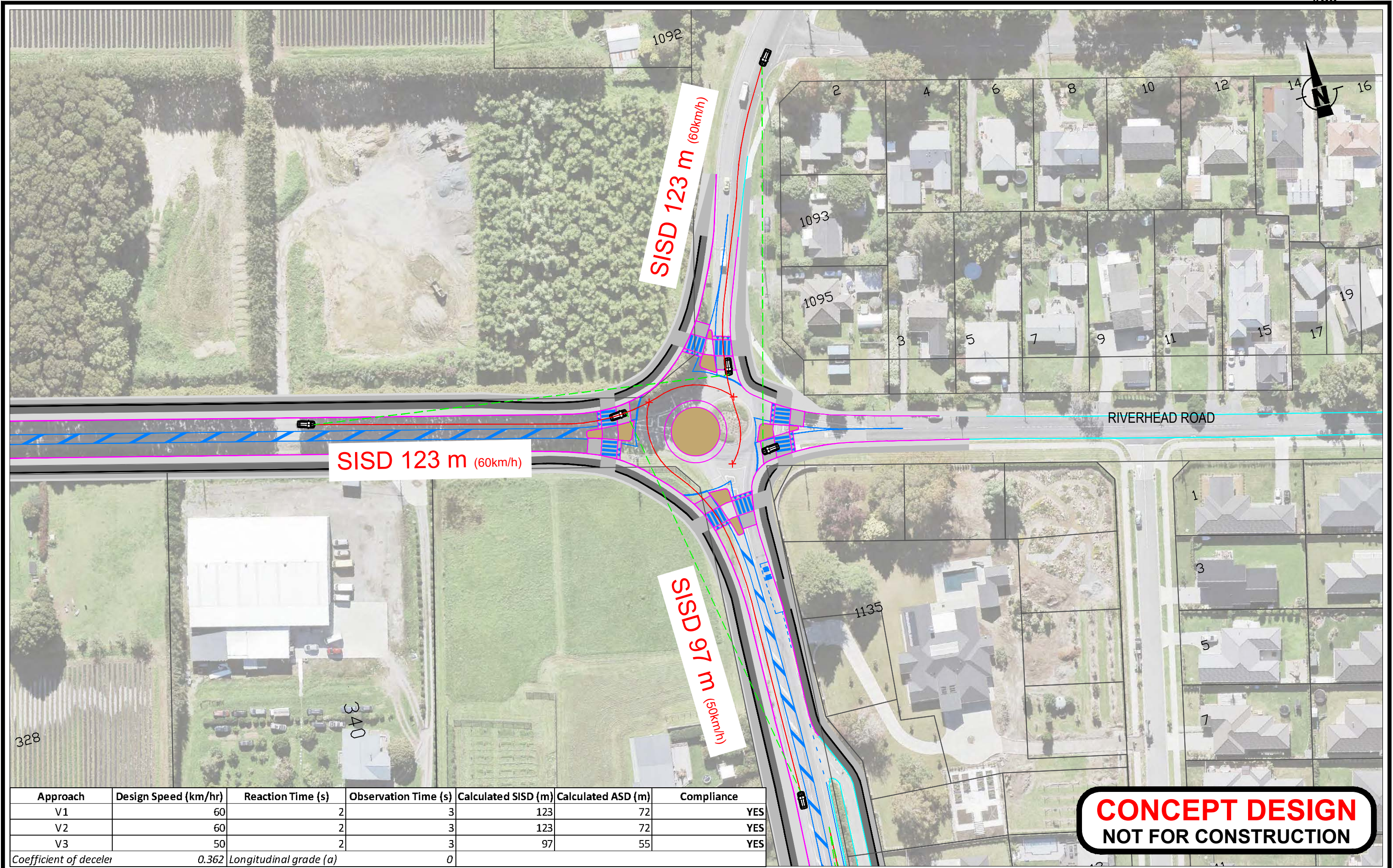
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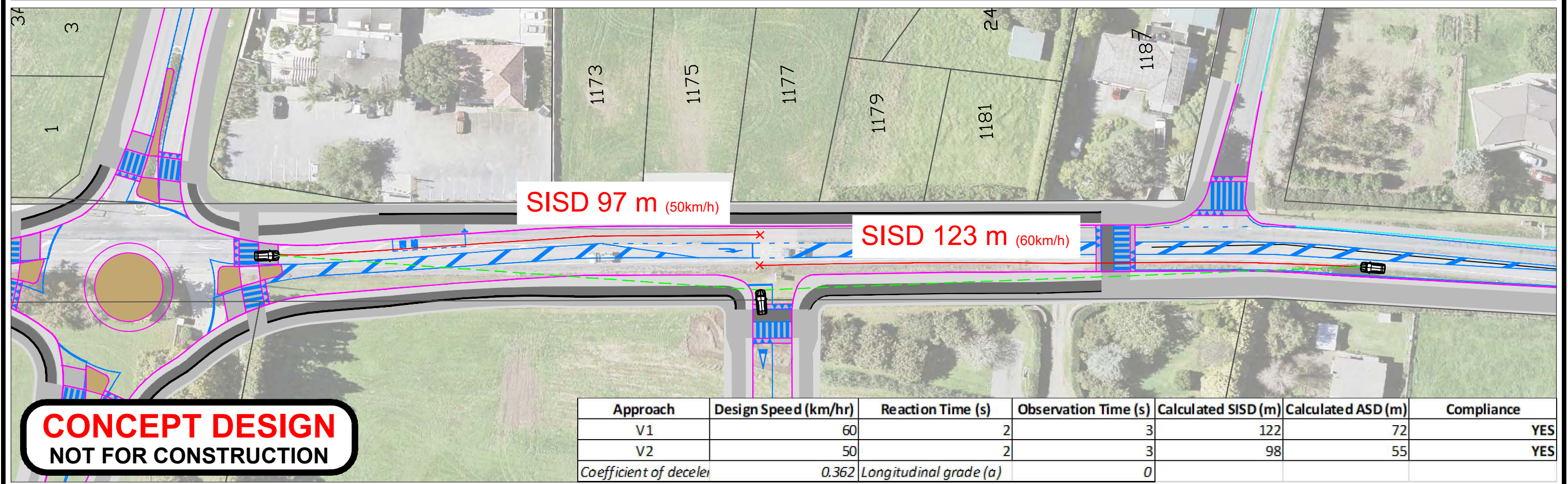
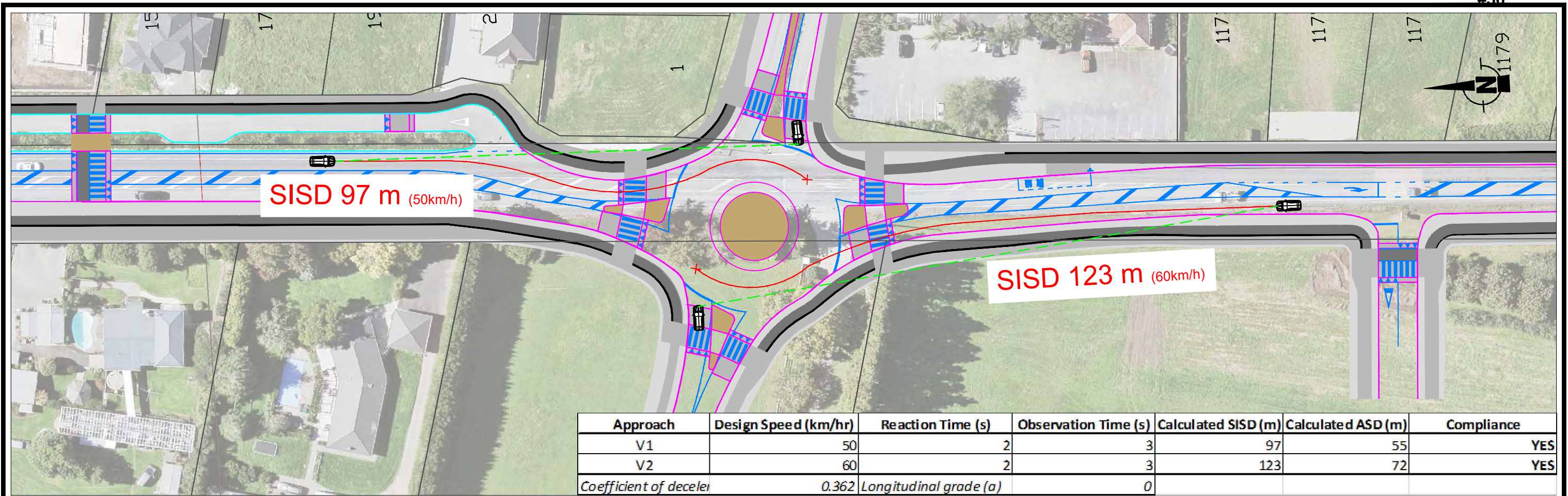




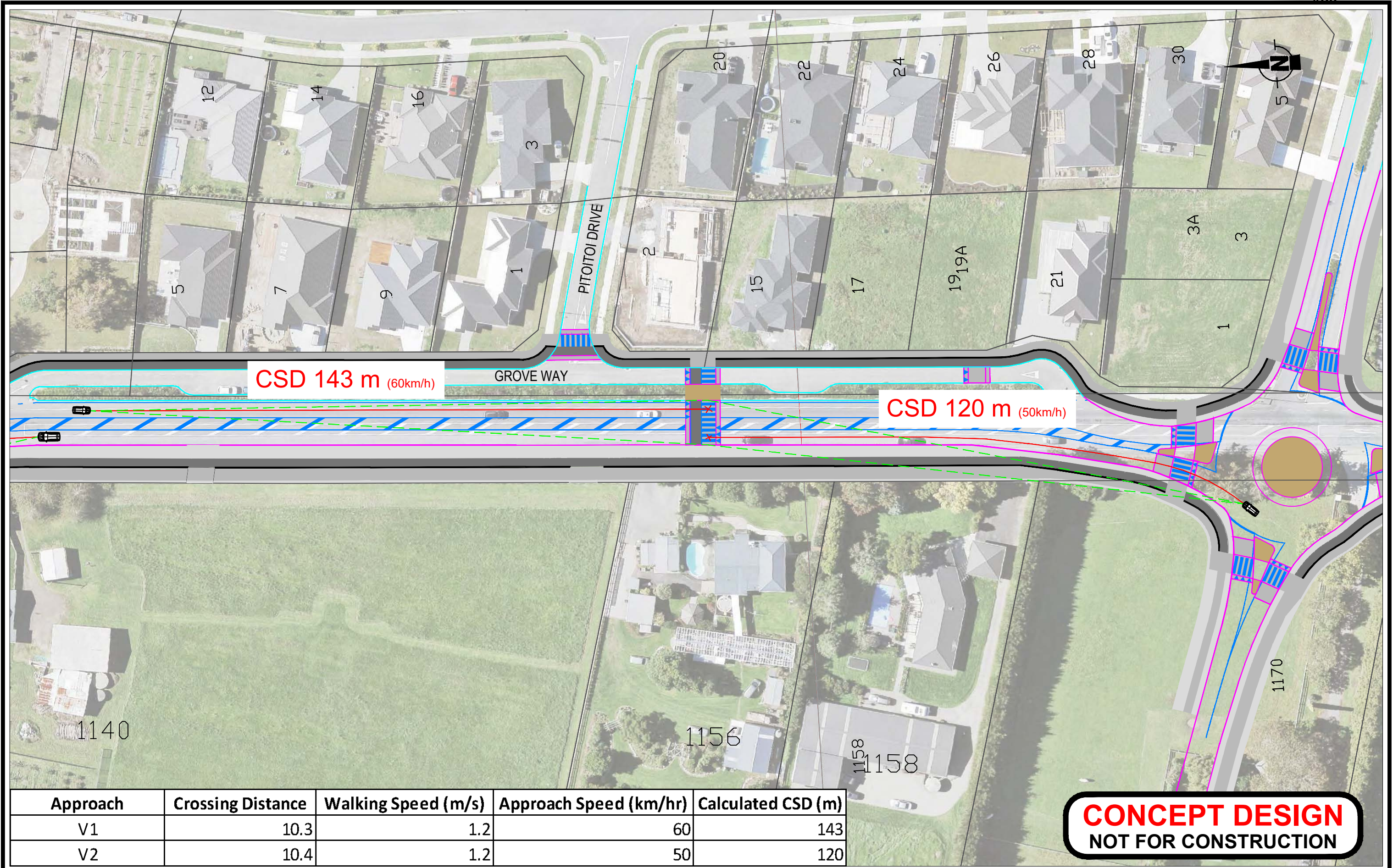


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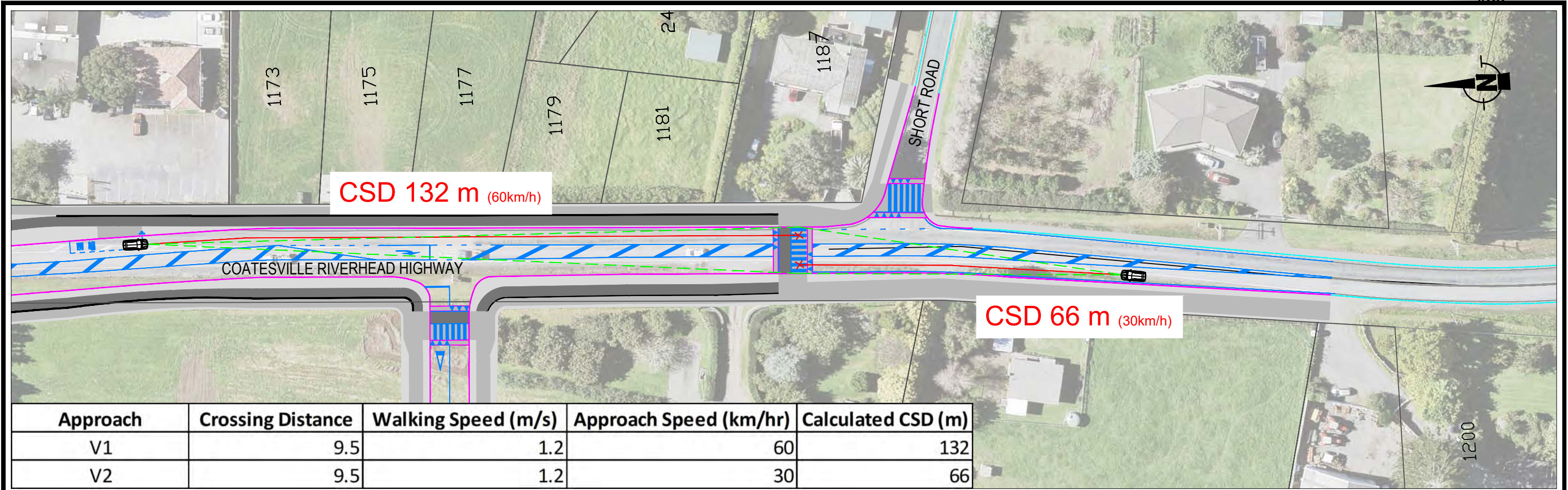




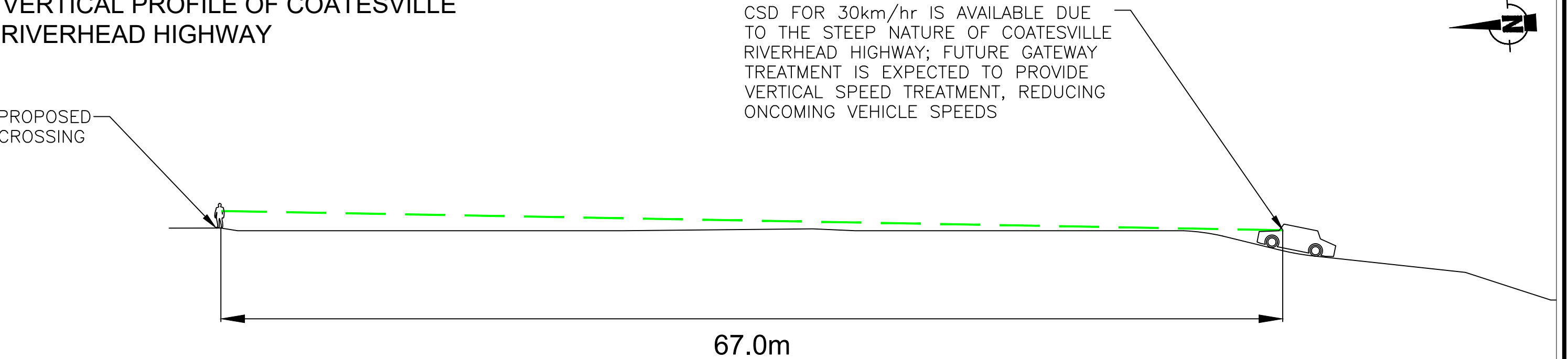
Approach	Crossing Distance	Walking Speed (m/s)	Approach Speed (km/hr)	Calculated CSD (m)
V1	10.3	1.2	60	143
V2	10.4	1.2	50	120

**CONCEPT DESIGN**  
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VERTICAL PROFILE OF COATESVILLE RIVERHEAD HIGHWAY



**CONCEPT DESIGN**  
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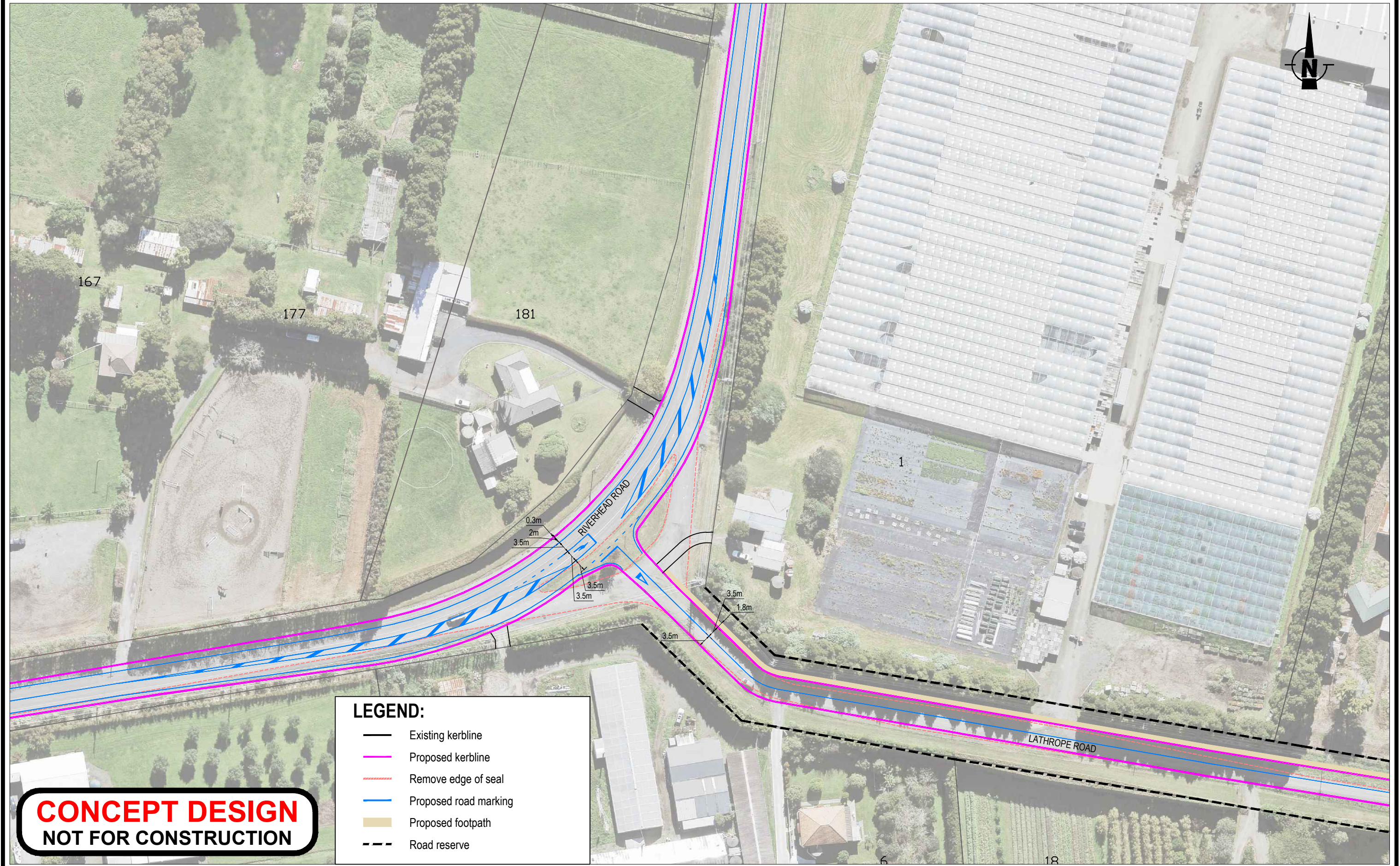


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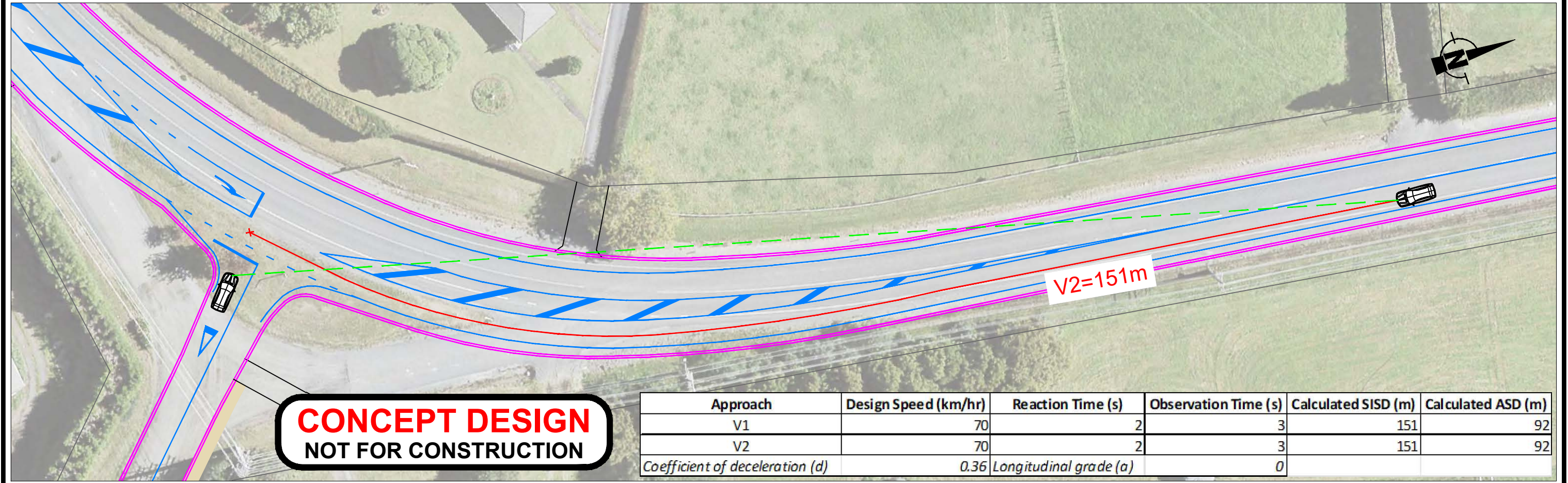
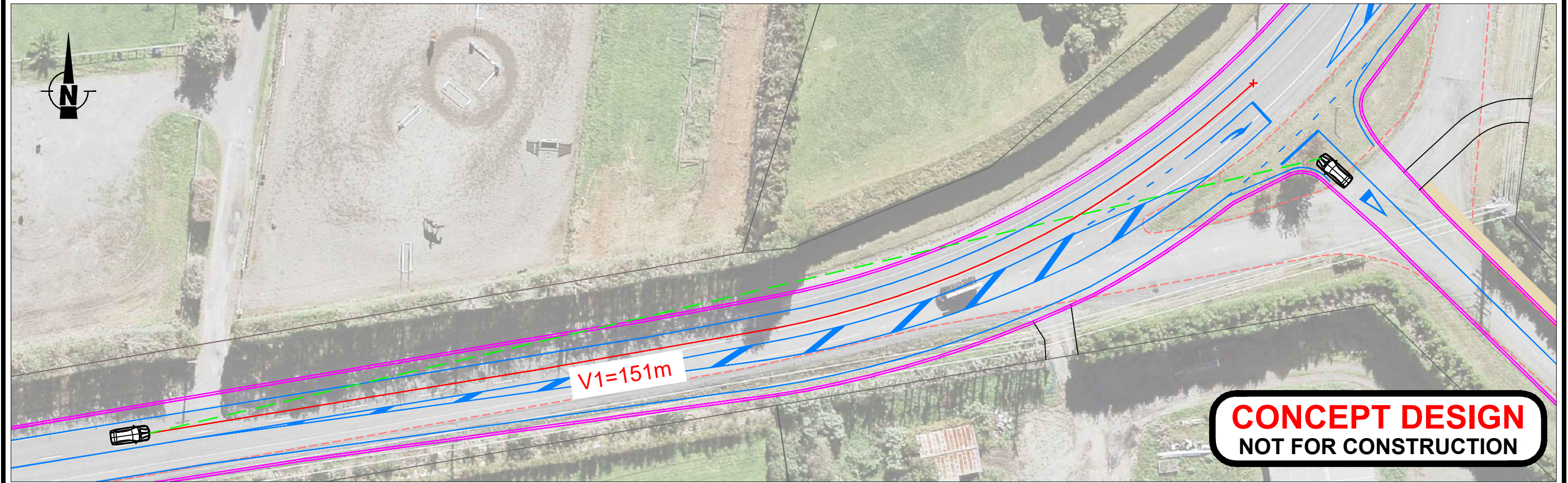
rev	status	issued
A	First Issue- Draft Issue to AT	03/11/2021
B	Issue to Fletchers	14/02/2022
C	Revised Issue	29/09/2022
D	Issue for TA	13/12/2022

Riverhead Plan Change  
Pedestrian Crossing Sight Distance (CSD)









12 of 15 sheets

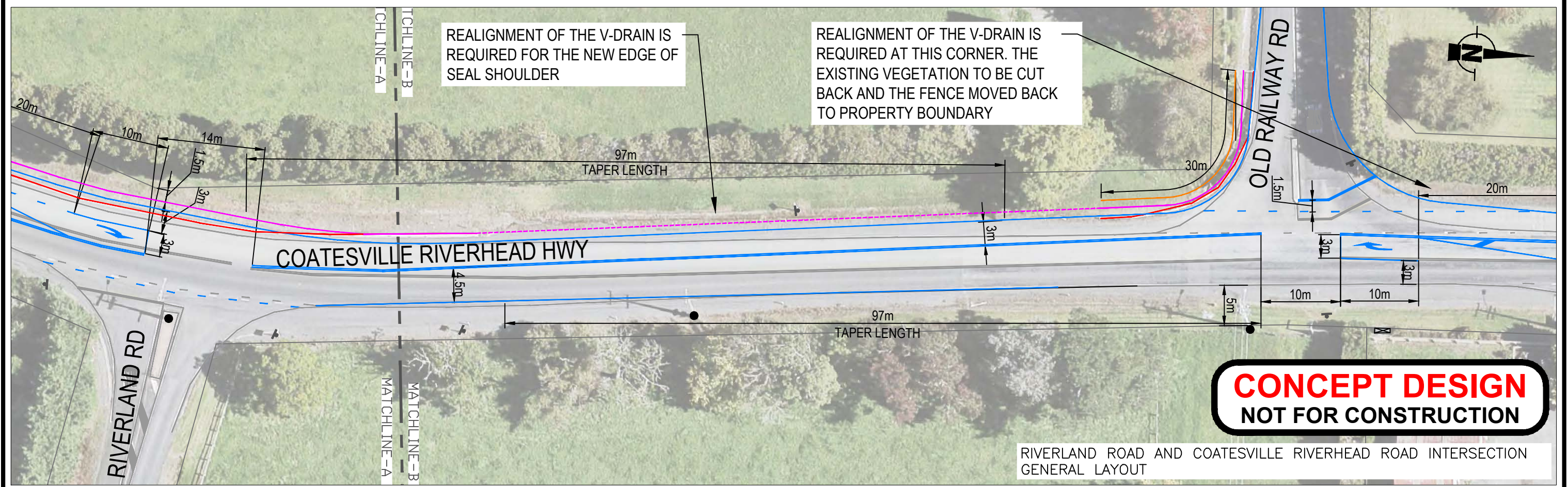
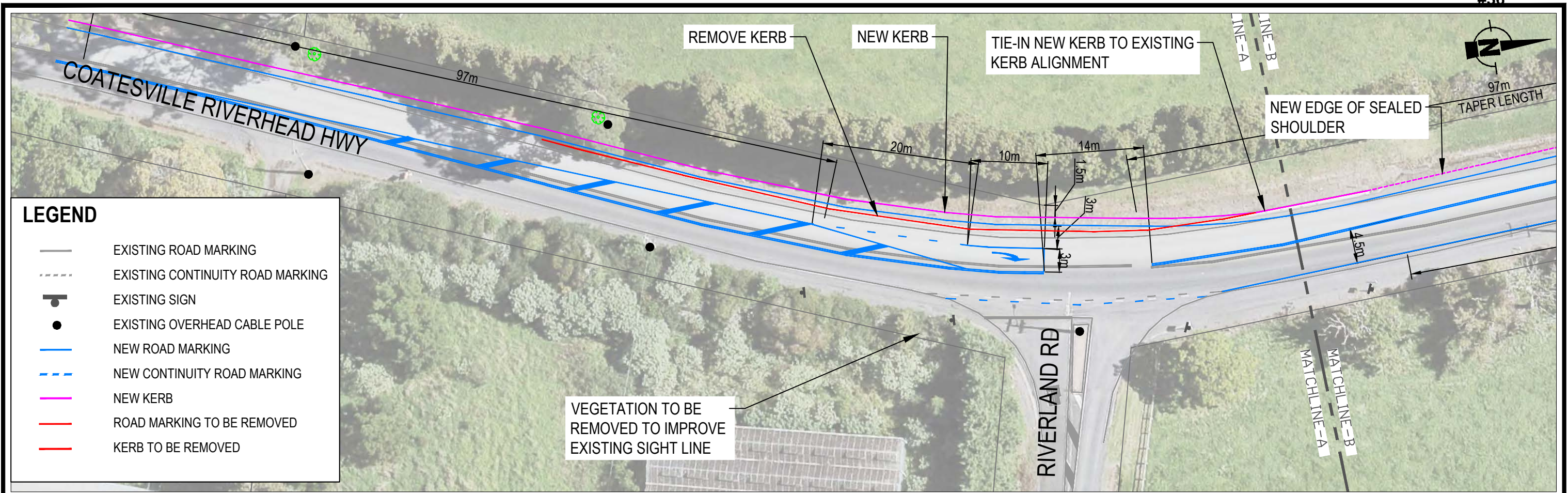
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B	Second Issue	13/12/2022

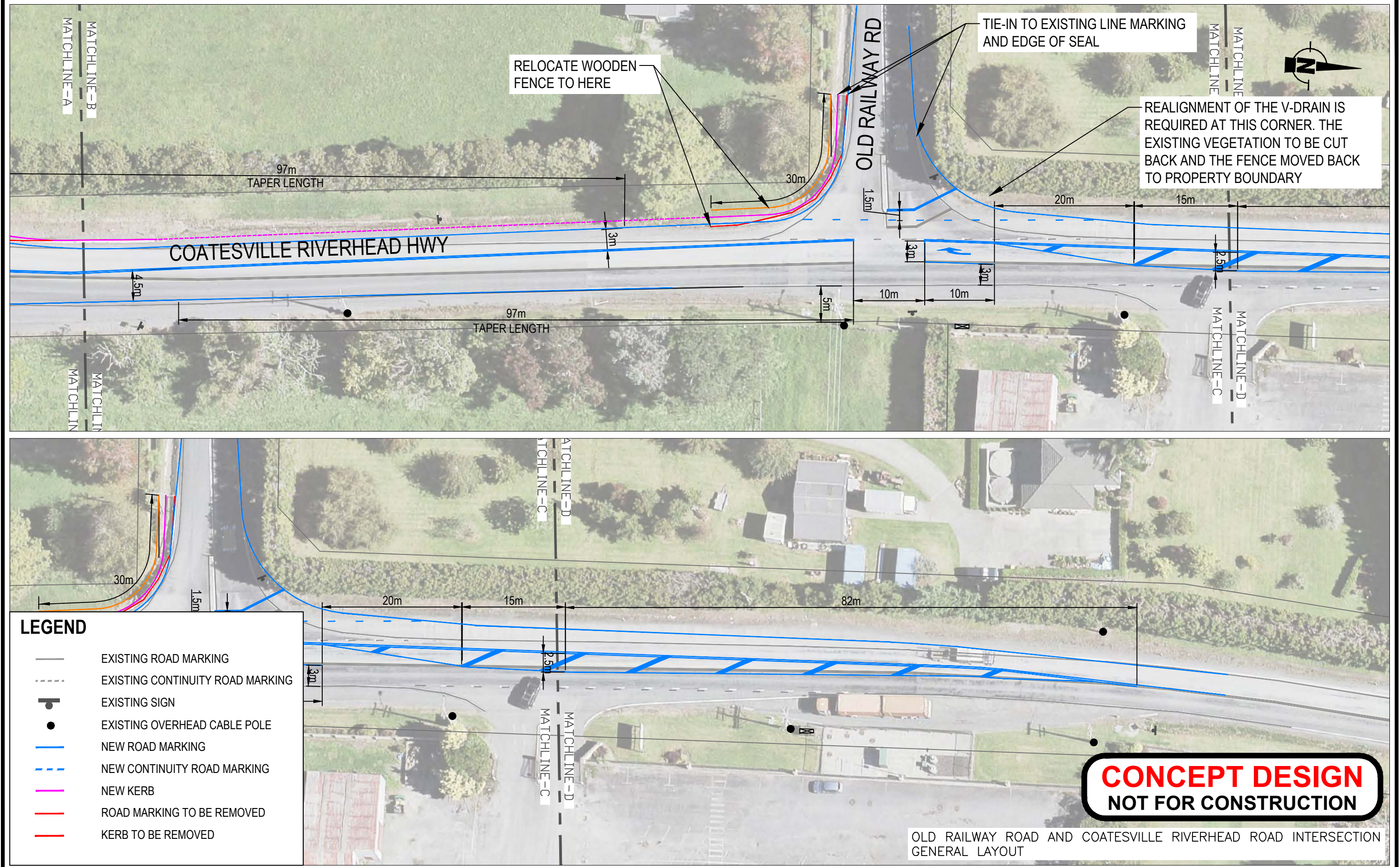
Riverhead Plan Change

Lathrope Road Intersection Concept Design

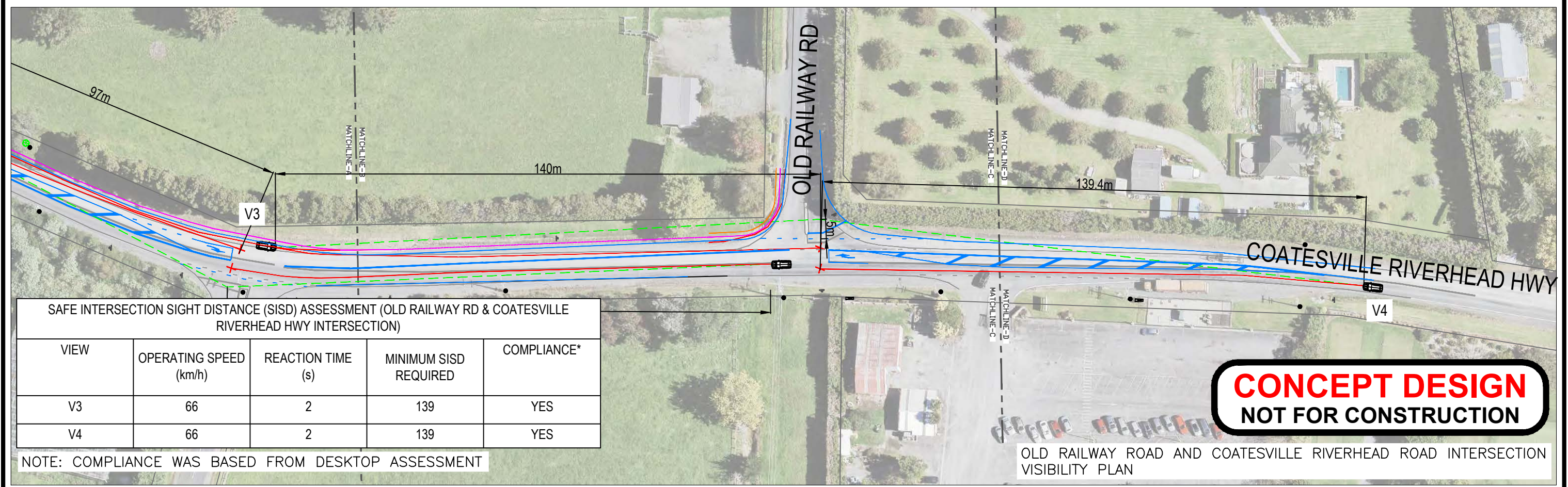
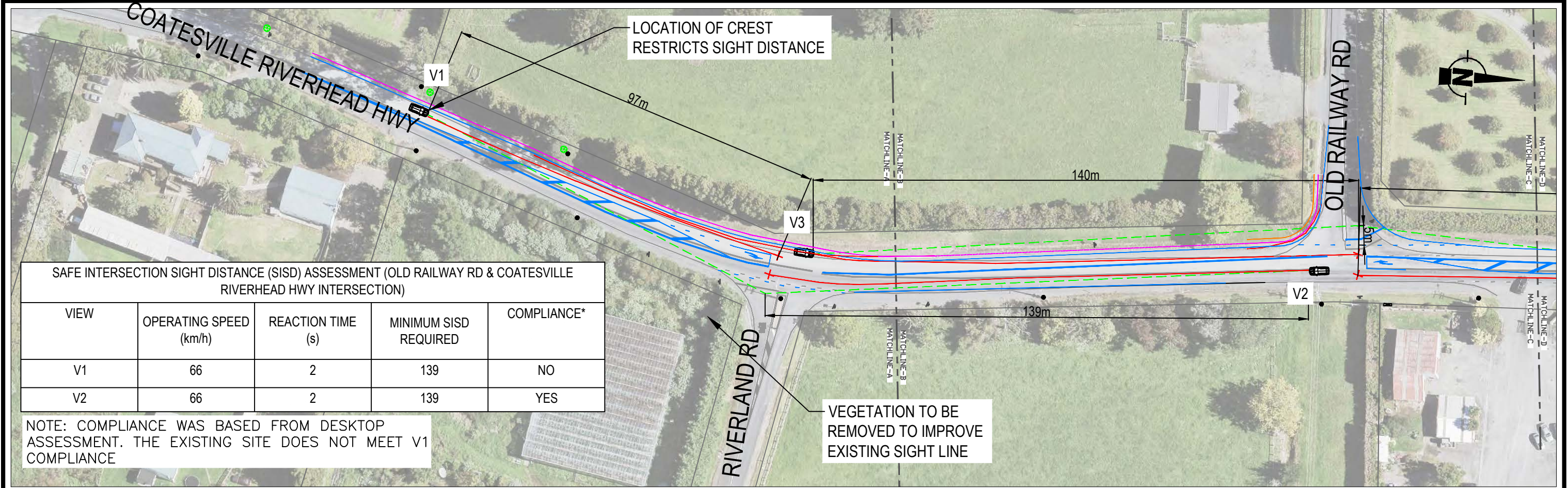
















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## APPENDIX D                      Coatesville-Riverhead Highway right turn bay assessment

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<b>PROJECT</b>	<b>RIVERHEAD PRIVATE PLAN CHANGE</b>
<b>SUBJECT</b>	<b>RIGHT TURN BAY TREATMENT REQUIREMENT</b>
<b>TO</b>	<b>KELSEY BERGIN, DARREN SOO (FLETCHERS)</b>
<b>FROM</b>	SHARMIN CHOUDHURY
<b>REVIEWED BY</b>	TERRY CHURCH
<b>DATE</b>	18 NOVEMBER 2022

---

## 1 PURPOSE OF NOTE

The Riverhead Landowner Group (RLG) is proposing a Private Plan Change that covers the Future Urban Zoned land in Riverhead. To respond to feedback received from Auckland Transport, Flow has reviewed the requirements for intersection upgrades to include right-turn bays at the Riverland Road intersection and the Old Railway Road intersection.

We have outlined, in this technical paper, the guidelines and criteria we use to determine the requirement for right-turn bays at intersections as well as indicated if the intersection upgrades are required now according to the current volumes using the intersection (that is, prior to any development within Riverhead), at the 60% development phase and at the 100% development phase.

## 2 SAFETY ISSUE

### 2.1 Safety issues with turning movements

Rear-ending crashes and side-impact crashes are the two typical crash types that take place when turning left and right at priority controlled intersections.

When vehicles slow down to turn, there is a risk that the following vehicle hits the rear of the turning vehicle (rear-ending crashes). The severity of these crashes increase as traffic volumes increase or the approach speed of the vehicle behind increases.

When vehicles turn right, there is a risk of the right-turning vehicle getting hit on the side, by a vehicle in the opposing direction (right-turn-against or side-impact crashes). Again, the severity of side-impact crashes increases in response to an increase in traffic volumes, or as the approach speed of the oncoming vehicle increases.

#### 2.1.1 Crashes at the Riverland Road intersection and the Old Railway Road intersection

The crash records of the past 5 years (2016 to 2021) indicate there have been 4 rear-end crashes involving vehicles turning right from Coatesville-Riverhead Highway into Old Railway Road, and 1 rear-end crash involving a vehicle turning right from Coatesville-Riverhead Highway into Riverland Road. Two of the rear-end crashes at the Old Railway Road intersection resulted in serious injuries.

From the crash records, we note the following

- ♦ **Right-turning** - All crashes that are related to turning movements from Coatesville-Riverhead Highway to either Riverland Road or Old Railway Road involved vehicles wanting to turn right into the side road
- ♦ **Left-turning** - There has been no record of rear-end crashes for vehicles turning left into Riverland Road or Old Railway Road
- ♦ **Side-impact crashes** - There have been no side-impact crashes at either intersection
- ♦ **Speed limit lowered** - There have been no turning movement crashes since the speed limit on Coatesville-Riverhead Highway (between SH16 and Riverhead village) was reduced to 60km/h.

Based on the above, we conclude the following

- ♦ **Rear-end crashes for left and right turning movements.** At the time of the crashes at the Riverland Road intersection and the Old Railway Road intersection, the posted speed limit on Coatesville-Riverhead Highway was higher (at 80km/h) which worsened the severity of the crashes. As the speed limit on Coatesville-Riverhead Highway adjacent to the intersections is now reduced to 60km/h, we expect that the frequency and severity of rear-end crashes will reduce and should they occur, will have a reduced severity.
- ♦ **Side impact crashes for right-turning movements.** When the traffic volumes increase along the Coatesville-Riverhead Highway (as a result of development), there is a risk that vehicles waiting to turn right, in trying not to cause further delay to the vehicles behind, would make unsafe right turn manoeuvres when there may be insufficient gaps within oncoming traffic. The angle of the crash, and the operational speed of around 65-70km/h, means there is a risk of a high severity of side-impact crashes.

With no inherent safety concern existing for left turning traffic, **our focus in this technical note is only on right-turn movements** with the objective to determine the requirement and timing for right-turn treatment at the Riverland Road intersection and the Old Railway Road intersection.

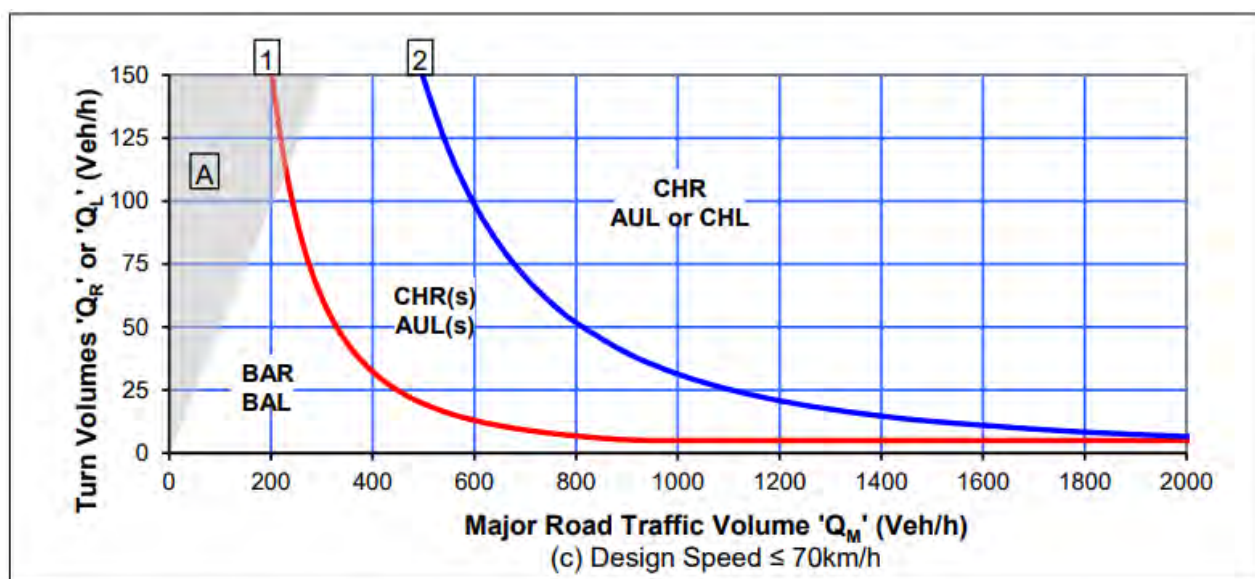
### 3 WARRANT FOR RIGHT TURN BAY TREATMENT

We refer to the Austroads' Guide to Traffic Management Part 6 which provides the warrants we use to determine the requirement for turn treatments at intersections. The warrants are for both urban and rural roads and apply to turning movements from the major road only (the road with priority) which in this case, is Coatesville-Riverhead Highway.

The warrants are typically based on the construction of intersections on new roads, however, they are also used as a reference for intervention levels when upgrading existing intersection turn treatments although it is also recognised that many existing intersections (particularly those on low-volume lower-order roads) are of a lower standard.

Considering the current speed limit is 60km/h along the Coatesville-Riverhead Highway, we have assumed a design speed of 70km/h. The warrant for turn treatments on roads at a design speed of 70km/h is shown in Figure 1.

Figure 1 – Warrant for turn treatments



Note: the minimum right-turn treatment for multilane roads is a CHR(s).

Source: TMR (2016a).

The warrant in the above figure above considers three types of right-turn treatments

- ♦ A basic right-turn treatment (BAR) provides a widened shoulder on the major road that allows through-movement vehicles, having slowed, to pass to the left of turning vehicles
- ♦ A channelised right-turn treatment with short lane (CHR(s)) separates the conflicting vehicle travel paths and provides a short length for the deceleration lane by assuming there is a 20% speed reduction at the start of the taper<sup>1</sup>
- ♦ A channelised right-turn treatment (CHR) provides a full-length deceleration lane by assuming no speed change across the intersection.

In the above figure, curve 1 (red) represents the boundary between a BAR and a (CHR(S)) turn treatment on two-lane two-way roads. Curve 2 (blue) represents the boundary between a CHR(S) and a CHR turn treatment.

<sup>1</sup> Austroads 2021: Guide to Road Design Part 4A: Unsignalised and Signalised Intersections, Section 5.2.1



## 4 PROPOSED DEVELOPMENT

### 4.1 Intersection assessment

The two intersections Auckland Transport has requested a safety assessment for and the location of both relative to the Riverhead Private plan Change are shown in Figure 2.

Figure 2 – Private plan change site and location of intersections under consideration



### 4.2 The intersections

Old Railway Road and Riverland Road intersect with Coatesville-Riverhead Highway and are located south of the Private Plan Change site. Each intersection currently operate as stop-controlled T-intersections with no medians, shoulder widening, or right turn bays on Coatesville-Riverhead Highway, as shown in Figure 3.

Figure 3 – Existing Layout of intersections

Old Railway Road intersection



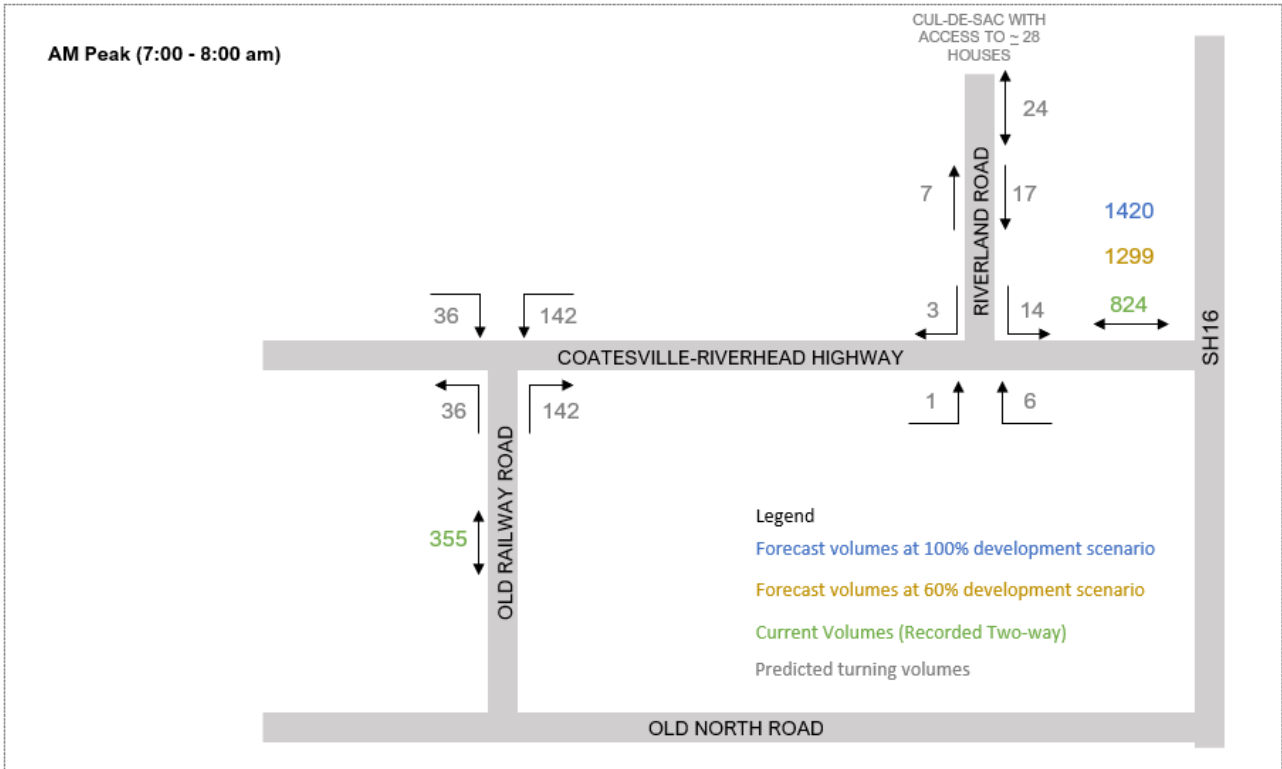
Riverland Road intersection

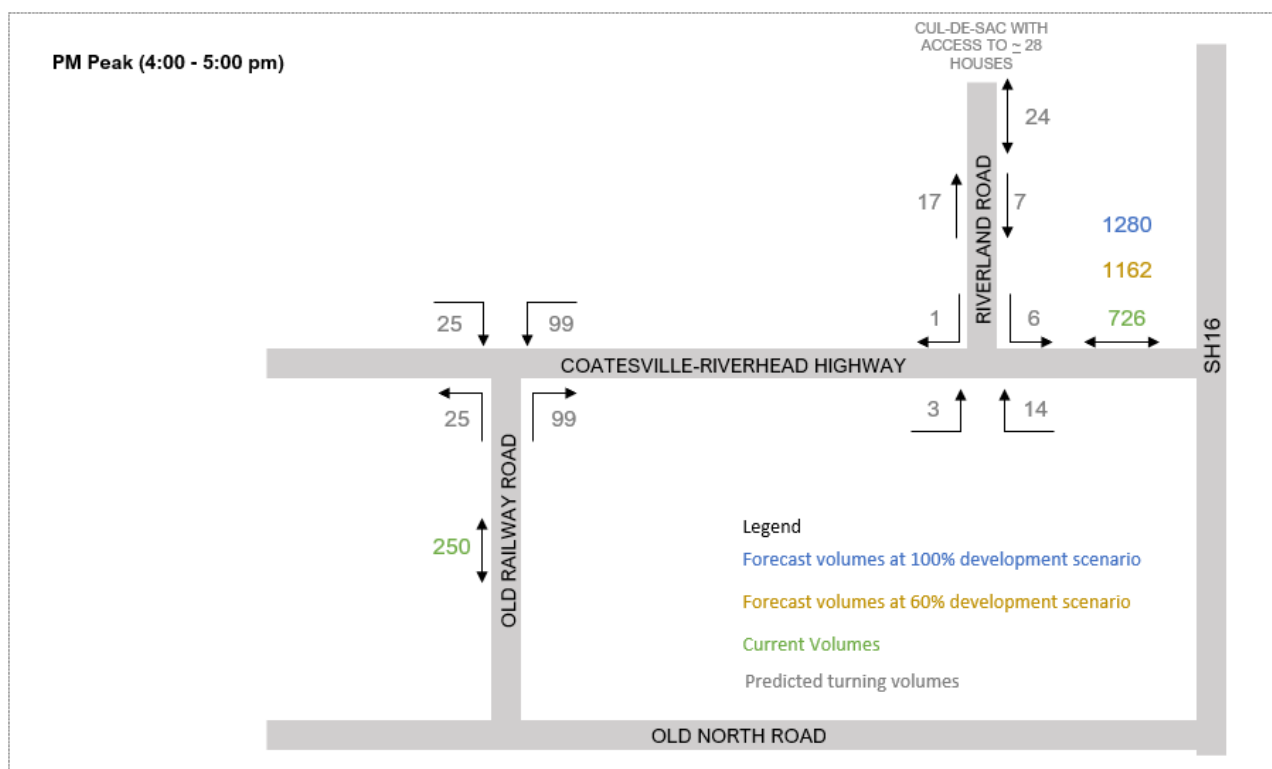


4.3 Traffic flows

The existing traffic flows along Coatesville-Riverhead Highway in the existing scenario, the 60% development phase, and the 100% development phase have been mapped in Figure 4 below.

Figure 4 – Peak hour traffic flows per scenario





We have based the traffic volumes shown in the figure above on the following assumptions:

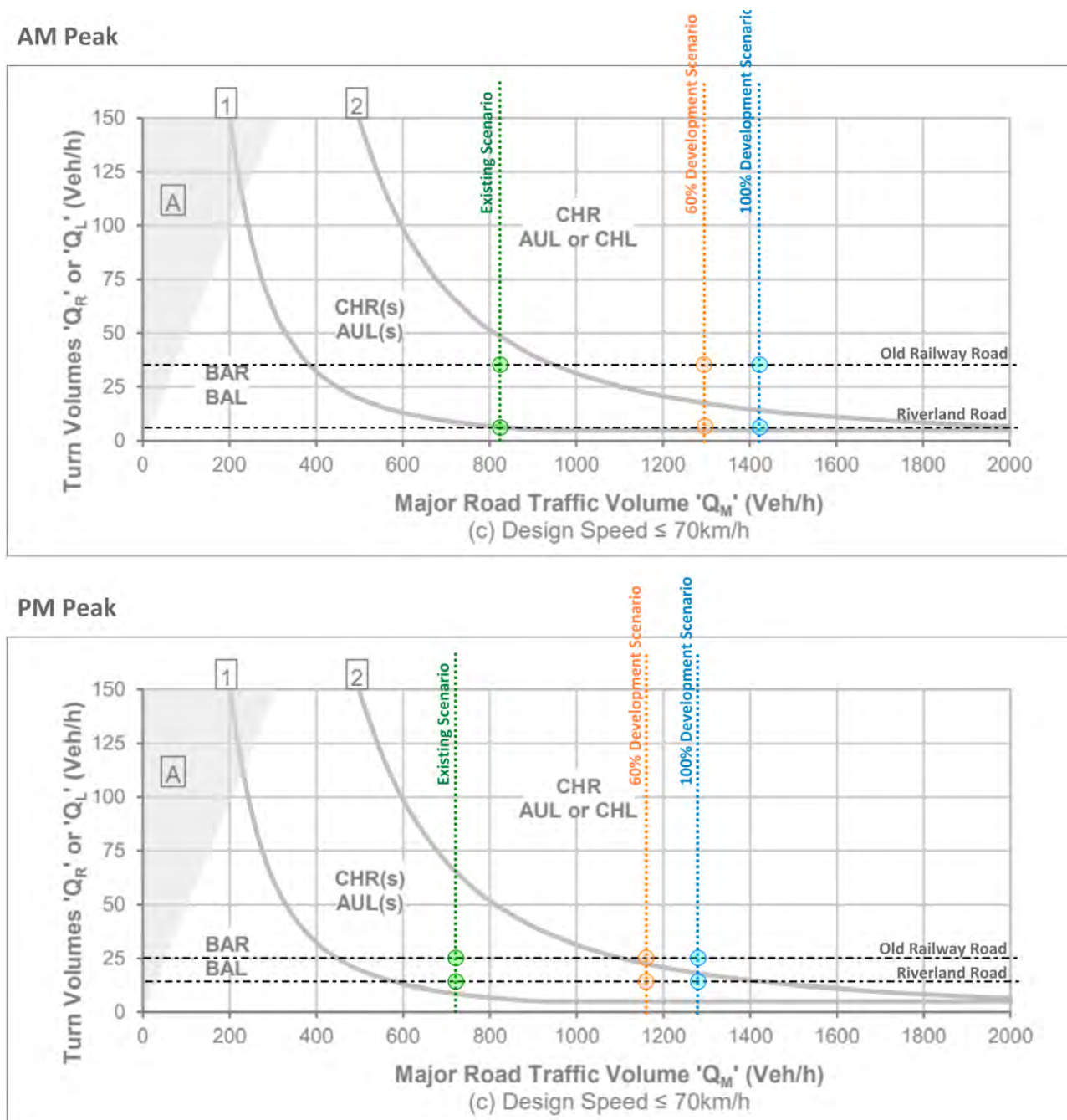
- ♦ Coatesville-Riverhead Highway volumes are based on Auckland Transport's traffic count data in May 2022, with forecast volumes being based on development yields associated with the Private Plan Change
- ♦ Old Railway Road volumes are based on Auckland Transport's traffic count data in March 2021 for Old Railway Road between Old North Road and Coatesville Riverhead Highway
- ♦ Volumes for Riverland assume a trip rate of 0.85 per dwelling. We have estimated 24 dwellings
- ♦ A 50% directional split is assumed along Old Railway Road and Riverland Road
- ♦ Riverland Road will experience 70% of its traffic going towards Coatesville-Riverhead Highway in the AM peak and vice-versa in the PM peak
- ♦ 80% of vehicles from the side roads will turn towards SH16 and the remainder will turn towards Riverhead.



## 4.4 The warrant for turn treatments

The current and predicted traffic volumes for each scenario (current, 60% development and 100% development) have been mapped onto the warrant as shown in Figure 5.

Figure 5 – Warrant maps for each scenario for both intersections



The warrant indicates that

- ♦ for the existing scenario, there is a requirement for a channelised turn treatment at the intersection with Riverland Road albeit the traffic demand is very low. There is however a high demand for a channelised treatment at the Old Railway Road intersection
- ♦ when increasing traffic volumes on Coatesville-Riverhead Highway (resulting from the uptake of development), the demand for a channelised turn treatment significantly increases.



## 5 SUMMARY

We have reviewed the requirement for right-turn bay treatments at the Coatesville-Riverhead Highway intersections with Old Railway Road and Riverland Road. Our review is based on the Austroads' Guide to Traffic Management Part 6 which provides the warrants for both urban and rural roads. The warrants are typically based on the construction of intersections on new roads, (greenfield sites) however, they are also used as a reference for intervention levels when upgrading existing intersection turn treatments. The guide recognises that many existing intersections are of a lower standard.

We reviewed the crashes involving traffic turning right or left, as well as the traffic flows and volumes for the existing scenario (no development), a 60% development scenario, and a 100% development scenario against the warrant and find the following

- ◆ At the Riverland Road intersection, the warrant indicates there is some demand for a channelised turn treatment in the existing scenario however the crash record indicates the current demand for it is low
- ◆ At the Old Railway Road intersection, the warrant indicates that the demand for a channelised turn treatment is high in the existing scenario
- ◆ In both the 60% development scenario and the 100% development scenario, the predicted increase in traffic flows indicate a high demand for channelised turn treatments at both intersections
- ◆ The increase in traffic using Coatesville-Riverhead Highway may also lead to an increase in delays experienced by turning vehicles and therefore an increase in risk to vehicles turning into the side roads.

Therefore, to achieve safe outcomes for each intersection, right-turn bays are recommended for the Old Railway Road intersection pre-development but for the Riverland Road intersection, right-turn bays may be provided at the 60% development scenario.

This technical note is focused solely on the safety implications due to the planned development, for right turn movements from Coatesville-Riverhead Highway to Old Railway Road and Riverland Road.

Reference: P:\frlx\015 Fletchers Riverhead Masterplan and Private Plan Change\Reporting\TN6A221118\_Right turn bay assessment.docx - Sharmin Choudhury

**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Jeremy Quiding  
**Date:** Monday, 6 May 2024 4:16:02 pm

---

The following customer has submitted a Unitary Plan online submission.

#### **Contact details**

Full name of submitter: Jeremy Quiding

Organisation name:

Agent's full name:

Email address: jquiding@hotmail.com

Contact phone number:

Postal address:

Auckland

#### **Submission details**

##### **This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### **My submission relates to**

Rule or rules:

Property address: the FUZ zone in its entirety

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

Given the recent flooding events, and traffic issues that have been identified locally and the public admittance that public entities do not have sufficient resource or funds to complete the works in a meaningful timeframe. The proposal provided by the applicant will resolve a number of the local issues including stormwater management and traffic management at no cost to the public and in a much accelerated timeframe which will benefit all residents of the community.

I or we seek the following decision by council: Approve the plan change without any amendments

37.1

Details of amendments:

Submission date: 6 May 2024

#### **Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Danni-Lee Corkery](#)  
**To:** [Unitary Plan](#)  
**Subject:** Concerns Regarding Proposed Subdivision in Riverhead Community  
**Date:** Monday, 6 May 2024 4:23:11 pm

---

To Whom It May Concern,

I am writing to express my concerns and submit my objections to the proposed subdivision in our Riverhead community. While I understand the need for development and growth, it is crucial that any expansion is accompanied by forward-thinking planning and consideration for the existing infrastructure and resources.

One of my primary concerns is the strain on our community's amenities and services. As it stands, our local school is already struggling to meet the needs of its students. There is a severe shortage of teachers and classrooms, evidenced by the use of portable buildings to accommodate the overflow. The field area is being steadily taken over by portable buildings. The addition of more housing will only exacerbate this issue. Furthermore, the lack of high school options is a major problem for further residential development. It's almost unbelievable that there dirt is not already being turned in the Kumeu area for a new high school given the development that has already occurred in the last 10 years. We urgently require another primary and high school to alleviate the pressure on the existing facilities.

The increased population resulting from the proposed subdivision will undoubtedly worsen the traffic congestion in our area. The current road infrastructure is inadequate to support the existing population, let alone the influx of new residents. We must address these roadways' capacity and safety concerns before proceeding with further development.

In addition to education and transportation, we must also consider the availability of essential services such as shops, recreational facilities such as swimming pools and gyms, and medical facilities. The influx of new residents will place additional strain on these resources, potentially leading to shortages and longer wait times for essential services.

While I am supportive of growth and progress, it must be managed responsibly to ensure the well-being and sustainability of our community. I urge the authorities to carefully consider building out the infrastructure in advance of the new development, in a complete manner so the area is ready for this development before it commences.

38.1

I trust that the council will factors and prioritise the long-term interests of both existing and future residents in any decisions regarding the proposed subdivision.

Thank you for considering my submission.

Sincerely,

Danni-Lee Corkery





**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Thomas Osborne  
**Date:** Monday, 6 May 2024 5:15:49 pm

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Thomas Osborne

Organisation name:

Agent's full name: Tom Osborne

Email address: tom.osborne@gmail.com

Contact phone number:

Postal address:  
 239 Muriwai Valley Road  
 RD1  
 Muriwai  
 Muriwai 0881

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:  
 n/a

Property address: Riverhead Road

Map or maps: n/a

Other provisions:  
 n/a

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

The existing transport infrastructure, including both that in place, that proposed or planned by Waka Kotahi, and that proposed under the plan change, is manifestly insufficient in scope and scale to support 80.5ha of re-zoned land being pushed into development, particularly when nearly 40ha are controlled by a major residential developer who will push for profitable housing over development within sustainable levels. Any development should be considered, and adequate discussions held, after the completion of associated / required infrastructure, including the mooted RTC and Kumeu bypass.

I or we seek the following decision by council: Decline the plan change

39.1

Submission date: 6 May 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Scott page  
**Date:** Monday, 6 May 2024 6:15:46 pm

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Scott page

Organisation name:

Agent's full name:

Email address: scottypage@gmail.com

Contact phone number:

Postal address:

731e ridge road

Riverhead

Auckland 0793

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:

rezone 6 ha of land in Riverhead from Future Urban to Rural-Mixed Rural zone and 75.5 ha to a mix of Residential – Mixed Housing Suburban, Residential – Terrace Housing and Apartment Building, Business – Local Centre and Business – Neighbourhood Centre zones with associated precinct provisions.

Property address:

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

We already have issues with limited school capacity that will not keep up with demand, flooding issues that are unresolved and will only be exacerbated by further intensification. Transport links out of riverhead cannot cope with current population let alone more

I or we seek the following decision by council: Decline the plan change

40.1

Submission date: 6 May 2024

#### Attend a hearing

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Monte Neal  
**Date:** Monday, 6 May 2024 6:30:44 pm

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Monte Neal  
Organisation name:  
Agent's full name: Monte Neal  
Email address: nealsorchard@xtra.co.nz  
Contact phone number:  
Postal address:  
PO Box 62  
KUMEU  
AUCKLAND 0891

**Submission details**

**This is a submission to:**  
Plan change number: Plan Change 100 (Private)  
Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:  
PC 100 (Private): Riverhead  
Property address:  
Map or maps: <https://www.aucklandcouncil.govt.nz/UnitaryPlanDocuments/04-pc100-app-2-pc-zoning-map.pdf>

Other provisions:  
Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:  
The Township of Riverhead lacks infrastructure i.e ,Artier Routes in and out of Riverhead ,Roothing ,Schools, Cycleways . To allow any more Housing or other building to take place before these things esp Roothing would be a very unwise decision

I or we seek the following decision by council: Decline the plan change, but if approved, make the amendments I requested

41.1

Details of amendments: Decline the plan change, but if approved, make the amendments I requested

41.2

Submission date: 6 May 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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Legend

Riverhead Precinct Boundary

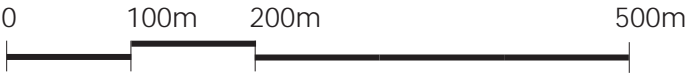
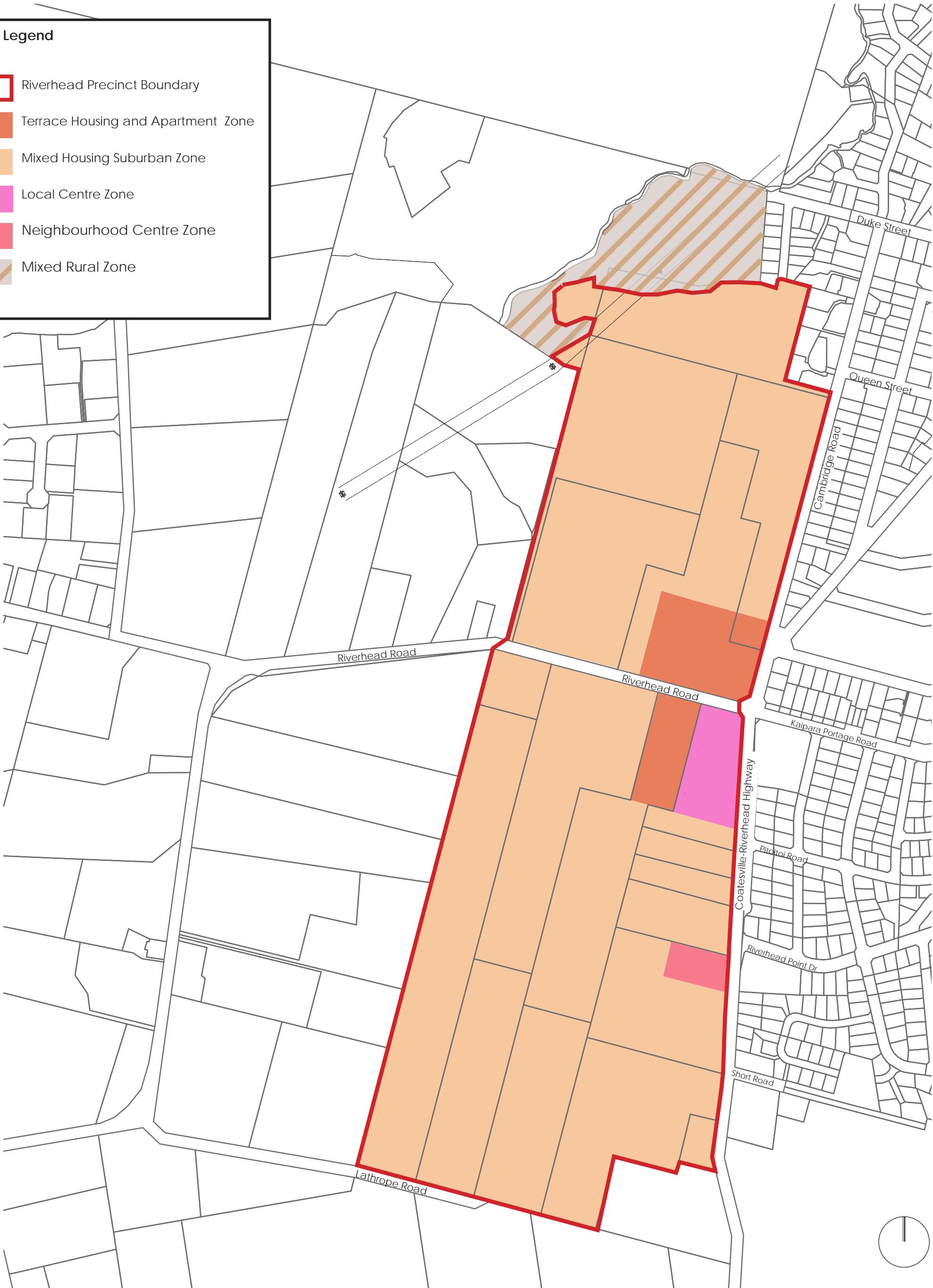
Terrace Housing and Apartment Zone

Mixed Housing Suburban Zone

Local Centre Zone

Neighbourhood Centre Zone

Mixed Rural Zone



RIVERHEAD PRECINCT - ZONING PLAN

**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - FANG YANG  
**Date:** Monday, 6 May 2024 7:30:44 pm

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: FANG YANG

Organisation name:

Agent's full name:

Email address: 888fangyang@gmail.com

Contact phone number: 0211888208

Postal address:

34 manor park sunnyhills

pakuranga

auckland 2010

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:

Property address: 97 Old Railway Road

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

I wish the property can become Mixed Housing zone

I or we seek the following decision by council: Approve the plan change without any amendments

42.1

Details of amendments:

Submission date: 6 May 2024

#### Attend a hearing

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?  
Yes



**Declaration**

Could you gain an advantage in trade competition through this submission? Yes

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Ari King  
**Date:** Tuesday, 7 May 2024 8:15:07 am

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Ari King  
Organisation name: Local Riverhead community  
Agent's full name:  
Email address: ari.davies@live.com  
Contact phone number: 0273386149  
Postal address:  
59 Diamond Lane  
Riverhead  
Auckland 0793

**Submission details**

**This is a submission to:**  
Plan change number: Plan Change 100 (Private)  
Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:  
Property address: Multiple addresses purchased by Fletchers to be developed  
Map or maps: Riverhead  
Other provisions:  
A major residential development in Riverhead is planned to go ahead without any commitment to necessary and long overdue roading infrastructure upgrades.  
Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified  
Do you wish to have the provisions you have identified above amended? Yes  
The reason for my or our views are:  
The roads around Riverhead are already far over subscribed, the population has multiples several times over in the last decade and yet zero roading capacity increases have been taken forward by Auckland Transport or NZTA. This new major development will add further more burden on the local roading network that will be unworkable. The infrastructure must come before more major development.

I or we seek the following decision by council: Approve the plan change with the amendments I requested	43.1
Details of amendments: Deliver road capacity increases both west and north from Riverhead.	43.2
Deliver stormwater and electricity capacity increases	43.3

Submission date: 7 May 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?  
Yes

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Nicholas McKay  
**Date:** Wednesday, 8 May 2024 8:30:49 am

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Nicholas McKay  
Organisation name:  
Agent's full name:  
Email address: nickmckay@outlook.co.nz  
Contact phone number:  
Postal address:  
31 Pitoitoi Drive  
Riverhead  
Auckland 0820

**Submission details**

**This is a submission to:**  
Plan change number: Plan Change 100 (Private)  
Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:  
Property address: 31 Pitoitoi Drive Riverhead  
Map or maps: All  
Other provisions:  
All  
Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified  
Do you wish to have the provisions you have identified above amended? No  
The reason for my or our views are:  
Roads & schooling need improving. Also placing it on a flood plain what do you think will happen?

I or we seek the following decision by council: Decline the plan change  
Submission date: 8 May 2024

44.1

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No



Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Glenn Gowthorpe  
**Date:** Wednesday, 8 May 2024 9:45:51 am

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Glenn Gowthorpe

Organisation name:

Agent's full name: Glenn Gowthorpe

Email address: gupmyster@gmail.com

Contact phone number:

Postal address:  
 22 Domain Crescent  
 Waimauku  
 Waimauku 0881

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:

Private plan change request to rezone 80.5 ha of land in Riverhead from Future Urban to a mix of Residential – Mixed Housing Urban, Residential – Terrace Housing and Apartment Building, Business – Local Centre and Business – Neighbourhood Centre zones with associated precinct provisions.

Property address:

Map or maps: as per the documentation on the Auckland Council website here  
[https://infocouncil.aucklandcouncil.govt.nz/Open/2023/05/20230504\\_PEPCC\\_AGN\\_11305\\_files/20230504\\_PEPCC\\_AGN\\_11305\\_Attachment\\_92771\\_2.PDF](https://infocouncil.aucklandcouncil.govt.nz/Open/2023/05/20230504_PEPCC_AGN_11305_files/20230504_PEPCC_AGN_11305_Attachment_92771_2.PDF)

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

The traffic network in the area cannot handle the current volumes of traffic and will be significantly negatively impacted if a development of the proposed size occurs. I don't oppose development but do oppose development without FIRST increasing the necessary infrastructure (state highway and not just local roading) to support development. My life is negatively impacted by the current SH16 traffic and will be further negatively impacted by adding a further development of 1450 - 1750 dwellings in Riverhead.

Furthermore, the trip generation detail in the application is flawed as it uses 2022 data which is significantly out of whack with current traffic volumes - given that immediately post covid there were large numbers working from home who have now been forced to return to the office. The modelling is therefore assessed as being based on false data.

I or we seek the following decision by council: Decline the plan change

45.1

Submission date: 8 May 2024

#### Attend a hearing

Do you wish to be heard in support of your submission? No

#### Declaration

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

# Riverhead

## Private Plan Change Request

Section 32 Assessment Report

12 December 2022

**B&A**  
Urban & Environmental

Prepared for:  
Riverhead Landowner Group

B&A Reference:

18369

Status:

Final Revision 2

Date:

12 December 2022

Prepared by:



**Rebecca Sanders**

Associate, Barker & Associates



**Kasey Zhai**

Senior Planner, Barker & Associates



**Sarah Rendle**

Associate, Barker & Associates

Reviewed by:



**Karl Cook**

Director, Barker & Associates Limited



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Appendix 17:	Arborist Report
Appendix 18:	Consultation Report

## 1.0 Applicant and Property Details

---

To:	Auckland Council
Site Location:	Riverhead Road, Coatesville-Riverhead Highway, Cambridge Road, and Duke Street, Riverhead
Applicant Name:	Riverhead Landowner Group
Address for Service:	Barker & Associates Ltd PO Box 1986 Shortland Street Auckland 1140 Attention: Karl Cook / Sarah Rendle
Plan Change Area:	Approximately 80.5ha
Unitary Plan:	Auckland Unitary Plan (Operative in Part) ('AUP')
AUP Zoning:	Future Urban
Locality Diagram:	Refer to <b>Figure 3</b> .
Brief Description of Proposal:	Private plan change request to rezone 80.5 ha of land in Riverhead from Future Urban to a mix of Residential – Mixed Housing Urban, Residential – Terrace Housing and Apartment Building, Business – Local Centre and Business – Neighbourhood Centre zones with associated precinct provisions.



## 2.0 Executive Summary

---

The Riverhead Landowner Group ('RLG') is applying for a plan change to the Auckland Unitary Plan (Operative in Part) ('AUP') to rezone approximately 80.5ha of land in Riverhead from Future Urban to a mix of residential zones with a small Local Centre and Neighbourhood Centre, consistent with the Riverhead Structure Plan. The rezoning proposal provides capacity for approximately 1500-1800 dwellings.

The Plan Change also includes a precinct, which details refined residential density standards for the Residential Terrace Housing and Apartment Building and Residential – Mixed Housing Urban zones and in response to the locational attributes of the Plan Change area. The precinct also details the indicative road and open space network, stormwater management, provisions to recognise Mana Whenua values including the provision of a cultural landscape map, and ensure that development progresses with the availability of infrastructure.

The Future Urban Land Supply Strategy ('FULSS') identifies Kumeu, Huapai and Riverhead together as being collectively 'development ready' in 2028-2032, with potential to accommodate 6,600 new dwellings. The FULSS is a non-statutory document and is a high-level staging plan for Auckland's future urban areas. The more detailed analysis undertaken as part of this proposal supports an earlier release of Riverhead for development. The reasons for this are summarised as follows:

- The FULSS assumes that Riverhead is subject to the same infrastructure constraints as Kumeu and Huapai, when there is generally sufficient infrastructure capacity to accommodate future development in Riverhead now, without the need for significant upgrades;
- The entities which form the RLG (Fletcher Residential Limited, The Neil Group, and Matvin Group) have an established track record in commercial and residential development and are uniquely placed to deliver a significant volume of housing in Riverhead at pace and to a high standard;
- The technical analysis undertaken in support of this Plan Change, in particular the Integrated Transport Assessment and Water and Wastewater Servicing Strategy, demonstrates that the land can be developed with targeted upgrades in place; and
- Rules are included within the Plan Change to coordinate the release of development capacity within the Plan Change area with the delivery of required transport infrastructure. Additionally, assessment criteria will ensure development can be serviced by water and wastewater infrastructure. This allows much needed residential capacity to be available in the short to medium term. It also allows for consenting and development for preliminary works to proceed without creating any additional demand on infrastructure.

For these reasons, and in the context of the staging criteria set out in Appendix 1 of the FULSS and Appendix 1 of the Regional Policy Statement ('RPS'), the proposal is consistent with sound resource management practice and Part 5 of the Resource Management Act ('RMA').

Further, the proposed Plan Change responds to the specific characteristics of the site and the surrounding area, with reference to the regional context and gives effect to the relevant planning documents for the following reasons:

- A variety of residential typologies and densities would be enabled and these respond to locational attributes and constraints. Generally higher residential densities are proposed

close to the Local Centre and the intersection between Coatesville-Riverhead Highway and Riverhead Road;

- The Local Centre is located within a walkable distance and will provide for the day to day needs of the local community that will establish in the proposed residential areas;
- The zoning pattern enables a connected and high-quality road network to be established that provides appropriately for all modes of transport, including walking and cycling;
- The adverse effects of urban development on the natural environment, including the stream and wetlands within and near the site, can be effectively managed and key natural features within the Plan Change area will be maintained and enhanced; and
- The Plan Change area is able to be serviced by infrastructure, with appropriate upgrades ensured through the proposed Plan Change provisions.

For these reasons, the proposal is consistent with sound resource management practice and Part 5 of the RMA. Therefore, the Council can accept the Plan Change for processing.

The proposed land uses have been assessed to be the most optimal to achieve the objectives of the Unitary Plan, and the purpose of the RMA, in this location. The zoning layout is consistent with the Riverhead Structure Plan. The detailed site and context analysis completed as part of this Plan Change demonstrates that the proposed use will be an efficient and effective method for achieving the sustainable management purpose of the RMA and the Regional Policy Statement.

On this basis, it is considered that the proposed zonings are the most appropriate uses for the land.

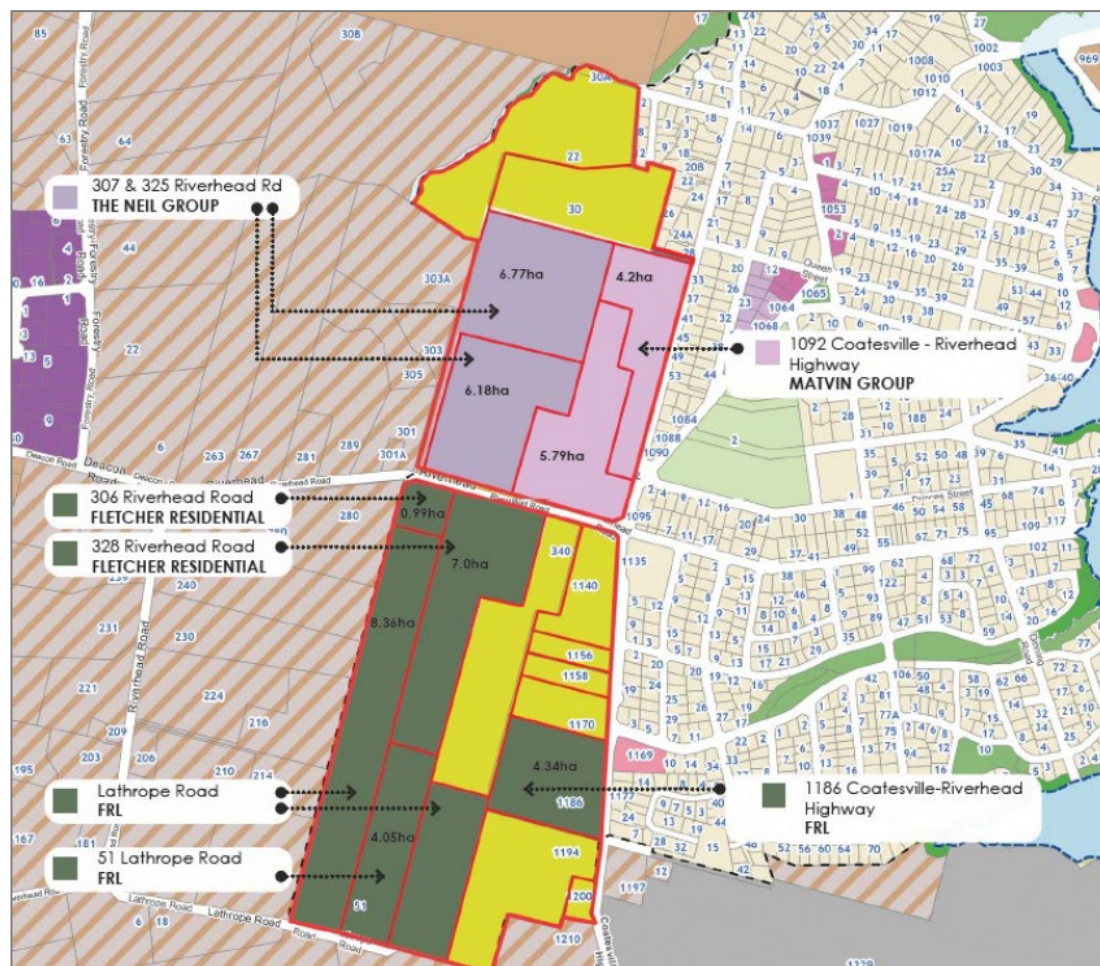
## 3.0 Introduction

### 3.1 Background

Riverhead Landowner Group ('RLG') is comprised of Fletcher Residential Limited, The Neil Group, and Matvin Group, who collectively own (or are prospective purchasers) of the majority of the landholdings within the Plan Change area, as shown in **Figure 1** below.

The RLG have an established track record in commercial and residential development.

RLG seeks to rezone approximately 80.5ha of land in Riverhead from Future Urban to a mix of residential zones with a small Local Centre and Neighbourhood Centre, along with provision for future open space areas. RLG envisages that the Plan Change will provide quality, compact neighbourhoods adjacent to the existing Riverhead rural/coastal town. The proposed zoning pattern will encourage a range of housing choice with the more intensive housing development located around the proposed Local Centre.

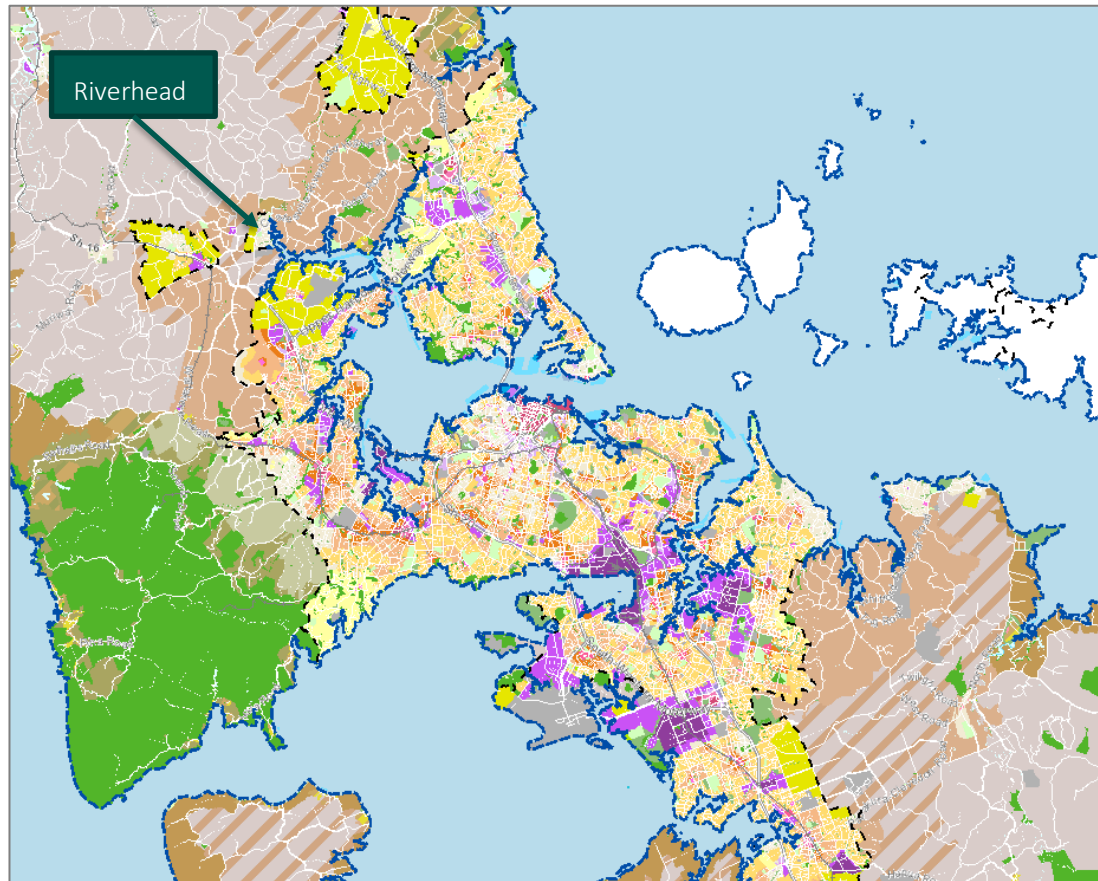


**Figure 1: RLG landholdings within Riverhead Precinct.**

## 3.2 Site Location and Description

### 3.2.1 Site Description

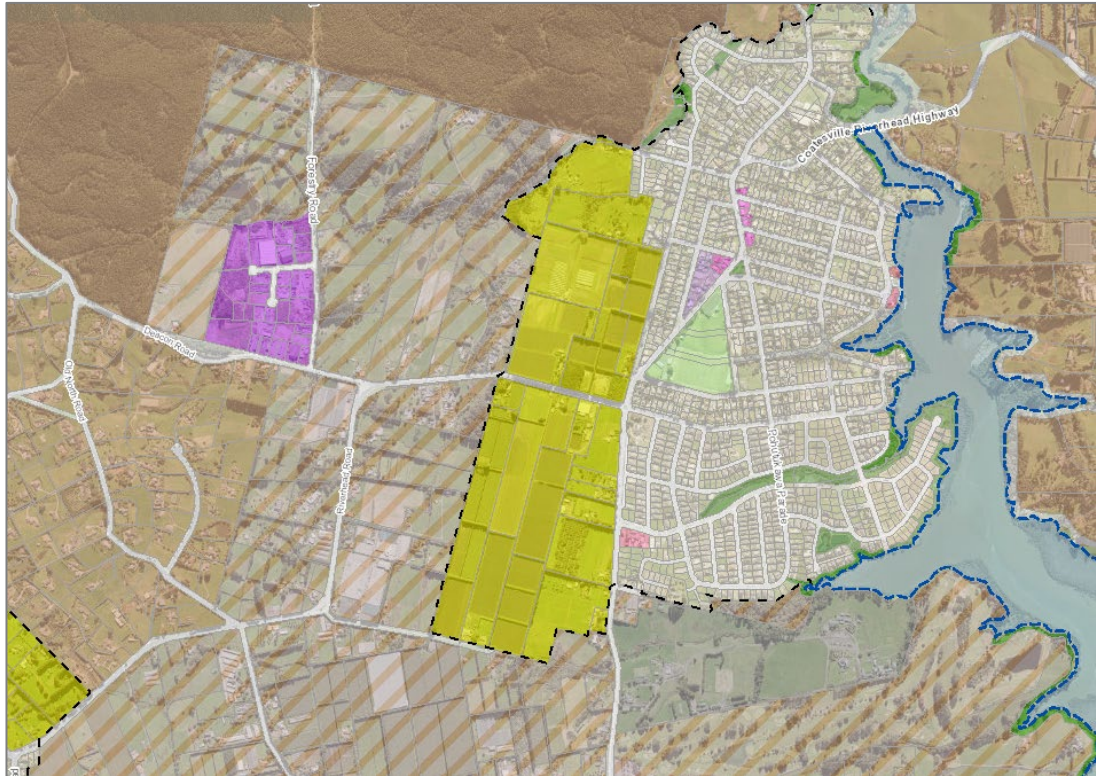
The Plan Change area consists of 80.5ha of Future Urban zone land within the rural coastal settlement of Riverhead. Riverhead is located in the North West of Auckland 30km/30min drive from Auckland's City Centre. **Figure 2** shows Riverhead in a wider regional context.



**Figure 2: Riverhead's location within the wider Auckland region.**

The Plan Change area is a physically well-defined area bound by Coatesville-Riverhead Highway and Cambridge Road to the east, the Rangitopuni Stream to the north, and rural-zoned land to the west and south. The Plan Change area is regular in shape, with individual land parcels creating a geometric pattern of shelterbelts and other farm boundary definitions. A locality plan of the Plan Change area is included as **Figure 3** below.





**Figure 3: Zoning map of the Structure Plan area.**

The current land use within the Plan Change area is predominantly horticulture with some agriculture (grazing). Various residential and commercial (horticulture-related) buildings are present across the Plan Change area.

The topography of the Plan Change area is largely flat with the land in the northern portion of the Plan Change area sloping gently towards the north. Horticultural and past farming activities have removed all existence of indigenous vegetation from the Plan Change area. The few native trees or shrubs that exist have either been self-sown by birds or wind, or have been planted as part of amenity plantings associated with dwellings. There are no significant ecological areas mapped within the Plan Change area.

Waterbodies are concentrated within the northern portion of the Plan Change area where there is a large historic wetland across the extensive flat northern terrace, which would have once been a river floodplain. Vegetation within the wetland comprises of exotic species and native purei. In addition, there are two small wetlands to the north-east of the Plan Change area, both are dominated by a single native wetland plant and are botanically simplistic. There is one extensively modified intermittent stream on the site which receives flow from the northern-central part of the site and directs it to the northern low-lying floodplain/wetland area. The stream discharges from the wetland to the unnamed tributary of the Rangitopuni Stream, which sits just outside the northwest boundary of the Structure Plan area, via an excavated drain (which is also classed as intermittent stream).

There are a number of overland flow paths that traverse the Plan Change area. In addition, the northern portion of the Plan Change area is subject to flooding.

SH16 is located approximately 2km south of the Plan Change area and can be accessed via Coatesville-Riverhead Highway, Old North Road or Riverhead Road. SH16 provides connections to

Kumeu to the west, and Westgate to the south. It also provides a connection to SH18 (via Bringham Creek Road or Trig Road) which provides a connection to Albany and the North Shore.

There is a bus service that operates along the Coatesville-Riverhead Highway connecting Riverhead to the Westgate and Albany Metropolitan Centres. The SH16 Northwest Bus Improvements project will also improve public transport accessibility from Westgate to the City Centre.

### 3.2.2 Surrounding Area and Local Context

In terms of land use and built form in the immediate locality, the surrounding area is characterised by a mix of activities and building types. To the west and the south of the Plan Change area are large rural landholdings. To the north is the Riverhead State Forrest. The existing Riverhead township is located to the east.

Riverhead township has a current population of approximately 3,000 people, and is predominantly comprised of lower-density suburban residential properties. The northern part of the existing township, north of the Riverhead War Memorial Park, is an older and more established area with allotments typically around 800m<sup>2</sup> or larger and single-storey detached dwellings. To the east and south of the park, development is more recent, but the pattern of development is also typically 800m<sup>2</sup> sections with single-storey detached dwellings.

In the wider context, the Plan Change area forms part of the extensive growth area in Auckland's North-West. In particular, Riverhead is located to the east of Kumeu/Huapai and west of Whenuapai which have both experienced significant growth in recent years transforming from small settlements into large residential communities with a range of housing densities. Kumeu/Huapai and Whenuapai will continue to transform as both settlements are surrounded by significant areas of land zoned for Future Urban use. There are opportunities to leverage from infrastructure to support development within these significant growth areas within Riverhead.

In terms of employment opportunities, the Plan Change area is strategically located in proximity to several major business hubs in the north west of Auckland. Massey/Westgate is the nearest metropolitan centre, located approximately 10km to the south, via State Highway 16.

The Plan Change area is also accessible to a range of social infrastructure including Waitakere Hospital within a 15 km radius. Riverhead School is within a 2-3 km distance of the Plan Change area, as well as a series of community facilities including Early Learning Centres, community hall, open spaces and amenities.

## 4.0 Description of the Plan Change Request

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### 4.1 Description of the Proposal

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#### 4.1.1 Approach to the Planning Framework with Riverhead

The intention of the Plan Change is to rely largely on standard zones and Auckland-wide provisions to manage the way in which the Plan Change area is used and developed.

Consistent with other greenfield precincts within the AUP, the proposed precinct also includes place-based provisions that create a spatial framework for development. The precinct provisions are appropriately focused on the layout of development necessary to achieve the objectives of the AUP, including:

- Recognising Mana Whenua values, including the provision of a cultural landscape map;
- Achieving an appropriate urban layout;
- Providing an integrated and connected street network;
- Enhancing the riparian margins of streams;
- Ensuring the built form character integrates with the existing Riverhead settlement and the surrounding rural land; and
- Ensuring development coordinates with the required infrastructure upgrades.

On balance, this approach enables the Plan Change area to develop to a scale and intensity which is broadly consistent with areas of similar zoning patterns across the region. The precinct will, however, include some variation to the standard Auckland-wide and zone provisions to introduce more tailored standards, matters of discretion and assessment criteria. This will support the development of a quality built environment within this locality that creates a distinctive sense of place.

#### 4.1.2 Overview of the Proposed Zoning

This Plan Change seeks to rezone approximately 80 hectares of Future Urban zoned land for urban development, which will comprise approximately:

- 1.8ha Business – Local Centre zone;
- 0.7ha Business – Neighbourhood Centre zone;
- 4.3ha Residential – Terrace Housing and Apartment Building zone; and
- 74ha Residential – Mixed Housing Urban zone.

The proposed zoning pattern is shown in **Figure 4** below. The intention of the proposed zoning is to provide for the establishment of a new residential area in Riverhead that offers more housing choice than the current settlement, which is predominantly low density residential. At the same time the zoning pattern seeks to respond to the local rural and low density context.

Residential – Terrace Housing and Apartment Building zone has been applied surrounding the Local Centre zone to reinforce the village heart. It would accommodate the proposed Botanic Retirement Village. The Residential – Terrace Housing and Apartment Building ('THAB') zone provides the opportunity for a wide variety of housing typologies including low rise walk ups and apartments within a walkable distance to the centre.

The Residential – Mixed Housing Urban ('MHU') zone has been applied around the periphery of the THAB zone in order to enable three-storey development, transitioning down to two-storeys throughout the remainder of the plan change area.

The MHU zone has been applied throughout the remainder of the residential area, but with a two-storey (8m) height limit (achieved by way of a sub-precinct). This is to enable two-storey suburban development with a similar built character to the existing Riverhead settlement while enabling greater density and housing choice to use greenfield land more efficiently.

Two centres are proposed to serve the plan change area as well as offer the existing village residents greater choice and convenience. The Local Centre zone is applied at the intersection of Riverhead Road and Coatesville-Riverhead Highway as this location has the highest visibility and

passing trade. It is also the most appropriate from a traffic perspective and reinforces the memorial park as the centre of Riverhead.

A neighbourhood centre is proposed along Coatesville-Riverhead Highway, close to the Hallertau Brewery and a future key east-west connection.

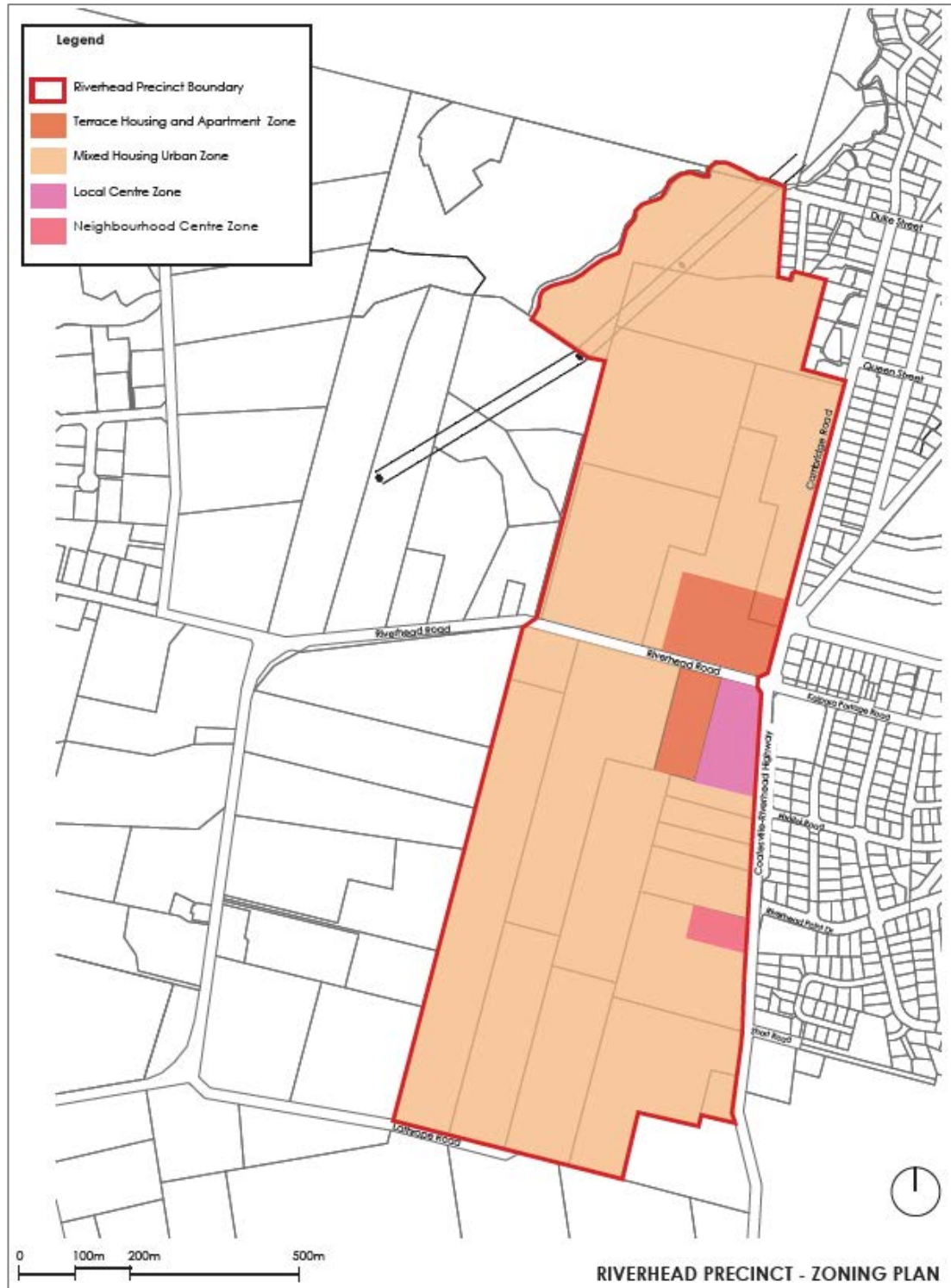


Figure 4: Proposed zoning.



#### 4.1.3 Other Unitary Plan Controls

In relation to stormwater, it is proposed to apply the Stormwater Management Area Control – Flow 1 ('SMAF 1') across the majority of the Plan Change area to manage the increase in stormwater discharge to sensitive stream environments. The SMAF 1 control is not applied to 1170 and 1186 Coatesville-Riverhead Highway, as shown in **Figure 5** below, because this area is not proposed to discharge to streams (instead it is part of the Riverhead Point Drive network which is a piped network with secondary conveyance via overland flow within Riverhead Point Drive road).



**Figure 5: Proposed SMAF 1 control.**

Additionally, the Council's recently approved Network Discharge Consent includes requirements to prepare a Stormwater Management Plan ('SMP') and meet defined outcomes. This requirement will be triggered as part of future consent processes.

#### 4.1.4 Proposed Precinct Provisions

RLG propose to apply the 'Riverhead Precinct' to the Plan Change area to manage the effects of urbanisation on the local environment and to ensure that a quality built environment is achieved. The 'Riverhead Precinct' comprises two sub-precincts summarised below, and shown on the Riverhead Precinct Plan at **Figure 6**:

- Sub-Precinct A is zoned Residential - Terrace Housing and Apartment Building and provides for the greatest height and residential densities at a key intersection adjacent to the Local Centre Zone and public transport facilities. A wider range of non-residential activities is provided for at ground floor; and
- Sub-Precinct B is zoned Residential – Mixed Housing Urban and provides for a transition in building height between Sub-Precinct A and the surrounding Mixed Housing Urban area where height has been limited to two storeys to respond to the existing built character of the Riverhead settlement.

A package of provisions, including policies, activity standards, development standards, and associated matters of discretion and assessment criteria are proposed to achieve the objectives of the precinct and the wider Unitary Plan. The full set of provisions is set out within Appendix 1 however a summary is provided below:

- More permissive activity statuses for restaurants, cafes, retail, and healthcare facilities within the Residential – Terrace Housing and Apartment Building zone;
- A transport infrastructure staging rule to coordinate the occupation of buildings with the delivery of required infrastructure;
- A road widening setback rule along Riverhead Road to provide for future widening;
- A riparian planting rule requiring a 10m native vegetation riparian buffer each side of a permanent or intermittent stream to mitigate the effects of urbanisation on water;
- A stormwater quality rule to ensure impervious areas are treated and that development incorporates inert building materials to increase the quality of stormwater runoff;
- A rural interface setback rule to provide a buffer between residential activities within the precinct and the neighbouring Mixed Rural zone;
- A fencing rule to require lower height/greater permeability fences where adjoining publicly accessible open space, to ensure development positively contributes to the visual quality and interest of those spaces;
- A height rule that limits height within the majority of the Mixed Housing Urban zone to 8m (two-storeys) to respond to the existing Riverhead settlement, with three storey development adjoining the Terrace Housing and Apartment Building zone and the Local Centre zone to enable a transition in height between the five and two storey development in the adjacent areas;
- Additional assessment criteria to ensure there is adequate wastewater/water supply infrastructure to service development;

- Additional assessment criteria for open space to ensure that the open space network integrates with natural features and delivers the multi-purpose green corridor: a key structuring element for the precinct and required for stormwater conveyance purposes;
- Additional assessment criteria for the layout and design of roads to ensure a highly connected street layout that integrates with the wider Riverhead area and provides for all modes of transport; and
- Additional assessment criteria to recognise and the spiritual connections and key views of cultural significance to of Te Kawerau a Maki and Ngāti Whātua o Kaipara and other interested iwi to ensure hononga to ancestors, the connection and leadership, and whakapapa are all preserved to honour the special significance of this cultural history.

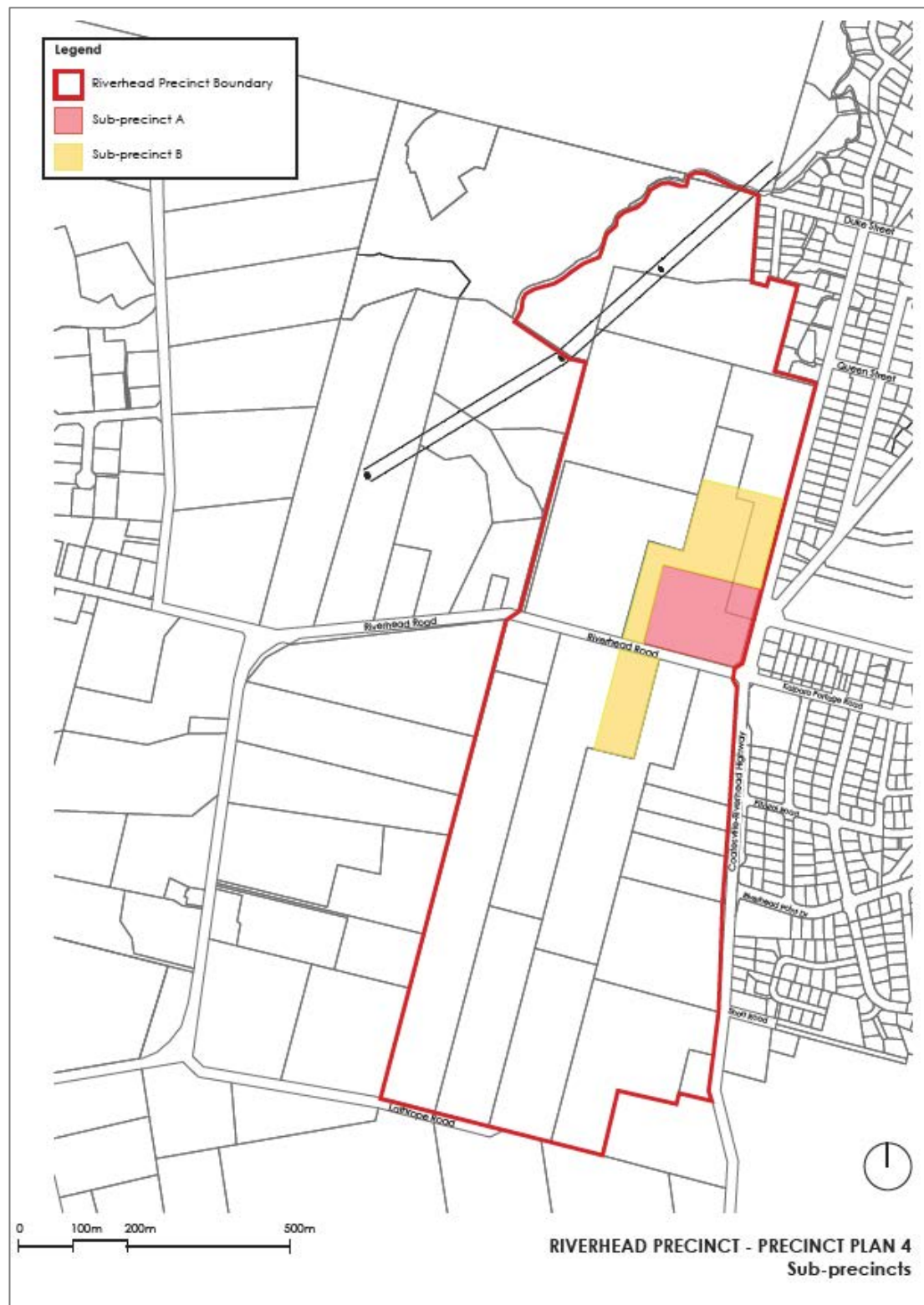


Figure 6: Riverhead Precinct Plan.



## 4.2 Purpose and Reasons for the Plan Change

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Clause 22(1) of the RMA requires that a Plan Change request explains the purpose of, and reasons for the proposed plan change.

The purpose of the Plan Change is to enable the provision of additional housing in Riverhead along with a Local Centre, a Neighbourhood Centre and a network of open spaces. The Applicant is the majority owner of the Plan Change area and intends to develop their landholdings in a manner consistent with the proposed zoning framework, which this Plan Change request will enable.

The Plan Change is consistent with the objectives of the Council's planning documents and, in this regard, the reasons for the Plan Change are justified and consistent with sound resource management practice.

## 5.0 The Riverhead Structure Plan

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### 5.1 Structure Planning

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The RPS and the AUP provisions support and require a structure planning process to assess whether land is suitable for urbanisation. The structure plan process is embedded within the FULSS provisions and Appendix 1 of the AUP. Accordingly, as a prerequisite to enabling the urbanisation of Riverhead, RLG has undergone a detailed structure planning process to enable the release of land for growth. The Structure Plan covers the same area as the Plan Change.

As part of the Structure Planning process, a comprehensive assessment of the land has been undertaken to determine the constraints and opportunities within the Plan Change area and to identify the most logical and desirable development pattern. This process has resulted in the Riverhead Structure Plan (refer **Appendix 4**).

The Riverhead Structure Plan provides indicative collector and key local roading patterns, positioning of key access points, roading connections and public open spaces and distribution of land use activities. The proposed zoning pattern for the Plan Change area and the Riverhead Precinct Plans have been informed by the Riverhead Structure Plan to ensure that the outcomes sought for Riverhead are able to be successfully implemented.

The structure planning process requires consideration as to whether the land is adequately serviced (or can be serviced) by infrastructure (including transport), and achieves appropriate environmental, social, cultural and economic planning outcomes. Further, this assessment analyses impacts on the transport network and whether urbanisation can be accommodated within the existing transport network or whether transport improvements are required.

The Riverhead Structure Plan has confirmed that there are infrastructure solutions to service urbanisation of the land. These infrastructure solutions are either existing funded projects, are otherwise necessary upgrades based on existing conditions, or are localised upgrades which can be funded and delivered by the applicant without requiring funding from Auckland Council. A breakdown of the infrastructure cost and funding details has been provided within this Structure Plan.

Wastewater will be serviced by an extension of the existing pressure sewer system servicing Riverhead Village, with interim upgrades as development progresses if required to provide additional capacity prior to proposed separation of the Kumeu / Huapai wastewater system from

the Riverhead WWPS. In relation to water supply, the existing main has immediate capacity, however a second main will be required and two options for this second main have been identified. In terms of transport infrastructure, only localised improvements and upgrades to the transport network are required and these improvements will be fully funded and delivered by the applicant. Other upgrades are otherwise already funded projects or are necessary based on existing conditions.

The FULSS identifies Riverhead as being development ready in Decade 2 (2028-2032). Investigations into infrastructure availability and demand through the structure plan process however, have confirmed that capacity exists to commence in advance of 2028, subject to sequencing. The Structure Plan proposes to base the sequencing of development within the Riverhead Structure Plan area to align with the timing of transport improvements needed to address safety and capacity issues on State Highway 16, and the completion of the Northern Interceptor. These are both funded projects due to be complete in 2025. Beyond 2025 the Structure Plan indicates that development within the Structure Plan area can be progressed in a coordinated manner with the completion of localised infrastructure upgrades to service development. The proposed plan change includes rules to stage development with these required upgrades.

Structure Plan process is the means by which this growth is enabled and planned for. The Council describes structure planning as to “refine the staging and timing of development and identify the mix and location of housing, employment, retail, commercial and community facilities” (source: Auckland Plan 2050 website).

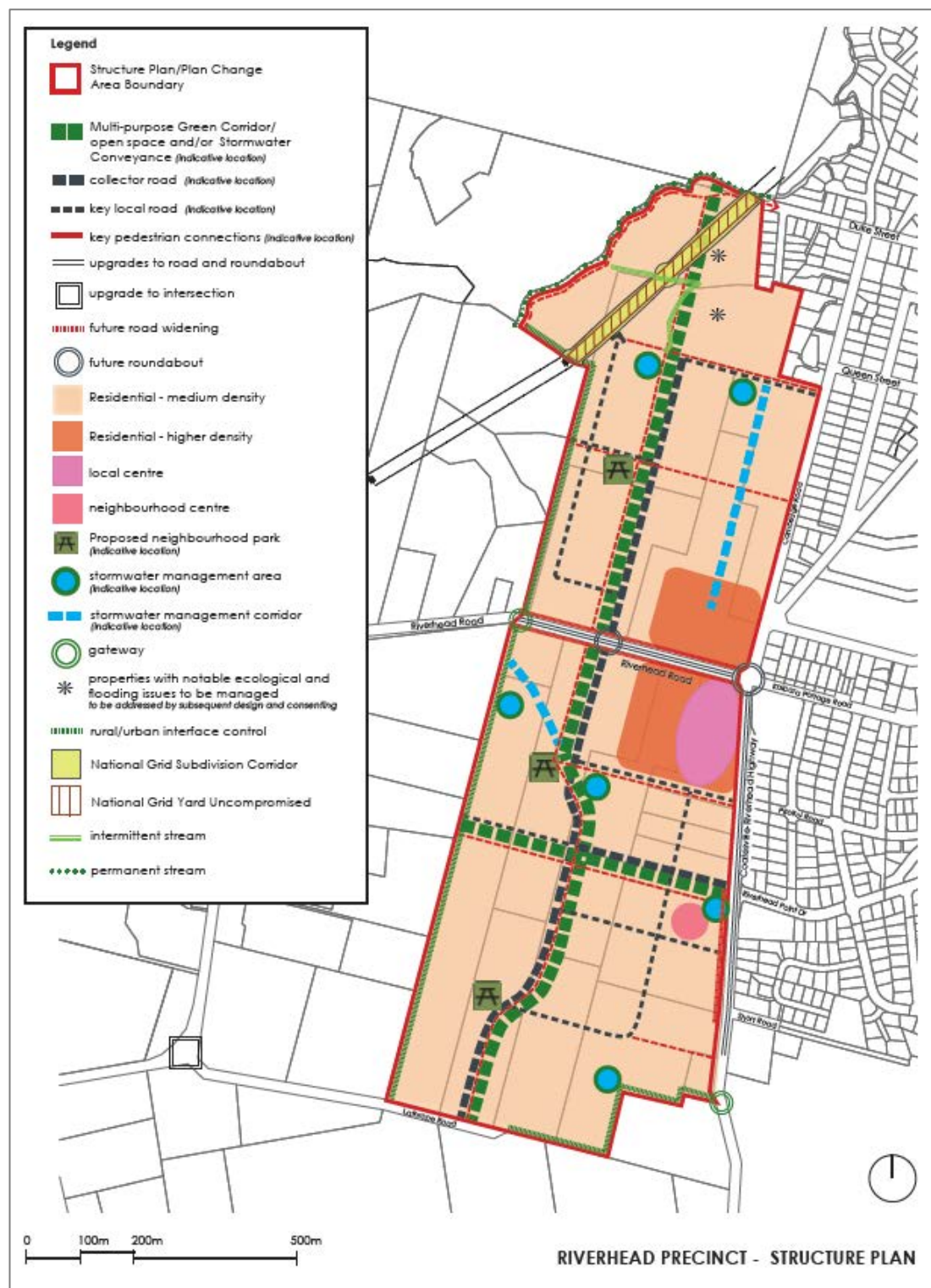


Figure 7: Riverhead Structure Plan.

## 5.2 Consultation and Engagement

The Structure Plan and Plan Change were subject to extensive engagement with a number of persons/organisations. These include the following:

- Auckland Council and its Controlled Organisations, including Plans and Places, the Development Planning Office, Parks, Auckland Transport, Healthy Waters and Watercare Services Limited;
- The Local Board;
- Waka Kotahi NZ Transport Agency and Te Tupu Ngātahi (the Supporting Growth Alliance);
- Mana Whenua groups, including Te Kawerau ā Maki and Ngāti Whātua o Kaipara in particular;
- The Ministry of Education;
- The local community and general public, including the Riverhead Community Association; and
- Landowners within the Plan Change area.

A report summarising the consultation undertaken to-date is provided as **Appendix 18**.

In respect of Mana Whenua, engagement correspondence was sent to 19 iwi groups were contacted in September and October 2021. Six iwi groups responded confirming their interest in being involved: Te Kawerau ā Maki; Ngāti Whātua o Kaipara; Te Rūnanga o Ngāti Whātua; Te Ākitai Waiohū; Ngāti Manuhiri; and Ngāti Whanaunga.

Several hui have been held with Te Kawerau ā Maki and Ngāti Whātua o Kaipara, as well as the other iwi (either via hui or further email correspondence). In summary:

- Extensive engagement was carried out with Te Kawerau ā Maki and Ngāti Whātua o Kaipara via several hui. Through their input, the Cultural Landscape map was developed as well as the associated Precinct provisions.
- The other four iwi, Te Rūnanga o Ngāti Whātua; Te Ākitai Waiohū; Ngāti Manuhiri; and Ngāti Whanaunga, did express interest in the proposal and a summary of their engagement is provided in section 5.0 of the consultation report (**Appendix 18**).

The key matters identified as being of importance to iwi are addressed through the proposed Precinct provisions, including the objectives, policies, standards, matters and criteria relating to the following:

- Respecting Mana Whenua cultural values and their relationship associated with the Māori cultural landscape, including ancestral lands, water, sites, waahi tapu, and other taonga;
- Managing stormwater quality, including through riparian planting and stormwater treatment; and
- Protecting ecological values of the wetland and stream habitats, including by riparian planting.

In terms of public consultation, two public drop-in sessions (referred to as ‘community days’) were held at the Riverhead School Hall on Friday 6<sup>th</sup> and Saturday 7<sup>th</sup> May 2022. The purpose of the sessions was to gain feedback on the proposed land use scenarios, infrastructure and roading initiatives, development concepts, and to provide opportunities to better understand views of



the local Riverhead community. A series of 12 panels were displayed on the day, to set out key information for the public. Attendees were able to view the displays boards and discuss any issues or aspects of the project with the RLG and key consultants including traffic, urban design, and planning consultants.

While different views are held within the community, the following key themes have come through in the consultation had to-date:

- The significance of transport and roading upgrades prior to development, and concerns for increased traffic congestion on Coatesville-Riverhead Highway and State Highway 16;
- The significance of general infrastructure upgrades, including the management of stormwater and flooding;
- There were concerns about multi-storey buildings;
- A desire to retain the character of 'old' Riverhead;
- The importance of creating green corridor connections to existing walkways; and
- Strong support for additional education facilities, including primary and secondary schools.

The ways in which it is considered that this feedback has been incorporated into the Plan Change are described in section 7.4 the consultation report (**Appendix 18**).

Consultation has been wide ranging and RLG will continue to work with stakeholders as the project progresses.

### 5.3 Accepting the Plan Change Request (Clause 25)

The Council has discretion to accept or reject a Plan Change request in accordance with Clause 25 of Schedule 1 of the RMA, subject to the matters set out in Clause 25(4)(a)-(e). Given that the AUP has now been operative for more than two years, the Council is able to reject the Plan Change request only on the following grounds:

- The Plan Change request is frivolous or vexatious (clause 25(4)(a));
- The Plan Change request is not in accordance with sound resource management practice (clause 25(4)(c)); or
- The Plan Change request would make the plan inconsistent with Part 5 – Standards, Policy Statements and Plans (clause 25(4)(d)).

In relation to (a), considerable technical analysis has been undertaken to inform the Plan Change, which is detailed in the report below. For this reason, the proposal cannot be described as frivolous or vexatious.

In relation to (c), 'sound resource management practice' is not a defined term under the RMA, however, previous case law suggests that the timing and substance of the Plan Change are relevant considerations. This requires detailed and nuanced analysis of the proposal that recognises the context of the Plan Change area and its specific planning issues.

In this context, the Plan Change is considered to be in accordance with sound resource management practice for the following reasons:

- The proposed zoning supports a compact urban form and integrated urban development;

- While the proposed timing of the rezoning differs from Council's current proposed staging set out in the FULSS, the more detailed technical analysis undertaken as part of this proposal and as detailed throughout this report, demonstrates that there is no planning reason for preventing development occurring earlier;
- All necessary statutory requirements have been met, including an evaluation in accordance with S32 of the RMA with supporting evidence, and consultation with interested iwi is on-going; and
- The Plan Change is considered to be consistent with the sustainable management purpose of the RMA as discussed in the report below.

The RPS places a strong emphasis on ensuring that urban development delivers a compact urban form and integrated urban development (B2.2.1(2)). The proposed zoning pattern will contribute to a compact urban form through ensuring that future urban growth is contiguous with the urban area and within close proximity to public transport. The technical analysis prepared to support this Plan Change demonstrates that the area can be serviced with targeted infrastructure upgrades in place. In terms of funding as outlined above, the required upgrades are either existing funded or necessary projects or localised upgrades which can be funded and delivered by the applicant without requiring funding from Auckland Council.

Rules are included within the Plan Change to stage the development within the Plan Change area with the delivery of required local transport upgrades. This approach to releasing the land for urbanisation is very common throughout the AUP and has been used in many greenfield precincts including at Redhills, Puhinui and Wainui Precincts to name a few.

In relation to (d), given that the Plan Change area has been identified for future residential use in the Council's FULSS, then the proposed zoning is not inconsistent with Part 5.

On this basis, the merits of the proposal should be allowed to be considered through the standard Schedule 1 process.

## 6.0 Strategic Planning Framework

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A number of strategic and statutory planning documents have informed the Plan Change process. This section provides a summary of those documents.

### 6.1 Resource Management Act

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The Resource Management (Enabling Housing Supply and Other Matters) Amendment Act 2021 is designed to improve housing supply in New Zealand's five largest cities by speeding up implementation of the National Policy Statement on Urban Development ('NPS-UD') and enabling more medium density homes. Tier 1 urban authorities are required to apply the medium density residential standard ('MDRS') to all relevant residential zones.

Auckland Council notified Plan Change 78 ('PC 78') in August 2022 to give effect to the Amendment Act. The key proposed zoning amendments within PC 78 include the following:

- The Terrace Housing and Apartment Building zone is proposed to be amended to enable six storey development within walkable catchments from centres and the existing and proposed rapid transit network;

- The MDRS are proposed to be incorporated into the Mixed Housing Urban zone. This zone would become the most widespread residential zone, covering most of Auckland outside of walkable catchments;
- The Single House zone and Mixed Housing Suburban zones are proposed to be retained for settlements of less than 5,000 people in rural or coastal locations, where, as discussed below, the MDRS do not have to be applied; and
- A new zone, the Low Density Residential zone, is proposed to be introduced to areas with Qualifying Matters (effectively replacing the Single House and Mixed Housing Suburban zones in main urban areas).

The Amendment Act gives Tier 1 urban authorities discretion whether to apply the MDRS to settlements predominantly urban in character with a population under 5,000<sup>1</sup>, as these are not captured by the definition of a “relevant residential zone”. This discretion applies to Riverhead which at the 2018 Census, had a population of 2,802<sup>2</sup>. Under PC78 the Council is proposing to retain the current zoning of smaller settlements (less than 5,000 population)<sup>3</sup>. The stated explanation is that the smaller settlements are separated from the main urban area, where public transport is limited and increased density of development will add to vehicle travel distances and associated greenhouse gas emissions. As such, the MDRS are not proposed to be applied to 23 settlements across the Auckland region, including settlements such as Maraetai, Kawakawa Bay, Omaha, and Clevedon. MDRS are proposed to apply to the four settlements of Pukekohe, Waiuku, Beachlands, and Warkworth.

It is noted that the submissions period closed on 28 September, and the plan change is still to proceed through the hearings process. A number of submitters have sought that the MDRS be implemented across these settlements.

While the legislation currently provides for discretion as to the application of the MDRS within Riverhead, the development of the Plan Change area will increase the population of Riverhead to over the 5,000 population threshold for the application of the MDRS. Notwithstanding this, the structure planning process that has informed the Plan Change has demonstrated that the density enabled by the MDRS is appropriate within the Plan Change area:

- Development enabled by the Plan Change can be serviced existing infrastructure with targeted upgrades in place;
- Riverhead is currently serviced by a bus service that operates along the Coatesville- Riverhead Highway connecting Riverhead to the Westgate and Albany Metropolitan Centres. There are opportunities for services to increase in frequency with a greater population to service; and
- The scale of development enabled by the Plan Change will enable social amenities such as schools, open spaces, ecological corridors, a retirement village and a village centre to be established. This creates opportunities for residents to live and work closer to home, thereby reducing the need for travel to nearby centres for both residents of the existing settlement and future residents within the Plan Change area.

<sup>1</sup> As recorded at the time of the 2018 Census.

<sup>2</sup> Stats.govt.nz <https://www.stats.govt.nz/tools/2018-census-place-summaries/riverhead>

<sup>3</sup> Pages 32-33 of IPI Section 32 Overview Report, version 5, 10 August 2022

In this case, noting the above, it is considered appropriate to apply an MHU zoning to the Plan Change area, with specific provisions to assist in integrating the built environment with the existing settlement.

## 6.2 National Policy Documents

### 6.2.1 The National Policy Statement – Urban Development

The National Policy Statement on Urban Development 2020 ('NPS-UD') came into force on 20 August 2020 and replaced the National Policy Statement on Urban Development Capacity 2016. The NPS-UD has assessed all the local authorities within the country and classified them as either Tier 1, Tier 2 or Tier 3, with Tier 1 referencing the largest local authorities in New Zealand (including Auckland Council). The NPS-UD provides direction to decision-makers under the RMA on planning for urban environments.

#### Well-Functioning Urban Environment

Under Policy 1 planning decisions must contribute to well-functioning urban environments. Policy 1 defines this as follows (**emphasis added**):

- (a) *have or **enable a variety of homes** that:*
  - (i) *meet the needs, in terms of type, price, and location, of different households; and*
  - (ii) *enable Māori to express their cultural traditions and norms; and*
- (b) *have or **enable a variety of sites that are suitable for different business sectors** in terms of location and site size; and*
- (c) *have **good accessibility for all people** between housing, jobs, community services, natural spaces, and open spaces, including by way of public or active transport; and*
- (d) *support, and **limit as much as possible adverse impacts on, the competitive operation of land and development markets**; and*
- (e) *support **reductions in greenhouse gas emissions**; and*
- (f) *are **resilient to the likely current and future effects of climate change**.*

The components of a well-functioning urban environment that the Riverhead Precinct will support include:

- Enabling a variety of housing choices across the Plan Change area, including medium density housing within the Mixed Housing Urban zone and more intensive forms of housing like apartments in accessible areas, like those close to the Local Centre, where there are employment opportunities and public transport connections;
- Respecting Mana Whenua values associated including the key views and connections identified on the Mana Whenua cultural landscape map;
- Promoting good accessibility between housing, jobs, community services and open spaces by enabling more people to live in accessible locations close to public and active transport, which also supports a reduction in greenhouse gas emissions through reduced car dependence;



- Supporting the competitive operation of land and development markets by providing a broadly enabling zone framework and providing flexibility for the market to take up those opportunities; and
- Being resilient through the likely current and future effects of climate change through flooding and promoting a compact and efficient urban form.

### Development Capacity

Under Policy 2 Tier 1 authorities are required to provide at least sufficient development capacity to meet expected demand for housing and for business land over the short term, medium term, and long term. The Plan Change will enable the development of an additional 1500-1800 dwellings (including a retirement village) and additional commercial and retail capacity, significantly adding to Auckland's development capacity within the North-West. The propensity for this development to occur is markedly higher because it is being proposed, planned and project managed by a group of nationally recognised, credible developers who have a track record of delivering new large-scale communities. Therefore, the Plan Change will make a significant contribution to realisable development capacity and competitive land markets. This will better enable the Council to meet Policy 2 given that the current progress in releasing greenfield land to provide additional capacity is falling behind with many of the live zoned greenfield areas and Future Urban zone areas that are planned to be 'development ready' in 2018-2022 not progressing. This is discussed further at Section 6.3.2 below.

### Planned Urban Built Form and Amenity Values

Objective 4 states that New Zealand's urban environments develop and change over time in response to diverse and changing needs of people, communities and future generations. Section 7(c) of the RMA requires particular regard to be had to the maintenance and enhancement of amenity values. Policy 6 of the NPS-UD now clarifies s7(c) of the RMA through focusing on the amenity values of the wider community and future generations and acknowledging that significant change within an area is not in itself an adverse effect.

The Plan Change will enable development of greater height and density throughout Riverhead than what has previously been provided for. This will result in significant change over time in the built character and may detract from the current amenity values currently enjoyed by some residents, related to the spacious and suburban qualities of Riverhead. The Plan Change will enable a different set of amenity values to be realised over time, when compared to those currently associated with suburban environments. In particular, the amenity values offered within medium and higher density urban environments include more vibrant areas with additional amenities which residents able to access amenities easily and largely via active modes of transport. Policy 6 essentially recognises and gives weight to these changing amenity values.

### Responsive Planning

Local authority decisions are required to ensure development is integrated with infrastructure planning and funding as well as being responsive, particularly in relation to proposals that would add significantly to development capacity and add to well-functioning urban environments even if the development capacity is unanticipated by RMA planning documents or is out of sequence with planned land release (Objective 5 and Policy 6). As discussed in Section 6.3.2, the urbanisation of land within the Plan Change area is out of sequence with the FULSS however, there is a need to

urbanise this land now to overcome growth challenges and there is funded infrastructure available to service the Plan Change area.

### Reduction in Greenhouse Gas Emissions

Objective 8 supports a reduction in greenhouse gas emissions and resilience to the current and future effects of climate change. The subject land forms an extension of Riverhead; a satellite town in the north-west of Auckland. The Plan Change area is currently zoned Future Urban and therefore has already been identified by Council as being appropriate for urbanisation through its Future Urban zoning. Therefore, in respect of how the proposed zone and precinct provisions will facilitate urban development that achieved Objective 8 of the NPS-UD, the following is noted:

- The Plan Change proposes a comprehensive and integrated development over a large land holding that is contiguous with existing urban development on the opposite side of Coatesville Riverhead Highway. This scale of development will enable social amenities such as schools, open spaces, ecological corridors, a retirement village and a village centre to be established. This creates opportunities for residents to live and work closer to home, thereby reducing the need for travel to nearby centres for both residents of the existing settlement and future residents within the Plan Change area; and
- The Plan Change will result in a street network that provides for walking and cycling infrastructure, as well as improving connectivity to the existing settlement such as by completing the Duke Street footpath and adding additional pedestrian crossings on Coatesville-Riverhead Highway.

### Summary

Overall, it is considered that the Riverhead Structure Plan gives effect to the NPS:UD.

## 6.2.2 New Zealand Coastal Policy Statement

The New Zealand Coastal Policy Statement 2010 ('**NZCPS**') contains objectives and policies relating to the coastal environment to achieve the purpose of the RMA. The NZCPS is applicable to this Structure Plan as the Waitemata Harbour is the ultimate receiving environment for the streams which drain the Structure Plan area.

This Structure Plan and development of the identified area for urban land uses will give effect to the NZCPS in that any future land use activities will need to comply with the Auckland-wide stormwater quality and stormwater management provisions which will manage sediment and contaminant runoff, which could make its way into the coastal receiving environment. Further mitigation measures will be considered as part of a future resource consent process via the certification requirements of the Council's regional-wide Network Discharge Consent.

## 6.2.3 National Policy Statement for Freshwater Management

The National Policy Statement for Freshwater Management 2020 ('**NPS-FM**') sets a national policy framework for managing freshwater quality and quantity. Of relevant to the proposed plan change, the NPS-FM seeks to:

- *Manage freshwater in a way that 'gives effect to Te Mana o te wai through involving tangata whenua, and prioritising the health and wellbeing of water bodies, then the essential needs of people, followed by other uses.*

- *Improve degraded water bodies.*
- *Avoid any further loss or degradation of wetlands and streams.*
- *Identify and work towards target outcomes for fish abundance, diversity and passage and address in-stream barriers to fish passage over time.*

It is proposed to apply the Stormwater Management Area Control – Flow 1 (**'SMAF 1'**) across the Plan Change area to manage the increase in stormwater discharge to sensitive stream environments. Accordingly, an integrated stormwater management approach has been proposed and a number of best practicable options have been identified in the SMP included at **Appendix 10**. The SMP incorporates a range of measures to manage potential effects on water quality and quantity associated with the proposed change in land use.

The intermittent stream and wetlands present within the Plan Change area have been identified by RMA Ecology (refer to **Appendix 9**) and are largely concentrated within the northern portion of the Plan Change area and are highly degraded. Key structuring elements are identified within proposed Precinct Plan 1, including roads, pedestrian connections, and open spaces. These features are located clear of existing freshwater bodies and it is anticipated that the delivery of works will not result in the loss of extent or value associated with the stream and wetland within the Plan Change area. Existing waterbodies will also be protected in accordance with the provisions of Chapter E3 Lakes, rivers, streams and wetlands and relevant regulations of the National Environmental Standard for Freshwater Management (**'NES-FW'**). The Plan Change will also enhance streams as Riparian enhancement along the identified streams is required under the proposed Riverhead Precinct.

As the proposed plan change excludes works that would result in a loss of freshwater body extent or value, and stormwater runoff will be appropriately managed it is considered that the implementation of the proposed stormwater strategy in conjunction with the enhancement of riparian margins will be sufficient to manage the potential adverse effects associated with changes in water quality and provide for enhancement of ecological values.

#### 6.2.4 National Policy Statement on Electricity Transmission 2008

The National Policy Statement on Electricity Transmission (**'NPS-ET'**) sets out the objective and policies to manage the effects of the electricity transmission network. The NPS-ET recognises the importance of the National Grid network by enabling its operation, maintenance, and upgrade, and establishing new transmission resources to meet future needs.

The National Grid Corridor overlay applying under the AUP gives effect to the NPS by controlling the location of activities, and the extent of subdivision and development near the National Grid Line. The north-western portion of the Plan Change area is traversed by the National Grid Corridor overlay and a 110kv Transpower Transmission Line, and the measures in D26 National Grid Corridor Overlay will be adhered to in order to avoid reverse sensitivity effects on the National Grid Corridor.

#### 6.2.5 National Policy Statement for Highly Productive Land

The National Policy Statement for Highly Productive Land (**'NPS-HPL'**) came into effect on 17 October 2022. The purpose of the proposed NPS-HPL is to improve the way that highly productive land is managed under the RMA. It does not provide absolute protection of highly productive land, but rather it requires local authorities to proactively consider the resource in their region or district

to ensure it is available for present and future primary production. The proposal does not impact on existing urban areas and land that councils have identified as future urban zones in district plans.

As the Plan Change area is currently within the Future Urban Zone, the policies contained within the NPS-HPL do not apply.

### 6.2.6 National Planning Standards

The National Planning Standards came into effect on 5 April 2019. These codify the structure, mapping, definitions and noise/vibration metrics of District, Regional and Unitary Plans. Auckland Council has 10 years to implement these changes. This Plan Change applies the standard AUP zone and rule framework to the Plan Change area, which is broadly consistent with the planning standards.

### 6.2.1 Proposed National Policy Statement for Indigenous Biodiversity

The Government has consulted on a proposed National Policy Statement for Indigenous Biodiversity ('NPS-IB') which sets out the objectives and policies to identify, protect, manage and restore indigenous biodiversity under the RMA.

In broad terms, the NPS-IB requires every territorial authority to undertake a district-wide assessment in accordance with Appendix 1 of the NPS-IB to determine if an area is significant indigenous vegetation and/or significant habitat of indigenous fauna; and, if it is:

- Classify areas of significant indigenous vegetation and /or significant habitat of indigenous fauna as either High or Medium, in accordance with Appendix 2 of the NPS-IB;
- Local authorities are also required to avoid the loss of significant natural areas and manage all adverse effects of a new subdivision, use or development on significant natural areas; and
- A Biodiversity Strategy is also required to be developed by local authorities in addition to a monitoring programme related to this.

The Riverhead Plan Change area is currently an active horticultural site. Land within the site has been intensively worked for many years and all past existence of indigenous vegetation has long since been removed.

### 6.2.2 National Environmental Standards

The National Environmental Standards ('NES') that are relevant to this Plan Change include:

- NES for Assessing and Managing Contaminants in Soil to Protect Human Health 2011('NESC'S'); and
- NES for Freshwater 2020 ('NES-FW').

These NES documents have been taken into account in the preparation of the relevant expert reports and are further discussed in Section 9 of the report below. Assessments undertaken to date confirm that the NESC'S will apply at the time of development to manage contaminated land, to be appropriately addressed as part of future resource consent processes. As discussed above, the delivery of key structuring elements within the Plan Change area is unlikely to require resource consent under the NES-FW, however the relevant regulations will apply at the time of future development and will also be appropriately assessed through future resource consent processes.



## 6.3 Auckland Council Strategic Plans

### 6.3.1 The Auckland Plan 2050

The Auckland Plan is the key strategic document which sets the Council's social, economic, environmental and cultural objectives. A key component of the Auckland Plan is the Development Strategy which sets out how future growth will be accommodated up to 2050. The Auckland Plan focusses new development in existing urban areas and provides for 'managed expansion' in future urban areas. This managed expansion is with reference to structure planning processes.

In terms of the form of development, the Auckland Plan takes a quality compact approach to growth and development. The Auckland Plan defines this as:

- Most development occurs in areas that are easily accessible by public transport, walking and cycling;
- Most development is within reasonable walking distance of services and facilities including centres, community facilities, employment opportunities and open space;
- Future development maximises efficient use of land; and
- Delivery of necessary infrastructure is coordinated to support growth in the right place at the right time.

The proposed residential zoning pattern at Riverhead will provide quality, compact neighbourhoods adjacent to the existing Riverhead settlement. The proposed zoning pattern will encourage a range of housing choice with the more intensive housing development adjoining and adjacent to the Local Centre, and overlooking public open spaces. The proposed Terrace housing and Apartment Building and Mixed Housing Urban zoning, along with the proposed precinct provisions, will make efficient use of greenfield land while ensuring appropriate transitions to the surrounding land uses.

The Plan Change introduces a planning framework that seeks to achieve quality urban design outcomes for the Plan Change area. To ensure development is consistent with the overall design strategy and the land use anticipated through the Structure Plan, the precinct incorporates a package of development standards that control residential built form, onsite amenity and the amenity of adjoining sites. The provisions also seek to integrate development with the surrounding land use and built form.

The precinct also includes provisions to ensure development and subdivision provides the collector and local road networks, cycle and pedestrian networks, open spaces and riparian margins as envisioned in the Structure Plan. The activity status of some land uses are proposed to be modified in Sub-Precinct A, to enable greater non-residential use to provide local amenities.

Riverhead is currently serviced by public transport. There is a bus service that operates along the Coatesville- Riverhead Highway connecting Riverhead to the Westgate and Albany Metropolitan Centres. The SH16 Northwest Bus Improvements project will also improve public transport accessibility from Westgate to the City Centre.

The future road network within the precinct will accommodate all modes of transport to promote walkability and cycling.

New open spaces to serve the new residential neighbourhoods will be developed in accordance with the provisions in E38 Subdivision – Urban.

Infrastructure upgrades are required to service the Riverhead precinct. As previously discussed, these upgrades are either funded or otherwise necessary based on existing conditions, or localised upgrades that will be funded by the developers. To ensure that the upgrades are in place prior to development occurring the Plan Change contains provisions to ensure that development progresses in a coordinated manner with the required upgrades.

These strategic objectives of the Auckland Plan are reflected in the AUP objectives and policies, which are assessed in detail below.

### 6.3.2 Future Urban Land Supply Strategy 2017

The FULSS, refreshed in July 2017, implements the Auckland Plan and gives effect to the NPS on Urban Development Capacity by identifying a programme to sequence future urban land over 30 years. The strategy relates to greenfield land only and ensures there is 20 years of supply of development capacity at all times and a seven year average of unconstrained and ready to go land supply. 'Ready to go' land is land with operative zoning and bulk services in place such as the required transport and water infrastructure.

The FULSS identifies Riverhead/Huapai and Kumeu as having capacity to accommodate approximately 6,600 dwellings and centres. It stages development in Riverhead for Decade 2 (2028-2032) to time with transport improvements needed to address safety and capacity issues on State Highway 16, and the completion of the Northern Interceptor. The FULSS states that alternative staging may be considered appropriate through the structure planning process<sup>4</sup>. This illustrates an intent by Council to be open to new development opportunities, subject to more detailed analysis and evaluation through a future structure planning process.

The detailed analysis that has occurred through the Riverhead Structure Plan supports bringing the staging of the Plan Change area forward relative to the timing in the FULSS. This is largely due to the fact that the key bulk infrastructure upgrades which determined the staging originally to 2028 are either not required for development of the Riverhead Structure Plan area or will be complete by 2025 (SH16 improvements and Northern Interceptor Stage 2). The localised upgrades that are required can be funded by the developer.

In addition, commencing the development of the Riverhead Structure Plan area will provide much needed greenfield development capacity in Auckland's north-west. **Figure 8** below shows Council's progress with zoning Future Urban land in Auckland. This illustrates that many of the live-zoned greenfield areas and Future Urban zone areas that are planned to be 'development ready' in 2018-2022 are, in fact, not. For example, land at Whenuapai and Paerata (outside of Paerata Rise) which was planned for 2018-2022, has not been rezoned. In the case of Paerata, there do not appear to be any plans on the horizon for this to occur. Of the 2018-2022 FULSS areas, only parts of Warkworth North and Drury West have been rezoned and these have been privately initiated. The lack of progress being made to implement the FULSS, in addition to the demand for additional housing in the northwest FUZ, is creating a growth challenge.

<sup>4</sup> Future Urban Land Supply Strategy Page 10

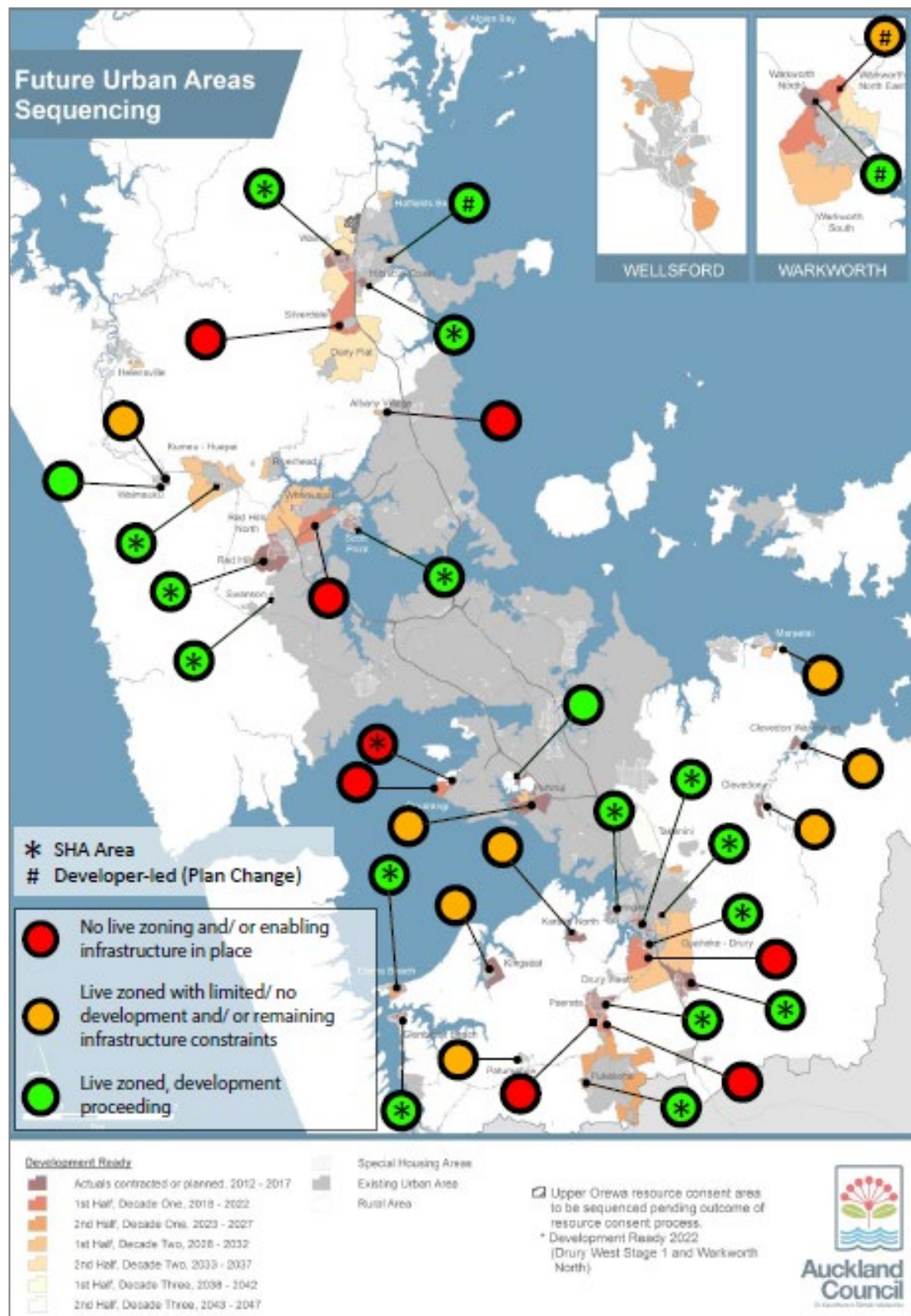


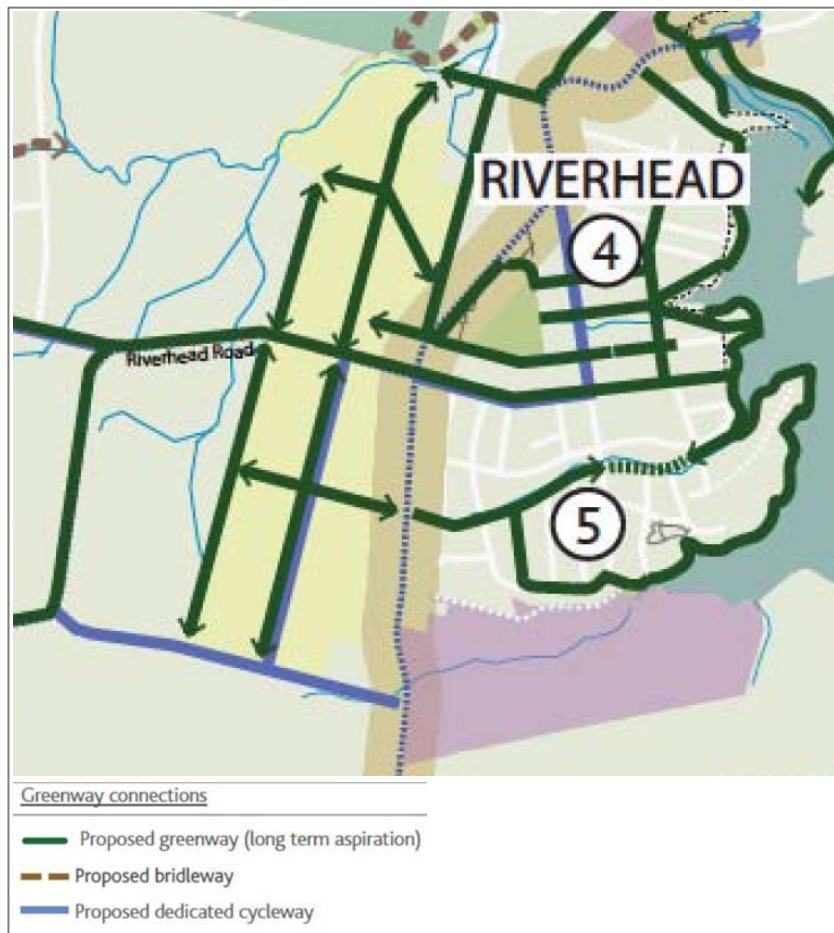
Figure 8: Showing the Council's progress with live-zoning land in line with the FULSS.

### 6.3.3 Open Space and Community Facilities

#### 6.3.3.1 Rodney Greenways Plan

The aim of the Rodney Greenways Local Paths Plan for Kumeu, Huapai, Waimauku and Riverhead (December 2016), is to *‘provide cycling and walking connections which are safe and pleasant, while also improving local ecology and access to recreational opportunities’*.

The proposed Structure Plan is generally consistent with this objective and the Greenways Plan which is shown in **Figure 9** below:



**Figure 9: Greenway connection aspirations for Riverhead.**

The central north-south multi-purpose green corridor is a key structuring component in both the Greenways Plan and the proposed Structure Plan. Along with the collector road, this green corridor accommodates both passive and active open spaces, footpaths and dedicated cycleways. It also incorporates an existing intermittent stream.

The proposed east-west green corridor aligns with Riverhead Point Drive as indicated by the Greenways Plan and both the proposed Structure Plan and the Greenways Plan show connection to Duke Street and Riverhead Forest in the north. Two key east-west pedestrian connections are also proposed north of Riverhead Road.

In line with the Greenways Plan, dedicated cycleways are anticipated along Riverhead Road and Coatesville Riverhead Highway and the proposed Plan Change provides for road widening to enable this to be delivered.



The following is noted in respect of inconsistencies with the above Greenways Plan:

- No direct greenway connection is provided within the Structure Plan to Princes Street/Memorial Park, although the retirement village proposes a pedestrian link from the end of the Cambridge Road/Princes Street intersection through to a central landscaped corridor and thereafter through to the rest of the northern plan change area. As noted above, this would include a public access easement for day-time access;
- Although Cambridge Road lies outside the Plan Change area, the Plan Change does include an upgrade to the road (from rural to urban profile) and includes a new footpath;
- No greenway is proposed along the western boundary of the Plan Change area which is the rural-urban interface. Future development is likely to “back on” to this boundary and provide privacy and security fencing which is unlikely to provide adequate surveillance/safety of a pedestrian/cycle route. There is also no existing ecological corridor in this location nor desire lines to existing or proposed destinations; and
- The Greenways Plan proposes a dedicated cycleway along the southern boundary of the Plan Change area, along Lathrope Road and connecting to Coatesville-Riverhead Highway. Due to topographical constraints in this area which render this linkage unfeasible, the Structure Plan proposes a more accessible and safer linkage within the southern portion of the plan change area.

It is noted that the Greenways Plan was likely prepared with a lesser understanding of the existing constraints across the site, whereas the Plan Change has been developed with these in mind. In this way, the intent of the Greenways Plan is considered to have been achieved within the Structure Plan and the proposed Precinct.

#### 6.3.3.2 General Policies and Action Plans

The Council has prepared various policies and action plans regarding the provision of community facilities and open space in Auckland, including:

- Open Space Provision Policy 2016;
- Parks and Open Space Acquisition Policy 2013; and
- Community Facilities Network and Action Plan 2015.

These policies have been taken into account in preparing the open space strategy for the Plan Change area and determining future community facility needs. This is discussed further in Section 9 of the report below.

### 6.4 Regional Policy Statement and Plans

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#### 6.4.1 Auckland Unitary Plan (Operative in Part)

The AUP is the primary statutory planning document for Auckland. It is comprised of the Regional Policy Statement, Regional Coastal Plan, Regional Plan and District Plan. The AUP provides the regulatory framework for managing Auckland’s natural and physical resources while enabling growth and development and protecting matters of national importance.

The RPS sets out the overall strategic statutory framework to achieve integrated management of the natural and physical resources of the Auckland Region. The RPS broadly gives effect to the

strategic direction set out in the Auckland Plan. Section 75(3)(c)16 states that a District Plan must give effect to any Regional Policy Statement and Section 75(4)(b)17 states that a District Plan must not be inconsistent with a Regional Plan for any matter specified in Section 30(1)18.

A comprehensive assessment of the proposed rezoning against the relevant objectives and policies of the RPS are provided at **Appendix 5**. This demonstrates that the proposed rezoning will give effect to the RPS.

Of particular relevance to this Plan Change is section B2 of the RPS, which identifies the issues, objectives and policies governing urban growth and form within the Auckland Region. In particular, sections B2.2 and B2.6 which set out provisions relating to urban growth and rural and coastal towns and villages. A detailed assessment of these objectives and policies is provided below:

## 6.4.2 B2.2 Urban Growth and Form

### *B2.2.1 Objectives*

- (1) *A quality compact urban form that enables all of the following:*
  - (a) *a higher-quality urban environment;*
  - (b) *greater productivity and economic growth;*
  - (c) *better use of existing infrastructure and efficient provision of new infrastructure;*
  - (d) *improved and more effective public transport;*
  - (e) *greater social and cultural vitality;*
  - (f) *better maintenance of rural character and rural productivity; and*
  - (g) *reduced adverse environmental effects.*
- (2) *Urban growth is primarily accommodated within the urban area 2016 (as identified in Appendix 1A).*
- (3) *Sufficient development capacity and land supply is provided to accommodate residential, commercial, industrial growth and social facilities to support growth.*
- (4) *Urbanisation is contained within the Rural Urban Boundary, towns, and rural and coastal towns and villages.*
- (5) *The development of land within the Rural Urban Boundary, towns, and rural and coastal towns and villages is integrated with the provision of appropriate infrastructure.*

### *B2.2.2 Policies*

#### *Development capacity and supply of land for urban development*

- (1) *Include sufficient land within the Rural Urban Boundary that is appropriately zoned to accommodate at any one time a minimum of seven years' projected growth in terms of residential, commercial and industrial demand and corresponding requirements for social facilities, after allowing for any constraints on subdivision, use and development of land.*
- (2) *(a)-(i) Not applicable*
- (3) *Enable rezoning of future urban zoned land for urbanisation following structure planning and plan change processes in accordance with Appendix 1 structure plan guidelines.*

#### *Quality compact urban form*

- (4) *Promote urban growth and intensification within the urban area 2016 (as identified in Appendix 1A), enable urban growth and intensification within the Rural Urban Boundary, towns and rural and coastal towns and villages, and avoid urbanisation outside these areas.*
- (5) *Enable higher residential intensification:*
  - (a) *in and around centres;*
  - (b) *along identified corridors; and*
  - (c) *close to public transport, social facilities (including open space) and employment opportunities.*
- (6) *Identify a hierarchy of centres that supports a quality compact urban form:*
  - (a) *at a regional level through the city centre, metropolitan centres and town centres which function as commercial, cultural and social focal points for the region or sub-regions; and*
  - (b) *at a local level through local and neighbourhood centres that provide for a range of activities to support and serve as focal points for their local communities.*
- (7) *Enable rezoning of land within the Rural Urban Boundary or other land zoned future urban to accommodate urban growth in ways that do all of the following:*
  - (a) *support a quality compact urban form;*
  - (b) *provide for a range of housing types and employment choices for the area;*
  - (c) *integrate with the provision of infrastructure; and*
  - (d) *follow the structure plan guidelines as set out in Appendix 1.*
- (8) *Enable the use of land zoned future urban within the Rural Urban Boundary or other land zoned future urban for rural activities until urban zonings are applied, provided that the subdivision, use and development does not hinder or prevent the future urban use of the land.*
- (9) *Not applicable*

The Plan Change is considered to give effect to the above relevant Urban Growth and Form objectives and policies for the following reasons:

- The Plan Change supports a quality compact urban form, by enabling urbanisation of land that is immediately adjacent to the existing Riverhead urban area and contained within the existing Rural Urban boundary. The proposed zoning pattern will enable provision of a range of housing types, and the proposed centres will provide local employment opportunities;
- The Plan Change has been informed by the Riverhead Structure Plan which has been developed in accordance with the structure plan guidelines set out in Appendix 1 and therefore gives effect to policy B2.2.7(d);
- The Plan Change includes infrastructure-related provisions to ensure the provision of infrastructure is coordinated with development and therefore gives effect to policy B2.2.7(c);
- The proposal will facilitate improved social outcomes through including provisions that enable the establishment of neighbourhood and local centres, open spaces, a variety of housing types (which will result in a variety of occupants ranging from families with children and working professionals as well as empty nesters and the elderly). This in turn will lead to greater social and cultural vitality. This gives effect to Objective B2.2.1(1)(e) and Policy B2.2.2(2)(e); and

- The development will provide for greater productivity and economic growth through providing for residential growth and commercial activities. Residential growth would be provided for adjacent to an existing residential area and the proposed neighbourhood and local centres would provide local services for the community. This gives effect to Objective B2.2.1(1)(b) and Policy B2.2.2(5) and (6).

### 6.4.3 B2.6 Rural and Coastal Towns and Villages

#### *B2.6.1 Objectives*

*(1) Growth and development of existing or new rural and coastal towns and villages to be enabled in ways that:*

*(a) avoid natural and physical resources that have been scheduled in the Unitary Plan in relation to natural heritage, Mana Whenua, natural resources, coastal environment, historic heritage or special character unless growth and development protects or enhances such values; and:*

The potential development of the land does not affect any scheduled items, any significant ecological areas or Mana Whenua sites. The development will enhance and retain non-scheduled natural and physical resources of the site including the streams, wetlands and a beech tree at 298 Riverhead Road with recognised amenity value. The land is not located within immediate proximity to the coastal marine area.

*(b) avoid elite soils [LUC 1] and where practicable prime soils [LUC 2 or 3] which are significant for their ability to sustain food production:*

The subject land is identified as being Land Use Capability ('LUC') 2 soil or 'prime soil'<sup>5</sup>, however it is currently already zoned as Future Urban and located within the Rural Urban boundary. The appropriateness of the urbanisation of this land was considered at the time it was zoned Future Urban by Council, in accordance with Policy B2.2.2 which requires that the location of the Rural Urban Boundary identifies land for urbanisation that avoids prime soils 'where practicable'.

*(c) avoid areas with significant natural hazard risks:*

A geotechnical assessment and flood assessment (refer to **Appendix 15** and **Appendix 10**) have been undertaken as part of the technical evaluation of the Plan Change area. To the extent that natural hazard risks have been identified on the land that is to be developed under this PPC (particularly the northern land), the provisions in E36 of the AUP will ensure such risks of development are appropriately managed.

With regard to general geotechnical matters, the assessments to date confirm that structural stability construction methodologies will ensure any structures are safely constructed and therefore natural hazard risk can be avoided.

With regard to potential flooding and overland flow natural hazards, the stream, watercourse and overland flow channels proposed as part of future development will ensure such events are minimised. The proposed Stormwater Management Plan confirms this.

Therefore, it is considered that any areas with significant natural hazard risks are avoided and other natural hazard risks are appropriately addressed.

<sup>5</sup> NZLRI Land Use Capability 2021 website.



- (d) are consistent with the local character of the town or village and the surrounding area; and*

The current Riverhead township is characterised by suburban detached dwellings on single lots. The Plan Change will enable a variety of building height and form for new residential and commercial development. The proposed zoning and precinct standards for height have been coordinated to ensure complementarity to the character of the existing town while also enabling opportunities for greater housing capacity and choice to promote efficient use of greenfield land. The Neighbourhood Design Assessment prepared for the Plan Change (refer to **Appendix 6**) confirms that the proposed development outcomes will integrate with the character of Riverhead and will result in positive design outcomes for not only the Plan Change land but also the wider locality.

- (e) enables development and use of Mana Whenua resources for their economic well-being.*

Refer to section 5.2 above.

- (2) Rural and Coastal towns and villages have adequate infrastructure.*

The technical analysis to inform the Plan Change confirms that there are infrastructure solutions that can service the Plan Change area. These infrastructure solutions are either existing funded/necessary projects or localised upgrades which can be funded and delivered by the applicant without requiring funding from Auckland Council. Wastewater will be serviced by an extension of the existing pressure sewer system servicing Riverhead Village, with interim upgrades as development progresses if required to provide additional capacity prior to proposed separation of the Kumeu / Huapai wastewater system from the Riverhead Wastewater Pump Station. In relation to water supply the existing main has immediate capacity however, a second main will be required and two options for this second main have been identified. The proposed Riverhead Precinct includes additional assessment criteria to ensure there is adequate wastewater/water supply infrastructure to service development.

In terms of transport infrastructure, only localised improvements and upgrades to the transport network are required and these improvements will be fully funded and delivered by the applicant. The proposed Riverhead Precinct includes rules to stage development with the required transport infrastructure upgrades.

#### ***B2.6.2 Policies***

- (1) Require the establishment of new or expansion of existing rural and coastal towns and villages to be undertaken in a manner that:*
- (a) maintains or enhances the character of any existing town or village*
  - (b) incorporates adequate provision for infrastructure*
  - (c) avoids locations with significant natural hazard risks where those risks cannot be adequately remedied or mitigated*
  - (d) avoids elite soils [LUC 1] and avoids where practicable prime soils [LUC 2 and LUC 3] which are significant for their ability to sustain food production*
  - (e) maintains adequate separation between incompatible uses*
  - (f) is compatible with natural and physical characteristics including the coastal environment*

- (g) provides access to the town or village through a range of transport options including walking and cycling*

The majority of the above policies give effect to the matters raised in objectives relating to urban growth of rural towns, that are addressed above. The Plan Change provisions and analysis undertaken within the associated technical reports ensure the above policy outcomes are achieved. The Plan Change provisions and plans identify individual sub-precincts, proposed land use zoning, pedestrian and roading networks, as well as the proposed and indicative open space network.

Additionally, the above policy requires consideration of access through a range of transport options. Transport options such as improved roads and enhanced walking/cycling facilities have been considered (in addition to roading upgrades) and form part of the Integrated Transport Assessment (refer to **Appendix 8**) and are included in the Plan Change.

The Plan Change also ensures adequate separation distances are provided for potentially incompatible uses. For example, urban development is adequately separated from streams and their margins. Specific methodologies will be employed to ensure any construction-related effects (including erosion and sediment management measures) and stormwater discharges are avoided, remedied or mitigated to ensure the protection of sensitive receiving environments and habitats.

The provision of yard standards to the western edge of the Plan Change, adjoining the Mixed Rural zone, will establish adequate separation between potentially incompatible rural and urban uses, and reverse sensitivity issues.

- (2) Avoid locating new or expanding existing rural and coastal towns and villages in or adjacent to areas that contain significant natural and physical resources, that have been scheduled, unless growth and development protects or enhances such resources by including any of the following measures:*
- (a) the creation of reserves*
  - (b) increased public access*
  - (c) restoration of degraded environments*
  - (d) creation of significant new areas of biodiversity*
  - (e) enablement of papakainga, customary use, cultural activities and appropriate commercial activities.*

There are no scheduled items within or in proximity to the land that is proposed to be rezoned for urbanisation. Regardless, the Plan Change includes provision for the measures listed in this policy, by providing for reserves and the potential for increased public access including public roads/footpaths/cycle paths over land that is currently private property.

Further, from an ecological perspective, the AUP, NPS-FM and NES-FW include provisions to ensure that identified streams and riparian margins are protected, with the Plan Change including provisions for native planting in riparian margins to ensure they are restored and enhanced as part of the development of the land. The restoration of these areas will create significant new areas of biodiversity through the removal of pests and weeds, replanting, maintenance and protection.

- (3) Enable the establishment of new or significant expansions of existing rural and coastal towns and villages through the structure planning and plan change process in accordance with Appendix 1 Structure Plan guidelines.*

The Riverhead Structure Plan is attached to this Plan Change request (refer to **Appendix 4**) and it addresses the structure planning requirements set out in Appendix 1 of the AUP. The Structure Plan maps and technical reports address the Appendix 1 Structure Plan guidelines and support the expansion of the Riverhead town. The Plan Change is in accordance with the Structure Plan and provides additional detailed technical assessment that supports the expansion of the Riverhead township and ensures the required infrastructure and transport upgrades are coordinated with development within the precinct.

*(4) Enable small scale growth of and development of rural and coastal towns without structure planning.*

Small scale growth is not proposed within the Plan Change and therefore this policy does not apply.

### Summary

Overall, in terms of the relevant objectives and policies of B2.6, it is considered that an expansion of the Riverhead town gives effect to these RPS provisions. The policies enable significant expansions to existing rural towns through the structure plan process and subsequent plan changes. This approach is being followed for Riverhead. Therefore, it is concluded that the urbanisation of Riverhead as proposed within this Plan Change is consistent with the RPS and will give effect to it.

## 6.5 Other Plans

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### 6.5.1 Iwi Planning Documents

As described in section 5.2 above, engagement correspondence was sent to 19 iwi groups were contacted in September and October 2021. Six iwi groups responded confirming their interest in being involved: Te Kawerau ā Maki; Ngāti Whātua o Kaipara; Te Rūnanga o Ngāti Whātua; Te Ākitai Waiohū; Ngāti Manuhiri; and Ngāti Whanaunga. Several hui have been held with Te Kawerau ā Maki and Ngāti Whātua o Kaipara, as well as the other iwi (either via hui or further email correspondence).

Of these six interested iwi, none have publicly available iwi management plans or planning documents. Notwithstanding this, the feedback received during the consultation process, in particular from Te Kawerau ā Maki and Ngāti Whātua o Kaipara who have engaged more extensively, has been taken into account in the Structure Plan and Plan Change.

## 7.0 Assessment of Effects

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Section 76 of the RMA states that in making a rule, the territorial authority must have regard to the actual or potential effect on the environment of activities including, in particular, any adverse effect. This section details the actual and potential effects that the proposed plan change provisions may have on the environment. This assessment is based on analysis and reporting undertaken by various experts, which are attached as appendices to this report.

## 7.1 Urban Form

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An Urban Design Statement has been prepared by Urban Acumen and is included as **Appendix 6** of this report. The following structuring elements are identified within the proposed precinct plan and will determine the built urban form within the Plan Change area:

- A north-south and east-west oriented multi-purpose green corridors which will integrate the provision of open space and stormwater management features. The north-south corridor will align with a key collector road, and their location will reflect a potential portage route of cultural significance and to promote views to high points in Riverhead Forest; The policy framework proposed in the precinct sets out the desired outcomes for this corridor;
- The identification of key collector and local roads where they provide for key connectivity outcomes, including internal connectivity within the Plan Change area and integration with the existing road network. The identified road networks are predominantly north south oriented and will promote good solar orientation for future development; and
- The provision of a focal point at the centre of Riverhead, supported by the proposed local centre and Terraced Housing and Apartment Building ('THAB') zoning. This focal point will complement existing neighbourhood scale business activities within the Riverhead township.

The proposed precinct assessment criteria seek to ensure that the above key features and elements are delivered at the time of future subdivision and development. Overall, it is considered that the proposed plan change will enable the development of positive urban form outcomes that contribute to a quality compact urban form and well-functioning urban environment.

## 7.2 Centres Hierarchy

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A Centres Assessment for the plan change has been undertaken by Property Economics and this is enclosed as **Appendix 7**.

In terms of commercial growth, the Riverhead Retail catchment generates around \$100m in annual retail expenditure. Based on the future development of Riverhead Precinct (plus expected growth elsewhere in the catchment), retail spending is expected to grow to \$161m by 2038. A significant portion of the retail expenditure is expected to occur in higher order centres such as Westgate, which is well positioned to service the higher-order shopping needs of Riverhead. In this regard, any retail development within Riverhead is considered to be complementary to these centres and the overall centres hierarchy.

The Economic Assessment also states that the following is sustainable within Riverhead:

- Approximately 6,850m<sup>2</sup> GFA of retail and commercial services (including a 3,200m<sup>2</sup> supermarket) with a supermarket;
- Approximately 3,970m<sup>2</sup> GFA of retail and commercial services without a supermarket; and
- Approximately 1-1.5 hectares of business zoned land to accommodate the above.

Based on this advice, the most appropriate zone for the Riverhead Centre is Local Centre because this often takes the form of a small to medium sized centre anchored by an appropriately-sized supermarket. This would provide for the development of mainly convenience retail and commercial services and some office activity.



Overall, it is considered that the proposed Business – Local Centre and Business – Neighbourhood centre zoning of the Village Centre of Riverhead is considered to be consistent with the centres hierarchy of the AUP and will not compromise the economic viability of the existing business centres or result in an out of context centre. The limited size of the centre within the plan change area will ensure that it remains complementary to the centres hierarchy and will not grow to a size that creates future inconsistencies challenging the centres approach of the AUP.

### 7.3 Visual Amenities

Zoning within the Plan Change area includes Business – Local Centre and Business – Neighbourhood Centre to support local business development and Residential – THAB and Residential – Mixed Housing Urban within residential areas. A Landscape and Visual Assessment ('LVA') has been prepared by Boffa Miskell (refer **Appendix 16**) and a Neighbourhood Design Statement has been prepared by Urban Acumen (refer **Appendix 6**).

The Local Centre is proposed at the intersection of Riverhead Road and Coatesville-Riverhead Highway and the Neighbourhood Centre is proposed along Coatesville-Riverhead Highway, opposite Riverhead Point Drive and the existing Neighbourhood Centre within the Riverhead township. Existing standards within the AUP Local Centre and Neighbourhood Centre zones will apply, including total building heights of 18m and 13m respectively. THAB zoning is proposed to the east of the Plan Change area adjacent to Cambridge Road and Riverhead Road and the proposed local centre. The remainder of the Plan Change areas is proposed to be zoned Mixed Housing Urban. The proposed precinct standards include heights of up to 18m in the Local Centre zone, 16m in the THAB zone, 11m in the Mixed Housing Urban zone immediately adjoining THAB, and 8m plus 1m roof height in the remainder of the Mixed Housing Urban zone (Sub-precinct B).

While greater heights will be permitted in the proposed local centre and THAB zones when compared to the existing Riverhead township, this area will act as a focal point within Riverhead, providing for variation in building height and form. The LVA finds that this area will act as an appropriate landmark to signify the centre of the Riverhead township, with the enabled built form contributing positively to visual interest, diversity, and legibility. The proposed neighbourhood centre is considered to be viewed as a logical extension to the existing neighbourhood centre within the Riverhead township.

As discussed above, the location of the THAB zone will complement the proposed local centre as a focal point within the Plan Change area and has also been located within close proximity to existing public transport networks. The THAB zone will enable a variety of housing choice and typologies, including a retirement village for which a separate resource consent is being sought concurrently. Where the THAB and Local Centre zones interface with the Coatesville-Riverhead Highway, the width of the road corridor in conjunction with zoning provisions will provide an appropriate transition between The Site and residential properties to the east of the Coatesville-Riverhead Highway.

The remainder of the Plan Change area is proposed to be zoned Mixed Housing Urban with varying height limits. Immediately around the THAB, the underlying zone height limit of 11m will apply, while the remainder of the zone is subject to an 8m height limit (through Sub-Precinct B), which responds to the existing built character of the Riverhead Settlement. This approach to height enables a transition in height from the THAB and Local Centre down to the two-storey. The MHU zone is considered to enable the efficient use of greenfield land and support a greater variety of

housing choice within Riverhead, while also responding to the existing Single House and rural zoning adjacent to the Plan Change area.

Overall, it is acknowledged that the Plan Change will introduce visual change to the Riverhead township and adjacent rural environment. In particular, the LVA concludes that visual effects within the immediate vicinity of the Plan Change area will be low-moderate while views from the wider context will be low to very low. Having regard to the analysis, conclusions, and recommendations of the LVA and Urban Design Statement, it is considered that the potential built form outcomes that will be enabled by the plan change will not create significant adverse visual amenity effects and will be appropriate in the context of the existing surrounding Single House and Mixed Rural zones environment, and national direction to enable housing choice and diversity.

## 7.4 Natural Character and Landscape

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The LVA prepared by Boffa Miskell considers the potential effects of development within the Plan Change area on natural character and landscape values.

The LVA finds that the Plan Change area does not contain any areas or features that are considered to be of high landscape value. In addition, there are no outstanding natural features or landscapes as identified under the AUP within the Plan Change area, with the closest being the Paremoremo Escarpment landscape feature located over four kilometres to the east.

Natural features identified within the Plan Change area include the stream and associated riparian vegetation located to the eastern side, a tree with intrinsic age, health, and character attributes located on the western side, pastoral grassland, and shelter belts that have been established within the existing rural environment. Proposed Precinct 1, which identifies the indicative location of key structural elements provides the opportunity to retain the existing stream and tree with identified value. In addition, the proposed precinct standards will provide for enhancement planting within the riparian margins of the stream (10m either side). The LVA concludes that the pastoral grasslands and shelter belts are not considered to have high natural character values. While development within the Plan Change area will result in visual changes and the clearance of some existing natural features, it is considered that this can be anticipated as Future Urban zoned land is utilised to accommodate urban development.

In terms of landscape character, it is acknowledged that the development of the Plan Change area will change the existing character of the landscape, which is currently rural in character and includes a number of rural production activities including horticulture, and some rural lifestyle blocks. In particular, development will include earthworks which will alter the undulating nature of the topography urban built features, including roading open spaces, and residential and commercial buildings. While these changes will be visible to viewing audiences within the immediate vicinity of the existing Riverhead township and road users passing the site, they are considered to be in keeping with the development of greenfield land and will not be out of character within a Future Urban zoned environment. As discussed above, visual effects associated with development of the Plan Change area have been assessed to range for very low to low-moderate.

With regard to the wider landscape context, of significance is the Riverhead Forest is located to the north. While greater building heights and densities will be enabled within the proposed THAB and centre zones and have the potential to restrict views towards the Riverhead Forest, it is noted that there are limitations to existing views due to the relatively flat landscape. Some views will also

be retained through the north south oriented multi-purpose green corridor identified within proposed Precinct Plan 1, which has been positioned to reflect a potential portage route of cultural significance and to promote views to high points in Riverhead Forest. It is considered that the Riverhead Forest will provide a well-defined landscape and visual backdrop that is complementary to the development of the Plan Change area.

Overall, having regard to the analysis of the LVA, the development outcomes that will be enabled by the proposed Plan Change are considered to be appropriate in terms of effects on natural character and landscape values.

## 7.5 Cultural Values

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As discussed in Section 5.2 above and set out in the consultation report provided as **Appendix 18**, engagement correspondence was made to 19 iwi groups and a hui was subsequently held with Te Kawerau ā Maki and Ngāti Whātua o Kaipara to develop a cultural landscape map for the Riverhead Structure Plan area. The following features were identified to be of cultural significance:

- Viewshafts to high points in Riverhead Forest to the north;
- Viewshafts to high points near Kumeu to the west; and
- Three east west orientated potential original portage routes.

These features have been incorporated into proposed Precinct Plan 1 through the identification and orientation of key local and collector roads and the multi-purpose green corridor. The proposed precinct provisions including objectives, policies, standards, matters of discretion, and assessment criteria also address the identified matters of importance to mana whenua and cultural values.

The proposed precinct provisions were discussed with Te Kawerau ā Maki and Ngāti Whātua o Kaipara at a hui held on 9 June 2022. Te Kawerau ā Maki have since been involved with drafting the precinct provisions which relate to managing the effects of the proposed plan change and future development on cultural values. Feedback provided by Te Kawerau ā Maki has informed the proposed precinct provisions, particularly with regard to managing the effects and impacts of future development on values associated with the Māori cultural landscape. It is anticipated that engagement with Te Kawerau ā Maki and Ngāti Whātua o Kaipara will be ongoing as the proposed plan change and precinct provisions are further developed.

## 7.6 Transport

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An Integrated Transport Assessment ('ITA') has been prepared by Flow Transportation for the Plan Change and is included as **Appendix 8** to this report.

The ITA identifies a number of transportation upgrades to enable development within the Plan Change area, has regard to potential trip generation, and provides an assessment on the appropriateness of internal road network with regard to roading hierarchy and design.

These matters are addressed in turn below.

### 7.6.1 Transportation Upgrades

A number of localised transportation measures and upgrades are identified within the ITA. In summary, these include:

- **Riverhead Road:** updates including widening of the road reserve to accommodate berms and dedicated footpaths and cycle paths. Detailed design will be determined at the time of resource consent, having regard to the layout of other existing roads.
- **Coatesville-Riverhead Highway:** upgrades including localised widening of the road reserve in places, to accommodate berms, dedicated footpaths and cycle paths, and public transport infrastructure. Detailed design will be determined at the time of resource consent, having regard to the layout of other existing roads.
- **Lathrope Road:** upgrades to provide a sealed carriageway and a footpath on the northern side.
- **Cambridge Road:** upgrades along the frontage of the Plan Change area (western side of Cambridge Road), including providing a formed sealed carriageway, and a new footpath on the western side of the road, in front of the Plan Change area.
- **Queen Street and Duke Street:** a new footpath is also proposed on the northern side of Queen Street between Cambridge Road and Coatesville-Riverhead Highway, and on the southern side of Due Street between the Plan Change area and Cambridge Road
- **Intersection upgrades:** a number of intersection upgrades are proposed at existing intersections, as well as a new intersection, where access will be provided to the Plan Change area. The upgrade works include, but are not limited to, the provision of separated pedestrian and cycle paths, widening, and new priority controls.
- **Speed limit reductions:** speed limit reductions are proposed on Riverhead Road, Coatesville-Riverhead Highway, and Lathrope Road, including 50km/hour and 60km/hour along sections of Riverhead Road, and 50km/hour along sections of Lathrope Road and Coatesville Riverhead Highway. Speed limited reductions will lower vehicle speeds when entering the Plan Change Area and the existing Riverhead Village, providing a safer environment for existing and future road users, including pedestrians and cyclists. It is noted that the Speed Bylaw will apply to speed limit reductions at the time of development. The lower speed philosophy across and around the Plan Change area has been discussed with Auckland Transport and agreed to in principle.
- **Right-turn bays:** the intersections of Coatesville-Riverhead Highway / Old Railway Road and also Riverland Road require upgrading to include right-turn bays within Coatesville-Riverhead Road. As noted in the ITA, Auckland Transport were planning to upgrade the Old Railway Road intersection as the right-turn bays are required based on existing conditions. The funding of these upgrades is addressed in the Structure Plan.

The above transportation works will also align with the aspirations of the Te Tupu Ngātahi Supporting Growth Programme, which identifies roading and safety improvements for Coatesville-Riverhead Highway between State Highway 16 and Riverhead.

The following transportation works are also planned and funded within the surrounding area, creating additional transportation benefits for Riverhead in terms of improving roading safety, capacity, alleviating congestion, and increasing mode choice:

- **State Highway 16 Bringham Creek to Waimauku upgrade:** this project is proposed under the Regional Land Transport Plan 2021-2031 ('RLTP') and will deliver a range of safety and capacity improvements between Waimauku and the end of State Highway 16 at Bringham



Creek Road. This is a fully-funded project, and the Notice of Requirement was lodged with Auckland Council in late 2022; and

- **State Highway Northwest Bus Improvements:** this project is also proposed under the RLTP and will allow a new express bus service to operate along State Highway 16, connecting Northwest Auckland to the city centre.

### 7.6.2 Trip Generation

The ITA includes modelling of the expected traffic generation predicted as a result of development within the Plan Change area.

The ITA finds that while the proposed Plan Change will generate new trips, a number of trips will be local and internal within Riverhead due to the range of activities provided in the existing Riverhead township and Plan Change area.

The effects of the proposed Plan Change on the wider roading network are assessed in ITA relative to key intersections surrounding the Plan Change area. In summary, it is anticipated that all intersections are able to perform well, without significant queue lengths or delays. In particular, the SH16 / Coatesville-Riverhead Highway intersection has been tested across multiple scenarios, including a worse case 100% buildout in 2038, with higher sensitivity trip generation rates and the intersection is predicted to perform well for all of the scenarios tested.

Taking the above into account, it is considered that the trip generation effects at this intersection will be acceptable.

### 7.6.3 Internal Road Network

The proposed new roads include a series of local and connector roads to facilities trips within the Plan Change area, acknowledging that Riverhead Road and Coatesville-Riverhead Highway are existing arterial roads which provide higher movement functions, including catering for public transport services and general traffic.

Access to the Plan Change area from Riverhead Road and Coatesville-Riverhead Highway will be provided through new collector roads, which are proposed at locations to ensure safe sight distances and are identified on proposed Precinct Plan 1 to ensure that an integrated and connected movement network can be achieved. The proposed precinct provisions will also provide guidance on the key roading design outcomes of each road type, while the detailed design layout of roads will be determined at future resource consent stages.

### 7.6.4 Transport Summary

The effects of the Plan Change on the existing and future transport network have been assessed in the ITA and are determined to be acceptable. The ITA has demonstrated that the extent of urban development enabled by the proposed Plan Change can be accommodated within the surrounding road network, subject to the proposed transportation upgrades.

The proposed precinct provisions include specific standards, matters of discretion and assessment criteria to ensure that the required transportation upgrades are provided in an integrated manner at the time of future development. An appropriate roading hierarchy is proposed within the Plan Change area in accordance with Auckland Transport's Roads and Streets Framework to support their intended place and movement functions and the location of key routes have been identified.

Overall, it is considered that the proposed Plan Change will not create significant adverse effects on the transportation network.

## 7.7 Infrastructure and Servicing

The proposed stormwater management strategy and SMP is set out in the stormwater management assessment prepared by CKL, included as **Appendix 10** of this report.

The wastewater and water supply servicing strategy within the Plan Change area is set out in the water and wastewater servicing strategy prepared by GHD, included as **Appendix 11** of this report.

### 7.7.1 Stormwater Management

The proposed SMP sets out the best practicable options for managing stormwater within the Plan Change area and confirms that the proposed maximum allowable impervious area is appropriate, being 65% in residential areas and 90% in business areas.

It is proposed that the SMP will be adopted into the region-wide stormwater Network Discharge Consent and provisional approval for the SMP will be sought during the plan change process.

The identified requirements for managing stormwater quality and flow within the Plan Change include:

- Water quality treatment (90<sup>th</sup> percentile event) for all impervious areas; and
- Stormwater Management Area Flow ('SMAF') 1 retention and detention for all impervious areas other than those located within 1170 and 1186 Coatesville-Riverhead Highway (part of the Riverhead Point Drive catchment) as these areas are not proposed to discharge to a stream receiving environment.

A stormwater management strategy for the Plan Change area has been developed to address the above requirements. The stormwater management strategy demonstrates the overarching principles of how stormwater is to be managed, and has the objective of minimising or mitigating any detrimental effects of urban development on the receiving environment.

The stormwater management strategy includes:

- Installation of new piped networks for the primary conveyance of the 10% Annual Exceedance Probability ('AEP') flows;
- Directing overland flows to roads for the secondary conveyance of the 1% AEP flows;
- Communal and centralised devices, including raingardens and swales;
- The use of inert roofing and cladding materials for buildings; and
- Appropriate design of discharge outlets.

Overall, it is considered that the above methods will be sufficient to achieve hydrological mitigation of the effects of stormwater runoff generated by increased impervious areas enabled by the proposed plan change.

### 7.7.2 Water Supply

GHD's assessment identifies that there is capacity within an existing reservoir that services the existing Riverhead township to service the Plan Change area in the short term. A second supply

main to the existing reservoir would be constructed to provide for capacity and ensure resilience. GHD's assessment identifies two available options to facilitate this upgrade. The later stages of development will require an upgrade to the transmission main and reservoir to provide sufficient water supply.

#### 7.7.3 Wastewater Servicing

Modelling undertaken by GHD confirms that there is capacity within the existing Riverhead wastewater pump station to service the Plan Change area in the short term. In the long term, the planned diversion Kumeu and Huapai from the Riverhead system will also provide sufficient capacity to service the entirety of the Plan Change area. Should development within the Plan Change area occur prior to this diversion, the GHD assessment identifies a number of available options to provide for additional capacity, including both localised upgrades relative to the Plan Change area and the construction of a new wastewater pump station.

#### 7.7.4 Other Utilities

In terms of telecommunications, Chorus has confirmed that the Plan Change area can be serviced by the existing fibre network.

Communications with Vector confirm that the Plan Change area can be serviced by Vector's reticulated electrical unit, subject to the installation of new cables and equipment which will provide the Plan Change area with points of supply.

Correspondence with Chorus and Vector in relation to the Plan Change area is included at **Appendix 12**.

#### 7.7.5 Infrastructure and Servicing Summary

It has been demonstrated that infrastructure solutions for three waters servicing and utilities are available to service the immediate development of the Plan Change area. In terms of water supply, wastewater, and electricity, upgrades to provide additional capacity would be required as development progresses, and several suitable options to facilitate these upgrades have been identified.

The detailed design of infrastructure provision will therefore be determined at the time of future development, noting that the AUP Auckland-wide chapters and provision for infrastructure servicing and stormwater management will apply. Appropriate provision has also been made within the proposed Precinct matters of discretion and assessment criteria to consider whether appropriate arrangements are in place for infrastructure servicing at the time of subdivision and development.

### 7.8 Existing Infrastructure

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There are Transpower Transmission Lines which traverse the northern portion of the Plan Change area. These lines are covered by the National Grid Yard Overlay under the AUP which will restrict the location of new structures, extent of land disturbance, including earthworks and the operation of construction machinery in relation to those transmission lines. It is therefore considered that the effects of future development within the Plan Change area can be appropriately managed with respect to existing nationally significant infrastructure.

## 7.9 Ecology

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An Ecological Assessment prepared by RMA Ecology has been undertaken to support the Plan Change and is included at **Appendix 9** to this report. This includes an assessment of ecological values of freshwater and terrestrial ecosystems. A combination of desktop assessments and site visits were carried out for the Plan Change area, during which, key terrestrial and aquatic habitat features were identified across the site. An arboriculture assessment of existing trees within the Plan area has also been carried out by Greenscene and is included at **Appendix 17** of this report.

### 7.9.1 Terrestrial Ecology

The Plan Change area is predominantly worked in pasture, with no presence of indigenous vegetation or species recognised to be threatened or at risk. A copper beech tree meeting the criteria to be nominated as a notable tree under the AUP is located at the western side of the Plan Change area at 298 Riverhead Road, Riverhead. This tree has been assessed by Greenscene to have a score of 23, where a score of 20 is needed to meet the threshold for nomination in accordance with Auckland Council guidelines.

The proposed precinct provisions provide recognition of the copper beech tree through identification in proposed Precinct Plan 2 and as a distinctive site feature in the proposed precinct policies and assessment criteria, which will apply to future consideration of the overall layout and design of development and provide opportunities to retain the tree.

The Ecological Assessment finds that native wildlife across the Plan Change area is reflective of historic modification to the land, and comprises predominantly of exotic bird and lizard species. Native copper skinks are likely to be present in the northern parts of the site where there are a greater number of farming activities and farming debris that provide habitat. Due to the significantly modified nature of the land form, it is considered that the effects of future development on terrestrial ecological and biodiversity values can be appropriately managed under the existing provisions Auckland wide provisions of the AUP (OP) for land disturbance and any modification to or removal of vegetation.

### 7.9.2 Freshwater Ecology

Waterbodies are concentrated within the northern portion of the Plan Change area where there is an intermittent stream and four wetlands. The intermittent stream flows to an unnamed tributary of the Rangitopuni Stream, running along the northern boundary of the Structure Plan Area, and has been assessed as having been highly modified, and having moderate ecological values. The four wetlands vary in size and quality, with the two smallest wetlands being botanically simplistic and the largest having been degraded by an extensive drain system, historic stock access, and exotic weeds.

The proposed Precinct Plans demonstrate that key roading connection through the Plan Change area can be accommodated while avoiding the reclamation of and works in and around streams and natural wetlands. In particular, key infrastructure, including roads and pedestrian access connections are located clear of the stream and all natural wetlands. The intermittent stream and a number of low-lying wetlands have also been incorporated into the multi-purpose green corridor, which forms one of the key structuring elements identified in the proposed precinct provisions, providing for the protection of these waterbodies. In addition, the proposed precinct provisions include a standard that provides for the protection and restoration of riparian margins, which will ensure positive effects as the land is developed. It is therefore considered that any



future works that may affect streams and natural wetlands can be appropriately managed under the existing statutory framework with respect to freshwater and ecological values, including Chapter E3 Lakes, Rivers, Streams, and Wetlands under the AUP (OP), the NES-FW, and the NPS-FM.

The proposed stormwater management approach has been assessed by RMA Ecology to be appropriate in terms of stream and wetland values with regard to improving water quality and managing the quantity of discharge.

Overall, it is considered that the effects of the urbanisation of land within the Plan Change area can be appropriately managed with regard to the ecological values of freshwater bodies.

### 7.10 Natural Hazards – Flooding

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The Plan Change area is subject to flood plains, flood prone areas, and overland flow paths.

A flood risk assessment has been prepared by CKL, and is included as **Appendix 10** of this report. The modelling considers pre and post-development scenarios and has accounted for the proposed impervious area coverages proposed within the Precinct Provisions.

In summary, this assessment includes modelling undertaken in relation to three downstream catchments being 'Riverhead Point Drive', 'Southern Stream', and 'Riverhead Forest Stream'. The modelling results indicate that urban development within the Plan Change area will not exacerbate existing flood hazards or create new flood hazards within the sub-catchments discharging to 'Riverhead Point Drive' and 'Southern Stream'. It has been assessed that new development is likely to impact the Riverhead Forest Stream sub-catchment due to existing flooding issues that have the potential to be exacerbated by additional development and insufficient capacity within the existing Riverhead Road culvert. CKL identify that flood risks and hazards within this sub-catchment can be appropriately managed through the upgrade of the Riverhead Road culvert.

Overall, there is a high degree of confidence that potential flood hazards associated with development within the Plan Change area can be appropriately managed at the time of development and subject to detailed design. It is also noted that the provisions in Chapter E36 Natural Hazards and Flooding of the AUP would also apply to any development within identified flood plains and overland flow paths, which would manage the effects associated with new development in within flood hazards.

### 7.11 Natural Hazards – Geotechnical

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With regard to geotechnical constraints, the Plan Change area is considered to be generally near-level, with moderate slopes on the edge of erosional gully features located to the south east. A preliminary geotechnical assessment has been prepared by Soil and Rock and a copy is included as **Appendix 15** of this report.

The geotechnical assessment has considered the suitability of the Plan Change area for urban development with regard to soil qualities and the condition of topsoil and fill areas, groundwater, slope stability, and expansivity. Overall, it is concluded that the Plan Change area will be able to accommodate future urban development in accordance with the proposed zoning. In particular, no areas of significant geotechnical hazards that would require a lower intensity of development were identified. Detailed geotechnical investigations will be required as part of future resource

consent applications regarding the management of earthworks, groundwater, and building foundation design.

Based on these findings, it is considered that the land conditions are generally suitable for urban development and can be appropriately managed through the resource consent process and the provisions of Chapter E36 Natural Hazards and Flooding of the AUP (OP).

### 7.12 Land Contamination

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A Detailed Site Investigation ('DSI') has been undertaken by Soil and Rock for the Plan Change Area, and is included at **Appendix 14** of this report. This DSI confirms the presence of contaminants exceeding acceptable concentrations include heavy metals (arsenic, metal, zinc) and asbestos within the Plan Change area. The regulations of the National Environmental Standard for Assessing and Managing Contaminants in the NESCS therefore apply.

Resource consent requirements under the NESCS and AUP would ensure that a Site Management Plan is prepared at the time of resource consent for subdivision or development to demonstrate how the works will be managed to ensure that any land disturbance and urban use of the land avoid and mitigate adverse effects on the environment and human health.

The DSI concludes overall that the Plan Change area is suitable for future residential and commercial development, and there is no evidence to suggest that the presence of contamination would prevent the proposed rezoning of land as sought in the plan change.

Overall, it is considered that there is a high level of confidence that the Plan Change area can be remediated and that the potential adverse effects of land contamination associated with land disturbance and the change of use of the site can be appropriately managed through the existing statutory framework with respect to the NES regulations and AUP for any discharges.

### 7.13 Heritage and Archaeology

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An assessment of the archaeological and heritage values of the Plan Change area has been undertaken by Clough & Associates, and their report is included as **Appendix 13** of this report. While there are no existing records of archaeological or other historic heritage sites being recorded within the Structure Plan area, a detailed field survey identified two archaeological sites relating to early European settlement.

These sites include the mid-19<sup>th</sup> century Riverhead Mill water race at Lot 20 DP 499876 and the former late 19<sup>th</sup> century Ellis house at Lot 1 DP 164978. Clough and Associates have assessed the significance of these places in accordance with the AUP criteria. In this case, the assessment of the relevant criteria identifies significance evaluations of 'little' for the majority of the criteria, with 'moderate' for several. None of the classifications are 'considerable' or 'outstanding'. Therefore, it is considered that the objectives and policies of RPS B5.2 are not applicable as these sites are not 'significant historic heritage places'. As such, additional protection of these sites with 'little' or 'moderate' value is not required. Although there are no present known features or structures of significance in relation to these sites, there is the possibility that subsurface remains of archaeological value due to their information potential are located during land development.

In the event that subsurface remains are uncovered during future development, the archaeological provisions of the Heritage New Zealand Pouhere Taonga Act 2014 ('HNZPTA') will apply. It is also anticipated that standard accidental discovery protocols in the AUP will be implemented in the

event that any archaeological material is uncovered during excavation works. The Precinct provisions include a Special Information Requirement which states that any future application for land modification on 22 Duke Street (the location of the mill race) must be accompanied by an archaeological assessment, including a survey. The purpose of this assessment would be to evaluate the effects on archaeological values associated with the Waitemata Flour Mill/Riverhead Paper Mill site R10\_721 prior to any land disturbance, and to confirm whether the development will require an Authority to Modify under the Heritage New Zealand Pouhere Taonga Act 2014.

The assessment prepared by Clough and Associates confirms that these measures under the HNZPTA and AUP are appropriate to manage and mitigate the potential adverse effects on archaeology values associated with future development within the Plan Change Area.

#### 7.14 Reverse Sensitivity

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The Plan Change area adjoins land that is zoned Mixed Rural to the south and west, which has the potential to create reverse sensitivity effects. The proposed Plan Change locates THAB zoning away from the Mixed Rural zone, and proposes the lower intensity Mixed Housing Urban zoning at this interface. The Neighbourhood Design Statement (refer **Appendix 6**) recommends that a greater side and rear yard setback than that currently required in the Mixed Housing Urban zone is applied. A greater yard setback will provide separation between future development and existing rural activities, as well as provide opportunities for future land owners to implement additional buffers and screening. The proposed precinct standards will require any Mixed Housing Urban zoned site within the Plan Change area immediately adjoining the Mixed Rural zone to apply a 5m side and rear yard setback from common boundaries with this zone.

With regard to the potential for reverse sensitivity effects, it is noted that the purpose of the Mixed Rural zone is to provide for rural production and other non-residential activities at a scale that is compatible with typically smaller site sizes. In this case, the adjacent rural land uses include horticulture (greenhouses), lifestyle living, open pasture that is grazed, and a motor camp. The extent of land available for intensive rural production activities adjacent to the Plan Change area is also constrained by an existing permanent stream, which traverses the Mixed Rural zone in a north south direction. It is therefore considered that the proposed zoning pattern and Precinct Provisions provide appropriate opportunities within the Plan Change area to manage reverse sensitivity issues between residential and rural land.

#### 7.15 Summary of Effects

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The actual and potential effects of the proposed Plan Change have been considered above, based on extensive reporting and analysis undertaken by a wide range of technical experts. On the basis of this analysis, it is considered that the area is suitable for urban development, the proposed mix of uses will result in positive effects on the environment in terms of the social and economic well-being of the community, and the development can be serviced by existing infrastructure with appropriate upgrades in place. Where adverse effects are anticipated, the proposed policies and rules of the Plan Change, in addition to those in the Auckland-wide and zone provisions, will ensure they are appropriately avoided, remedied or mitigated.

## 8.0 Section 32 Analysis

### 8.1 Appropriateness of the Proposal to achieve the purpose of the Act

Section 32(1)(a) of the RMA requires an evaluation to examine the extent to which the objectives of the proposed plan change are the most appropriate way to achieve the purpose of the RMA.

#### 8.1.1 Objectives of the Plan Change

The purpose or overarching objective of the plan change is to deliver a comprehensively developed residential environment through the expansion of the existing Riverhead settlement to primarily provide additional land for housing. The plan change will achieve medium and high density residential activities serviced by a local centre to provide for local convenience needs and some limited employment opportunity. A smaller neighbourhood centre is proposed along Coatesville-Riverhead Highway to provide for daily needs within a walkable catchment. The plan change will also achieve a connected multi-modal transport network which integrates with the existing settlement. In addition, the plan change will retain and enhance key ecological features to improve ecological outcomes, and respect Mana Whenua values. Overall, the plan change is considered to be complementary to the Riverhead Structure Plan.

The proposed precinct incorporates objectives to guide development within the Plan Change area to achieve the following outcomes:

- The extension of Riverhead rural town to create a comprehensively developed residential environment that integrates with the existing settlement, the natural environment and respects Mana Whenua values;
- Development provides a variety of housing types and sizes, including Integrated Residential Development, to meet demand;
- Local employment opportunity is provided in the Local Centre and Neighbourhood Centre, while complementing higher order centres;
- Development is coordinated with the provision of infrastructure, transport upgrades and social facilities;
- Adverse effects on receiving waterbodies are minimised or mitigated;
- The protection, restoration, enhancement and maintenance of ecological habitats within the Plan Change area including riparian margins is achieved; and
- The relationship of Mana Whenua with the Māori cultural landscape is recognised, protected, and enhanced.

The proposed precinct objectives enable a comprehensive and integrated urban development outcome whilst also achieving positive environmental outcomes. The requirement for growth and transport/infrastructure upgrades to be developed together will also ensure development progresses in a coordinated manner.

#### 8.1.2 Assessment of the Objectives against Part 2

In accordance with Section 32(1)(a), **Table 1** below provides an evaluation of the objectives of the plan change.



**Table 1: Assessment of Objectives against Part 2 of the RMA.**

Objective	RMA S5 Purpose	RMA S6 Matters of National Importance	RMA S7 Other Matters	RMA S8 Treaty of Waitangi
<b>Theme 1: Well-functioning Urban Environment</b>				
<p>(2) A variety of housing types and sizes that respond to:</p> <p>(a) Housing needs and demand; and</p> <p>(b) The neighbourhoods planned urban built character.</p> <p>(3) Activities in Business – Local Centre zone do not compromise the function, role and amenity of the City Centre Zone, Business – Metropolitan Centre Zone and Business – Town Centre Zone.</p>	<p>These objectives seek to enable future communities of Riverhead to meet their social, economic, and cultural well-being by:</p> <ul style="list-style-type: none"> <li>Ensuring that a selection of housing is available to meet the diverse needs of the community; and</li> <li>Providing opportunity for local employment while respecting the higher order centres and the role these have within the wide community.</li> </ul>	<p>This objective does not compromise the recognition of, or the provision of the relevant matters of national importance. The PPC and the AUP contain a suite of objectives which will appropriately manage matters of national importance within the Plan Change area.</p>	<p>This objective does not compromise the recognition of, or the provision of other matters.</p>	<p>These objectives will not offend against the principles of the Treaty of Waitangi.</p>
<b>Theme 2: Coordinating the development of land with infrastructure in Riverhead</b>				
<p>(5) Subdivision and development are coordinated with the supply of sufficient transport, water, energy and telecommunications infrastructure.</p> <p>(8) Development is supported by social facilities, including education and healthcare facilities.</p>	<p>The alignment of social and physical infrastructure and land use planning will ensure development occurs in a sustainable manner through ensuring that there is adequate infrastructure to service staged growth and mitigate the adverse effects of development on the receiving environment.</p>	<p>This objective does not compromise the recognition of, or the provision of these matters of national importance. The AUP contains existing objectives that manages any potential conflict between matters of national importance and infrastructure and social facilities.</p>	<p>These objectives do not compromise the recognition of, or the provision of other matters. In particular the alignment of infrastructure and land use planning will ensure development makes efficient use of land where there are funded infrastructure solutions available.</p>	<p>These objectives will not offend against the principles of the Treaty of Waitangi.</p>
<b>Theme 3: Achieving integrated and quality development</b>				
<p>(1) Riverhead is a well-functioning urban environment that integrates with the existing Riverhead settlement, the natural environment and respects Mana Whenua values.</p> <p>(4) Access to and from the precinct occurs in a safe, effective and efficient manner for all modes of transport.</p>	<p>The emphasis of the proposed objectives on achieving a connected development which integrates with the existing settlement will enable future communities of Riverhead to meet their social, economic, and cultural well-being.</p>	<p>This objective does not compromise the recognition of, or the provision of these matters of national importance. The AUP contains existing objectives that manages matters of national importance.</p>	<p>The objectives have regard to the maintenance and enhancement of amenity values and the quality of the environment through ensuring development is connected and integrated with the existing Riverhead development and the natural environment.</p>	<p>These objectives are consistent with the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).</p>
<b>Theme 4: Natural Environment</b>				
<p>(7) Identified ecological values within wetland and stream habitats are protected, restored and enhanced.</p> <p>(6) Stormwater is managed to avoid, as far as practicable, or otherwise minimise or mitigate adverse effects on the receiving environment.</p>	<p>The emphasis of the proposed objectives on the protection and enhancement of natural and ecological features as well as the adverse effects on receiving water bodies will ensure that the natural resources within the Plan Change area are sustained for future generations.</p>	<p>The objectives recognise and provide for the preservation of the natural character of wetlands and rivers and their margins through ensuring the maintenance and enhancement of the ecological values within stream, and wetland habitats.</p>	<p>The objectives have regard to the intrinsic value of ecosystems and the maintenance and enhancement of the quality of the environment through ensuring the maintenance and enhancement of the ecological values within stream, and wetland habitats.</p> <p>Additionally, the objectives have particular regard to the effects of the quality of receiving waters through ensuring that</p>	<p>The precinct is framed by two awa which have cultural value to mana whenua. These objectives recognise that guiding principles for enables Te Kawerau a Maki and Ngati Whatua Kaipara identified through ongoing engagement on the PPC include the protection of taonga and the restoration of mana to taonga. These objectives are consistent with the</p>

Objective	RMA S5 Purpose	RMA S6 Matters of National Importance	RMA S7 Other Matters	RMA S8 Treaty of Waitangi
			stormwater quality is managed to avoid, minimise or mitigate effects.	principles of the Treaty of Waitangi (Te Tiriti o Waitangi).
<i>Theme 5: Mana Whenua Cultural Landscape</i>				
(9) Mana Whenua cultural values and their relationship associated with the Māori cultural landscape, including ancestral lands, water, sites, waahi tapu, and other taonga, in the Riverhead Precinct are identified, recognised, protected, and enhanced.	Recognising and protecting the Māori cultural landscape enables Te Kawerau a Maki and Ngati Whatua Kaipara to meet their own cultural well-being while ensuring these resources are sustained for future generations.	The Riverhead area is notable for its continued association with Te Kawerau a Maki and Ngati Whatua Kaipara and other iwi since pre-European times. Fundamental guiding principles for mana whenua include the protection of taonga, the restoration of mana to taonga and the retention of wahi tapu and sites of cultural significance. These objectives recognise and protect these values and therefore provide for the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, wahi tapu, and other taonga as matter of national importance.	These objectives will support the recognition of, or the provision of other matters. In particular the recognition and protection of the Māori cultural landscape is consistent with kaitiakitanga.	These objectives recognise the Māori cultural landscape plan which has been developed in partnership with Te Kawerau a Maki and Ngati Whatua Kaipara consistent with the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).

## 8.2 Appropriateness of the Provisions to Achieve the Objectives

### 8.2.1 The Objectives

Section 32(1)(b) of the RMA requires an evaluation to examine whether the provisions (i.e. policies and methods) of the proposed Plan Change are the most appropriate way to achieve its objectives by:

- Identifying other reasonably practicable options for achieving the objectives;
- Assessing the efficiency and effectiveness of the objectives; and
- Summarising the reasons for deciding on the provisions.

As the proposed Plan Change is amending the AUP (District Plan), the above assessment must relate to the provisions and objectives of the proposed Plan Change, and the objectives of the AUP to the extent that they are relevant to the proposed Plan Change and would remain if the Plan Change were to take effect<sup>6</sup>.

In addition to the objectives of the proposed Plan Change which are outlined above, the AUP objectives with particular relevance to this plan change are summarised below:

Within the RPS:

- A quality compact urban form that enables a higher quality urban environment, better use of existing infrastructure and efficient provision of new infrastructure, improved public transport and reduced adverse effects (B2.2.1(1));
- Ensure there is sufficient development capacity to accommodate growth and require the integration of land use planning with the infrastructure to service growth (B2.2.1(3) and B2.2.1(5));
- Urbanisation is contained within the Rural Urban Boundary, towns and rural and coastal towns and villages (B2.2.1(4));
- A quality-built environment where subdivision, use and development respond to the intrinsic qualities and physical characteristics of the area, reinforce the hierarchy of centres and corridors, contribute to a diverse mix of choice and maximise resource and infrastructure efficiency (B2.3.1(1));
- Ensure residential intensification supports a quality compact urban form and land within and adjacent to centres and corridors or in close proximity to public transport is the primary focus for residential intensification (B2.4.1(1) and B2.4.1(3));
- An increase in housing capacity and the range of housing choice which meets the varied needs and lifestyles of Auckland's diverse and growing population (B2.4.1(4));
- Ensure employment and commercial and industrial opportunities meet current and future demands (B2.5.1(1));
- Ensure growth and development of existing or new rural and coastal towns and villages is enabled in ways that avoid natural and physical resources that have been scheduled, avoid elite soils and avoid where practicable prime soils, avoid areas with significant natural hazard

<sup>6</sup> RMA s32(3)

risks, are consistent with the local character of the town or village and the surrounding area and enables the development and use of Mana Whenua's resources for their economic well-being (B2.6.1(1));

- Ensure rural and coastal towns and villages have adequate infrastructure (B2.6.1(2));
- Ensure recreational needs of people and communities are met through the provision of a range of quality open spaces and recreation facilities and that public access to streams is maintained and enhanced (B2.7.1(1) and B2.7.1(2));
- Ensure the mauri of, and the relationship of Mana Whenua with, natural and physical resources including freshwater, geothermal resources, land, air and coastal resources are enhanced overall (B6.3.1(2));
- Indigenous biodiversity is maintained through protection, restoration and enhancement in areas where ecological values are degraded, or where development is occurring (B7.2.1(2));
- Auckland's lakes, rivers, streams and wetlands are restored, maintained or enhanced (B7.3.2(5)); and
- Indigenous biodiversity is restored and enhanced in areas where ecological values are degraded, or where development is occurring (B7.2.1(1)).

Within the Residential Zones:

- Within the Terrace Housing and Apartment Building zone - land adjacent to centres and near the public transport network is efficiently used to provide high-density urban living that increases housing capacity and choice and is in keeping with the planned urban character of predominantly five, six or seven storey buildings in a variety of forms (H6.2(1) and H6.2(2)); and
- Within the Mixed Housing Urban zone - enable a range of housing types and in a manner that is in keeping with the planned urban built character of the zone (H5.2(1) and H5.2(2)).

Within the Business Zones:

- Provide a strong network of centres that are attractive environments and attract ongoing investment, promote commercial activity, and provide employment, housing and goods and services, all at a variety of scales (H12.2(1) and (H11.2(1)); and
- Ensure business activity is distributed in locations, that is accessible and is of a form and scale that provides for the community's social and economic needs (H12.2(4) and (H11.2(4)).

Within the Auckland-wide Provisions:

- Auckland-wide objectives relating to lakes, rivers, streams and wetland, water quality, stormwater, land disturbance and vegetation management and biodiversity seek to avoid adverse effects where possible but recognise the need to use land identified for future urban land uses efficiently;
- Auckland-wide objectives relating to subdivision seek to ensure that subdivision has a layout which is safe, efficient, convenient and accessible and that Infrastructure supporting subdivision and development is planned and provided for in an integrated and comprehensive manner; and



- Auckland-wide objectives relating to transport seek to ensure that an integrated transport network including public transport, walking, cycling, private vehicles and freight, is provided for.

The objectives and provisions of the Plan Change and the relevant objectives of the AUP can be categorised into the following themes:

- Theme 1: Timing of urbanisation and land use pattern;
  - Theme 1.1: Timing of Development in Riverhead;
  - Theme 1.2: Residential land use pattern;
  - Theme 1.3: Commercial land use pattern;
- Theme 2: Coordinating the development of land with infrastructure;
- Theme 3: Achieving integrated and quality development;
- Theme 4: Natural Environment; and
- Theme 5: Mana Whenua Cultural Landscape.

The following sections address the matters set out in Schedule 1 and Section 32 of the RMA on the basis of the themes listed above.

## 8.3 Other Reasonably Practicable Options for Achieving the Objectives

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### 8.3.1 Theme 1: Timing of Urbanisation and Land Use Pattern

The existing AUP objectives and proposed precinct objectives which have particular relevance for Theme 1 include:

- B2.2.1(1): A quality compact urban form that enables a higher quality environment, better use of existing infrastructure and efficient provision of new infrastructure, improved public transport and reduced adverse effects;
- B2.2.1(3): Sufficient development capacity and land supply is provided to accommodate residential, commercial, industrial growth and social facilities to support growth;
- B2.2.1(4): Urbanisation is contained within the Rural Urban Boundary, towns, and rural and coastal towns and villages;
- B2.2.1(5) The development of land within the Rural Urban Boundary, towns, and rural and coastal towns and villages is integrated with the provision of appropriate infrastructure.
- B2.3.1(1): A quality built environment where subdivision, use and development do all of the following: (a) respond to the intrinsic qualities and physical characteristics of the site and area, including its setting; (b) reinforce the hierarchy of centres and corridors; (c) contribute to a diverse mix of choice and opportunity for people and communities; (d) maximise resource and infrastructure efficiency; (e) are capable of adapting to changing needs; and (f) respond and adapt to the effects of climate change;
- B2.4.1(1): Residential intensification supports a quality compact urban form;

- B2.4.1(3): Land within and adjacent to centres and corridors or in close proximity to public transport and social facilities (including open space) or employment opportunities is the primary focus for residential intensification;
- B2.4.1(4): An increase in housing capacity and the range of housing choice which meets the varied needs and lifestyles of Auckland's diverse and growing population;
- B2.4.1(5): Non-residential activities are provided in residential areas to support the needs of people and communities;
- B2.5.1(1): Employment and commercial and industrial opportunities meet current and future demands;
- B2.6.1(1): Growth and development of existing or new rural and coastal towns and villages is enabled in ways that: (a) avoid natural and physical resources that have been scheduled in the Unitary Plan in relation to natural heritage, Mana Whenua, natural resources, coastal environment, historic heritage or special character unless growth and development protects or enhances such values; and (b) avoid elite soils and avoid where practicable prime soils which are significant for their ability to sustain food production; and (c) avoid areas with significant natural hazard risks; (d) are consistent with the local character of the town or village and the surrounding area; and (e) enables the development and use of Mana Whenua's resources for their economic well-being;
- B2.6.1(2): Rural and coastal towns and villages have adequate infrastructure;
- H6.2 (1): Land adjacent to centres and near the public transport network is efficiently used to provide high-density urban living that increases housing capacity and choice and access to centres and public transport;
- H5.2(1) Land near centres, high-density residential areas and close to the public transport network is efficiently used for higher density residential living and to provide urban living that increases housing capacity and choice and access to public transport;
- H11.2(4) & H12.2(4): Business activity is distributed in locations, and is of a scale and form, that: (a) provides for the community's social and economic needs; (b) improves community access to goods, services, community facilities and opportunities for social interaction; and (c) manages adverse effects on the environment, including effects on infrastructure and residential amenity.

In accordance with Section 32(1)(a) and (1)(b), **Table 2** below provides an evaluation of options in respect of the timing of live-zoning of the land.

**Table 2: Evaluation of Provisions – Theme 1.1: Timing of Development in Riverhead.**

	Option 1 – Do nothing (wait for Council to rezone the land in accordance with the FULSS)	Option 2 – Proposed plan change Live zone the entire FUZ area
<b>Description of Option</b>	This option involves retaining the Future Urban zone and waiting for the Council to initiate a Plan Change to rezone the Plan Change area in accordance with the FULSS.	This option brings forward the release of land for urban development in Riverhead in accordance with the Plan Change.

Option 1 – Do nothing (wait for Council to rezone the land in accordance with the FULSS)		Option 2 – Proposed plan change Live zone the entire FUZ area
Benefits		
<b>Environmental</b>	<p>This option will maintain the existing rural character of the Plan Change area.</p> <p>There is no change to the AUP provisions proposed through this option. Existing rules will apply.</p>	<p>This option provides an opportunity to take a holistic view on urban growth and form of Riverhead providing the essential elements that contribute to a successful rural town consistent with the planning framework of the Regional Policy Statement.</p> <p>The Riverhead Structure Plan has assessed the suitability of the Plan Change area for urbanisation and the Plan Change is consistent with the Structure Plan.</p> <p>Infrastructure solutions are available and funded and therefore there are no significant constraints to urban development of the Plan Change area.</p>
<b>Economic</b>	<p>There is no economic benefit for this option.</p>	<p>Enables the staged development of the Plan change area as infrastructure is available, providing additional business and residential capacity from the short term.</p> <p>Provides greater certainty for the council, community, developers and landowners about the nature, extent and pace of development of Riverhead.</p>
<b>Social</b>	<p>This option does not facilitate any improved social outcomes.</p>	<p>This option proposes a comprehensive and integrated development over a large land holding that is contiguous with existing urban development on the opposite side of Coatesville Riverhead Highway. This scale of development will enable social amenities such as schools, open spaces, ecological corridors, a retirement village and a village centre to be established.</p>
<b>Cultural</b>	<p>This option defers further intensification and development of land where there is cultural, spiritual and historical values and associated with the Māori cultural landscape.</p>	<p>This option has been developed in in consultation with Te Kawerau a Maki and Ngati Whatua Kaipara includes precinct provisions that will holistically recognise and protect the cultural landscape</p>

Option 1 – Do nothing (wait for Council to rezone the land in accordance with the FULSS)		Option 2 – Proposed plan change Live zone the entire FUZ area
<b>Costs</b>		
<b>Environmental</b>	<p>This option is less likely to result in the environmental improvements provided for through Option 2, including the protection and restoration of riparian margins.</p> <p>Environmental impacts associated with ongoing rural use and on-going uncontrolled sediment discharge to the CMA.</p>	Potential effects on adjoining properties and surrounding land uses as a result of urban development at a greater height and density than currently provided for within Riverhead.
<b>Economic</b>	<p>This option does not make efficient use of land where there are funded infrastructure and transport solutions to service growth.</p> <p>Does not add to Auckland's housing and business land supply to accommodate growth in the short term and is therefore likely to have a negative impact on economic growth and employment.</p>	Costs involved in undertaking the development and delivery of infrastructure.
<b>Social</b>	This option does not provide for any additional community facilities or open spaces to meet the diverse demographic and cultural needs of the future and existing Riverhead community.	The scale of development delivered through this option may be considered by some members of the community to be not in keeping with the community's expectations given the current Single House zoning throughout Riverhead.
<b>Cultural</b>	There is no change to the cultural environment through this option. However, has the potential to result in rural use which may compromise cultural landscape values. Option 2 includes precinct provisions that will recognise and protect the cultural landscape.	May result in development of land where there is cultural, spiritual and historical values to mana whenua, however, the mana whenua cultural landscape is recognised and protected through proposed precinct provisions.
<b>Efficiency &amp; Effectiveness</b>	This option is not efficient or consistent with B2.2.1(3) and the requirements of the NPS-UD as no additional business and residential capacity is enabled in the short – mid-term despite analysis being prepared to show that the Plan Change it is consistent with the RPS, particularly, B2.6(1) and B2.2.1(1).	This option is efficient and effective at achieving B2.6(1) as the potential development of the land does not affect any scheduled items and natural hazards. Additionally, the effects of built form enabled by the Plan Change are largely consistent with and complementary to the local character of Riverhead with interface controls to manage the relationship with the higher density development and existing



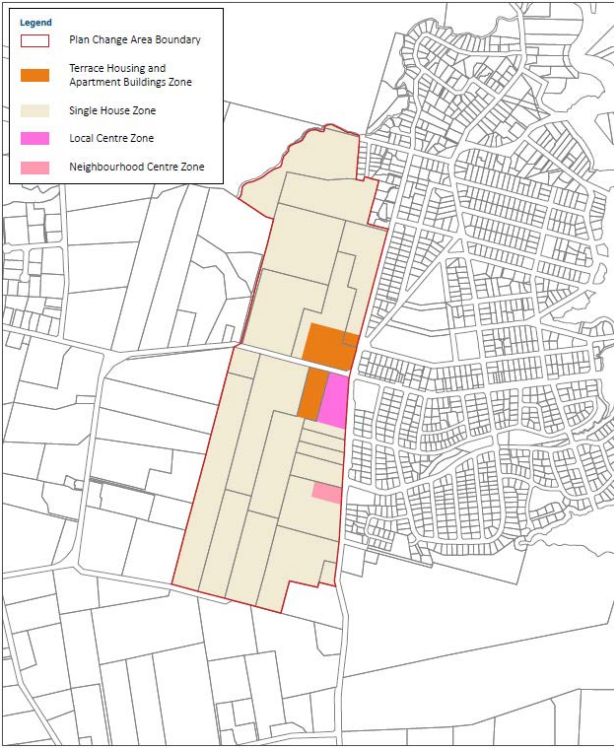
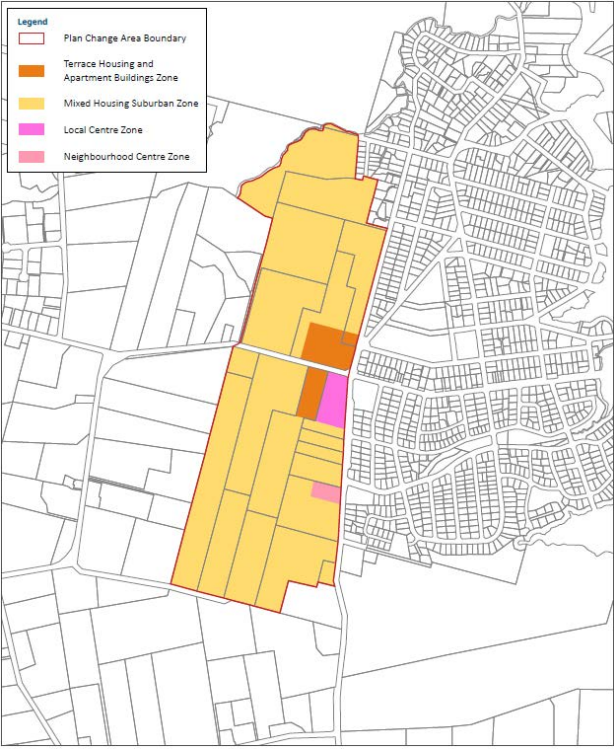
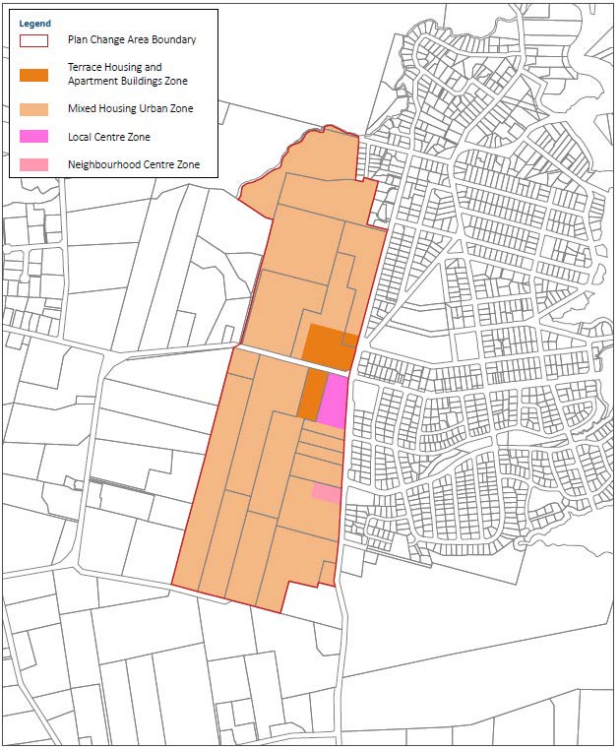
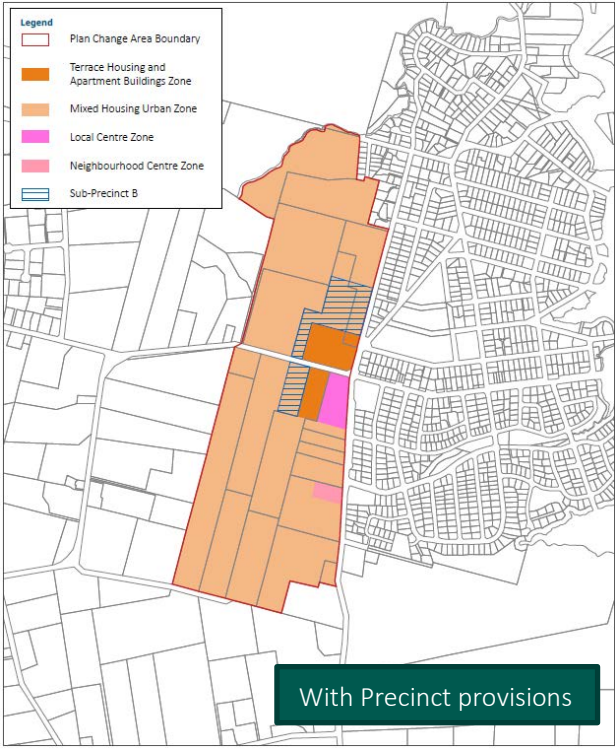
Option 1 – Do nothing (wait for Council to rezone the land in accordance with the FULSS)		Option 2 – Proposed plan change Live zone the entire FUZ area
		<p>single house development along Coatesville Riverhead Highway. Precinct provisions are also proposed to protect the mana whenua cultural landscape.</p> <p>This option is efficient and effective at achieving B2.6(2) as analysis undertaken as part of this Plan Change request confirms there are infrastructure solutions available and able to be funded.</p> <p>This option is efficient and effective at achieving B2.2.1(1) as it supports a high quality environment that is integrated with public transport use and reduce adverse effects.</p> <p>This option is efficient and effective at achieving B2.2.1(3) as it will enable the development of 1,500-1800 dwellings which represents a significant opportunity to increase residential development capacity within the short term.</p>
<b>Summary</b>	<p>Option 2 is preferred. The extension of the settlement at Riverhead within the Plan Change area is consistent with B2.6.1. Analysis undertaken as part of this Plan Change request confirms there are infrastructure solutions available and able to be funded, without reliance on funding from Council. Furthermore, this option is efficient and effective at achieving B2.2.1(3) as it will enable the development of 1,500-1800 dwellings increasing residential development capacity.</p>	

In accordance with Section 32(1)(a) and (1)(b), the below tables provide an evaluation of options in respect to land use pattern:

- **Table 3** addresses the lower density residential zoning;
- **Table 4** addresses the higher density residential zoning; and
- **Table 5** addresses the commercial zoning.



Table 3: Evaluation of Provisions – Theme 1.2: Residential Land Use Pattern – Lower Density Residential Area.

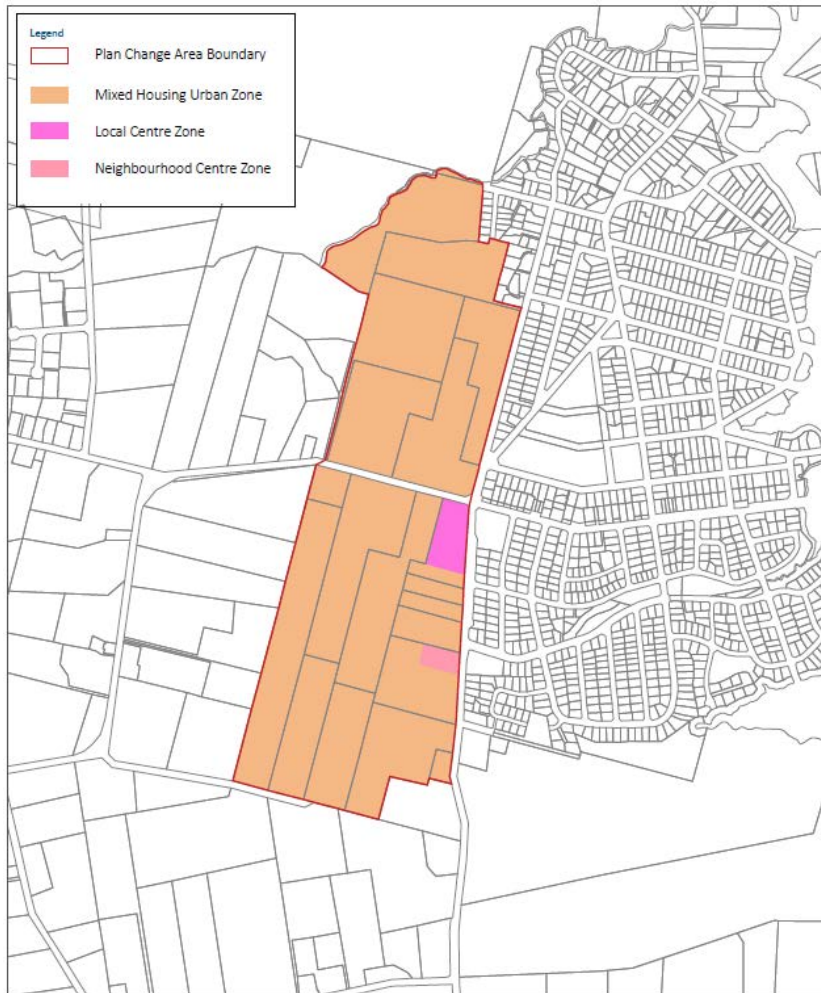
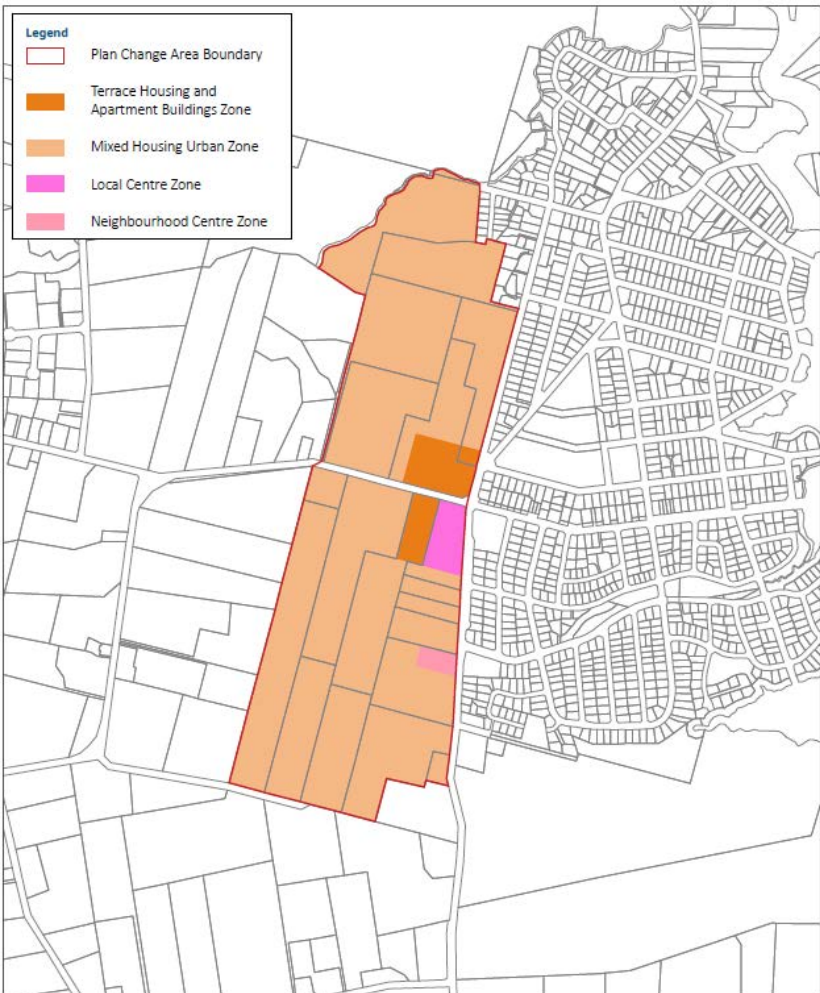
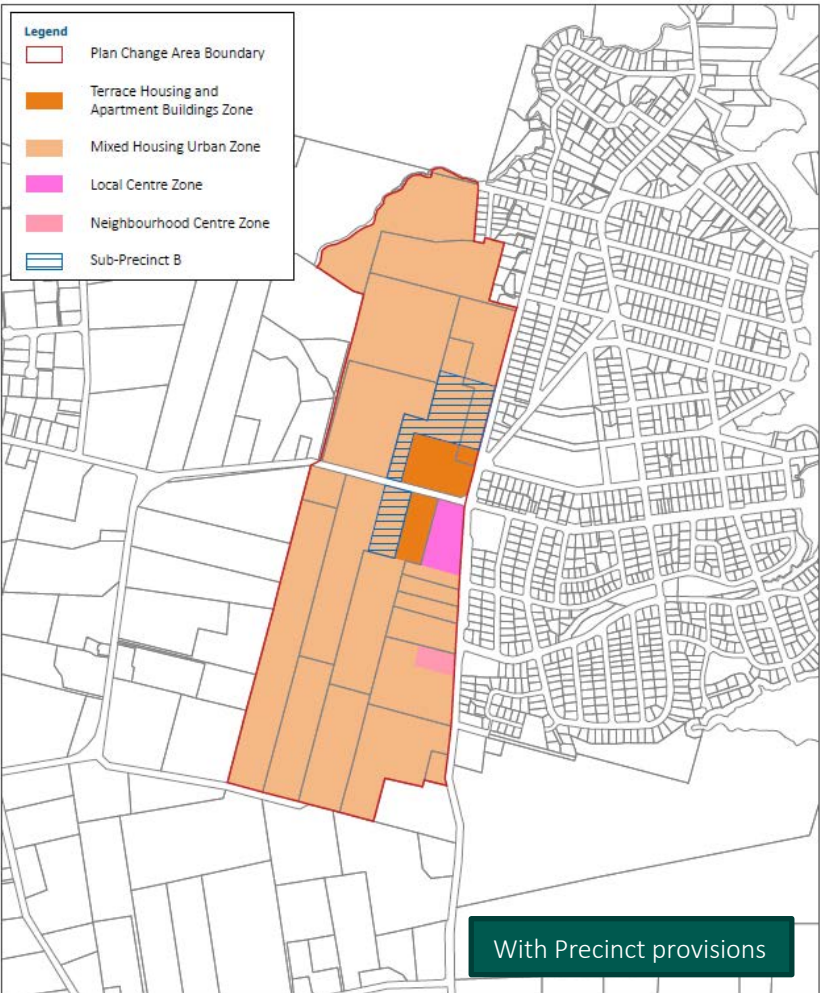
	Option 1 – Single House Zone	Option 2 – Mixed Housing Suburban Zone	Option 3 – Mixed Housing Urban Zone	Option 4 – Proposed Plan Change
Description of Option	<p>This option involves applying the Single House zone to enable residential development at lower densities.</p> 	<p>This option involves applying the Mixed Housing Suburban zone to enable medium density residential development while retaining a suburban built character of predominantly two storeys.</p> 	<p>This option involves applying the Mixed Housing Urban zone to enable medium density residential development while retaining a urban built character of predominantly three storeys throughout the lower density area.</p> 	<p>This option involves a refined zoning approach to enable medium density residential development by applying the Mixed Housing Urban zone with a reduced height that will while retain a suburban built character of predominantly two storeys, and providing for three storeys adjacent to the higher density residential areas only.</p> 
Benefits				
Environmental	<p>This option retains the low-density nature of the existing development within Riverhead.</p>	<p>This option retains the suburban character of Riverhead while allowing greater capacity and choice.</p>	<p>This option will provide the greatest capacity for residential development however, the extent of the MHU zoning has not been sized to align with the provision of infrastructure which could lead to a dispersed pattern of residential development.</p> <p>Other benefits include greater proximity of residential to support the Local Centre.</p>	<p>This proposed zoning layout includes opportunities for different housing types and intensity that are complementary to the residential character of the area and has been informed by a structure planning exercise.</p> <p>This option makes efficient use of greenfield land through enabling medium density development. Sub-Precinct B provides for a three-storey height limit to enable a transition in building height between the higher density THAB land and the surrounding Mixed Housing Urban area, where height has been limited to two storeys to respond to the existing built character of the Riverhead settlement.</p>

Option 1 – Single House Zone		Option 2 – Mixed Housing Suburban Zone		Option 3 – Mixed Housing Urban Zone		Option 4 – Proposed Plan Change	
Economic	This option will provide for in the least residential capacity within Riverhead compared with the other options and is likely to result in a dispersed pattern of residential development.	This option will provide the opportunity for increased housing typologies such as duplexes and terraces which will enable housing for different price points.		This option will provide for the greatest level of residential capacity of all the options, supporting competitive development markets. However, a dispersed and lower density pattern of development is likely to arise due to insufficient infrastructure provision.		This option will provide the opportunity for increased housing typologies, such as duplexes and terraces, which will enable housing for different price points.	
Social	This option will not provide the range of housing typologies and choice provided for through option 2 - 4.	This option provides for a range of housing typologies and choice to meet the diverse needs of the Riverhead population.		<p>This option provides for a range of housing typologies and choice to meet the diverse needs of the Riverhead population. It will enable development yields that can support the development of additional community facilities.</p> <p>The scale of development will increase the long-term population and consequently the social benefits associated with intensification and use of community facilities.</p>		This option provides for a range of housing typologies and choice to meet the diverse needs of the Riverhead population. It will enable development yields that can support the development of additional community facilities.	
Cultural	There are no cultural benefits associated with this option.	There are no cultural benefits associated with this option.		There are no cultural benefits associated with this option.		There are no cultural benefits associated with this option.	
Costs							
Environmental	The proposed zoning layout will result in low density residential development which is an inefficient use of land, particularly in areas of the Plan Change area that are within walking distance to the proposed local centre.	<p>The proposed zoning layout will result in medium density residential development which is a greater density than the existing Riverhead area however, the similarities in the core development standards will ensure that development results in a suburban character which is in keeping.</p> <p>This option provides less certainty around the environmental outcomes resulting from the zone provisions give, Auckland Council is about to notify an Intensification Planning Instrument in August which will alter the zone package.</p>		This proposed zoning layout provides for development at an intensity and scale which is different to the residential character of the existing Riverhead area.		Potential effects on adjoining properties and surrounding land uses as a result of urban development at a greater height (within Sub-Precinct B) and density than currently provided for within Riverhead.	
Economic	<p>This option will limit the range of housing types and price points available within Riverhead.</p> <p>Costs involved in undertaking the development and delivery of infrastructure.</p>	Costs involved in undertaking the development and delivery of infrastructure.		<p>This option will result in the application of residential zones that have not been sized to meet the short-medium term market demand and infrastructure availability.</p> <p>Costs involved in undertaking the development and delivery of transport infrastructure necessary to service a higher density lived zoned residential area.</p>		Costs involved in undertaking the development and delivery of infrastructure.	
Social	This option does not make efficient use of land and therefore may not result in the development yields to support the development of additional community facilities to support the growing population within Riverhead.	The scale of development delivered through this option may be considered by some members of the community to not be in keeping with the community's expectations given the current single house zoning.		While this zoning pattern that enables the greatest density of development compared to the other options, the scale of development will actually be of a reduced density due to infrastructure limitations and consequentially reduce the long-term population. This		The scale of development delivered through this option may be considered by some members of the community to not be in keeping with the community's expectations, given the current Single House zoning of the existing settlement.	



	Option 1 – Single House Zone	Option 2 – Mixed Housing Suburban Zone	Option 3 – Mixed Housing Urban Zone	Option 4 – Proposed Plan Change
			will reduce social benefits associated with intensification.	
Cultural	There are no cultural costs associated with this option.	There are no cultural costs associated with this option.	There are no cultural costs associated with this option.	There are no cultural costs associated with this option.
Efficiency & Effectiveness	<p>This option is not efficient and effective at achieving B2.3.1 (1) as the zoning pattern is not consistent with the Riverhead Structure Plan and therefore does not respond to the intrinsic qualities and physical characteristics of the site and area.</p> <p>This option does not efficiently use land within a walkable catchment to the proposed local centre and therefore is not consistent with B2.3.1 (1).</p>	<p>This option is efficient and effective at achieving B2.3.1 (1) as the zoning has been informed by a structure plan however, not to the same degree as Option 4 where the zoning has been more specifically tailored to respond to the intrinsic qualities and physical characteristics of the site and area.</p>	<p>This option is not efficient and effective at achieving B2.3.1(1)) as applying the three-storey development enabled by the Mixed Housing Urban throughout the Plan Change area is not in keeping with the existing Riverhead settlement.</p>	<p>This option will effectively and efficiently achieve B2.3.1(1)as the two storey development enabled by the refined Mixed Housing Suburban zone is in keeping with the existing Riverhead settlement.</p> <p>This option is efficient and effective at achieving B2.3.1 (1) as the refined zoning has been informed by a structure plan and therefore responds to the intrinsic qualities and physical characteristics of the site and area.</p> <p>This option will efficiently and effectively achieve B2.4.1 (4) as it enables the development of 1500-1800 dwellings and a variety of typologies to support greater housing capacity and choice.</p>
Summary	Option 4 is preferred. The proposed zoning layout has been informed by a structure plan to respond to the characteristics of the Plan Change area and enables two-storey development in keeping with the existing Riverhead settlement, while delivering additional residential capacity.			

Table 4: Evaluation of Provisions – Theme 1.3: Residential Land Use Pattern – Higher Density Residential Area




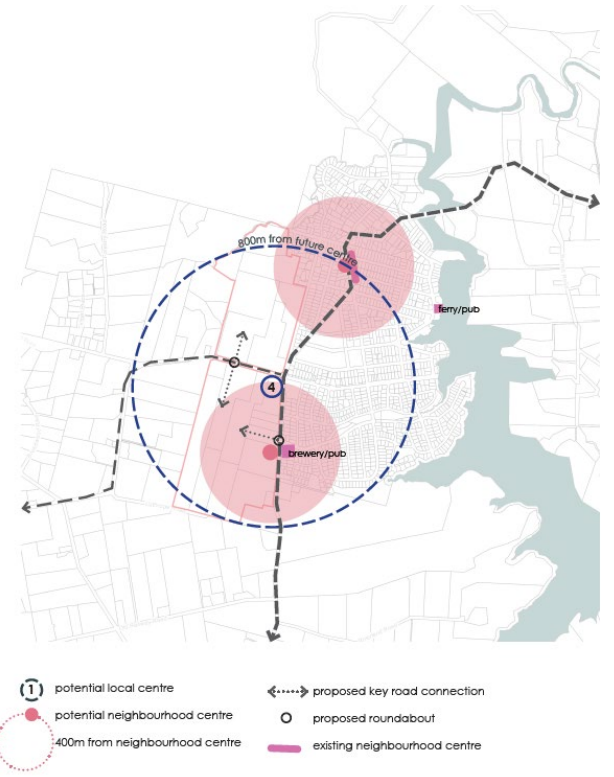
Option 1 – Mixed Housing Urban Zone		Option 2 – Terrace Housing and Apartment Buildings Zone		Option 3 – Proposed Plan Change	
Description of Option	<p>This option involves applying the Mixed Housing Urban zone to enable residential development at medium density.</p> 	<p>This option involves applying the Terrace Housing and Apartment Building zone to enable residential development at higher densities, with an urban built character of 16m.</p> 	<p>This option involves applying a refined set of provisions to enable residential development at higher densities, with an urban built character of 16m-18m.</p> 		
Benefits					
Environmental	<p>This option provides for medium density development close to the proposed centre which is more in keeping with existing Riverhead settlement.</p>	<p>This option provides for high density development to make efficient use of land in close proximity to the proposed local centre and public transport. This proposal enables high density development around the local centre, while applying the MHU zone to land adjacent to existing properties along Cambridge Road to minimise effects on the Single House zoned properties.</p>	<p>This option provides for high density development to make efficient use of land in close proximity to the proposed local centre and public transport. This proposal enables high density development around the local centre, while applying the MHU zone to land adjacent to existing properties along Cambridge Road to minimise effects on the Single House zoned properties. This option provides for a transition in height between the THAB zone and the surrounding Mixed Housing Urban zoned land subject to the proposed two storey height limit to manage amenity and built form effects.</p>		
Economic	<p>This option will provide for the least residential capacity within Riverhead compared with the other options.</p>	<p>This option will provide for the greatest level of residential capacity of all the options, supporting competitive development markets.</p>	<p>This option provides for a range of housing typologies that will result will result in a range of housing prices, some of which will be affordable for the area.</p>		

Option 1 – Mixed Housing Urban Zone		Option 2 – Terrace Housing and Apartment Buildings Zone	Option 3 – Proposed Plan Change
<b>Social</b>	This option will provide some opportunity for terraces and walk-up apartments within the Mixed Housing Urban zone however, it will not provide the range of housing typologies and choice provided for through Option 2 or 3.	<p>This option provides for a range of housing typologies and choice to meet the diverse needs of the Riverhead population. It will enable a package of provisions that can support the development of a retirement village and development yields that can support the development of additional community facilities.</p> <p>The scale of development will increase the long-term population with a greater area of high density residential zoning, and consequently the social benefits associated with intensification and use of community facilities.</p>	This option provides for a range of housing typologies and choice, including a retirement village, to meet the diverse needs of the Riverhead population. It will enable development yields that can support the development of additional community facilities.
<b>Cultural</b>	There are no cultural benefits associated with this option.	There are no cultural benefits associated with this option.	There are no cultural benefits associated with this option.
<b>Costs</b>			
<b>Environmental</b>	The proposed zoning layout will result in medium density residential development which is an inefficient use of land in areas of the Plan Change area that are within walking distance to the proposed local centre and public transport.	This option does not provide for a transition in height between the THAB zone and the surrounding Mixed Housing Urban zoned land subject to the proposed two storey height limit. This could result in adverse amenity and built form effects.	Potential effects on adjoining properties and surrounding land uses as a result of urban development at a greater height and density than what is currently provided for within Riverhead but not to the same extent as Option 2. The extent of THAB adjacent to the existing Riverhead settlement has been limited in order to manage the interface to Single House development along Cambridge Road.
<b>Economic</b>	<p>This option will limit the range of housing types and price points available within Riverhead.</p> <p>Costs involved in undertaking the development and delivery of infrastructure.</p>	<p>This option will result in the application of residential zones that have not been sized to meet the short to medium-term market demand and infrastructure availability.</p> <p>Costs involved in undertaking the development and delivery of transport infrastructure necessary to service a higher density lived zoned residential area.</p>	Costs involved in undertaking the development and delivery of infrastructure.
<b>Social</b>	This option will limit the range of housing types including the ability to develop a retirement village to meet the community’s diverse needs within Riverhead.	The scale of development delivered through this option may be considered by some members of the community to not be in keeping with the community’s expectations, given the Single House zoning that currently applies within Riverhead.	The scale of development delivered through this option may be considered by some members of the community to not be in keeping with the community’s expectations given the Single House zoning that currently applies within Riverhead. This scale of development is potentially not as great as Option 2 and the extent of THAB adjacent to the existing Riverhead settlement has been limited in order to manage the interface to Single House development along Cambridge Road.
<b>Cultural</b>	There are no cultural costs associated with this option.	There are no cultural costs associated with this option.	There are no cultural costs associated with this option.
<b>Efficiency &amp; Effectiveness</b>	<p>This option is not efficient and effective at achieving B2.3.1 (1) as the zoning pattern has not been informed by a Structure Plan and therefore does not respond to the intrinsic qualities and physical characteristics of the site and area.</p> <p>This option does not efficiently use land within an 800m walkable catchment to the proposed local centre and therefore is not consistent with B2.3.1 (1).</p>	This option is not efficient and effective at achieving B2.3.1 (1) as the zoning pattern has not been informed by a masterplan and therefore does not respond to the intrinsic qualities and physical characteristics of the site and area.	<p>This option is efficient and effective at achieving B2.4.1 (1) and B2.4.1 (3) as the THAB zone has been applied to support the efficient use of land within an 800m walkable catchment to the proposed local centre and public transport. This will support quality compact urban form outcomes.</p> <p>This option is efficient and effective at achieving B2.3.1 (1) as the zoning pattern has been informed by a masterplan and therefore responds to the intrinsic qualities and physical characteristics of the site and area.</p> <p>This option will efficiently and effectively achieve B2.4.1 (4) as it enables the development of a variety of typologies to support greater housing capacity and choice.</p>



	Option 1 – Mixed Housing Urban Zone	Option 2 – Terrace Housing and Apartment Buildings Zone	Option 3 – Proposed Plan Change
Summary	Option 3 is preferred. The proposed zoning layout has been informed by a Structure Plan to respond to the characteristics of the Plan Change area and enables efficient use of land around the proposed Local Centre, supporting transport mode shift and quality compact outcomes while delivering additional residential capacity.		

Table 5: Evaluation of Provisions – Theme 1.3: Commercial Land Use Pattern

	Option 1 – Rely on the existing Riverhead Local Centre and a new Neighbourhood Centre	Option 2 – Establish a Local Centre north of Riverhead Road and a Neighbourhood Centre on Coatesville-Riverhead Highway	Option 3 – Establish a Local Centre opposite Hallertau and a Neighbourhood Centre on Riverhead Road.	Option 4 – Proposed Plan Change – Establish a Local Centre south of Riverhead Road and a Neighbourhood Centre on Coatesville-Riverhead Highway
Description of Option	<p>This option involves relying largely on the existing Local Centre within Riverhead (possibly expanded) to service the Plan Change area, with the addition of a Neighbourhood Centre.</p> 	<p>This option involves applying a Local Centre within the Plan Change area to the north of Riverhead Road, with a supporting Neighbourhood Centre on Coatesville-Riverhead Highway.</p> 	<p>This option involves applying a Local Centre within the Plan Change area opposite Hallertau, with a supporting Neighbourhood Centre on Riverhead Road.</p> 	<p>This option involves applying a Local Centre within the Plan Change area to the south of Riverhead Road, with a supporting Neighbourhood Centre on Coatesville-Riverhead Highway.</p> 
Benefits				
Environmental	<p>This option will utilise the existing Local Centre which is visible to passers-by, has on-street parking and is part of the existing community; within good proximity to Riverhead Tavern, the existing community hall and the coastal environment.</p>	<p>Most of the Plan Change area falls into an accessible 800m walkable catchment to the Local Centre and Neighbourhood Centre. The centres can access the upgraded walking network and cycleways which will be delivered as part of the Plan Change.</p>	<p>This option will enable the development of a Local Centre that can be accessed via pedestrian and cycle paths to be delivered as part of the Plan Change.</p>	<p>Most of the Plan Change area falls into an accessible 800m walkable catchment to the Local Centre and Neighbourhood Centre. The centres can access the upgraded walking network and cycleways which will be delivered as part of the Plan Change.</p>
Economic	<p>Future development will support the existing centre within Riverhead, however there is limited opportunity for growth and economic analysis undertaken in</p>	<p>A full size centre can be planned/accommodated as well as a future Neighbourhood Centre to service growth within the Plan Change area. The sizing of the centre may, however, in reality, be limited within this</p>	<p>A full size centre can be planned/accommodated as well as future Neighbourhood Centre to service growth within the Plan Change area.</p>	<p>A full size centre can be planned/accommodated as well as future Neighbourhood Centre to service growth within the Plan Change area.</p>



Option 1 – Rely on the existing Riverhead Local Centre and a new Neighbourhood Centre		Option 2 – Establish a Local Centre north of Riverhead Road and a Neighbourhood Centre on Coatesville-Riverhead Highway	Option 3 – Establish a Local Centre opposite Hallertau and a Neighbourhood Centre on Riverhead Road.	Option 4 – Proposed Plan Change – Establish a Local Centre south of Riverhead Road and a Neighbourhood Centre on Coatesville-Riverhead Highway
	support of this Plan Change identified the need for an additional Local Centre.	location due to the presence of the planned retirement village.		
Social	The current Local Centre is within close proximity to existing social facilities, including the childcare facility. There is an established sense of place within the existing Local Centre.	The Local Centre has been sized to meet the needs of the local community, however, in reality, the size of the centre may be limited within this location due to the proposed retirement village.	The Local Centre has been sized to meet the needs of the local community. This option co-locates the centre with the Hallertau Brewery which is an existing landmark within Riverhead, to foster a sense of place and identity.	The Local Centre has been sized to meet the needs of the local community.  This option is adjacent to a proposed retirement village increasing the accessibility to retail and commercial services for elderly residents.
Cultural	There are no cultural benefits associated with this option.	There are opportunities within a new centre to incorporate Te Aranga design principles into the design of publicly accessible spaces.	There are opportunities within a new centre to incorporate Te Aranga design principles into the design of publicly accessible spaces.	There are opportunities within a new centre to incorporate Te Aranga design principles into the design of publicly accessible spaces.
Costs				
Environmental	The existing Local Centre within Riverhead is not within an 800m walkable catchment of the southern portion of the Plan Change area, resulting in increased car reliance and associated environmental costs.  The existing centre is not connected to cycleways and upgraded walking network which will be delivered as part of the Plan Change.	The roundabout at Coatesville- Riverhead Highway and Riverhead Road will need to be designed to prioritise the safety of pedestrians accessing the centre.	The northern portion of the Plan Change area is not within an accessible catchment to the proposed Local Centre, resulting in increased car reliance and associated environmental costs.	The roundabout at Coatesville- Riverhead Highway and Riverhead Road will need to be designed to prioritise the safety of pedestrians accessing the centre.
Economic	The current Local Centre is constrained, and economic analysis undertaken in support of this Plan Change identified the need for an additional Local Centre.	The sizing of the Local Centre may be limited due to the planned retirement village on this site. Therefore, it is unlikely the Local Centre will meet the size requirements for Riverhead as indicated in the economic analysis ( <b>Appendix 7</b> ) within this location.	The existing Local centre may decline, however it is currently constrained and economic analysis undertaken in support of this Plan Change identified the need for an additional Local Centre to service growth within the Riverhead catchment.	The existing Local centre may decline, however it is currently constrained and economic analysis undertaken in support of this Plan Change identified the need for an additional Local Centre to service growth within the Riverhead catchment.
Social	The current Local Centre is constrained, and therefore there will be less opportunity for supporting social facilities to establish within the centre. Expansion would occupy land currently used for residential purposes.	The ability to achieve the required size of the Local Centre specified within the economic report is constrained within this location. Therefore, there will be less opportunity for supporting social facilities to establish within the centre.	The Local Centre within this option is less accessible for the proposed retirement village residents.	This option does not co-locate the proposed Local Centre with existing community facilities or landmarks and therefore will not benefit from an established sense of place.
Cultural	There is less opportunity to incorporate Te Aranga design principles into the design of publicly accessible spaces within the centre.	There are no cultural costs associated with this option.	There are no cultural costs associated with this option.	There are no cultural costs associated with this option.
Efficiency & Effectiveness	This option is inefficient as the commercial zones are not sized to meet current and future demands (B2.5.1(1)).  This option is less effective at achieving H11.2(4) and H12.2(4) than the other options as the existing Local Centre is not within an 800m walkable catchment for the southern portion of the Plan Change area.	This option is inefficient as the proposed retirement village will constrain the development of a Local Centre to a size that is not sufficient to meet current and future demands (B2.5.1 (1)).	This option is not as effective at achieving H11.2(4) and H12.2(4) as the other options, as the proposed Local Centre is not within an 800m walkable catchment for the northern portion of the Plan Change area.	This option is efficient as the proposed Local Centre zone has been sized to meet current and future demands (B2.5.1(1)).  This option is effective at achieving H11.2(4) and H12.2(4) as most of the Plan Change area falls into an accessible 800m walkable catchment to the Local Centre and Neighbourhood Centre.

	Option 1 – Rely on the existing Riverhead Local Centre and a new Neighbourhood Centre	Option 2 – Establish a Local Centre north of Riverhead Road and a Neighbourhood Centre on Coatesville-Riverhead Highway	Option 3 – Establish a Local Centre opposite Hallertau and a Neighbourhood Centre on Riverhead Road.	Option 4 – Proposed Plan Change – Establish a Local Centre south of Riverhead Road and a Neighbourhood Centre on Coatesville-Riverhead Highway
Summary	Option 4 is preferred. The proposed zoning layout has been informed by a Structure Plan to respond to the characteristics of the Plan Change area. The Local Centre zone has been sized to meet current and future demands (B2.5.1(1)) and most of the Plan Change area falls within an accessible 800m walkable catchment to improve community access to good, services and community facilities in accordance with H11.2(4) and H12.2(4).			

### 8.3.2 Theme 2: Coordinating the development of land with transport and three waters infrastructure

The existing AUP objectives and proposed precinct objectives which have particular relevance for Theme 2 include:

- B2.2.1(5): The development of land within the Rural Urban Boundary, towns, and rural and coastal towns and villages is integrated with the provision of appropriate infrastructure;
- B3.2.1(5): Infrastructure and land use planning are integrated to service growth efficiently;
- B3.3.1(1)(b): Effective, efficient and safe transport that integrates with and supports a quality compact urban form;
- E27.2(1): Land use and all modes of transport are integrated in a manner that enables: (a) the benefits of an integrated transport network to be realised; and (b) the adverse effects of traffic generation on the transport network to be managed; and
- IX.2(5): Subdivision and development are coordinated with the supply of sufficient transport, water, energy and communications infrastructure.





**Table 6: Evaluation of Provisions Theme 2: Coordinating the development of land with transport and three waters infrastructure in Riverhead.**

	Option 1 – Do nothing – no staging provisions	Option 2 - Deferred zoning – when all the local infrastructure upgrades are operational	Option 3 – Proposed Plan Change
<b>Description of Option</b>	This option involves putting in place urban zoning and coordinating the development of land with transport and three waters infrastructure through processes and agreements which sit outside of the AUP.	This option involves putting in place urban zonings with a precinct that applies the Future Urban Zone provisions until a certain date from which the urban zone provisions will take effect. The date will be based on the point in time when all required local infrastructure upgrades are projected to be complete.	This option coordinates development with the delivery of required infrastructure within the AUP through: <ul style="list-style-type: none"> <li>• Transport infrastructure staging rules to coordinate the occupation of buildings with the delivery of required infrastructure; and</li> <li>• A road widening setback rule along Riverhead Road to provide for future widening; and</li> <li>• Additional assessment criteria to ensure there is adequate wastewater/water supply infrastructure to service development.</li> </ul>
<b>Benefits</b>			
<b>Environmental</b>	Potentially avoids the complexity in the planning provisions associated with Options 2-3, although relying on existing operative zone provisions will also add complexities	This option will ensure that no development occurs prior to the necessary infrastructure being in place to service growth.	This option provides for interim development to increase residential and commercial capacity which can be serviced without the final infrastructure upgrades required to support a full build out of the Plan Change area.
<b>Economic</b>	Removes the cost of developing rules for the applicant.	The administration of this rule is less complex than Option 3.	This option enables consenting to progress for land modification or development, which would will reduce unnecessary delays in the development process. This option allows for staged development to proceed, providing associated economic benefits.
<b>Social</b>	Existing rules are retained and community expectations are maintained.	This option provides more certainty to the community than option 1 as there is assurance that development cannot occur until infrastructure is in place.	This option provides the most certainty to the community as the scale of development is tied to specific infrastructure upgrades. This option allows for staged development to proceed, providing associated social benefits, including the potential provision of a school and other social facilities.
<b>Cultural</b>	There is no change to the cultural environment through this option.	There is no change to the cultural environment through this option.	There is no change to the cultural environment through this option.
<b>Costs</b>			
<b>Environmental</b>	The lack of recognition within the AUP of the required infrastructure may result in significant environmental costs if development was to proceed the required infrastructure upgrades. Management of environmental issues would be reliant on the requirement for an ITA under clause E27.3(2) and E27.9(5) and three waters issues under criteria E38.11.2(2)(6)(a)(ii), E38.11.2(2)(7)(b)(i), H6.8.2(2)(a)(j), and H4.8.2(2)(h) and provides less certainty than Options 2 and 3.	This option does not provide for interim development to increase residential and commercial capacity despite the traffic modelling determining the timing of the transport infrastructure upgrades and how these can be coordinated with the release of residential, retail, light industrial and commercial development capacity.  This option does not provide for interim development to increase residential and commercial capacity despite the engineering analysis identifying a number of solutions for three water infrastructure.	This option is informed by transport modelling that has determined the timing of the transport infrastructure upgrades and how these can be coordinated with the occupation of residential, retail, light industrial and commercial buildings.  This option is informed by engineering analysis identifying a number of solutions for three water infrastructure.

Option 1 – Do nothing – no staging provisions		Option 2 - Deferred zoning – when all the local infrastructure upgrades are operational	Option 3 – Proposed Plan Change
Economic	This option is heavily reliant on infrastructure/funding agreements that sit outside the AUP. There is nothing in the AUP to tie the release of development capacity with the delivery of transport infrastructure.	This option is blunt and does not enable consenting to progress for land modification or development, which would create unnecessary delays in the development process.	This is a more complex set of provisions which will require greater monitoring by Council than Options 1 & 2.  Although there are risks with this approach Council has the ability and technology to monitor this it will just be a matter of putting a system in place.
Social	This option provides no certainty to the community as there is no transparency within the AUP regarding when development will occur.	This option will result in costs to the community as the future urban zoning will not facilitate the development of community facilities to service the existing or future community which can be serviced without the final infrastructure upgrades required to support a full build out of the Plan Change area.	Some members of the community may be disappointed with an increase in traffic volumes. This issue will ultimately arise however, with all options.
Cultural	There is no change to the cultural environment through this option.	There is no change to the cultural environment through this option.	There is no change to the cultural environment through this option.
Efficiency & Effectiveness	This option is ineffective as there are no provisions within the plan to decline applications for development which cannot be serviced by infrastructure, which would not achieve B2.21(5), B3.2.1(5), B3.3.1(1)(b) or E27.2(1).	This option is highly inefficient as traffic modelling shows that the release of residential and commercial development capacity can be coordinated with the transport infrastructure upgrades required to service this growth Therefore, as this option allows for no additional capacity in the interim prior to the completion of the complete infrastructure upgrades it is not in keeping with B3.2.1(5).	This option will efficiently coordinate development with infrastructure and achieve the policy direction of B2.21(5), B3.2.1(5) and B3.3.1(1)(b), because the provisions stage the occupation of buildings with the delivery of required infrastructure.
Summary	Option 3 is preferred. Coordinating the occupation of buildings within the precinct with the delivery of required infrastructure through the inclusion of a transport staging rule and servicing assessment criteria is the most appropriate mechanism for achieving the objectives of the AUP. The proposed provisions will stage the release of development capacity with the delivery of required infrastructure and therefore is consistent with B2.21(5), B3.2.1(5) and B3.3.1(1)(b).		

### 8.3.3 Theme 3: Achieving Integrated and Quality Development

The existing AUP objectives and proposed precinct objectives which have particular relevance for Theme 3 include:

- B2.3.1(1): A quality built environment where subdivision, use and development do all of the following: (a) respond to the intrinsic qualities and physical characteristics of the site and area, including its setting; (b) reinforce the hierarchy of centres and corridors; (c) contribute to a diverse mix of choice and opportunity for people and communities; (d) maximise resource and infrastructure efficiency; (e) are capable of adapting to changing needs; and (f) respond and adapt to the effects of climate change;
- B2.3.1(3): The health and safety of people and communities are promoted;
- B3.3.1(1): Effective, efficient and safe transport that: (a) supports the movement of people, goods and services... (e) facilitates transport choices, recognises different trip characteristics and enables accessibility and mobility for all sectors of the community;
- E27.2(2): An integrated transport network including public transport, walking, cycling, private vehicles and freight, is provided for;
- E27.2(5): Pedestrian safety and amenity along public footpaths is prioritised;
- E38.2(6) Subdivision has a layout which is safe, efficient, convenient and accessible;
- IX.2(1) Riverhead is a well-functioning urban environment that integrates with the existing Riverhead settlement, the natural environment and respects Mana Whenua values.
- IX.2(2) A variety of housing types and sizes that respond to: (a) Housing needs and demand; and (b) The neighbourhood's planned urban built character.
- IX.2(4) Access to and from the precinct occurs in a safe, effective and efficient manner for all modes of transport.

**Table 7: Evaluation of Provisions Theme 3: Achieving Integrated and Quality Development**

	Option 1 – Rely on Auckland-Wide and Zone Provisions	Option 2 – Proposed Plan Change
<b>Description of Option</b>	<p>The street network and the provision of open spaces are controlled by the development standards, matters of discretion and assessment criteria in the underlying Auckland-wide provisions (E38 Subdivision – Urban, E27 Transport).</p> <p>This option does not include bespoke provisions to manage the interface between the existing rural environment and development within the Plan Change area.</p> <p>This option does not include bespoke provisions to manage the relationship of development within the Plan Change area to the built character of the existing Riverhead settlement.</p>	<p>The proposed Riverhead Precinct includes a bespoke set of provisions to guide the development of buildings, roads and open spaces within the precinct:</p> <ul style="list-style-type: none"> <li>• Assessment criteria and precinct plans that guide the layout and design of key structuring elements including the street network and open space.</li> <li>• A policy that encourages the provision of a continuous and connected multi-purpose green corridor through the Plan Change area that integrates stormwater management, passive recreation opportunities and active transport mode connections, to promote the efficient use of land; provides additional amenity for the key north-south and east-west movement networks; promotes ecological linkages through the Precinct; and co-locates smaller open spaces along the multi-purpose green corridor to achieve a connected network of open space;</li> <li>• A policy that encourages higher buildings which will act as marker buildings at the Coatesville-Riverhead Highway and Riverhead intersection, support the legibility of a new centre and reinforce the role of Memorial Park as the heart of the settlement;</li> <li>• A policy that provides for three-storey development within Sub-Precinct B to enable a transition in height between the five and two storey development in the adjacent areas; and enables three storey development within the Mixed Housing Urban zone where sites overlook public open space to take advantage of amenity and outlook of public open spaces and promote passive surveillance;</li> </ul>



Option 1 – Rely on Auckland-Wide and Zone Provisions	Option 2 – Proposed Plan Change
	<ul style="list-style-type: none"> <li>• More permissive activity statuses for restaurants, cafes, retail, and healthcare facilities within the Residential – Terrace Housing and Apartment Building zone;</li> <li>• A height rule that limits height within the majority of the Mixed Housing Urban zone to 8m (two-storeys) to respond to the existing Riverhead settlement, with three storey development adjoining the Terrace Housing and Apartment Building zone and the Local Centre zone to enable a transition in height between the five and two-storey development in the adjacent areas;</li> <li>• A rural interface setback rule to provide a buffer between residential activities within the precinct and the neighbouring Mixed Rural zone;</li> <li>• Additional assessment criteria for open space to ensure that the open space network integrates with natural features and delivers the north-south and east-west multi-purpose green corridors which are a key structuring element for the precinct and required for stormwater conveyance purposes; and</li> <li>• Additional assessment criteria for the layout and design of roads to ensure a highly connected street layout that integrates with the wider Riverhead area and provides for all modes of transport.</li> </ul>

Option 1 – Rely on Auckland-Wide and Zone Provisions		Option 2 – Proposed Plan Change
<b>Benefits</b>		
<b>Environmental</b>	The street network, the provision of open spaces and the design and layout of development are controlled by the development standards, matters of discretion and assessment criteria in the underlying Auckland-wide and zone provisions.	<p>The precinct provisions implement key structuring elements of the Riverhead Structure Plan, which has been developed to ensure a high-quality development outcome result.</p> <p>The tailored precinct provisions and assessment criteria which implement the Riverhead Structure Plan will result in a built form which reinforces the unique sense of place within Riverhead.</p> <p>The planned open spaces and connected street network will support transport mode shift to active transport modes, as they provide safe and convenient movement to and through the precinct.</p>
<b>Economic</b>	A less complex set of planning provisions will apply within the Plan Change area.	The Plan Change will deliver variety of housing types, which supports competitive markets.
<b>Social</b>	Existing rules are retained and community expectations are maintained.	<p>Expectations and requirements of key stakeholders, landowners and land developers can be clearly set out within the proposed precinct.</p> <p>The provisions increase the amenity values of the Plan Change area as the future residents will enjoy the planned open spaces and connected street network which offers safety to pedestrians and cyclists.</p>
<b>Cultural</b>	This option does not facilitate any improved cultural outcomes.	The precinct provisions implement key structuring elements of the Riverhead Structure Plan which has been informed by ongoing engagement with Te Kawerau a Maki and Ngati Whatua Kaipara.
<b>Costs</b>		
<b>Environmental</b>	No requirement to implement the key structuring element of the Riverhead Structure Plan which responds to the specific characteristics of the Plan Change area and the unique sense of place.	This option will not result in any environmental costs.

	Option 1 – Rely on Auckland-Wide and Zone Provisions	Option 2 – Proposed Plan Change
<b>Economic</b>	Landowners, developers, the Council and community will not have clear expectations about where the future street and open space network will be located.	Cost to future applicants to prepare resource consent applications assessing additional planning provisions and implementing the requirements.
<b>Social</b>	Reduced amenity values as the provisions will not achieve an integrated and quality-built environment which responds to the characteristics of the Plan Change Area to the same extent as Option 2.	This option will not result in any social costs.
<b>Cultural</b>	Reduced cultural values as the provisions will not implement the key structuring elements of the Riverhead Structure Plan which has been informed by ongoing engagement with Te Kawerau a Maki and Ngati Whatua Kaipara.	This option will not result in any cultural costs.
<b>Efficiency &amp; Effectiveness</b>	<p>Ineffective as the indicative primary road network and open space network are not shown in the plan, so piecemeal and ad hoc development may occur.</p> <p>Without the guidance of a precinct, the Plan Change area is unlikely to be developed in a comprehensive and coordinated manner.</p> <p>Area-specific approaches are not considered, which is less effective in achieving B2.3.1(1)(a).</p>	<p>This option is effective as the provisions seek to ensure adequate provision of public open space in accordance with B2.7.1(1).</p> <p>This option is effective as the provisions seek to ensure development provides a connected street network which promotes safe cycling and a walkable urban form, in accordance with B3.3.1(1) and B2.3.1(3).</p> <p>The proposed precinct meets B2.3.1(1)(a) as it ensures that subdivision, use and development will respond to the intrinsic qualities and physical characteristics of the site.</p>
<b>Summary</b>	Option 2 is the preferred option. The inclusion of a refined set of provisions to implement the structuring elements of the Riverhead Structure Plan and require quality-built form outcomes that respond to the unique sense of place enables the Plan Change to efficiently and effectively achieve B2.7.1(1), B3.3.1(1), B2.3.1(3) and B2.3.1(1)(a).	

### 8.3.4 Theme 9: Natural Environment

The existing AUP and proposed precinct objectives which have particular relevance for Theme 4 include:

- B7.2.1(2): Indigenous biodiversity is maintained through protection, restoration and enhancement in areas where ecological values are degraded, or where development is occurring;
- E3.2(2): Auckland's lakes, rivers, streams and wetlands are restored, maintained or enhanced;
- E15.2(2): Indigenous biodiversity is restored and enhanced in areas where ecological values are degraded, or where development is occurring;
- IX.2(6): Stormwater is managed to avoid, as far as practicable, or otherwise minimise or mitigate adverse effects on the receiving environment; and
- IX.2(7): Identified ecological values within wetland and stream habitats are protected, restored, maintained and enhanced.

**Table 8: Evaluation of Provisions Theme 4: Natural Environment**

	Option 1 – Rely on Auckland-wide and Zone Provisions	Option 2 – Proposed Plan Change
<b>Description of Option</b>	The natural environment and stormwater quality are controlled by the development standards, matters of discretion and assessment criteria in the underlying Auckland-wide provisions.	<p>The proposed Riverhead Precinct includes provisions to enhance the natural environment:</p> <ul style="list-style-type: none"> <li>• The requirement of a planted riparian margin along permanent and intermittent streams;</li> <li>• A stormwater quality rule to ensure impervious areas are treated and that development incorporates inert building materials to increase the quality of stormwater runoff; and</li> <li>• Additional assessment criteria for open space to ensure that the open space network integrates with natural features and delivers the north-south and east-west multi-purpose green corridors which provide a green connection between the two riparian and coastal environments.</li> </ul>



Option 1 – Rely on Auckland-wide and Zone Provisions		Option 2 – Proposed Plan Change
<b>Benefits</b>		
<b>Environmental</b>	It is possible to achieve good environmental outcomes under this approach but this will rely largely on non-statutory mechanisms.	This option will enhance the ecological values of streams through requiring planted riparian margins along both sides of permanent and intermittent streams and is consistent with the rule included in other greenfield precincts within the AUP.  The requirement to improve stormwater quality will enhance the water quality of receiving environments.
<b>Economic</b>	Less costs associated with developing along streams as there is no requirement to provide riparian planting.  A less complex set of planning provisions will apply within the Plan Change area.	This option will not result in any economic benefits.
<b>Social</b>	Existing rules are retained and community expectations are maintained.	Increased aesthetic and amenity values for communities as a result of riparian planting along streams.
<b>Cultural</b>	This option does not facilitate any improved cultural outcomes.	This option will enhance Mana Whenua values associated with water and the natural environment.
<b>Costs</b>		
<b>Environmental</b>	No requirements to provide riparian planting along streams within the Plan Change area and therefore the ecological values of streams will not be enhanced.  No requirement to improve stormwater quality could result in the degradation of ecological values of receiving environments.	This option will not result in any environmental costs.
<b>Economic</b>	This option will not result in any economic costs.	The requirement for riparian planting will increase the costs when developing along streams.  The requirement to manage stormwater quality through treating impervious areas and incorporating inert building material will increase development costs.

	Option 1 – Rely on Auckland-wide and Zone Provisions	Option 2 – Proposed Plan Change
<b>Social</b>	Reduced aesthetic and amenity values for communities from a lack of riparian planting along streams.	This option will not result in any social costs.
<b>Cultural</b>	Reduced cultural values associated with a lack of indigenous biodiversity along streams.	This option will not result in any cultural costs.
<b>Efficiency &amp; Effectiveness</b>	This option is not efficient or effective and will not achieve B7.2.1(2), E3.2(2) and E15.2(2) as there is no requirement to plant riparian margins along streams and therefore there is no assurance that indigenous biodiversity along streams will be restored to enhance the ecological values of streams.	This option is efficient at achieving B7.2.1(2), E3.2(2) and E15.2(2) as they ensure that indigenous biodiversity along streams is restored to enhance the ecological values of streams while maintaining flexibility for appropriate development of cycle and pedestrian paths.
<b>Summary</b>	Option 2 is the preferred option. The inclusion of a bespoke set of provisions to enhance the natural environment enables the PPC to efficiently and effectively achieve B7.2.1(2), E3.2(2), E15.2(2), IX.2(6) and IX.2(7).	

### 8.3.5 Theme 5: Mana Whenua Cultural Landscape

The existing AUP and proposed precinct objectives which have particular relevance for Theme 4 include:

- B2.6.1(1): The mauri of, and the relationship of Mana Whenua with, natural and physical resources including freshwater, geothermal resources, land, air and coastal resources are enhanced overall; and
- IX.2(9): Mana Whenua cultural values and their relationship associated with the Māori cultural landscape, including ancestral lands, water, sites, wāhi tapu, and other taonga, in the Riverhead Precinct are identified, recognised, protected, and enhanced.

**Table 9: Evaluation of Provisions Theme 5: Mana Whenua Cultural Landscape**

	Option 1 – Rely on Auckland-wide and Zone Provisions	Option 2 – Proposed Plan Change
<b>Description of Option</b>	The Mana Whenua Cultural Landscape within the precinct is controlled by the development standards, matters of discretion and assessment criteria in the underlying Auckland-wide provisions.	<p>The proposed Riverhead Precinct includes a bespoke set of provisions to enhance the Mana Whenua Cultural Landscape:</p> <ul style="list-style-type: none"> <li>• The Riverhead precinct recognises and respects these values of Te Kawerau a Maki and Ngāti Whatua Kaipara by incorporating an objective, policy, assessment criteria and precinct plan seeking to recognise and protect the Mana Whenua cultural landscape; and</li> <li>• The Cultural Landscape Plan on Precinct Plan 1 recognises spiritual connections and key views of cultural significance to Te Kawerau a Maki and Ngāti Whatua Kaipara.</li> </ul>
<b>Benefits</b>		
<b>Environmental</b>	There is no change to the AUP provisions proposed through this option. Existing rules will apply which will not cover any additional features identified by Te Kawerau a Maki and Ngāti Whatua Kaipara on Precinct Plan 1.	This option will protect additional features identified by Te Kawerau a Maki and Ngāti Whatua Kaipara on Precinct Plan 1 not currently protected through the AUP provisions.
<b>Economic</b>	A less complex set of planning provisions will apply within the Plan Change area.	The maintenance and enhancement of many of the values recognised through the Cultural Landscape Plan, such as key views, are likely to have wider benefits in terms of establishing a unique sense of place which will contribute to the identity of Riverhead, attracting visitors into the area.
<b>Social</b>	Existing rules are retained and community expectations are maintained.	The maintenance and enhancement of many of the values recognised through the Cultural Landscape Plan, such as key views, are likely to have wider social benefits.

Option 1 – Rely on Auckland-wide and Zone Provisions		Option 2 – Proposed Plan Change
<b>Cultural</b>	This option does not facilitate any improved cultural outcomes.	The Riverhead area is notable for its continued association with Te Kawerau a Maki and Ngāti Whatua Kaipara. Fundamental guiding principles for Mana Whenua include the protection of taonga, the restoration of mana to taonga and the retention of wahi tapu and sites of cultural significance. This option recognises and protect these values, resulting in much greater cultural benefits than Option 1.
<b>Costs</b>		
<b>Environmental</b>	This option will not result in any environmental costs.	This option will not result in any environmental costs.
<b>Economic</b>	This option will not result in economic costs.	A more complex set of planning provisions will apply within the Plan Change area.  The provisions may restrict development within some areas or result in a more complex design process.
<b>Social</b>	The maintenance and enhancement of many of the values recognised through the Cultural Landscape Plan, such as key views, are likely to have wider social benefits which this option does not provide for.	This option will not result in any social costs.
<b>Cultural</b>	This option does not specifically provide for the protection of taonga, the restoration of mana to taonga and the retention of wahi tapu and sites of cultural significance to Mana Whenua within the Plan Change area to the same extent as Option 2.	This option will not result in any cultural costs.
<b>Efficiency &amp; Effectiveness</b>	This option is not efficient or effective and will not achieve B2.6.1 (1), and IX.2(9) as there is no recognition and protection of the Mana Whenua Cultural Landscape unique to Riverhead.	This option is efficient and effective at achieving B2.6.1 (1), and IX.2(9) as it will ensure Mana Whenua cultural, spiritual and historical values with local history and whakapapa is recognised, protected.
<b>Summary</b>	Option 2 is preferred as it will ensure Mana Whenua cultural, spiritual and historical values with local history and whakapapa is recognised, protected and enhanced and it is most efficient and effective at achieving B2.6.1 (1) and IX.2(9).	



## 8.4 Risk of acting or not acting

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In this case, there is sufficient information about the subject matter of the provisions to determine the range and nature of environmental effects of the options set out in the report above. For this reason, an assessment of the risk of acting or not acting is not required.

## 8.5 Section 32 Analysis Conclusion

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On the basis of the above analysis, it is concluded that:

- The proposed objectives in the Riverhead Precinct are considered to be the most appropriate way to achieve the purpose of the RMA by applying a comprehensive suite of planning provisions to enable appropriate urbanisation of the site;
- The proposed provisions are considered to be the most efficient and effective means of facilitating the use and development of the subject land into the foreseeable future; and
- The proposed provisions are the most appropriate way to achieve the objectives of the AUP and the proposed precinct, having regard to their efficiency or effectiveness and the costs and benefits anticipated from the implementation of the provisions.

## 9.0 Conclusion

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This report has been prepared in support of the RLG's request for a Plan Change to the provisions of the AUP to rezone 80.5 hectares of land to the west of the existing Riverhead settlement for urban activities.

The request has been made in accordance with the provisions of Schedule 1 and Section 32 of the Resource Management Act 1991, and the preparatory work has followed Appendix 1 of the AUP – Structure Plan Guidelines.

Based on an assessment of environmental effects and specialist assessments, it is concluded that the proposed Plan Change will have positive effects on the environment in terms of the social and economic well-being of the community as well as the enhancement and protection of waterways. Other potential effects are able to be managed through the application of the AUP zone and Auckland-wide provisions.

An assessment against the provisions of section 32 of the RMA is provided in section 7.0 of the report. This includes an analysis with respect to the extent to which the objectives of the plan change are the most appropriate to achieve the purpose of the RMA and an examination of whether the provisions of the plan change are the most appropriate way to achieve the objectives.

For the above reasons, it is considered that the proposed Plan Change accords with the sustainable management principles outlined in Part 2 of the RMA and should be accepted and approved.

**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Eanna Geoghegan  
**Date:** Wednesday, 8 May 2024 8:01:00 pm

---

The following customer has submitted a Unitary Plan online submission.

#### **Contact details**

Full name of submitter: Eanna Geoghegan

Organisation name:

Agent's full name:

Email address: eannag@hotmail.co.uk

Contact phone number:

Postal address:

16 Jelas Drive

Riverhead

Auckland 0820

#### **Submission details**

##### **This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### **My submission relates to**

Rule or rules:

Property address: 16 Jelas Drive, Riverhead, Auckland 0820

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

The existing roading and water infrastructure in Riverhead would be unable to cope causing the residents untold stress.

The roads leaving Riverhead are back logged from before 6a.m. on a daily basis, adding an untoward amount of additional traffic would lead to total gridlock both during development and thereafter.

No changes should proceed until the infrastructure has been addressed - the new round about at Boric and Bringham Creek completed.

The current wording is very lose and subject to interpretation meaning the developer could change it and proceed without these integral works being completed.

The sewerage and water systems here are also substandard and outdated and could not withstand this amount of development - again these are prerequisites which must be completed prior to work commencing.

These need to be detailed in the plan in such a manner that it cannot be subject to change.

The above are absolutely non negotiables for the existing residents and without them will cause

undue distress.  
Another factor not being addressed is the lack of a high school in the area - all in zone high schools are now at capacity and the lotteries for North Shore schools increasingly limited.

46.1

I or we seek the following decision by council: Approve the plan change with the amendments I requested

46.2  
46.3  
46.4

Details of amendments: Eanna Geoghegan

Submission date: 8 May 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No


Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Anthony Smith  
**Date:** Friday, 10 May 2024 4:45:35 pm

---

The following customer has submitted a Unitary Plan online submission.

#### **Contact details**

Full name of submitter: Anthony Smith

Organisation name:

Agent's full name:

Email address: antsmith119@gmail.com

Contact phone number:

Postal address:

Auckland

#### **Submission details**

##### **This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### **My submission relates to**

Rule or rules:

Property address:

Map or maps:

Other provisions:

Entire Plan change

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

This area is the perfect location for growth and is an extension of an existing community. Fully support.

I or we seek the following decision by council: Approve the plan change without any amendments

47.1

Details of amendments:

Submission date: 10 May 2024

#### **Attend a hearing**

Do you wish to be heard in support of your submission? No



**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Michael Brent  
**Date:** Sunday, 12 May 2024 8:31:05 am

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Michael Brent  
Organisation name:  
Agent's full name:  
Email address: Michael.brent@washtech.co.nz  
Contact phone number:  
Postal address:

0793

**Submission details**

**This is a submission to:**  
Plan change number: Plan Change 100 (Private)  
Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:  
Zone change  
Property address:  
Map or maps:  
Other provisions:  
Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified  
Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:  
Local infrastructure in the NW including schools and the roading network is already insufficient for the number of current residential properties build and under construction and should be extensively upgraded PRIOR to further housing intensification being added.

I or we seek the following decision by council: Decline the plan change, but if approved, make the amendments I requested

Details of amendments: Require significant upgrades to SH16 between Brigham Creek and Kumeu, and ensure adequate primary (keep upgrading) and secondary (build one finally) schools in the NW.

Submission date: 12 May 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Allyson Shepherd  
**Date:** Sunday, 12 May 2024 4:01:07 pm

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Allyson Shepherd

Organisation name:

Agent's full name: Allyson Shepherd

Email address: allyson.shepherd@xtra.co.nz

Contact phone number: 02102756042

Postal address:

12 george street

Riverhead

Riverhead 0820

**Submission details**

**This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:

Transport Infrastructure

Property address:

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

I strongly object to the private plan change which aims to rezone 6 ha of land in Riverhead from Future Urban to Rural-Mixed Rural zone and 75.5 ha to a mix of Residential – Mixed Housing Suburban, Residential – Terrace Housing and Apartment Building, Business – Local Centre and Business – Neighbourhood Centre zones with associated precinct provisions

I have lived in Riverhead since 2008 and have seen it change hugely. There have been positive changes but many negative ones and I fear that allowing this development will have a further negative impact on Riverhead and the surrounding areas.

My main concern is a transport/traffic based one. The traffic volume has increased massively since I moved here. There has been masses of residential development, yet the road infrastructure is unchanged since I moved here all those years ago.



The sheer volume of traffic is unbelievable. In the building phase this heavy vehicle activity will affect our already poor roads. The proposal is for limited local road 'upgrades'. But, to only deliver these in a fragmented staged way. The upgrades do not have to be in place prior to construction (when the first traffic impacts start) but rather linked to when development occurs adjacent to specific roads. I think this is dreadful. All upgrades should be in place before the main site earthworks begin.

Significantly, the project relies upon a roundabout at the (CRH)/ Main Road (SH16) intersection to be constructed by Waka Kotahi NZ Transport Agency. Whilst this upgrade has been a long time coming it only addresses safety at the intersection. We have been waiting for a roundabout for many many years. You only have to look at the traffic jams reaching beyond Hallertau to see how inadequate the infrastructure is. Huapai kumeu traffic (also due to new development without a thought for road quality) also adds to the mix. No road upgrades are proposed to deal with capacity of the local or wider road network. The result will be increased congestion making getting around even more dysfunctional than it is now.

The state of Riverhead has made me desperate to leave Auckland. I love Riverhead but the traffic amount and congestion has really had a negative impact on my well being. I tend to avoid going out on weekends unless I leave very early. If I don't then the traffic queues to merely leave Riverhead can be quite awful.

The effects will be felt locally, but also in the wider district. Traveling during peak times from Huapai, Waiuku, Muriwai, Helensville, Kaukapakapa, Coatesville and beyond will get significantly worse due to construction traffic and then when the dwellings are occupied. What about the potential large retirement village, the consent is in place but this hasn't been considered in the plans.

Also I think it is important to consider schooling. Riverhead does not have a nearby high school, students are required to use public transport (one bus an hour) school buses or parents to get to school, which is either Massey (zoned) or schools on the north shore. Students are very reliant on walking to CRH for public transport. A comprehensive and safe overall footpath network is needed. This does not exist in Riverhead.

No local high school and a primary school that is already running out of space. When my kids went there there were about 280 students. Now there are close to 500. All these new families and the road network is the same as it has been for decades. If more houses are built, where will they go to school? How will they get there? Not on our already pathetic road infrastructure. All the extra cars, all the extra pollution. I am amazed that I am having to make this submission at all. Quite honestly I am appalled by the lack of future proof planning.

I or we seek the following decision by council: Decline the plan change

49.1

Submission date: 12 May 2024

### **Attend a hearing**

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?  
Yes

### **Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal

details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Shanley Joyce  
**Date:** Sunday, 12 May 2024 6:16:07 pm

---

The following customer has submitted a Unitary Plan online submission.

#### **Contact details**

Full name of submitter: Shanley Joyce

Organisation name:

Agent's full name:

Email address: shanleyjoyce@hotmail.com

Contact phone number: 0211454806

Postal address:

10 Floyd Road

Riverhead

Auckland 0820

#### **Submission details**

##### **This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### **My submission relates to**

Rule or rules:

I have concerns about the proposed plan changes for the following reasons:

- lack of planning for adequate roading and stormwater management infrastructure
- lack of planning to ensure the new plans reflect the current community.

Property address:

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

The current stormwater infrastructure does not cope with the rainfall we have, this was evident in the floodings around Riverhead in 2023. The current Ecoflow sewerage systems do not cope with any significant rainfall, their alarms regularly go off with significant rainfall. The proposed plan changes do not provide any faith that there will be better, more suitable systems in place to avoid flooding.

Coatesville Riverhead Highway (CRH) is nearly always congested with traffic heading out onto SH16 between the hours of 6:30-8am. In the weekends, the traffic can be backed up all the way to the golf club. By adding hundreds more houses into the area, this traffic is only going to become worse.

In the plans, I would have expected to see better planning for walkways/footpaths/bike paths to support our children walking/biking to school. CRH is such a dangerous road for our kids to be travelling along and by adding more housing and therefore traffic, this will be an even more dangerous route for them to take.

The current footpath, parking situation around the Riverhead Memorial Park is not sufficient as it is, at peak times on weeknights or in the weekends it is a real struggle to find a park and a lot of the time you need to park over ditches in roads, this can become problematic. Again, better planning for this needs to be evident in the proposed plan changes.

Lastly, I have real concerns that the new plan does not reflect the current community with green spaces, large existing trees, and single housing plans. Surely the planning should try to marry the new subdivisions with the existing Riverhead community. This is not currently evident and needs to change.

I or we seek the following decision by council: Decline the plan change, but if approved, make the amendments I requested

50.1  
50.2  
50.3  
50.4  
50.5

Details of amendments: See above.

Submission date: 12 May 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?  
Yes

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.



**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Sani Peter  
**Date:** Monday, 13 May 2024 10:15:52 am

---

The following customer has submitted a Unitary Plan online submission.

#### **Contact details**

Full name of submitter: Sani Peter

Organisation name:

Agent's full name:

Email address: saninijo139@gmail.com

Contact phone number:

Postal address:

66 Vinistra road

Huapai

Auckland 0810

#### **Submission details**

##### **This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### **My submission relates to**

Rule or rules:

Riverhead

Property address: Riverhead

Map or maps: Riverhead

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

We need better infrastructure before more houses and people

I or we seek the following decision by council: Decline the plan change

51.1

Submission date: 13 May 2024

#### **Attend a hearing**

Do you wish to be heard in support of your submission? No

#### **Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Emma Davison  
**Date:** Monday, 13 May 2024 10:15:55 am

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Emma Davison  
Organisation name:  
Agent's full name:  
Email address: emjo.davison@gmail.com  
Contact phone number:  
Postal address:  
0810  
Kumeu 0810

**Submission details**

**This is a submission to:**

Plan change number: Plan Change 100 (Private)  
Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:  
Lack of infrastructure in the roads to manage this many new house.  
Not enough GPs or medical care, no high school, primary schools are all full.  
Roads are dangerously busy  
Property address:  
Map or maps:  
Other provisions:  
Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified  
Do you wish to have the provisions you have identified above amended? Yes  
The reason for my or our views are:  
I live in this area and already it's too hard to commute, get support, schools aren't coping and no high school  
I or we seek the following decision by council: Decline the plan change  
Submission date: 13 May 2024

52.1

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Keith Thomas  
**Date:** Monday, 13 May 2024 10:15:56 am

---

The following customer has submitted a Unitary Plan online submission.

#### **Contact details**

Full name of submitter: Keith Thomas

Organisation name:

Agent's full name:

Email address: ppvcheck@gmail.com

Contact phone number:

Postal address:

22 The Landing

Riverhead

Auckland 0820

#### **Submission details**

##### **This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### **My submission relates to**

Rule or rules:

Property address:

Map or maps:

Other provisions:

1700 houses

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

Traffic

Community vibe

House value

I or we seek the following decision by council: Decline the plan change

53.1

Submission date: 13 May 2024

#### **Attend a hearing**

Do you wish to be heard in support of your submission? No

#### **Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Michele Widdows  
**Date:** Monday, 13 May 2024 10:15:59 am

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Michele Widdows

Organisation name:

Agent's full name:

Email address: michele@dsl.co.nz

Contact phone number:

Postal address:

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:

The change to riverhead to allow the fletcher build

Property address: Riverhead

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

Traffic/infrastructure there needs to be work done just to accommodate the extra houses already in the area let alone more

I or we seek the following decision by council: Decline the plan change

54.1

Submission date: 13 May 2024

#### Attend a hearing

Do you wish to be heard in support of your submission? No

#### Declaration

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Branyn Bellaney  
**Date:** Monday, 13 May 2024 10:45:43 am

---

The following customer has submitted a Unitary Plan online submission.

#### **Contact details**

Full name of submitter: Branyn Bellaney  
 Organisation name:  
 Agent's full name:  
 Email address: branyn.bellaney@yahoo.com  
 Contact phone number:  
 Postal address:

#### **Submission details**

##### **This is a submission to:**

Plan change number: Plan Change 100 (Private)  
 Plan change name: PC 100 (Private): Riverhead

##### **My submission relates to**

Rule or rules:  
 STOP BUILDING IN THE AREA WITH NO UPGRADES TO INFRASTRUCTURE.  
 The infrastructure hasn't been upgraded since Kumeū/Huapai/Riverhead was a small rural township... now there is thousands and thousands of new houses and NO changes to roads!!!

Some weekends it can take an hour or more to get from Kumeū to Brigham Creek Roundabout... on the weekend!  
 Every morning and afternoon it is a carpark with no alternatives.

Stop. Building. Houses.... Build. CAPABLE. Roads!!!!

Property address:

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:  
 STOP BUILDING IN THE AREA WITH NO UPGRADES TO INFRASTRUCTURE.  
 The infrastructure hasn't been upgraded since Kumeū/Huapai/Riverhead was a small rural township... now there is thousands and thousands of new houses and NO changes to roads!!!

Some weekends it can take an hour or more to get from Kumeū to Brigham Creek Roundabout... on the weekend!

Every morning and afternoon it is a carpark with no alternatives.

Stop. Building. Houses.... Build. CAPABLE. Roads!!!!

I or we seek the following decision by council: Decline the plan change, but if approved, make the amendments I requested

55.1

Details of amendments: BUILD AND UPGRADE ROADS TO HANDLE THE TRAFFIC FIRST!

55.2

Submission date: 13 May 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Kelly Hancock  
**Date:** Monday, 13 May 2024 10:45:47 am

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Kelly Hancock

Organisation name:

Agent's full name:

Email address: kelly@edart.co.nz

Contact phone number:

Postal address:  
76 Koraha Road  
Kumeu  
Auckland 0892

**Submission details**

**This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:  
No infrastructure on roads

Property address: Riverhead/Coastville Highway

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:  
NO INFRASTRUCTURE, too much traffic, the road and intersections can't cope now

I or we seek the following decision by council: Decline the plan change

56.1

Submission date: 13 May 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Georgia Hill  
**Date:** Monday, 13 May 2024 10:45:47 am

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Georgia Hill  
 Organisation name:  
 Agent's full name:  
 Email address: georgia.shiloh.z@gmail.com  
 Contact phone number:  
 Postal address:  
 Georgia.shiloh.z@gmail.com  
 Auckland  
 Auckland 0830

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)  
 Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:  
 Extra houses being put in.

Property address: Extra houses being put in

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

The roads are not suitable to accomodate extra houses. The roads are already struggling with the poor maintenance, current high volume of traffic and lack of public transportation. It takes over 1.5hrs to get into the CBD for work and back.

I or we seek the following decision by council: Decline the plan change

57.1

Submission date: 13 May 2024

#### Attend a hearing

Do you wish to be heard in support of your submission? No

#### Declaration

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Brent Allan Catton  
**Date:** Monday, 13 May 2024 11:00:44 am

---

The following customer has submitted a Unitary Plan online submission.

### Contact details

Full name of submitter: Brent Allan Catton

Organisation name:

Agent's full name:

Email address: brentcatton@hotmail.com

Contact phone number:

Postal address:

PO Box 427

Kumeu

Auckland 0841

### Submission details

#### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

#### My submission relates to

Rule or rules:

Property address:

Map or maps:

Other provisions:

Further re-zoning and housing developments in the Riverhead, Kumeu, Huapai areas should be deferred until the roading infrastructure has been put in place. This would include round about at the intersection of Highway 16 and the Coatesville Riverhead Highway. The progress towards the alternate route from the north western motorway to Fosters Road in Waimauku.

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

Traffic gridlock

I or we seek the following decision by council: Decline the plan change

58.1

Submission date: 13 May 2024

### Attend a hearing

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Annika Doggett  
**Date:** Monday, 13 May 2024 11:15:55 am

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Annika Doggett

Organisation name:

Agent's full name: Annika Doggett

Email address: annikadoggett@gmail.com

Contact phone number:

Postal address:  
 239A Parkhurst Road  
 Parakai  
 Parakai 0830

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:

Property address: Riverhead Road, Coatesville-Riverhead Highway, Cambridge Road, and Duke Street, Riverhead

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

There has traditionally been an under-investment in infrastructure in the Rodney area in general, and more specifically in the Kumeu/Riverhead area despite the significant increase in residential housing in and around these areas. By considering the approval of additional housing without significant investment in the infrastructure the area will grind to a halt. Since travelling through the area over the past 7 years I have seen a significant decline in the quality of the roads and an increase in the number of road users. Public transport remains time and access-prohibitive meaning that locals have no alternative to their own vehicles. Additional housing in and around this area will cause significant negative impact on those already residing and travelling through the area. Additionally, proposed housing is located on floodplains, and given the recent and multiple weather events and flooding the area experienced, it would be dangerous for this plan to proceed without, again, significant investment in infrastructure to prevent danger to life and property.

I or we seek the following decision by council: Decline the plan change

59.1

Submission date: 13 May 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Scott Vine  
**Date:** Monday, 13 May 2024 11:30:43 am

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Scott Vine  
Organisation name:  
Agent's full name:  
Email address: scottdanielvine@gmail.com  
Contact phone number:  
Postal address:  
24 Maude street  
Riverhead  
Auckland 0820

**Submission details**

**This is a submission to:**  
Plan change number: Plan Change 100 (Private)  
Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:  
Over population with no sufficient roading  
Property address: Riverhead  
Map or maps: Riverhead  
Other provisions:  
Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified  
Do you wish to have the provisions you have identified above amended? Yes  
The reason for my or our views are:  
Not sufficient infrastructure in the area

I or we seek the following decision by council: Decline the plan change  
Submission date: 13 May 2024

60.1

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Richard Middleton Poynter  
**Date:** Monday, 13 May 2024 12:00:49 pm

---

The following customer has submitted a Unitary Plan online submission.

#### **Contact details**

Full name of submitter: Richard Middleton Poynter

Organisation name: Poynter Family Trust

Agent's full name:

Email address: rick@poynteragencies.com

Contact phone number:

Postal address:  
 1385 Coatesville-Riverhead Highway,  
 Kumeu  
 Auckland 0892

#### **Submission details**

##### **This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### **My submission relates to**

Rule or rules:

Property address: 1385 Coatesville-Riverhead Highway

Map or maps:

Other provisions:

Proposed Private Plan Change 100 to rezone 75.5 ha to a mix of Residential – Mixed Housing Suburban, Residential – Terrace Housing and Apartment Building, Business – Local Centre and Business – Neighbourhood Centre zones with associated precinct provisions

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

We live at 1385 Coatesville-Riverhead Highway (C-R H) and wish to register our objection in the strongest possible terms, to the residential part in particular of the development plan, proposed for the land in Riverhead extending southwards on the western side of the C-R H from the Riverhead Road intersection.

Our objection is based on the glaringly obvious fact that this proposal is being promoted with a complete disregard for the overwhelmingly negative implications for the existing community.

The large residential development within the past decade, that has occurred on the eastern side of the C-R-H, stretching north from Riverhead Road, has already imposed traffic volumes on the C-R-H, that it is incapable of properly handling. As a result, there are now ridiculously long traffic queues

stretching north from the SH16 intersection 7 days a week.

We see this proposal for further residential development, as adding insult to injury. If the planned additional residential development for Riverhead was allowed to proceed, the existing ridiculous traffic congestion will only get worse, much worse.

The impact of the yet to be constructed roundabout at the SH16 – C-R H intersection will be negligible. When that is constructed vehicles travelling south on C-R H will once again be able to turn right onto SH16, increasing the southbound C-R H traffic density at this bottleneck. We need only look at the long queues that already form at the roundabout at the southern end of Old North Road where it meets SH16, to see how ineffectively that will address the issue, even with existing traffic volumes. An additional 3,000 odd homes in Riverhead, suggests a nightmare traffic situation.

It must not be allowed to proceed.

I or we seek the following decision by council: Decline the plan change

61.1

Submission date: 13 May 2024

### **Attend a hearing**

Do you wish to be heard in support of your submission? No

### **Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Craig Brock  
**Date:** Monday, 13 May 2024 12:01:03 pm

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Craig Brock

Organisation name:

Agent's full name: Craig Brock

Email address: craig@brock.co.nz

Contact phone number:

Postal address:  
24 Arthur Street  
Riverhead  
Auckland 0820

**Submission details**

**This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:  
This relates to 4.1.4 Proposed Precinct Provisions & 7.6.1 Transportation Upgrades

Property address:

Map or maps:

Other provisions:  
4.1.4 Proposed Precinct Provisions & 7.6.1 Transportation Upgrades

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:  
It's unclear if the development will have to wait for all the transport plan changes to be in place prior to any occupants being allowed in. It says it will do so but it also says it meets requirements so which one is it?

I or we seek the following decision by council: Approve the plan change with the amendments I requested

62.1

Details of amendments: I would like to ensure the development isn't allowed to have occupants until all the stated road improvements as stated in the council plan change are complete otherwise it will kill the local roading which is already well beyond capacity.

62.2

Submission date: 13 May 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Angela Bult  
**Date:** Monday, 13 May 2024 12:01:33 pm

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Angela Bult  
Organisation name: Riverope Properties Ltd  
Agent's full name: Angela Bult  
Email address: angela@tmnurseries.nz  
Contact phone number:  
Postal address:  
210 Riverhead Road  
Kumeu  
Kumeu 0892

**Submission details**

**This is a submission to:**  
Plan change number: Plan Change 100 (Private)  
Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:  
Property address: 1 Lathrope Road  
Map or maps:  
Other provisions:  
Do you support or oppose the provisions you have specified? I or we support the specific provisions identified  
Do you wish to have the provisions you have identified above amended? No  
The reason for my or our views are:  
Growth for the area will have positive effects on infrastructure and improve community facilities and opportunities for both business and residents in the area.

I or we seek the following decision by council: Approve the plan change without any amendments  
Details of amendments:

63.1

Submission date: 13 May 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Casey tierney  
**Date:** Monday, 13 May 2024 12:30:44 pm

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Casey tierney  
Organisation name:  
Agent's full name:  
Email address: caseytierney88@gmail.com  
Contact phone number:  
Postal address:  
21 accolage boulevard  
Kumeu  
Kuneu 0810

**Submission details**

**This is a submission to:**  
Plan change number: Plan Change 100 (Private)  
Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:  
Riverhead  
Property address: Riverhead  
Map or maps:  
Other provisions:  
Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified  
Do you wish to have the provisions you have identified above amended? No  
The reason for my or our views are:  
Not enough infrastructure to handle cars  
I or we seek the following decision by council: Decline the plan change  
Submission date: 13 May 2024

64.1

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Acascia Steedman  
**Date:** Monday, 13 May 2024 12:45:42 pm

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Acascia Steedman

Organisation name:

Agent's full name:

Email address: acascia1@gmail.com

Contact phone number:

Postal address:  
 7 Balthazar Road  
 Kumeu  
 Auckland 0810

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:  
 Roading

Property address: -

Map or maps: -

Other provisions:  
 -

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

We moved to Kumeū two months ago. After coming from Silverdale, which also has awful congestion, we thought "how bad could traffic be?" Newsflash - it's a LOT worse. It takes twice the time to travel each km and the WX1 bus takes even longer. I am an advocate for more housing - but as there are no plans to improve roading, infrastructure or access I have to submit that this cannot be supported.

I or we seek the following decision by council: Decline the plan change

65.1

Submission date: 13 May 2024

#### Attend a hearing

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Scott Christopher Ellery  
**Date:** Monday, 13 May 2024 1:00:53 pm

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Scott Christopher Ellery  
Organisation name: Hawk Ellery Freight Services Ltd  
Agent's full name: Scott Christopher Ellery  
Email address: scott@hawkellery.co.nz  
Contact phone number: 021369688  
Postal address:  
scott@hawkellery.co.nz  
Riverhead  
Auckland 0820

**Submission details**

**This is a submission to:**

Plan change number: Plan Change 100 (Private)  
Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:  
Property address: 24 Princes Street Riverhead  
Map or maps:  
Other provisions:  
Parks  
Storm & wastewater  
Transportation  
Village Character  
Transportation

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:  
Submission Opposing PC100 Riverhead

Auckland Council  
Private Bag 92300  
Auckland 1142

Re: Submission Opposing PC100 Riverhead

I am writing to express my opposition to Plan Change 100 (PC100) concerning the development of Riverhead. After carefully reviewing the proposed changes and their potential impact on the community, I firmly believe that PC100 fails to address critical issues such as neighborhood parks, stormwater management, transportation, and the preservation of Riverhead's unique village character.

Neighborhood Parks:

The absence of clear objectives, policies, and standards regarding the provision of neighborhood parks in PC100 poses a significant flaw. These parks are essential for community well-being, yet PC100 lacks the necessary requirements to ensure their creation. Furthermore, the proposed location of a park near 306 Riverhead Road disregards the significance of preserving high-value trees and fails to address the community's needs adequately.

Stormwater and Wastewater:

PC100's reliance on outdated stormwater management practices and inadequate wastewater servicing strategies raises concerns about the community's resilience to flooding and environmental sustainability. The failure to require coordinated stormwater management systems and specific wastewater upgrades jeopardizes the safety and well-being of Riverhead residents.

Transportation:

The proposed limited upgrades to local roads and reliance on future roundabout construction by Waka Kotahi NZ Transport Agency are insufficient to address the anticipated increase in traffic and congestion resulting from development. Without comprehensive road improvements and pedestrian infrastructure, Riverhead risks becoming an unsafe and dysfunctional environment for residents and visitors alike.

Riverhead Village Character:

PC100 overlooks the community's aspirations and the principles outlined in the previous Structure Plan for Riverhead South. The lack of meaningful community consultation and failure to incorporate provisions to preserve Riverhead's rural village character undermine the integrity and identity of the area.

What's Wanted:

Preservation of Character: PC100 should include provisions to retain Riverhead's rural village character, including front yard setbacks, maximum fence heights, garage setbacks, and requirements for outdoor living spaces. | 66.2

Community Consultation: Comprehensive community consultation, following best practice guidelines, is essential to ensure meaningful input from stakeholders and the wider community. | 66.3

Structured Consultation Plan: Develop a structured consultation plan to identify stakeholders, manage communication, and integrate feedback effectively into the planning process. |

In conclusion, I oppose PC100 Riverhead in its current form and urge Auckland Council to reconsider the proposed changes by incorporating provisions aligned with community aspirations and conducting comprehensive community consultation. By addressing critical issues such as neighborhood parks, stormwater management, transportation, and village character preservation, we can ensure that Riverhead remains a vibrant and sustainable community for generations to come. | 66.4

Thank you for considering my submission. I look forward to your response.



Yours sincerely,

Scott Ellery

I or we seek the following decision by council: Decline the plan change

66.1

Submission date: 13 May 2024

### **Attend a hearing**

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?  
Yes

### **Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Rebecca Englefield  
**Date:** Monday, 13 May 2024 1:30:56 pm

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Rebecca Englefield

Organisation name:

Agent's full name:

Email address: bexx\_a@hotmail.com

Contact phone number:

Postal address:  
0830

Parakai 0830

**Submission details**

**This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:  
Traffic infrastructure

Property address:

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:  
The traffic congestion on S16 is already at breaking point. The local infrastructure cannot support anymore cars on the road. Build the new kumeu bypass (or at very least make S16 two lanes each way) before allowing anymore mass residential development in the area.

I or we seek the following decision by council: Approve the plan change with the amendments I requested

67.1  
67.2

Details of amendments: Regular user of S16

Submission date: 13 May 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Jenny Burnett  
**Date:** Monday, 13 May 2024 1:45:49 pm

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Jenny Burnett

Organisation name:

Agent's full name:

Email address: myjens@windowlive.com

Contact phone number:

Postal address:

32 Tapu road

Huapai

Auckland 0810

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:

Property address: Land due to be developed in riverhead

Map or maps: Between riverhead road and sh16

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

The roading in the area can not handle the amount of people and vehicles that come in and out on a daily basis.

Roading needs to be fixed first before anymore housing gets built.

Roading schools/colleges storm water all need to be sorted first.

I or we seek the following decision by council: Decline the plan change

Submission date: 13 May 2024

68.1

#### Attend a hearing

Do you wish to be heard in support of your submission? No



**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Lynne Fluker  
**Date:** Monday, 13 May 2024 1:45:57 pm

---

The following customer has submitted a Unitary Plan online submission.

#### **Contact details**

Full name of submitter: Lynne Fluker

Organisation name:

Agent's full name:

Email address: taylorlnz@hotmail.com

Contact phone number: 0223524182

Postal address:

10 Great North Road

Riverhead

Auckland 0820

#### **Submission details**

##### **This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### **My submission relates to**

Rule or rules:

Property address:

Map or maps:

Other provisions:

The entire development

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

The proposal does not properly take into account the actual reality of Riverhead's poor infrastructure, drainage issues, roading situation (local vicinity and also leading out of the area), lack of footpaths, schooling availability and the environmental and flooding risk.

The proposal documents do not resolve these issues, but instead talk to them or touch on them but not to the point where we can be confident that any risks will be fully mitigated.

From what I can see there is agreement in the consultation of a school being required but it basically concludes that this is the MOEs responsibility. So nothing further will be done/is in motion and we are left with many more children and no further options for schooling - how is this right?

The same for the roading, it is ridiculous that any development is even being considered with the current roading issues we face.

And environmentally we have seen what happens during flooding, my friends in Riverhead have had to evacuate their home 3 times in the past 2 years, roads turn to rivers requiring a boat to get through and this development is considered in the same vicinity? It is incredulous and all about

profit. We will not benefit as a community and you treat us like numbers rather than people.

I or we seek the following decision by council: Decline the plan change

69.1

Submission date: 13 May 2024

### Attend a hearing

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?  
Yes

### Declaration

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Julie Tutton-Jones](#)  
**To:** [Unitary Plan](#)  
**Subject:** Riverhead structural plan  
**Date:** Monday, 13 May 2024 1:51:40 pm

---

I am writing to oppose the plan to vastly increase the intensification housing plan for Riverhead. I want to make it clear that our infrastructure is not able to cope now, so will cause intolerable hardship with more housing.

70.1

The infrastructure is not able to cope with the schooling and transportation needs of the residents at present.

Bus service is only from Albany to Westgate on an hourly basis at present and there are no other options but to drive. This has been escalated with the intensification of properties in Huapai and Kumeu making the commute a nightmare for everyone. Riverhead is the main single lane road for Coatesville as well as residents from Helensville through the forestry and those trying to take a shortcut from Huapai and Kumeu. All this has added the extra traffic trying to access the main state highway 16 junction, which incidentally is also a single road.

Adding to all of these issues, when holiday makers are heading north and it's busy on other substantial access roads, media recommends taking SH16 as an alternate route. All this is a single road access trying to cope with the small main and inadequate highway.

Many years ago plans for a new motorway were promised with a roundabout joining SH16 and Coatesville Highway. I understand what was to go from Westgate, through Taupaki and through to Helensville. None of this has eventuated. Too many substandard roads too many cars and no foresight.

The school and teachers do their best but overcrowding is evident and will become a major concern. No high school or college in the area and small junior school with no intermediate has caused issues. A new intermediate and high school are absolutely necessary.

There are so many issues within what was once a small town on the outskirts of Auckland.

Is there a reason why northwest Auckland townships have been ignored and their residents been treated as insignificant for so long?

Unless the road can be increased to 2 lanes both ways, a motorway able to function as it is designed to do and schooling and our future generations. There will be no practical way to approve more housing.

We need to future proof Auckland not intensify issues and then try and fix issues. Shutting the gate after the horse has bolted springs to mind.

Yours sincerely

Julie Tutton-Jones



**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Michael Robert Brooke  
**Date:** Monday, 13 May 2024 2:45:49 pm  
**Attachments:** [Michael Brooke Submission Plan Change 100.pdf](#)

---

The following customer has submitted a Unitary Plan online submission.

#### **Contact details**

Full name of submitter: Michael Robert Brooke

Organisation name:

Agent's full name:

Email address: Mikerbrooke@outlook.com

Contact phone number: 0274813310

Postal address:

24 The Landing

Riverhead

Auckland 0820

#### **Submission details**

##### **This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### **My submission relates to**

Rule or rules:

Property address: As identified by the Riverhead Landowner Group

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

I don't understand the two questions above

I or we seek the following decision by council: Decline the plan change

71.1

Submission date: 13 May 2024

Supporting documents

Michael Brooke Submission Plan Change 100.pdf

#### **Attend a hearing**

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?

Yes

### Declaration

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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Michael Brooke  
 24 The Landing  
 Riverhead

13<sup>th</sup> May 2024

## **Re Plan Change 100 (Private)**

### **TO WHOM IT MAY CONCERN**

Thank you for the opportunity to submit on this Proposed Change. I have been a resident in Riverhead since 2001 and believe the location has a number of characteristic qualities which make it a valued place to live.

### **Background**

An earlier focus on proposed Plan changes by the Community prevented the ‘spread’ of Riverhead along the Riverhead Coatesville Highway and protected the village feel, with all current and future urban areas positioned around the centre of the village.

The ‘village feel’ is important to the community, with a rural belt around the community. Overall there is a ‘green feel’ to the community with older Riverhead having larger sections and a significant number of nice trees scattered within properties, and in the more recent development we have seen good Urban Design, with the use of green space and planting to achieve the same feel.

We have maintained the hub of commercial activity in the centre of Riverhead and prevented poor outcomes from ongoing strip development down the Coatesville -Riverhead highway (“CRH”) which over the years has significantly impacted areas such as Kumeu/Huapai.

### **Current Challenges**

#### ***Transport***

Despite more recent developments we have seen little structured improvement to ensure all Riverhead’s exposed drains and missing footpaths are formed. We have an hourly bus service servicing the Community which is well supported and we have rural roads entering and leaving Riverhead with deep culverts on their sides.

Traffic leaving Riverhead towards the Northwestern motorway is abysmal at peak times, as it is from Kumeu. The roading is not appropriate for cycling and there is no structured area for walking.

Within Riverhead itself, many of the roads and parking areas (especially around the war Memorial Park just cope now with peak use times of the park.) The Crossing at the centre of the village is staffed by volunteer parents at key times to ensure the safety of crossing school children.

Waka Kotahi have been communicating to Riverhead for many years their plans for addressing safety on SH 16, which will see improvements to the road and implementation of a roundabout at the intersection of the CRH and SH16. Waka Kotahi have repeatedly stated their planned work (currently on hold) is NOT about managing increased volumes and is about addressing safety.

### **Stormwater**

The recent 1 in 100 flooding events that significantly effected our western areas demonstrated that current stormwater plans, built under current regulations are unsatisfactory. Areas of Riverhead flooded. Areas that have never flooded until the recent 'up- hill' developments were completed, flooded!

This event showed that the level of water joining the Rangitopuni, (upstream of the bridge) placed the bridge under significant risk. Although witnessed by locals this event was significantly under-reported.

### **Wastewater**

The current pressured wastewater system in Riverhead causes significant problems for residents and have been well communicated with Watercare. Our home has replaced components of our pump on over 10 occasions over the past 8 years (at no cost to ourselves), due (we are told) to 'over pressure'. The system which should have no stormwater connected to it fails during heavy rain, with residents 'on premise systems' overloading, and the alarms being triggered.

### **Proposed Plan Change**

I remain fully supportive of the zoned Future Urban area in Riverhead, however I am very concerned that by bringing this plan change forward in time and ahead of Council processes, the wider infrastructure issues for Riverhead and our neighbouring communities will not be addressed. There will not be the wider Council focus on the required infrastructure that is desperately required ahead of any further growth in the area.

Allowing individual private Plan Changes such as this without the wider planning and required investment in infrastructure is simply self-serving for a Developer.

### **Specifically**

*Transport concerns:*

1. The Applocant has heard repeatedly from the Community around its transport concerns and I do not see these addressed. They were and remain the communikties bbiigest concern. The proposed change in size to Riverhead is significant. Roads just cope now, what is the Plan? It feels like this is simply being ignored.
2. The Applicant states that planned work by Waka Kotahi on SH 16 will address the increased road traffic, They have also stated that no new residents will move in until the SH 16 proposed work is completed.
3. The Applicant's statement around how Waka Kotahi's proposed changes to SH 16 will address traffic volumes do not make sense and it seems wrong that a Private Plan Change would allow such a point to be accepted based on the work of an interested party.
4. The current plan for SH 16 is on hold, with a prospect of scope change, so what work exactly is the Developer linking to, as addressing the traffic volume? If this proposed Waka Kotahi work is being used to support the Plan Change, it would need to be very specific around exactly what changes to SH 16 were being completed and not be subject to scope change.
5. If such work is required to assist manage traffic volumes ahead of any new residents moving in, then logically, it should be extended to be in place before major earthworks actually start, as it is from this time that increased traffic would start and current residents would be significantly impacted. The proposed development and its supporting infrastructure will place a very significant loading on our current roads, well before future residents arrive.
6. The Applicant does not address the rural road between SH16 and their proposed development. This road would need to be addressed in someway to manage volume and safety. This is exactly the type of infrastructure that gets missed due to promoting this Plan Change ahead of Council planning.
7. How will the existing crossing be managed with increased traffic, are there plans for traffic lights?

#### *Stormwater concerns:*

1. The Applicants Stormwater and Flooding Assessment is outdated and relies on land that is no longer within the proposed residential zoning. The proposed development will make a very significant impact on Stormwater.
2. Riverhead needs an overall system of stormwater management that is completed over the whole plan change area. The 'current standards' have failed abysmally around Kumeu, Huapai and Riverhead.
3. Have the effects of significantly increased levels of stormwater reaching the upstream Rangitopuni and the bridge been considered.

#### *Wastewater concerns*

1. The Applicant's proposal is to use the existing wastewater network. This network has current supporting plans around addressing issues and how it could cope with development, but none are required by the Proposed Change.



2. The Applicants current language is around the current system being sufficient or adequate. This is not detailed enough, presumable in some areas people think the current system is adequate now?, and yet as already described, it has significant issues. What will adding residents to this system mean for existing residents who have invested in pumps and on-site equipment that are being forced to operate outside of normal parameters currently?

#### *Riverhead 'feel'*

1. We need to ensure the new development is aligned to the current Riverhead look and feel, especially around greenspaces, trees, and connecting walkways.
2. The Plan Change has no requirement for parks to be provided, it is possible that without clear 'rules' parks (as would be needed to ensure it is like the rest of Riverhead) never happen, or are not developed as expected.
3. A high-value beech tree, and its surrounding trees should be protected, ideally as a park.
4. The proposed green corridor sounds positive, however there are no clear outcomes or rules that stipulate exactly how this will work. Language of 'encourage' and 'promote' is not strong enough, this needs specific requirements. Indeed it is possible that this is cynically solely about managing stormwater and in areas where that is not required, the corridor might not occur.
5. Likewise there is no detail around this corridor in respect to if it is to be vested in Council and managed as parkland. There is the potential for this corridor to become a very piecemeal approach if there is not an overarching Plan and how it will be managed.

#### *Retirement Village*

1. I understand there is already consent for a large retirement village, but this Proposed Plan Change does not address this activity, in some areas it is recognised, in others it is not.
2. The land associated with the retirement village is zoned Terrace Housing and Apartment Zone and Mixed Housing Suburban Zone. Is this what the Applicant is saying is happening here?, or is this a large privatized development which raises other issues associated with access to Riverhead for western neighbours, pedestrian access or green corridors.
3. This uncertainty is not in the best interests of planning for Riverhead, and should be explicitly managed.

#### *Commercial Zoning*

1. The proposed Plan Change shows two Commercial Zones, the larger one centralized on the Riverhead Road - CRH intersection, which seems sensible. The second (smaller) one is separated and further south on the CRH, and seems illogical and not in the best interests of Riverhead.
2. The Applicant supports the Commercial Zones with an economic report that defines a Riverhead Core Retail Catchment, which is simply non-sensical, extending into areas that will have no reason to come to Riverhead.

3. The positioning of the separated smaller Commercial Zone exacerbates the commercial strip development which is not a good outcome for Riverhead and does not support the current Village feel.
4. I see no good planning reason to allow this. On what basis is this separate commercial area being proposed? Especially given its potential to create poor outcomes for Riverhead.

#### *Residential Zoning*

1. I understand the intensification and density that the proposed zoning allows and accept that this is appropriate. Equally we need to understand that the density will potentially be quite different to current Riverhead and for that reason there is a stronger requirement for good urban design to try and maintain the Riverhead Village feel across the whole of Riverhead.
2. The approach taken for Riverhead South (SPECIAL 30 (RIVERHEAD SOUTH) Zone) is worth considering in how it helped ensure Riverhead South become part of Riverhead. I do not believe the Applicant has completed the same level of real Consultation, indeed the thoughts and concerns that I and others have raised do not appear to be captured with any meaningful requirements in the Plan Change. If no requirements are specified it is likely that this development will not achieve the linkage to Riverhead that the community aims to achieve.

Michael Brooke

**From:** [John Armstrong](#)  
**To:** [Unitary Plan](#)  
**Subject:** Riverhead to Coatesville-Riverhead highway  
**Date:** Monday, 13 May 2024 3:01:00 pm

---

Sent from my iPhone this can not go ahead till all the roading and  
is upgraded and the junction to SH 16 is sorted with at least a merging lane towards town  
A couple of years ago the council had a meeting at Northwest and I posted a plan for this intersection which  
would work perfectly and all all the replies said IDEAL but they won't do it it's hard to believe no one in the  
council has the brains to sort this road junction out if you need it explained give me a call  
Regards John Armstrong  
And while I'm at it I bet in the next flood the Wautaiti stream will flood because the council can't keep it clean  
and if any of the slash comes down out of the forest I will post all the photos of the SLASH that was left behind  
but passed by the council inspector as milled responsibley

72.1

**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Morie Yoshida  
**Date:** Monday, 13 May 2024 3:15:43 pm

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Morie Yoshida

Organisation name:

Agent's full name:

Email address: morieyoshida@xtra.co.nz

Contact phone number: 02108705833

Postal address:

17Newton Road,

Riverhead

Auckland 0820

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:

Coastville Riverhead Highway 1.8 ha local centre zone

Property address: Coatesville Riverhead Highway

Map or maps: 1.8 ha, 0.7 ha, 4.3 ha and 69 ha

Other provisions:

we always have to face the traffic jam wherever we go and it became a nightmare if we have more houses.

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

No consideration until traffic jam is to be fixed.

I or we seek the following decision by council: Decline the plan change

73.1

Submission date: 13 May 2024

#### Attend a hearing

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?

No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Sue James](#)  
**To:** [Unitary Plan](#)  
**Subject:** Proposed fletcher, Riverhead development  
**Date:** Monday, 13 May 2024 3:17:34 pm

---

Hi

under the purposed new development, there is lack of infrastructure and amenities to support this from going ahead.

1. Traffic - needs road widening
2. Flooding issues on purposed land
3. Housing - lack of parking, green places
4. School current schools can't caterer for the increase in purposed children.

74.1

as a rate payer and live locally I oppose this going ahead.

Sue James  
48a George Street Riverhead, Auckland NZ  
Phone 021 2760664  
[sue@homecircuit.co.nz](mailto:sue@homecircuit.co.nz)

**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Bharat Sethi  
**Date:** Monday, 13 May 2024 3:30:46 pm

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Bharat Sethi

Organisation name:

Agent's full name:

Email address: bharatsethi007@gmail.com

Contact phone number: 0221630878

Postal address:

5 Duchess Way

Riverhead 0820

Riverhead

Auckland 0820

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:

My submission relates to PC 100. I would like to oppose the proposed changes. We are a resident of Riverhead and there isn't road infrastructure to support high density housing (apartments and terraced homes).

Riverhead is on flood plains and the area gets flooded very easily. With these density homes and commercial development, the flooding will get worse.

Property address:

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

The traffic on Coastville-Riverhead highway is very heavy at the moment with a single lane road. The proposed changes will make it worse and it will create more even more congestion. We want extra two lanes to be added first.

I or we seek the following decision by council: Decline the plan change

75.1

Submission date: 13 May 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?  
Yes

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Adolf Goldwyn  
**Date:** Monday, 13 May 2024 3:45:45 pm

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Adolf Goldwyn  
Organisation name:  
Agent's full name:  
Email address: [adolf.goldwyn@gmail.com](mailto:adolf.goldwyn@gmail.com)  
Contact phone number:  
Postal address:  
41 Lumbarda Drive,  
Kumeu  
Auckland 0810

**Submission details**

**This is a submission to:**

Plan change number: Plan Change 100 (Private)  
Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:  
Property address: Coatsville-Riverhead highway  
Map or maps:  
Other provisions:  
Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified  
Do you wish to have the provisions you have identified above amended? Yes  
The reason for my or our views are:  
The road between Kumue and SH16 are impossible to drive on in the morning due to heavy congestion. Adding thousands of vehicles to the mix is going to be a horrendous decision.

I or we seek the following decision by council: Decline the plan change  
Submission date: 13 May 2024

76.1

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Lucy Goldwyn  
**Date:** Monday, 13 May 2024 3:45:48 pm

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Lucy Goldwyn

Organisation name:

Agent's full name: Lucy Goldwyn

Email address: lucygoldwyn@gmail.com

Contact phone number:

Postal address:  
 41 Lumbarda Drive  
 Kumeū  
 Kumeū 0810

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:

Property address: Coatsville-Riverhead highway

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

Already the roads are congested and we do not have infrastructure to support the current residents.  
 Improve that before even

I or we seek the following decision by council: Decline the plan change

77.1

Submission date: 13 May 2024

#### Attend a hearing

Do you wish to be heard in support of your submission? No

#### Declaration

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Fiona Carter  
**Date:** Monday, 13 May 2024 4:00:47 pm

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Fiona Carter  
Organisation name:  
Agent's full name: Fiona Carter  
Email address: fionacarter18@gmail.com  
Contact phone number: 0272740799  
Postal address:  
7 Lam Terrace  
Riverhead  
Riverhead 0820

**Submission details**

**This is a submission to:**  
Plan change number: Plan Change 100 (Private)  
Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:  
Increased housing  
Property address:  
Map or maps:  
Other provisions:  
Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified  
Do you wish to have the provisions you have identified above amended? Yes  
The reason for my or our views are:  
Increased traffic that the roads struggle to cope with now. I leave home at 6.00am and can sit in traffic for up to 22 minutes to get 3km from my road to State Highway 16. This congestion has got worse year on year with the natural increase of housing so to add a huge development with potentially another 1000 plus cars on the road will literally bring the traffic to a complete standstill.

I or we seek the following decision by council: Decline the plan change, but if approved, make the amendments I requested

78.1

Details of amendments: Increase the amount of lanes on the Coatesville Riverhead Highway. Put a roundabout in at the intersection of CRH & SH16 or a merge lane from CRH to SH16. Put more lanes in on SH16.

78.2

Submission date: 13 May 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?  
Yes

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Catherine Watson  
**Date:** Monday, 13 May 2024 4:15:49 pm

---

The following customer has submitted a Unitary Plan online submission.

#### **Contact details**

Full name of submitter: Catherine Watson

Organisation name:

Agent's full name: Catherine Watson

Email address: cath\_al\_watson@hotmail.com

Contact phone number:

Postal address:

26 Elliot Street  
 Riverhead  
 New Zealand  
 Riverhead  
 Riverhead 0820

#### **Submission details**

##### **This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### **My submission relates to**

Rule or rules:

Transport

Property address:

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

Your plan states "no transportation planning or traffic engineering reasons will preclude the implementation of the plan change". Your research reflects a limited understanding of traffic congestion that already affects the Riverhead area. It is obvious your report writers have no comprehension of the overall need for major infrastructure changes in roading in the area from Brighams Creek roundabout through to Kumeu before any more housing/cars are added to the existing roads. It is easy to understand what I mean if you just try driving from Riverhead to the motorway in the morning traffic or home in the evening. The problem is the whole area has already been negatively affected by the Huapai /Kumeu development with no improvements in roads. Public Transport from Riverhead is dismal. Once again nothing in place to make a journey into the CBD straightforward. Your development would make living in Riverhead difficult. I oppose the plan.



I or we seek the following decision by council: Decline the plan change

79.1

Submission date: 13 May 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Matthew Fisher  
**Date:** Monday, 13 May 2024 4:15:51 pm

---

The following customer has submitted a Unitary Plan online submission.

#### **Contact details**

Full name of submitter: Matthew Fisher

Organisation name:

Agent's full name:

Email address: mwsfisher@gmail.com

Contact phone number:

Postal address:  
12 Alexandra Street  
Riverhead  
AKL 0820

#### **Submission details**

##### **This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### **My submission relates to**

Rule or rules:  
Plan Change

Property address:

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

1. Roading - the Coatesville/RH Highway is very very busy, being one of the the only West/East connections beyond the Harbour Bridge. The traffic is frequently backed up from SH16 to Hallertau in the morning (6am onwards). Doubling the size of RH will in no way make this better without a major rethink of how the roading infrastructure will work. We also need to work on removing all the trucks from this road.

2. Schooling – there is only 1, a Full Primary and that has doubled in size in 4 years from 290 to 550 kids and growing. The area needs a high school. Massey High is currently the only In-Zone school.

3. Village – RiverHead has always been one and it's essential the council guarantees what it has always promised, that we will remain as such. The new development area has been known about for many years so there is no surprise there – what the residents hope for is that council sticks to their word to keep the village surrounds.

4. Shops. RH does not want to become a road segregated strip mall like Kumeu. Yes we need a small supermarket (or better still a Farro or bigger Boric) but we don't need lots and lots of shops, let alone more booze shops. There is Westgate or Albany for plentiful shopping.

5. Housing – Fletcher Housing CEO before Christmas 2021 promised there would be no Apartments or Terrace houses – only single site dwellings reflecting the new area behind Hallertau. There will probably be an uproar if the 5-6 story apartment proposal were adopted. It is just not needed here, nor wanted. There will be plenty of smaller dwelling sites available across a range of prices, sizes etc. No members of this community want a Hobsonville looking outcome in Riverhead. We are very different.

Transport: Is utterly appalling in Riverhead. There is very little PT so everyone has to use a car to get anywhere. Adding another 3000 people will not solve any of these problems, only exacerbate them. Fix the train to Kumeu so people have an alternative to get into the city.

I or we seek the following decision by council: Decline the plan change, but if approved, make the amendments I requested

80.1

Details of amendments: Increase Public Transport Options. Don't build apartments!

80.2

Submission date: 13 May 2024

80.3

### **Attend a hearing**

Do you wish to be heard in support of your submission? No

### **Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Ed Stubenitsky  
**Date:** Monday, 13 May 2024 4:15:52 pm

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Ed Stubenitsky  
Organisation name:  
Agent's full name:  
Email address: stubee\_1@hotmail.com  
Contact phone number:  
Postal address:  
35 Motukaraka Drive  
Beachlands  
Auckland 2010

**Submission details**

**This is a submission to:**

Plan change number: Plan Change 100 (Private)  
Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:  
I would like to make this submission for the entirety of the proposed plan change

Property address:

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:  
I recognise that Development is needed in Auckland to provide much needed housing and safe communities for our growing population. When development is completed effectively including appropriate provision for infrastructure, quality open space and access ie parking and roading we benefit from great communities to reside in.

I or we seek the following decision by council: Approve the plan change with the amendments I requested | 81.1

Details of amendments: Adequate provision for quality parks and public spaces, and appropriate provision for parking to serve the neighbourhood and its visitors be incorporated into planning. | 81.2  
81.3

Submission date: 13 May 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Katie Richards  
**Date:** Monday, 13 May 2024 5:15:47 pm

---

The following customer has submitted a Unitary Plan online submission.

#### **Contact details**

Full name of submitter: Katie Richards

Organisation name:

Agent's full name:

Email address: sk.richards@xtra.co.nz

Contact phone number:

Postal address:

350 Main Road

Huapai

Auckland 0810

#### **Submission details**

##### **This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### **My submission relates to**

Rule or rules:

Rules

Maps

Property address: Riverhead road, Riverhead coatesville road.

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

I have lived the past 16 years in Riverhead and now Kumeu. In all this time, council has allowed many developments with no change to infrastructure, especially roading. All the new development from Riverhead, Huapai, Kumeu, even Helensville and Waimauku - are all travelling on the same road of 20 years. Traffic is terrible, no matter time or day when you drive. SH16 has had no change in this area. Even driving through at 5:45am, the road is clogged. We cannot leave for work any earlier,

Public transport takes at least 1.5 hours no matter when you leave.

We cannot have all these houses before roads are fixed.

I also don't support the plan for terraced and apartments. This will ruin the village character of Riverhead. I support Riverhead community Association.

We are so tired of never being listened to. We pay rates but have very little in the way of services. I am happy with the rural aspect and lack of services if you keep the towns rural rather than add all the houses but no infrastructure or services.

Quality of life has become unbearable. I work for a not-for-profit, helping those in need, but the toll of now spending at least 2 hours or more in traffic, is terrible.

We cannot have this plan change!

I or we seek the following decision by council: Decline the plan change

82.1

Submission date: 13 May 2024

### **Attend a hearing**

Do you wish to be heard in support of your submission? No

### **Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Kyle Munro  
**Date:** Monday, 13 May 2024 5:30:49 pm

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Kyle Munro

Organisation name:

Agent's full name:

Email address: ksmunro1974@gmail.com

Contact phone number:

Postal address:  
 39 Pohutukawa Parade  
 Riverheas  
 Auckland 0820

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:

Property address:

Map or maps:

Other provisions:  
 Any further development in north west auckland

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:  
 Riverhead currently suffers from insufficient infrastructure for current population let alone any further residential development. Roads and intersections are not fit for purpose. school options are limited.

I or we seek the following decision by council: Decline the plan change

83.1

Submission date: 13 May 2024

#### Attend a hearing

Do you wish to be heard in support of your submission? No

#### Declaration

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Rafael Garcia  
**Date:** Monday, 13 May 2024 5:45:47 pm

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Rafael Garcia

Organisation name:

Agent's full name:

Email address: rafa14@gmail.com

Contact phone number:

Postal address:

Riverhead  
Auckland 0793

**Submission details**

**This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:

Property address: Riverhead

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

The region infrastructure does not accommodate the propose number of new dwellings. The public infrastructure needs to be improved and in place before the plan to introduce new mixed housing zones are considered.

I or we seek the following decision by council: Decline the plan change

84.1

Submission date: 13 May 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**



Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Alan Macleod  
**Date:** Monday, 13 May 2024 6:00:54 pm

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Alan Macleod

Organisation name:

Agent's full name: Alan Macleod

Email address: macleodalan@yahoo.co.nz

Contact phone number:

Postal address:

12 Floyd Rd,  
Riverhead  
Auckland 0820

**Submission details**

**This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:

PC 100 (Private): Riverhead

Property address:

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

I am not against progress per se but the current Riverhead storm water system doesn't cope under adverse conditions. Adding to this on a large scale will only make the system worse. The current sewage system doesn't cope under adverse conditions. Adding to this on a large scale will only make the system worse. The current road network from SH16 to Coatesville Riverhead highway is already past capacity and adding to this without upgrades that have been promised for years and not actioned is irresponsible. The current recent Riverhead subdivisions have been managed and planned for to encourage a very family oriented place to live. Numerous green spaces, no front fences, larger style sections with trees etc that help make it a family oriented area to live in. The proposal as it is currently presented undermines all that has been recently achieved and in my opinion needs re thinking and proper planning to ensure the current ambience is maintained along with the appropriate road network upgrades to assist current and future residences to commute efficiently... not in gridlock pattern. Also the current commercial area proposed opposite Hallertau appears to be totally out of sync with the area and totally commercially driven and not properly

85.2

85.3

85.4

85.5

planned.

I or we seek the following decision by council: Decline the plan change, but if approved, make the amendments I requested

85.1

Details of amendments: As per comments above.

Submission date: 13 May 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Christopher Michael John Stafford  
**Date:** Monday, 13 May 2024 6:00:56 pm

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Christopher Michael John Stafford

Organisation name:

Agent's full name:

Email address: cmjstafford@gmail.com

Contact phone number:

Postal address:

33 Pitoitoe Drive

Riverhead

Auckland 0820

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:

Property address:

Map or maps:

Other provisions:

Riverhead re zoning

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

Riverhead currently has very little in terms of supporting infrastructure, both of the main routes towards the city are congested, the public transport links are very limited and there are not sufficient facilities within the village to support an increased population. I am not opposed to increasing the residential space in Riverhead, but I believe this plan would not adequately increase the provisions required to support this.

I or we seek the following decision by council: Decline the plan change

86.1

Submission date: 13 May 2024

#### Attend a hearing

Do you wish to be heard in support of your submission? No



**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Melissa Keegan  
**Date:** Monday, 13 May 2024 6:30:43 pm

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Melissa Keegan

Organisation name:

Agent's full name:

Email address: melissakeegan22@hotmail.com

Contact phone number:

Postal address:  
 97 Kaipara Portage road  
 Riverhead  
 Auckland 0820

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:  
 Please fix our roads before allowing anymore housing in our area

Property address:

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:  
 The traffic in our area is horrendous

I or we seek the following decision by council: Decline the plan change

87.1

Submission date: 13 May 2024

#### Attend a hearing

Do you wish to be heard in support of your submission? No

#### Declaration

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Dan Fluker  
**Date:** Monday, 13 May 2024 7:15:44 pm

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Dan Fluker

Organisation name:

Agent's full name:

Email address: djfluker@hotmail.com

Contact phone number: 0221720615

Postal address:  
 10 Great North Road  
 Riverhead  
 Auckland 0820

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:

Property address:

Map or maps:

Other provisions:  
 Development plan

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

I believe the proposed plan lacks foresight in future planning, in what is already and oversubscribed residential area with undeveloped services.

The current population of the wider Riverhead area is already too great for the roading network with demand exceeding capacity on Coatesville-Riverhead Highway leading to state highway 16.

Riverhead primary school is bursting at the seams with students and a limited footprint of which to be able to build new classrooms. The school field is shrinking daily, with the addition of prefab classrooms to try and keep up with the increased enrolments.

A large area of Riverhead has traditionally been agricultural and farming properties. However, the recent developments in the Riverhead point area have disrupted the natural water table and has redirected water flow to areas where there are now new builds flooding homes.

The area which the proposed development is set is also identified as a flood plain area further construction here will cause more long-term problems and in the current weather and environmental climate is negligent and irresponsible.

I or we seek the following decision by council: Decline the plan change

88.1

Submission date: 13 May 2024

### **Attend a hearing**

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?  
Yes

### **Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.



**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Jainesh Kumar  
**Date:** Monday, 13 May 2024 7:45:43 pm

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Jainesh Kumar

Organisation name:

Agent's full name:

Email address: jainesh\_k@live.com

Contact phone number:

Postal address:

9 Barrique road

Huapai

Auckland 0810

**Submission details**

**This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:

Na

Property address: Na

Map or maps: Na

Other provisions:

Na

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

Not enough infrastructure to cater for additional traffic. Traffic is is already bad.

I or we seek the following decision by council: Decline the plan change

Submission date: 13 May 2024

89.1

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Nicholas William Edward Bastow  
**Date:** Monday, 13 May 2024 8:00:58 pm

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Nicholas William Edward Bastow

Organisation name:

Agent's full name:

Email address: nck\_bastow@yahoo.com.au

Contact phone number:

Postal address:  
1175 Coatesville Riverhead highway  
Riverhead  
Auckland 0892

**Submission details**

**This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:

Property address:

Map or maps:

Other provisions:

Traffic  
Floodplanes

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:  
Traffic on CHR and SH16 is already over capacity. Adding this volume of med density housing is not sustainable .  
Commercial property is currently not used. Supermarkets are available at Westgate/kumeu and hobsonville

I or we seek the following decision by council: Decline the plan change, but if approved, make the amendments I requested

90.1

Details of amendments: Reduce to low destiny housing only and limit development to outside any floodplanes. Significant upgrades to SH16 - rethink roundabout and replace with dedicated lane  
CHR to SH16motorway

90.2  
90.3  
90.4

Submission date: 13 May 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Jenna Robinson  
**Date:** Monday, 13 May 2024 9:15:46 pm

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Jenna Robinson

Organisation name:

Agent's full name:

Email address: jenna\_robinson@hotmail.com

Contact phone number:

Postal address:

53 Matua Road

Huapai

Auckland 0810

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:

.

Property address: .

Map or maps: .

Other provisions:

.

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

The traffic into and out of the surrounding areas of Riverhead, Kumeu and Huapai has become a barrier to a reasonable lifestyle in this area. Residents are required to spend sometimes upwards of 45 minutes to leave the immediate area, in not only early weekday mornings, but weekends, including late afternoons on Sundays. It is affecting the reputation, livability and prices of properties in this region. Additional strain on the existing inadequate infrastructure by adding additional housing, and subsequently vehicles will exacerbate an already unreasonable situation, further punishing long standing residents. This proposal should not go ahead until roading in the area is significantly improved, and public transport increased.

I or we seek the following decision by council: Approve the plan change with the amendments I requested

91.1



Details of amendments: Increased roading capacity, and efficiency thereby reducing transit times for existing residents.

91.2

Submission date: 13 May 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Andrew Lorrey  
**Date:** Monday, 13 May 2024 9:15:49 pm

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Andrew Lorrey

Organisation name:

Agent's full name:

Email address: a.lorrey@niwa.co.nz

Contact phone number: 021313404

Postal address:

19 Princes Street

Riverhead

Auckland 0820

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:

Property address:

Map or maps:

Other provisions:

Stormwater modelling for affected areas downstream from the proposed development - found in the following report

<https://www.aucklandcouncil.govt.nz/UnitaryPlanDocuments/12-pc100-app-10-stormwater-and-flooding-assessment.pdf>

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

The stormwater modelling undertaken for the proposed development was undertaken prior to 2023. It does not comprehensively consider the significant rain and hydrology events in the catchment that occurred during several recent significant storms, including those that caused the 2023 Auckland Anniversary floods when many properties in Riverhead were affected. All of the Annual Exceedance Probabilities (AEP) calculations in the stormwater report must be reconsidered and likely underrepresent the impacts on the areas adjacent to the proposed development. If the development proceeds, Auckland Council could be held liable for exacerbating local floods and additional damages to homes in the adjacent catchments, or worse yet total loss of property and life. There is forthcoming flood mapping evidence being undertaken by Niwa that also needs to be considered. It is my view that additional stormwater discharge away from the development areas into areas further

downstream cannot be handled under the current infrastructure and also in a future climate where amplification of rainfall due to atmospheric warming is expected.

I or we seek the following decision by council: Decline the plan change

92.1

Submission date: 13 May 2024

### Attend a hearing

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?  
Yes

### Declaration

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Chris Harker  
**Date:** Tuesday, 14 May 2024 7:30:35 am

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Chris Harker

Organisation name:

Agent's full name: Chris Harker

Email address: chris.harker@xtra.co.nz

Contact phone number:

Postal address:  
 12 Princes Street  
 Riverhead  
 Auckland  
 Auckland 0820

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:  
 12 princes street

Property address:

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:  
 Impact of Applicant on Riverhead Memorial Park  
 Reference Plan change 100

The park is very busy on sports day, and there is insufficient parking for the current events.  
 The residents from the proposed developments will certainly visit this facility, but there will be nowhere for them to park.

Around the park and nearby streets we will need kerb, channel, and formed parking.

The applicant needs to contribute to this infrastructure, the general response that "things will not be worse" is neither aspirational nor true.

I or we seek the following decision by council: Decline the plan change | 93.1

Submission date: 14 May 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? Yes

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - thomas michael kelly  
**Date:** Tuesday, 14 May 2024 8:45:35 am

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: thomas michael kelly

Organisation name:

Agent's full name: tom kelly

Email address: tomknzl@gmail.com

Contact phone number: 0223551153

Postal address:

11 duke st  
riverhead  
auckland 0820

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:

Property address: 11 duke st, riverhead, auckland 0820, new zealand

Map or maps:

Other provisions:

Planned devevelopment of approximately 1450-1750 mixed residential dwelling including apartments and Terrace housing in Riverhead by 2032.

Additionally, Kumeu, Huapai and Riverhead together are collectively designated 'devleopment ready' between 2028-2032 with the potenital to accommodate 6,600 new dwellings.

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

I oppose these designations and plans as understand there have been no provisions made to upgrade and surrounding infrastructure - schools, stormwater or roads. Having experienced traumatic flooding events in recent years (not just the January floods of 2023) but previusly as well and the massive congestion that residents of the local area now must live we really need to see some clear plans for infrastructure upgrades to give ourselves and future residents confidence this area will remain a safe, enjoyable and accessible place to live, work and learn.

I or we seek the following decision by council: Decline the plan change, but if approved, make the amendments I requested

94.1

Details of amendments: Clear time-bound details around infrastructure upgrades for roads, schools and storm water.

94.2  
94.3  
94.4

Submission date: 14 May 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?  
Yes

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Ella McIntosh  
**Date:** Tuesday, 14 May 2024 10:30:39 am  
**Attachments:** [Ella McIntosh Riverhead submission.pdf](#)

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Ella McIntosh

Organisation name:

Agent's full name: Ella McIntosh

Email address: ella.jmcintosh@gmail.com

Contact phone number: 0225676222

Postal address:  
6 Princes Street  
Auckland  
Auckland 0820

**Submission details**

**This is a submission to:**

Plan change number: Plan Change 100 (Private)  
Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:  
Property address: 6 Princes Street, Riverhead  
Map or maps:  
Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified  
Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:  
As per my PDF submission I do not believe the proposal is fit for purpose.

I or we seek the following decision by council: Decline the plan change, but if approved, make the amendments I requested

Details of amendments: Transport, parks and retirement village.  
Submission date: 14 May 2024

Supporting documents  
Ella McIntosh Riverhead submission.pdf

95.1

95.2  
95.3  
95.4

**Attend a hearing**

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?  
Yes

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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Ella McIntosh  
6 Princes Street, Riverhead 0820  
0225656222

To whom it may concern,

I am a resident of Riverhead and I've been a member of this community since I was a child. We have a beautiful community here and I'm proud to be part of this neighbourhood. As a first-home buyer not too long ago, I can appreciate the challenges of home ownership and occupation in the greater Auckland region and appreciate that the housing crisis needs to be addressed.

However, I hold concerns about this development project is not fit for purpose for both the existing residents and those people and families who will eventually be part of this community. Auckland Council said the proposal should not go ahead so there is clearly issues with what has been proposed.

I have outlined below a few of the key issues that need to be addressed prior to any building work commencing. This is by no means extensive but the areas I have noted as a resident that I am aware of and would like to be fully reviewed before any further steps are taken.

### **Transportation and infrastructure.**

There are no substantial road upgrades being proposed to deal with the increased capacity of the local Riverhead or wider North-west community as part of this proposal and that is not acceptable. There is no cycling lanes or additional bus routes proposed either which is a problem.

A full and comprehensive assessment of the transportation and roads must be considered (and complete) in advance of any homes being built as this will significantly impact the quality of the community and productivity of individuals. I've shared some images below to show what the congestion looks like coming onto State highway 16.



### **Access to community areas and parks not working for the current community.**

Overall, the quality of footpaths and parking in Riverhead is not to standard for the existing community and could not take additional strain.

I live on Princes Street (right next to the proposed apartment zone) and near the War memorial playground so the foot traffic and road traffic down our road will increase substantially and we are already at capacity at peak times. If the apartments are only allocated one car park per unit, this will cause even more issues with street parking in surrounding areas – this needs to be properly considered as part of the build.



Ella McIntosh  
6 Princes Street, Riverhead 0820  
0225656222

Unfortunately, our road parking isn't paved and so the sidewalks are constantly muddy and there's no clear parking on the grass so cars are often parking in an unsafe way (blocking the road or driveway areas) especially during the evenings when families and children are having fun at the rugby club - essentially the infrastructure isn't supporting the existing community and there's so many young children around too which increases the risks of safety to the general public. I have included some imagery below to illustrate this point. These are taken in Summer, so this is when the situation isn't at it's worst.

This issue will only become worse with additional homes/families trying to access the small park. Princes Street and the surrounding roads need correct footpaths (that connect together), correct drainage and marked concrete carparks down the road before any new homes should be built in the area.



#### **Lack of transport having a direct impact on community spirit.**

Riverhead and North-west is a brilliant, supportive community but the issue of poor transportation has the potential to erode the community spirit that's been built and fostered over many years. I've provided some screenshots from people who have posted about this on the local Facebook page to demonstrate some of the frustrations felt by existing residents.

Kumeu and beyond residents must love traffic, why stop the line of 500-1000 cars behind you to let the 4 cars at riverhead turnoff in. Makes no sense and causes massive pile ups. Nearly 10am and 40 mins to Westgate. Maps even said it was 12mins faster going riverhead. Wake up!

👍 94

101 comments

If you are too impatient to use the stop/go traffic lights on Tapu road, go round Matua road and find another way. They are there for a purpose. To the two cars who decided they didn't want to wait any longer and drive through the red light up towards the highway, when my light was green - you are both idiots!

👍👎 16

5 comments

**\*\*Edit:** Traffic was free flowing at 80kph this morning. Had to get that out there so the Riverhead Karens understand how this works\*\*

Riverhead drivers: please remember that this intersection has a stop sign 🛑. I narrowly missed colliding with a car who just pulled out in front of me without stopping. It is NOT a merging lane. Feel free to look up what a stop sign is 🤔

Ella McIntosh  
6 Princes Street, Riverhead 0820  
0225656222

**Parks and shared spaces.**

One of the reasons I value living in Riverhead is the parks, playgrounds and green spaces. Right now, these feel like they're at capacity (especially during school holidays and after school hours).

I understand that there are no objectives, policies or standards that require the parks to be provided. This is an issue and should be considered holistically as part of the proposal as green spaces is what make this community beautiful.

The proposal needs to consider the environmental effects of additional housing – how are we protecting green spaces and ensuring a positive impact on the environment.

**Clarity on the role of the retirement village.**

The proposed plan does not look to have effectively and thoroughly considered the retirement village site. This needs to be reviewed in detail as it has the impact to drastically impact the type of building and additional needs of the community.

Thank you for reading the above submission. I sincerely hope that the proposed plans are revised, and that Fletchers do the right thing by the existing community and potential new families coming to the area and build something that serves everyone effectively long into the future.

Thanks,

Ella McIntosh

**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Albrecht von Wallmoden  
**Date:** Tuesday, 14 May 2024 12:30:42 pm

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Albrecht von Wallmoden

Organisation name:

Agent's full name:

Email address: avonwallmoden@yahoo.com

Contact phone number: 021337976

Postal address:

6 Elliot Street  
Riverhead  
Auckland 0820

**Submission details**

**This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:

Property address: riverhead development Coatesville Riverhead highway/ riverhead road

Map or maps:

Other provisions:

stop the 6600 dwellings until infrastructure for traffic roads Schools, stormwater is finished.  
as the infrastructure in Riverhead is already to small for the population in Riverhead

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:  
no development without out first improvement of infrastructure.

I or we seek the following decision by council: Decline the plan change

Submission date: 14 May 2024

96.1

**Attend a hearing**

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?  
No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Stephanie Gale  
**Date:** Tuesday, 14 May 2024 1:30:38 pm

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Stephanie Gale

Organisation name:

Agent's full name:

Email address: stephaniegalez@gmail.com

Contact phone number:

Postal address:

84 Park Road

Titirangi

Auckland 0604

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:

Property address:

Map or maps:

Other provisions:

My submission relates to the entire plan change (PC 100)

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

Auckland is in desperate need for additional housing and this development seems like an ideal way to unlock land that has already been earmarked for housing in the future. The proposed development seems to cater for wider infrastructure needs, like the new school.

I or we seek the following decision by council: Approve the plan change without any amendments

Details of amendments:

Submission date: 14 May 2024

#### Attend a hearing

Do you wish to be heard in support of your submission? No

97.1



**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Bridget Michelle Hill  
**Date:** Tuesday, 14 May 2024 1:30:45 pm  
**Attachments:** [AUP Plan Change 100 \(Private\) Riverhead Submission B Hill.pdf](#)

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Bridget Michelle Hill

Organisation name:

Agent's full name:

Email address: [bridget.mw@gmail.com](mailto:bridget.mw@gmail.com)

Contact phone number: 0212255135

Postal address:  
 13 Wautaiti Drive  
 Riverhead  
 Auckland 0820

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:

Transport, Stormwater and flooding, Open Space Network/Parks and Reserves, Zoning Commercial, Village Character

Property address: Riverhead Road, Coatesville-Riverhead Highway, Cambridge Road, and Duke Street, Riverhead

Map or maps: Riverhead Zoning Plan, Riverhead Precinct Plan, Riverhead Stormwater Management Area Control (Flow 1)

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:  
 Please see the uploaded PDF for reasoning.

I or we seek the following decision by council: Approve the plan change with the amendments I requested

98.1

Details of amendments: Please see the uploaded PDF for amendments.

Submission date: 14 May 2024

Supporting documents

AUP Plan Change 100 (Private) Riverhead Submission B Hill.pdf

**Attend a hearing**

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?  
Yes

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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Bridget Hill  
13 Wautaiti Drive  
Riverhead  
Auckland 0820

14/05/2024

Auckland Council

Dear Auckland Unitary Plan,

Re: Proposed Plan Change 100 (Private) – Riverhead. I would like to make a submission on the following points:

### 1. Transport

Concern regarding the ill-defined timeline and design of the Coatesville Riverhead Highway and Main Road (SH16) intersection to be constructed by Waka Kotahi NZ Transport Agency. Particularly around the congestion on the Coatesville Riverhead Highway to access the wider network with higher capacity requirements not only for the increased population of Riverhead township but across the development of the North West region including areas such as Kumeu, Huapai and further north. There is presently a high level of congestion and the community understanding is the intersection planned only addresses the safety issues. A better understanding of the traffic wait times calculated by the landowners provided is necessary and it should be placed under scrutiny.

98.2

Local Roding upgrades for safety should be addressed prior to the increased road usage expected for the earthworks and construction. There are roadways where pedestrians access amenities such as the school and bus connections to secondary schools by walking along roads with no pavements and open drains. Please note in particular the planned route for access at the northern end of the precinct – Cambridge, Queen street and Alice road are not designed for heavy vehicle and traffic. This needs to be addressed. Consideration also needs to be given to the Cambridge Duke street connection for those seeking to head northward.

98.3

### 2. Stormwater and Flooding

The 'Stormwater and Flooding Assessment' (Appendix 10) is outdated. It relies on using the northern parcel of flood plain land, but this land has now been removed from proposed residential zoning. Whilst sensible to exclude this undevelopable area, it also raises the question (which is not answered in any of the documents) as to whether that land can still be relied upon to contain the stormwater ponds and functions shown in the report.

The report shows large areas of land to be dedicated to stormwater management, but the scale of the 'green corridor' intended for this purpose (refer Precinct Plan 2) is much narrower than the

land required by the stormwater report. It makes no sense to significantly understate the land required for stormwater on the precinct plan.

Best practice design must be adhered to as part of the approval of the development by the landowners and any future benefactor.

There is no mechanism proposed to require an overall coordinated stormwater management system which works for the whole area. This is clearly needed to ensure that stormwater systems are designed and delivered wholistically.

All the land required for stormwater management is proposed to be zoned residential for development. It has not been zoned or set aside for stormwater management open space.

I live downstream and certainly have been impacted by recent heavy rainfall events. Please see the view from outside my window from January 27<sup>th</sup> 2023 as to how close it was to our house being impacted by floodwater. Would another 30mm be significant....probably to us residents yes! And I would clarify as making this significantly worse downstream. There was probably 30 mm to go to wipe out our neighbours bridge at 17 Wautaiti Drive and similarly the Coatesville Riverhead Highway Bridge. Had this have occurred we would have seen similar impacts as the Mill Flat Road Bridge.





Out of my upstairs window and on Duke Street



The following days photos ...riparian vegetation destroyed and also the neighbours playhouse. The more normal volume of water which we are used to seeing compared to the giant waterfall and river with strong current.



For Cyclone Gabrielle we again saw the impact of significant rainfall on 14<sup>th</sup> February, though it was fortunately not as close to our house. We did see our neighbours in Mill Grove with flooding

through their houses a second time. The mental wellbeing of our children and ourselves were affected by these events.



As an Auckland resident following these events I strongly advocate there must be a requirement to have an up to date floodwater assessment done before any decisions are made. Appropriate rules should be made based on an up to date assessment.

98.4

### 3. Open Space Network/Parks and Reserves

There must be a direct requirement to provide neighbourhood parks. I would like to see clear objectives, policies and rules which require the neighbourhood parks to be provided to ensure these go ahead.

98.5

*Refer Policies 7 to 9 (Street network, built form and open space ) Appendix 1 – Riverhead Plan Change to see that the policies don't even mention the requirement to provide the neighbourhood parks.*

Within the park planning requirements a designated region of parkland should be located at 298 Riverhead Road where there have been trees of significance identified – Kauri, Ginko etc. Preserving this area with mature trees will provide value to the residents (human and other) and provide an instant park – the area required to achieve this is approximately 2500 sq meters. This will help tie the new to the existing Riverhead neighbourhood.

98.6





The Green Corridor should be as it claims to be – a contiguous integrated corridor. There should be clear objectives, policies and standards to deliver this. The stormwater management system must be non fragmented. It should be a clear outline of what **must** be in the corridor to make it a multifunctional reserve with minimum requirements set (width, shared paths, density of vegetation).

It should be a requirement that the green corridor be offered to the council for vesting. The Mixed Rural Zone land alongside the Rangitopuni tributary (20 m margin of land) should be zoned as ‘open space’ to be vested to the council (to provide an esplanade reserve), and that link to the land must be provided as part of the green corridor.

98.7



A secondary pedestrian link north into either Duke Street or Te Roera to help pedestrians navigate between both new and existing Riverhead for sustainable community pedestrian network should be required.

98.8



#### 4. Zoning

##### Retirement Village?

It is not clear or consistent in the planning documents whether there will be a retirement village or not. In some supporting documents the retirement village is recognised (Appendix 6, Appendix 4, Appendix 10) but is not recognised in the proposed zoning or precinct provisions. The plan change should have two distinct approaches, one with the retirement village and one without. Due to a lack of certainty about whether the retirement village will be built, this appears to be the only logical way to deal with it.

98.9

There needs to be a considered approach to the zoning and importantly the interface between existing Riverhead with rules around this interface set appropriately for planning roads, pedestrian connectivity and green corridors to connect well. Critically Cambridge road needs an appropriate built interface for whatever style of 'housing' is built there.

98.10

### Local Centre Zone and the Neighbourhood Centre Zone

Riverhead already has a consolidated area of Business Mixed Use zone and Local Centre zones sites which house 2 mini-marts, a real estate office, a restaurant/bar, bottle shop and a vape shop. There is also the local vet and two-preschools, Lulu's café, and other commercial yard type activities. The mixed-use triangle area contains the troubled development which once completed will include a series of ground level shop or business, and the final part of the triangle is also under development and available for commercial use. Hallertau sits further down the CRH.

The basis for the proposed commercial zones is an economic report which predicts future demand (Appendix 7 – Centres Assessment). This report provides a cursory summary of the existing commercial activities and zoning. It also bases predicted demand on a 'Riverhead Core Retail Catchment'. The report provides no basis for the extent of this catchment despite it being the basis for determining demand. Why does the catchment extend and wrap around Kumeu and goes all the way to the Dairy Flat Highway? Overzealous at both extents of the area shown?! Any proposed commercial zoning should be justified by economic analysis that is based on a well-reasoned and justifiable customer catchment which recognises the commercial and retail centres of Kumeu, Westgate and Albany, and does not unrealistically anticipate that people who live near these centres would instead travel to Riverhead for their shopping needs. The proposed commercial zoning will exacerbate a pattern of commercial strip development down the CRH. The glaring aberration in the proposed business zoning is the isolated Local Centre Zone located opposite Riverhead Point Road and Hallertau. The basis for zoning this land for business has not been provided. Any new business zoning should be required to demonstrate a consolidated and legible town centre, not a series of strip commercial areas fronting the highway. For these reasons I strongly support removal of the proposed Local Centre Zone opposite Riverhead Point Road.

98.11

### Residential Zoning - Mixed Housing Suburban Zone

Refer Appendix 2 – Plan Change Zoning Map

Generally, its acceptable that density can be increased, but this should be balanced by stronger requirements for good urban design (for example, low front yard fences) and green infrastructure (for example requirements to plant trees on sites and on roads).

98.12

### Residential Zoning - Terrace Housing and Apartment Zone (THAB)

Any THAB zone location should be based on a reasoned analysis and reflect the intent of the zone which is to provide density around a transport hub and/or a town centre.

The area zoned THAB needs to be considered in terms of appropriate scale and location, and not based on an existing parcel or landholding.

98.13

The transition edge of THAB to the Mixed House Suburban zone should contain a local road to create a natural transition space between the different densities and building scale/forms.

## **5. Village Character**

A 'Character Document' for rezoning and subsequent development of Riverhead South is a good resource which should be referred to in this process. A significant amount of community engagement was achieved resulting in a 'seamless' extension of the old Riverhead into Riverhead South. I would like to see some of this replicated in the new development and so far it looks like there has not been this level of consultation with the community. While not all points would be applicable, those items of significance should at least have an attempt of being

98.14



included for this project. An example would be the setback of properties and low fence levels to allow for a sense of spaciousness and allow high passive surveillance.

[http://www.aucklandcity.govt.nz/council/documents/districtplanrodney/dp\\_chapter12\\_special30.pdf](http://www.aucklandcity.govt.nz/council/documents/districtplanrodney/dp_chapter12_special30.pdf)

The Quality Planning website outlines good practice consultation for structure planning. It says:

*Consultation with key stakeholders and the community affected is an important component of the structure plan development process. The number and type of stakeholders identified and consulted with for a structure plan will depend on the scale and characteristics of the area and the issues to be managed.*

*To assist with consultation, it is good practice to develop an overall consultation plan for all groups including key stakeholders, tangata whenua and the wider community. This helps to identify all stakeholder and ensure that consultation and communications are managed in an integrated and co-ordinated way. This can also help to provide certainty to stakeholders about the opportunities to input into the structure plan process and the how the various consultation processes will be integrated into the final output. It is important that the communication or consultation plan recognises the potential for land ownership to change during the course of the structure planning exercise and any subsequent RMA plan changes.*

*Commencing consultation early in the process is important, and can help with:*

- obtaining stakeholder buy-in to the process;*
- gauging community and stakeholder levels of acceptance to broad concepts (such as the overall level of development) being proposed;*
- fulfilling statutory duties under the RMA, LGA and Land Transport Management Act;*
- incorporating and working through stakeholder concerns and aspirations while there is flexibility in the process to do so;*
- identifying constraints and opportunities.*

It seems the consultation process fell well short of best practice. This is evidenced by how poorly the current plan change reflects the aspirations of the community compared to the previous process which did involve meaningful consultation.

Thankyou for your consideration.

Kind regards,

Bridget Hill



**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - William Eastgate  
**Date:** Tuesday, 14 May 2024 2:45:34 pm

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: William Eastgate

Organisation name:

Agent's full name:

Email address: wreastgate@gmail.com

Contact phone number:

Postal address:

**Submission details**

**This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:

Property address:

Map or maps:

Other provisions:

My submission applies to the whole plan change including proposed provisions

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

This development is needed in Auckland, and we have a housing shortage with big migration numbers.

It will improve the infrastructure that is already there.

I or we seek the following decision by council: Approve the plan change without any amendments

99.1

Details of amendments:

Submission date: 14 May 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Aidan Donnelly  
**Date:** Tuesday, 14 May 2024 2:45:44 pm

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Aidan Donnelly

Organisation name:

Agent's full name: Aidan Donnelly

Email address: donnelly\_aidan@hotmail.com

Contact phone number:

Postal address:  
 donnelly\_aidan@hotmail.com  
 Auckland  
 Auckland 1050

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:  
 All of proposed plan change 100, including the precinct provisions

Property address: All of the properties included in Plan Change 100

Map or maps:

Other provisions:  
 All of proposed plan change 100, including the precinct provisions

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

Riverhead is a well loved settlement, but the lack of investment by central and local government over the past decades in the local area is seen in the challenges that exist with schooling, housing, infrastructure and arterial roads. The Plan Change provides the opportunity to ensure the investment by central and local government occurs in the way and timeframes that are needed. Without growth the investment will not occur and the Ministry of Education, NZTA, Ministry of Transport, Auckland Transport, Healthy Waters, and the Council will not prioritise the needs of Riverhead. The Plan Change in turn ensures that Riverhead is able to support further services and the community is supported for years to come. The Plan Change also provides much needed housing, parks, open space, schools, etc which form part of a successful community.

I or we seek the following decision by council: Approve the plan change without any amendments

100.1

Details of amendments:

Submission date: 14 May 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Andy Nicol  
**Date:** Tuesday, 14 May 2024 3:31:05 pm

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Andy Nicol

Organisation name:

Agent's full name:

Email address: andy.nicol@andley.co.nz

Contact phone number:

Postal address:

Riverhead  
Auckland 0820

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:

Property address:

Map or maps:

Other provisions:

Under capacity of the Riverhead Coatsville road and the junction at State Highway 16.

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

The Riverhead Coatsville road and the junction at State Highway 16 are already struggling to cope with the existing traffic. Adding the traffic from another 1,500 or so houses will make the problem even worse.

I or we seek the following decision by council: Approve the plan change with the amendments I requested | 101.1

Details of amendments: At a minimum, the junction (at Boric Food Market) needs to be upgraded to a roundabout. Ideally the northwestern motorway will be extended beyond Huapai & Waimauku to remove some of the through traffic from the junction. | 101.2

Submission date: 14 May 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Daimler Teves  
**Date:** Tuesday, 14 May 2024 4:00:38 pm

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Daimler Teves

Organisation name:

Agent's full name: Daimler Teves

Email address: daimler.teves@gmail.com

Contact phone number:

Postal address:  
 18 Alexandra Street  
 Auckland  
 Auckland 0820

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:

.

Property address: .

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

Traffic in Riverhead is bad, and we have no secondary school in the immediate area.

102.1

I or we seek the following decision by council: Decline the plan change

Submission date: 14 May 2024

#### Attend a hearing

Do you wish to be heard in support of your submission? No

#### Declaration

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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From: [Rose Worley](#)  
 To: [Unitary Plan](#)  
 Subject: Fwd: PC 100 (Private): Riverhead Submission  
 Date: Tuesday, 14 May 2024 4:07:34 pm

103.1

I Rose Worley oppose Private Plan Change 100 and do not agree with the plan to rezone the land for residential development on the following grounds.

1: Riverhead and the surrounding areas are historically important growing and farming areas due to the high quality soil quality and these areas need to be protected and utilized for this purpose as part of New Zealand's food security. Having productive land near our biggest city helps to keep our emissions down which in turn supports our emissions reduction targets. New Zealand has seen an increase in extreme weather events which has effected many of our growing areas. Due to this we need to keep the diversity of location as an insurance policy.

2: SH16 already struggles with 36000 cars daily, this is causing traffic jams even on the weekend and often serious car accidents. SH16 can not support further growth without being upgraded first. These upgrades also need to take into account the valuable food production soils that surround it.

3: A massive development like this would completely change the character and community of Riverhead which is a historic village and one that sets itself apart from other areas of Auckland with its unique character and its own historic tavern on the rivers edge. We must protect the culture of these rural areas as they are highly valuable not just to community but also to the culture of our city as a whole and present many tourism opportunities.

4: Riverhead has a lack of public transport options and therefore there are no opportunities to utilize non road related transport which makes it an unsuitable and expensive location.

5: Urban sprawl puts more pressure on local ratepayers and developments should be aimed more towards the city centre in order to take advantage of the infrastructure already in place.

6: This proposal would result in thousands of new rooftops collecting the water and discharging it into our local waterways. This as we have seen in areas such as Swanson can have a dangerous flooding effect downstream on already established homes.

Kind regards,

Rose Worley  
 179 State Highway 16, Whenuapai

--

Rose Worley | Prop Buyer/Set Dresser | Ph: +64 274 970 097 | E:  
[roseworley.art@gmail.com](mailto:roseworley.art@gmail.com)

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Jan Henderson  
**Date:** Tuesday, 14 May 2024 5:00:40 pm

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Jan Henderson

Organisation name:

Agent's full name:

Email address: kjhenderson@xtra.co.nz

Contact phone number:

Postal address:

34 Elliot St  
Riverhead  
Auckland 0820

**Submission details**

**This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:

Transport.  
Stormwater  
Waste water  
Parks & Reserves

Property address: All of the land identified for development in the Plan Change 100 - Riverhead

Map or maps: All of the land identified for development in the Plan Change 100 - Riverhead

Other provisions:

We have lived in Riverhead since 1988. While the local school has grown it will not be able to manage the increase in population and associated children who will need to attend a school. The NorthWest is already in need of more primary school & a secondary school to meet the needs of those already in the region.

Never have we seen flooding in Riverhead to the level of early 2023. Duke Street flooding and Mill Grove and surrounds are new areas which brought the flooding with them. The river was so high we were all very worried the Rangitopuni bridge would be damages cutting us off from the North Shore. Mill Flat Rd bridge a case in point.

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

Transport- the Coatesville Riverhead Highway (CRH/Hway) is already in gridlock and peak times trying to merge onto Hway 16 coming down from Waimauku, Huapai, Kumeu etc.

Any work Waka Kotahi has plans for at the Brighams end is only for safety improvements not increasing capacity. All the building already allowed to happen in Kumeu & Huapai without improving transport infrastructure has already demonstrated the huge challenges the community faces.

Bus Service started with a special transport levy needs to increase the service especial around peak times.

Without the actual people who will be living in the new homes the increase in traffic with the earth moving development of the land and subsequent building will impact the Riverhead Road and CRH/Hway. So while we are told no one will move into the homes until Hway 16 is sorted the traffic problem will have already been exacerbated by the development.

Storm water we already have a major problem with our current storm water system which cannot cope with heavy rains. The region around Duke Street which never flooded until the area was developed and now the levels are so high houses have been flooded several times. Before more development occurs lets fix the current problem as the new development intends to use all the current services to disperse their water into an already inadequate system.

Waste water the current system already has major failings especially in heavy rains when the ground water level rises. The new development isn't going to improve on a current problem just add to it.

Parks & Reserves will need to also be addressed with the increase in community numbers. Our lovely Memorial Park is already unable to cope on Saturday sports or afternoon athletics. The playgrounds already available are not addressing the needs of the over 8 yr olds. The new development needs to clearly identify areas they are putting aside for parks and reserves as section sizes reduce there is little space for our future generations to play and develop skills they will need in the future. Some of the beautiful old established trees in the land for development could form part of these areas mentioned above. For example 306 Riverhead Rd has some lovely specimens.

I or we seek the following decision by council: Decline the plan change, but if approved, make the amendments I requested

104.1

Details of amendments: Current & timely investigations into the current issues facing the Riverhead community regarding Transport, Stormwater, Wastewater, Parks & Reserves

104.2

104.3

104.4

104.5

Submission date: 14 May 2024

### **Attend a hearing**

Do you wish to be heard in support of your submission? No

### **Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Leo Floyd  
**Date:** Tuesday, 14 May 2024 5:30:44 pm

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Leo Floyd  
 Organisation name: LAND OWNER  
 Agent's full name: na  
 Email address: nola.leofloyd@xtra.co.nz  
 Contact phone number:  
 Postal address:  
 nola.leofloyd@xtra.co.nz  
 Riverhead Auckland  
 Riverhead Auckland 0820

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)  
 Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:  
 roading infrastructure the lack of Re Highway 16 and Roundabout Riverhead Coatesville Intersection and upgrade needed on Highway Riverhead.

Property address: 76 Pohutukawa Parade Riverhead

Map or maps: relates to the Riverhead Coatesville Highway

Other provisions:  
 No Development until Roding network is completed

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:  
 UNTIL HIGHWAY 16 from Roundabout end Northwest Motorway Up to and including the PROMISED Roundabout to have been DONE from 2018 at the Riverhead Coatesville Highway Intersection is completed No way can this Development be allowed Plus upgrade roading past RIVERHEAD Township.

I or we seek the following decision by council: Approve the plan change with the amendments I requested

Details of amendments: as above

Submission date: 14 May 2024

105.1  
105.2

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Robyn Moore  
**Date:** Tuesday, 14 May 2024 5:45:41 pm  
**Attachments:** [Traffic picture CRH to SH16.pdf](#)

---

The following customer has submitted a Unitary Plan online submission.

#### **Contact details**

Full name of submitter: Robyn Moore

Organisation name:

Agent's full name: Robyn Moore

Email address: robyn007.moore@gmail.com

Contact phone number: 021487072

Postal address:  
26 Pohutukawa Parade  
Riverhead  
Riverhead 0820

#### **Submission details**

##### **This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### **My submission relates to**

Rule or rules:  
Transport  
Parks and Reserves  
Wastewater and stormwater  
Commercial zoning  
Character of Riverhead village  
Zoning

Property address: 26 Pohutukawa Parade, Riverhead

Map or maps: All of Riverhead

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

Transport/Traffic - traffic volumes in Riverhead are already at Capacity. All references to volumes in the proposal are out of date and were conducted during or around COVID restrictions when people were still working from home. We live in South Riverhead and traffic during peak hour 6am to 10am can be backed as far back as Hallertau. Public transport consists of one bus route Albany to Westgate. I work in Grafton and it would take me 3 hours to get to work on public transport. The condition of the CRH is marginal at best and the additional volume of vehicles will make this even worse. Riverhead residences along the CRH are domestic houses and by adding significant

additional traffic onto this road will bring significant increased risks to pedestrians and vehicles. Parks and Reserves - there are insufficient park and reserves in the area to support an additional 4000 homes! Many of the streets do not have footpaths, it is already unsafe walking around some of the streets to get to the parks etc. Adding more people adds more risk to families and children on top of that there is insufficient parking to handle the existing volume of families using the parks for athletics and other sporting activities.

Wastewater and stormwater - In 2023 when we had Cyclone Gabrielle parts of Riverhead were severely impacted by floodwater, some people being flooded 3 times. Adding more houses to this area with no consideration to how stormwater is treated will result in increased flooding. It cannot just all be pushed to the river as that will break its banks and take out the bridge. Last year we lost one bridge (Mill Rd) during the storm. Residents of South Riverhead already have to have Ecoflow systems to handle waste.

Commercial zoning - to think that people will come from Albany to shop in Riverhead is very short sighted. Albany is a bustling shopping community with a lot of choices with supermarkets etc. People in Kumeu have no incentive to travel to Riverhead for shopping, Kumeu is well served with a supermarket and huge range of retail and commercial services. People come to Riverhead to escape the hustle and bustle of busy centres to enjoy things like strawberry picking, vineyards, clay bird shooting, walking in the forest etc, not to shop at supermarkets and retail shops.

Character of Riverhead village - Riverhead is all about community and all that it offers its existing residents and day visitors that come to enjoy many of the things already mentioned. We don't have fences, we enjoy meeting and talking to our neighbors. The proposed rezoning plan to add terraced housing will change the village feel and the sense of community and character that Riverhead offers.

Zoning - Is there a Retirement village planned or not? The plan should be clear about whether this is going ahead or not as this has wider implications if it is. There is no considered approach to the zoning and importantly the interface between existing Riverhead and the edge. Building an 80 hectare development before building essential infrastructure like roads, sewerage and storm water is totally negligent and shows zero consideration for the existing residents who are already struggling with flooding, traffic, no footpaths and lack of appropriate public transport to meet the needs of the ratepayers of this community. Over the years, much has been promised but little has been delivered.

I or we seek the following decision by council: Decline the plan change

106.1

Submission date: 14 May 2024

Supporting documents

Traffic picture CRH to SH16.pdf

### **Attend a hearing**

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?  
Yes

### **Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

CRH traffic typical weekday morning at 7.30ish

This is traffic on CRH coming up to SH16 banked back to Huapai Golf Course







**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Matthew Archer  
**Date:** Tuesday, 14 May 2024 6:00:36 pm

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Matthew Archer

Organisation name:

Agent's full name:

Email address: matt.archer00@gmail.com

Contact phone number:

Postal address:

1 Queen Street

Riverhead

Auckland 0820

**Submission details**

**This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:

Property address: Proposed Plan Change 100 (Private) – Riverhead

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

I am writing to express my strong objection to the proposed rezoning of the land, primarily due to significant concerns regarding the inadequacy of roading infrastructure to meet the needs of our existing community, let alone support further growth resulting from intensified housing development. It is evident that our current road network is already strained, and any additional housing would only exacerbate the issue, leading to congestion, safety hazards, and diminished quality of life for residents.

Furthermore, the lack of essential amenities such as schools, shopping centers, footpaths, council rubbish service and community facilities is alarming. Without these fundamental services in place, further population construction would only place undue pressure on already stretched resources, negatively impacting the well-being and functionality of our community. Before considering any rezoning efforts, it is imperative that these infrastructure and service deficiencies are addressed comprehensively to ensure sustainable growth and the continued prosperity of our neighborhood. Therefore, I strongly urge the council to reconsider the proposed rezoning and prioritize the



enhancement of existing infrastructure and services to support our community's needs effectively.

I or we seek the following decision by council: Decline the plan change

107.1

Submission date: 14 May 2024

### Attend a hearing

Do you wish to be heard in support of your submission? No

### Declaration

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Chris Svendsen  
**Date:** Tuesday, 14 May 2024 7:15:40 pm

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Chris Svendsen

Organisation name:

Agent's full name:

Email address: cnsvendsen@hotmail.com

Contact phone number: 0212790300

Postal address:  
26 Pohutukawa Parade  
Riverhead  
Auckland 0820

**Submission details**

**This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:  
Transportation  
Storm water  
Character of Riverhead  
Parks and Reserves  
Commercial Zoning  
Zoning

Property address: 26 Pohutukawa Parade

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

On reviewing the Integrated Transport Assessment put together by Flow Transportation Specialists for the Riverhead Landowners Group, I found that a lot of the information was outdated and should be reviewed.

Their report especially traffic, was collated with information gathered prior to December 2022, just post the Covid 19 lock down period, with some traffic flow figures 2019.

The report also acknowledges "Existing capacity constraints on the roading network, particularly SH16. This section of SH16 south of the site has funding to be upgraded by NZTA by 2025"

The Precinct Plan Provisions outline specific infrastructure upgrades to be completed prior to the

development being occupied, and that upgrade is , SH16 ( Stage 2 from Brigham Creek to Taupaki roundabout), including the roundabout at the intersection of SH16 and the Coatesville Riverhead Highway (CRH)

Numerous times in their report they mention the completion date of 2025.

The Flow assessment is dated 04 October 2023, a copy of one dated 2022.

Since this report was put together (2022) there have been some significant changes that effect this area.

1/ 27 July 2023, NZTA announced a temporary pause to Stage 2 of the Brigham Creek to Waimauku project for 6 - 12 months. This also includes suspending all Public Works Act land acquisitions for the same period.

2/ There has been a change of Government, along with The North West Alternative State Highway being announced as part of 15 Roads of National Significance. This is expected to start within 10 years. ( funding for both ?)

3/ April 12 - 2024, NZTA proposal now shows the proposed construction period for Brigham Creek to Waimauku Stage 2 extending into 2030.

4/ Residential development North of the Riverhead town centre has continued in the area towards Coatesville, also a large part of the Riverhead South development ( Deacon Point )has now been built on. Combined these areas have generated additional traffic volumes over and above Flow Transportation numbers.

5/ February 24 - 2022 a Rodney Local Council Board meeting was held where a large focus was placed on funding of infrastructure particularly the SH16 upgrades.

Concerns were raised that the upgrades to SH16 may not be able to be relied on given delays with this work to date.

No public transport funding is allocated in the Regional Land Transport Plan for the next 10 years.

I find it very unusual that the above points were not included or mentioned in the Flow Transportation Specialists report 4 October 2023.

Travelling into the city early mornings 4 days a week, I can say most days the traffic is building up well before the CRH / SH16 intersection, and getting worse.

Having the option of alternative means of transport are Nil, so for the foreseeable future the strip of the Coatesville Riverhead Highway between SH16 and the proposed development will remain as it is, no footpaths, lighting, cycleways or not even an area to pull off on in case of a break down.

The style of housing proposed in the plan change is so not what Riverhead is about.

On the Eastern side of the Coatesville Riverhead Highway, opposite the proposed development, it is mainly open feel properties, with limitations on fence heights, house set back and promotion of tree planting.

The proposed development appears to be a multi story high density concept. Not Riverhead.

Also I note that numerous large well established trees, (one opposite Riverhead Point Drive ) will be cut down.

In regards to storm water, I can not find any mention of January 27 cyclone Gabrielle and the damage that it created in the Riverhead area. Any input from the developer is very vague.

Conclusion, I can not see how adding 1500 + residences, no public transport or alternative means of accessing the Riverhead area with present Govt/Council plans is going to be good for anyone living in this area.

I urge you to reject this plan change, and let common sense prevail.

I or we seek the following decision by council: Decline the plan change

Submission date: 14 May 2024

108.1

**Attend a hearing**

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?  
Yes

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Steve Pike  
**Date:** Tuesday, 14 May 2024 8:00:36 pm

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Steve Pike

Organisation name:

Agent's full name:

Email address: stevejane.pike@gmail.com

Contact phone number:

Postal address:

5 Mill Grove  
Riverhead  
Auckland 0820

**Submission details**

**This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:

Appendix 8 Transport Impact Assessment

Appendix 10 Stormwater and Flooding assessment

Property address: Riverhead Landowner Group - Riverhead Rd, Coastsville Riverhead Hwy,  
Cambridge Rd, Duke St

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

Appendix 8 - Transport - 1700 homes will create significantly more vehicular traffic, the section from the southern boundary of the urban plan change area to SH16 should be upgraded to two lanes heading south. The intersection of Coastville-Riverhead Highway should have a turning/merging lane that continues east for some distance. Taupaki roundabout to Brigham Creek roundabout should be 4 lanes (two each way) which would ease current and future congestion.

Appendix 10 - Stormwater and Flooding

The report states that the extra stormwater will have a minimal impact on stormwater /flooding in the lower Duke St area. At the Fletchers community meeting on 6 May, the Fletchers representative



categorically stated that there would be "no" impact from the subdivision.

In the first half of 2023 our property was flooded three times - twice through the house . This is largely due to the newer subdivision on the southern side of Duke St ( the flooding in Mill Grove did not occur prior to this subdivision) and the failure of the infrastructure in the area (pipes incorrectly aligned, too small and the run off from Cambridge Road which cascades down Duke St.

Adding to this will increase volume, height and extend the damage to other properties.

I or we seek the following decision by council: Decline the plan change, but if approved, make the amendments I requested

109.1

Details of amendments: Road planning rebuild as above and a more intensive plan for the removal of stormwater with firther upgrades to the existing failing infrastructure.

109.2

109.3

Submission date: 14 May 2024

### **Attend a hearing**

Do you wish to be heard in support of your submission? No

### **Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Paul Svendsen  
**Date:** Tuesday, 14 May 2024 11:15:40 pm

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Paul Svendsen

Organisation name:

Agent's full name:

Email address: pksvendsen@hotmail.com

Contact phone number: 0274556543

Postal address:  
 26 Pohutukawa Parade  
 Riverhead  
 Auckland 0820

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:  
 Transportation  
 Stormwater

Property address:

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

[1] Timeframe; the first opposition is in regards to the rushed timeframe of the project and the apparent disregard for the delayed or cancelled projects that this development is dependent on and/or a complete disregard for the actual state of the roading situation . (eg. Appendix 8, pg. iv, "Wider Network", first point acknowledges existing capacity constraints - the solution to which is a reference to a project that has been paused indefinitely) There seems to be a large amount of dependence on third party projects being implemented to alleviate issues that this development will exacerbate, and the developers aren't waiting to see that these integral projects even begin.

Simply put, in regards to timeframe, this project needs to wait until works on projects that will address these foreseen issues are well underway or completed.

[2] Transportation (during construction); The quality of the roads in Riverhead and the surrounding

area are already bad enough, with damage either receiving insufficient repair or outright dismissal. The heavy equipment that will be frequenting these already neglected roads will only exacerbate the issue.

What ongoing plans do the developers have in place to repair/prevent the damage to the roads that their equipment will cause? Or is this disregard for the safety of the road traffic of the local community acceptable?

Transportation (after development); this project has identified existing capacity issues. There are no plans currently being executed that will address them. Common sense says that adding "approximately" 1450-1750 new houses [Section 32 Assessment Report, Point 2.0, paragraph 1], plus non-residential traffic visiting and/or servicing the new business district which will apparently include a supermarket [Section 32 Assessment Report, Point 7.2], will not reduce current capacity issues.

Are the developers relying on NZTA to build a bypass to fix the traffic issues that their development will cause? If so, they, again, need to wait until those projects have begun or else we'll be in a situation where we are waiting for roadworks that can't be afforded to happen while the local traffic population explodes (let's not forget the other developments that are happening at the same time just beyond Riverhead).

[3] Stormwater;

Riverhead is an area that floods. This is not a point up for debate. Covering the ground with cement will do nothing except increase flooding issues. The existing infrastructure to deal with stormwater is insufficient to handle the rain that we've seen and which is becoming more common. The Stormwater and Flooding Assessment (Appendix 10) is dated early 2022 - long before we had some major rainfall. Additionally, the flood risk assessment [Appendix 10, part 10.2] also highlights that the Riverhead Road culvert will need upgrading because of already existing flooding issues, reiterated in section 7.10 of the Section 32 Assessment Report. Again, there is reference to having this addressed, but by whom? When? Will the developers do it or is this another case of "someone else will do it before it's an issue"?

Make them wait until the infrastructure is in place. It's backwards to introduce foreseen issues, using speculative plans and projects as the solution to them.

What happens if these necessary projects regarding roads and water get dissolved?

Stop the development until the infrastructure is in place.

I or we seek the following decision by council: Decline the plan change

110.1

Submission date: 14 May 2024

### **Attend a hearing**

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?  
Yes

### **Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal

details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Lewellan Sclanders  
**Date:** Tuesday, 14 May 2024 11:30:41 pm

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Lewellan Sclanders  
Organisation name: Private  
Agent's full name:  
Email address: chicosclanders@icloud.com  
Contact phone number: 021 169 3367  
Postal address:  
14 Wautaiti Drive  
Riverhead  
Auckland 0820

**Submission details**

**This is a submission to:**

Plan change number: Plan Change 100 (Private)  
Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:  
Planned development in Riverhead  
Property address: Central Riverhead  
Map or maps:  
Other provisions:  
The existing infrastructure cannot cope with the current traffic, surface and storm water  
Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified  
Do you wish to have the provisions you have identified above amended? Yes  
The reason for my or our views are:  
The Coatesville/Riverhead highway cannot cope with the current traffic heading from Riverhead to the S16 motorway intersection  
Stormwater drainage is completely inadequate to handle heavy rains as we had in January and February 2023

I or we seek the following decision by council: Decline the plan change, but if approved, make the amendments I requested

111.1

Details of amendments: Double the road capacity and address the flooding threat

111.2  
111.3

Submission date: 14 May 2024



**Attend a hearing**

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?  
Yes

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Josette Barbara Haggren  
**Date:** Wednesday, 15 May 2024 9:00:57 am

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Josette Barbara Haggren  
Organisation name:  
Agent's full name:  
Email address: [josette.haggren@eapexecutive.com](mailto:josette.haggren@eapexecutive.com)  
Contact phone number: 021 422 776  
Postal address:  
8 Nikau Way  
Riverhead  
Auckland 0820

**Submission details**

**This is a submission to:**  
Plan change number: Plan Change 100 (Private)  
Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:  
1450-1750 mixed residential dwellings including apartments and terrace housing in Riverhead  
Property address:  
Map or maps:  
Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:  
We take great pleasure in residing within the current subdivision in Riverhead and strongly advocate for any new development to acknowledge and preserve the natural environment. It's crucial that any future plans consider the connection with the river, the integration of walkways, the preservation of trees, and the overall enhancement of the beautiful natural surroundings.

I or we seek the following decision by council: Approve the plan change with the amendments I requested

Details of amendments: Provision to retain large trees, walkways and clause for no high fences.

Submission date: 15 May 2024

**Attend a hearing**

112.1

112.2  
112.3  
112.4

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?  
Yes

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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From: [Unitary Plan](#)  
To: [Unitary Plan](#)  
Subject: Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Nathalie Lapuente Guzman  
Date: Wednesday, 15 May 2024 9:15:34 am

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Nathalie Lapuente Guzman

Organisation name:

Agent's full name:

Email address: natha\_0717@yahoo.com

Contact phone number:

Postal address:  
16 Leebank Crescent  
Riverhead  
Auckland 0892

**Submission details**

**This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:

Property address:

Map or maps:

Other provisions:  
Planned development of around 1500 mixed residencial dwellings in Riverhead by 2032

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:  
There are not infrastructure upgrades for the roads connecting to Albany neither SH16  
The primary school in Riverhead is already full and more space is being taken every year from the green fields to catter for more buildings  
There are not secondary schools around  
There are not plans for storm water upgrades in the area

I or we seek the following decision by council: Decline the plan change, but if approved, make the amendments I requested

Details of amendments: - Infrastructure upgrades for roads, schools and storm water	113.2
	113.3
Submission date: 15 May 2024	113.4

113.1

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Riverhead Community Association  
**Date:** Wednesday, 15 May 2024 9:30:37 am  
**Attachments:** [PPC 100 - Riverhead Community Association Submission FINAL.pdf](#)

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Riverhead Community Association

Organisation name: Riverhead Community Association (formerly Riverhead Residents and Ratepayers Association)

Agent's full name:

Email address: Mikerbrooke@outlook.com

Contact phone number: 0274813310

Postal address:  
 24 The Landing  
 Riverhead  
 Auckland 0820

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:

Property address: Land indentified in the Private Plan Change by Riverhead Landowner Group, 80.5 hectares on western side of Riverhead

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:  
 as per attached submission

I or we seek the following decision by council: Decline the plan change

114.1

Submission date: 15 May 2024

Supporting documents  
 PPC 100 - Riverhead Community Association Submission FINAL.pdf

#### Attend a hearing

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?  
No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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## **Riverhead Community Association submission to PC 100 (Private): Riverhead**

### **Introduction**

The Riverhead Community Association (RCA) is an incorporated society comprising of residents passionate about our community.

The RCA has 70 financial members and our Facebook group has 670 members, 170 of which have recently joined after the Plan Change 100 was put out for submissions.

The RCA provides a combined local voice and works collaboratively with Auckland Council and Auckland Transport on issues and projects which affect the Riverhead communities.

The RCA has a proven track record of advocating for community needs. From 2006 when Riverhead went through a plan change process for Riverhead South, RCA was at the table making a difference. We influenced the outcomes that were incorporated into the SPECIAL 30 (RIVERHEAD SOUTH) ZONE (legacy Rodney District Plan) which resulted in the spacious and attractive built form of Riverhead South.

The RCA has been active informing the community of PC100 via 2 public meetings and multiple topic Facebook updates. We have taken notice of key themes which have emerged, and these are compiled into this submission. In our view, this submission captures the major topics of concern consistently raised by the community at large.

The RCA is not anti-development.

We wish to be heard.

### **Council's Position Pre-Notification**

The RCA is cognisant of council's pre-notification reporting and the decision of the Planning, Environment and Parks Committee.

We concur in principle with council's description of the main issues, however, outline further matters of specific concern in this submission<sup>1</sup>.

*"The main issues will be the provision of infrastructure, whether the layout and provision for connections through the area are appropriate, the management of natural hazards and the intensity of development proposed. In respect of infrastructure, the applicant is proposing to provide new local transport upgrades as the land is developed. The extent to which these are sufficient can be considered through the analysis of submissions and*

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<sup>1</sup> Planning, Environment and Parks Committee, Agenda, Thursday 4 May, 2023, Paras. 72, 73

*detailed plan change review. It is noted that there are no committed or funded public transport service improvements at this time.”*

*And*

*“An important consideration is the effect of additional traffic from the potential new development enabled by the plan change on the wider transport network, and most notably the operation of SH16. NZTA Waka Kotahi are planning an upgrade to SH16 in the vicinity with the upgrade project to be completed in 2024/2025. The project extends from the end of the North Western Motorway from the Brigham Creek Road/Fred Taylor Drive/SH16 roundabout through to Waimauku - a 10km stretch. The section from Brigham Creek Road to the Taupaki roundabout will be four-laned with a new two-lane roundabout at the SH 16 /Coatesville Riverhead Highway intersection. It will also include wire rope median barriers and a 3-metre-wide shared path from Brigham Creek Road/Fred Taylor Drive/ SH 16 roundabout to Kumeu. The section from Huapai to Waimauku involves installation of wire rope median barriers and shoulder widening.”*

## **RCA – Position Overview**

The RCA opposes the plan change for the reasons set out in this submission.

The RCA welcomes the opportunity to work with the requestors and the council to resolve matters raised in this submission.

Matters of concern and remedies sought are listed below.

### **Transport:**

1. The plan change fails to adequately recognise and propose transport infrastructure upgrades required to manage adverse effects on the wider transport network. For example, SH16 is at times completely gridlocked with commuter traffic, the queue to get onto SH16 comes back to Hallertau at 6.30am! During weekends the line to Boric (the Coatesville Riverhead Highway (CRH)/SH16 intersection) is at the golf course. Another 3,000 residencies at Riverhead will exacerbate this greatly. There are very few local employment opportunities, most people will commute to work, and the single route bus is inadequate, inefficient and unreliable. The road has no capacity for walking or cycling to Westgate or Kumeu. Driving on roads is the only option.
2. Significantly, the development relies upon construction of a roundabout at the (CRH)/ Main Road (SH16) intersection to be built by Waka Kotahi NZ Transport Agency at some future time. Whilst this upgrade has been a long time coming it only addresses safety at the intersection. It will not improve capacity of the network which is already often dysfunctional. We also understand that this project is not currently programmed or funded.

3. The end of the NW motorway often backs up for a kilometre or more, and the roundabout intersection is routinely dysfunction creating huge traffic jams.
4. The plan change fails to recognise comprehensive local network transport improvements (within existing Riverhead) are warranted necessary to manage adverse effects on local transport.
5. The proposal is for limited local road 'upgrades'. But, to only deliver these in a fragmented and staged way based upon occupation of adjacent property. The upgrades do not have to be in place prior to construction when the first traffic impacts start.
6. Riverhead has under-provisioned streets, often with open drains, a lack of footpaths, unformed carriageway edges and few street trees. Some blocks are poorly connected and contain unformed paper roads. The development will increase pedestrian use over all of Riverhead, including to Riverhead School and to the two walkable pre-schools. All the realistic routes from the plan change area to destinations in Riverhead such as schools, pre-schools, shops, War Memorial Park and public walkways should be reviewed in terms of footpath provision and safety, and upgrades should be completed prior to the main development starting. This is to enable safety pedestrian movements for the existing and future people and children of Riverhead.
7. The plan change fails to recognise that local and wider transport upgrades are necessary to complete prior to development (earthworks and civil) commencement to manage the effects of construction traffic and safety.
8. The huge development area will require extensive earthworks and civil construction, including thousands of truck and vehicle movements well before any residence is occupied. Traffic upgrades, such as turning bays and pedestrian networks need to be functional and safe before the heavy traffic begins. The current plan change proposal to require limited improvements prior to occupation of a dwelling fails to recognise and mitigate the adverse construction traffic effects which will be particularly severed at main access routes and where locations where site access is feasible.
9. New subdivisions often lack on street parking. Demand for parking would spill over into the existing community where there are no formed road edges and open stormwater drains. Adequate on street parking needs to be required as we don't have the public transport options available.



### **Transport – remedies sought**

- |     |  |       |
|-----|--|-------|
| 10. | Include provisions which state that development of the plan change area cannot proceed until wider network capacity and safety issues are addressed.   | 114.2 |
| 11. | Include provisions which state that development of the plan change area cannot proceed until local road improvements have been completed, including function and safety assessments and any required upgrades to footpath routes and networks in Riverhead likely to be used by residents of the plan change area to access local destinations.  | 114.3 |
| 12. | The enormous retirement village privatised site creates pinch points of available connectivity between the plan change area and existing Riverhead. These should be recognised and addressed by requirements for upgrades in the plan change provisions. For example, the road and pedestrian network of Te Roera Place, Duke Street, Cambridge Road, Queen Stret, Alice Street and King Street will all be well used routes for people moving in and out of the plan change area, as pedestrians and in vehicles. These roads, and further routes to Riverhead School all warrant assessment and specific upgrades to ensure they are functional and safe. Similarly, the connection between the plan change area and Riverhead War Memorial Park has not been recognised as a primary route which is restricted by the CRH and the retirement village development. Specific provisions should also be applied to this area to ensure that development enables safe and logical east/west connections and road crossings. | 114.4 |
| 13. | Include provisions which require all required local and wider transport improvements to be in place prior to earthworks and related traffic impacts commencing.  | 114.5 |

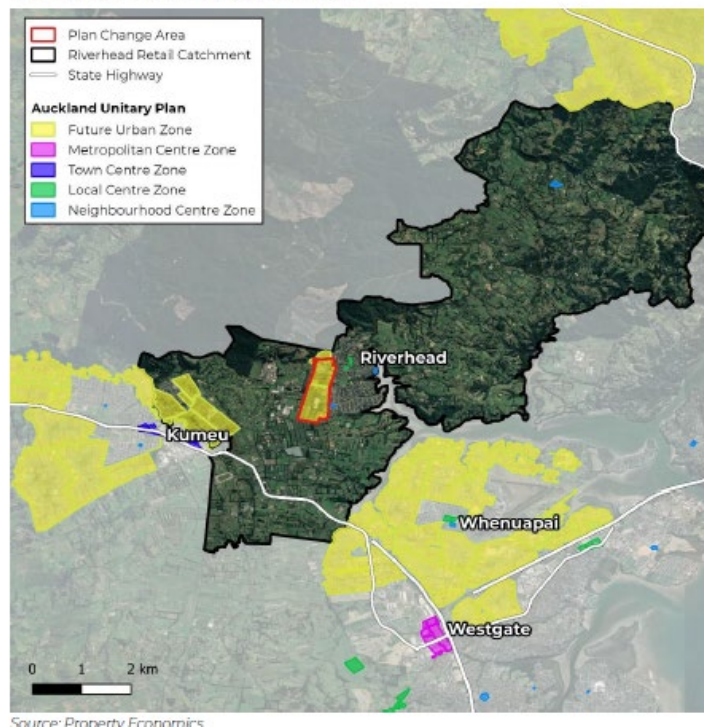
### **Commercial Zoning – Local Centre Zone and the Neighbourhood Centre Zone:**

- |     |   |
|-----|---|
| 14. | A Local Centre zone is proposed at the corner of Riverhead Road and the CRH and a Neighbourhood Centre Zone is proposed opposite Riverhead Point Drive (Hallertau).   |
| 15. | Riverhead already has a consolidated area of Business Mixed Use zone and Local Centre zones sites which house 2 mini-marts, a real estate office, a restaurant/bar, bottle shop and a vape shop and Heritage café/takeaways on School Road. There is also the local vet and two-preschools, Lulu's café, and other retail and commercial yard type activities. The mixed-use zoned triangle contains a development which when completed will include a series of ground level shop or business, and the final part of the triangle is also under development and also zoned Business Mixed Use, therefore, is also available for commercial use. Hallertau sits further down the CRH. |

16. The basis for the proposed commercial zones is an economic report which predicts future demand (Appendix 7 – Centres Assessment). This report provides a cursory summary of the existing commercial activities and zoning. It also bases predicted demand on a 'Riverhead Core Retail Catchment'. The report provides no basis for the extent of this catchment despite it being a formative assumption. Astonishingly, the catchment extends and wraps around Kumeu and goes all the way to the Dairy Flat Highway.

extent of Riverhead's core economic market.

FIGURE 1: RIVERHEAD CORE RETAIL CATCHMENT



17. Defining this as a catchment for Riverhead as a retail destination is ridiculous at both extents of the area shown. People in the Kumeu area have no incentive to travel to Riverhead for shopping. Kumeu is well served with a supermarket and a huge range of retail and commercial services. Council's own consultation documents for Kumeu show the extensive land at Kumeu dedicated for these activities.

See below.



24 | KUMEŪ-HUAPAI CENTRE PLAN

18. People east of Coatesville are well served by old Albany and the Albany centre and beyond. Presuming that these people would also flock to Riverhead for shopping is not realistic because Albany is more accessible and contains a much greater range of shops and services.
19. The economic report also does not appear to consider the retirement village development and the hospitality, medical and other services it will contain which would be available to the residents and to the public. Restaurants, retail and healthcare facilities are specifically enabled by the proposed Sub-Precinct A within the retirement site.
20. The proposed THAB zoned areas also allows a range of commercial and service activities (via a RC). It is not clear why the economic report does not account for the possibility that the THAB zone can also contain businesses and retail, especially the area in proximity to the proposed Neighbourhood Centre zone where this development may be likely.
21. Another concern is that the proposed isolated Neighbourhood Centre Zone (adjacent Hallertau) will exacerbate an undesirable pattern of commercial strip development down the CRH.
22. A complete and justified basis for zoning this land as a Neighbourhood Centre Zone has not been provided. The proposed zone does represent a defined area of FRL landholding which naturally raises the question as to whether this discrete proposed zone is motivated by commercial gain rather a demonstrated need or sound design principles.
23. The original structure plan for Riverhead South reinforced the community's expectation of a defined centre. The existing Riverhead centre is located in a

relatively consolidated and logical manner, and also has connection to Riverhead War memorial Park.

24. The Urban Design assessment (Appendix 6) shows that the main Local Centre Zone is within a 400m walkable catchment for all residents within the plan change area. So, the isolated Local Centre Zone it is not justified by pedestrian accessibility. As noted, the existing Riverhead centre supports two min-marts or diaries, and major supermarkets are located on all routes west (Kumeu), South (Westgate) and east (Albany).

### ***Commercial Zoning – Local Centre Zone and the Neighbourhood Centre Zone – remedies sought***

- |     |  |       |
|-----|--|-------|
| 25. | We want any proposed commercial zoning to be justified by economic analysis that is based on a clear outline of existing zoning and activities in Riverhead, including under-utilising of zoned land and potential capacity, and recognition of the activities and services that would be provided by the retirement village and commercial activities that can be undertaken in the THAB zone via resource consent. | 114.6 |
| 26. | We want any proposed commercial zoning to be justified by economic analysis that is based on a well-reasoned and justifiable customer catchment which recognises the commercial and retail centres of Kumeu, Westgate and Albany, and does not unrealistically anticipate that people who live near these centres would instead travel to Riverhead for their shopping needs.  | 114.7 |
| 27. | We want any new business zoning to demonstrate a consolidated and legible town centre, not exacerbate strip commercial areas fronting the highway. Most importantly by removing the proposed Local Centre Zone opposite Riverhead Point Road.  | 114.8 |

### **Residential Zoning - Mixed Housing Suburban Zone:**

28. Most of the land is proposed as Mixed Housing Suburban Zone. This zone allows for two and three storey detached and attached housing in a variety of types and sizes. Up to three dwellings are permitted as of right subject to compliance with the standards.
29. In comparison, existing Riverhead is mostly Single House zone. The plan change will result in much more dense development and generally taller houses and lots of multi-unit townhouses. Existing Riverhead is characterised by many large trees on private properties.
30. In contrast, large trees would be infrequent in the proposed Mixed Housing Suburban Zone which has minimal landscaping requirements (only 20% and this can be paved if there is canopy cover over (IX6.11. Landscaped area within the

Mixed Housing Suburban Zone) and only a 2.5m front yard standard which is not adequate for large growing tree. The outcome is that buildings will dominate the neighbourhood character. Overall, due to a lack of space or a requirement to plant trees on private sites, the neighbourhood character would be markedly different compared to existing Riverhead. We expect this difference in character to be noticeable and jarring, resulting in a lower quality of amenity. We want any new development to fit into the existing urban fabric of our community.

31. We are not sure that this character represents the 'unique sense of place' described as an intension in the precinct description.
32. No requirements for road reserve tree planting are proposed either, leaving the street tree outcome uncertain or minimal. Even in the green corridor there are no measurable outcomes for vegetation cover or trees.
33. The proposal fails to mention or adopt the council Auckland's Urban Ngahere (Forest) Strategy. The strategy recognises the social, environmental, economic, and cultural benefits of our urban ngahere (forest), and sets out a strategic approach to knowing, growing, and protecting it. It seeks to achieve increased canopy cover to 30 per cent across Auckland's urban area, and at least 15 per cent in every local board area. The proposed plan change should seek to provide overall canopy cover of 30% which would provide a range of health, social and economic benefits including reducing the urban heat effect of roads, buildings and impermeable surfaces. This could go some way to integrating the old and the new.
34. The precinct description also seeks to 'enable transition from the rural to the urban environment'. It achieves this outcome abruptly, rather than a smooth transition.
35. The zoning proposed does not provide any transition at the rural edge, for example, single house zoning could be applied to the outer 100 metres. There is little attempt to provide certainty of transition of scale or density, overall. Policies which direct this outcome adopt soft non-comital language, such as 'Encourage' (policies 15 and 16). It is not clear how 'encourage' has any real influence at the resource consent stage.
36. A 5 metre rear yard setback standard is proposed at the rural zone interface. This is to landscape or plant trees in the rear yard. A 5 metre yard would have no material visual difference to the abrupt transition between residential development and the rural environment. A larger rear yard, say 15m with a requirement to plant at least one large tree and a rural fence typology are obvious designs requirements that would go some way to achieving the intended transition outcome.
37. There is also no requirement to provide adequate front yards to enable the planting of trees. This was a requirement of the Riverhead South development, which contributes to the 'treed' neighbourhood character established and respects the character of old Riverhead and the many prominent mature trees. This requirement



should at least apply to the rural fringe parts of the site and would also contribute overall to sense of transition between the rural and residential land uses.

38. Another formative design requirement of Riverhead South was a rule prohibiting tall front yard fences. This outcome can also be observed widely in Riverhead South and contributes significantly to a sense of spaciousness with buildings set back and front yard landscaping visible. The plan change seeks to removes the usual requirement for low or visually permeable front yard fences without any explanation as to why. (refer IX.6. Standards page 11). This may result in a proliferation of tall front yard fences detrimental to a desired spacious character. It also has negative effects on CPTED outcomes.
39. There is no requirement to plant regular street trees on roads. Whilst often achieved during development, the supporting AUP policy context is vague. To partly compensate for the lack of site area capable of accommodating large trees, and to help integrate the plan change area with the character of existing Riverhead, we request minimum tree quantity outcomes are required for new roads. The density for the housing will result in no tree cover of value, so the work must be done in the streets.
40. The zone also does not propose any design response to the proposed green corridor network, aside from a lonely fence height standard. There are no provisions proposed to give effect to the Urban Design recommendation for: *“a high quality and vegetated interface for higher density development along the key movement routes and adjacent to existing residential development which contributes to the current landscaped character of streets in Riverhead.”* There is also little detail on how this will be achieved, given council parks recent directive for no gardens within the streetscape we are left wondering what this ‘green corridor’ will contain.

### **Residential Zoning - Mixed Housing Suburban Zone – Relief sought**

41. Generally, we accept that density needs to be increased compared to the predominant Single house zone of Riverhead. But this should be balanced by stronger requirements for good urban design (for example, low front yard fences) and green infrastructure (for example requirements to plant trees on sites and on roads). Graduated density should be considered at the transition to rural zoning and higher density can be placed near the neighbourhood centre and open spaces. 114.9
42. We want front yards sized to be adequate for planting large trees, for example, 6 metres. We want a requirement for each site in the zone to plant one tree capable of growing 6m plus in height. 114.10
43. We want specific yard and landscape standards to apply at the rear of all sites which adjoin a rural zone to help establish a transition between the residential and rural environments. 114.11

44. We want a front yard fence control applied which applies H5.6.15 Front, side and rear fences and walls. | 114.12
45. To partly compensate for the lack of site area capable of accommodating large trees, and to help integrate the plan change area with the character of existing Riverhead, we request minimum tree quantity outcomes are required for new roads. Trees are often the last consideration and underground infrastructure dominates the road corridor. | 114.13
46. Overall, we want the plan change to require sufficient private and public planted areas to give effect to the intent of Auckland's Urban Ngahere (Forest) Strategy. This will also help integrate the higher intensity development with the character of existing Riverhead and the rural interface. | 114.14

## Residential Zoning - Terrace Housing and Apartment Zone (THAB):

47. The THAB zone provides for high intensity living in the form of terrace house and apartments and should be predominantly around centres and the public transport network to support the highest levels of intensification.
48. North of Riverhead Road this zone is located within the retirement village area. If that goes ahead this area of THAB zoned land would be developed with a retail/hospitality corner and privatised retirement apartments.
49. The other area of THAB zone that will be available for development and housing which is not privatised is immediately west of the Neighbourhood Centre zone at the corner of Riverhead Road and CRH. This is overlaid with Sub-Precinct B



114.17



50. There is very little reasoning provided for this discrete area of zoning proposed, and why it does not also front CRH, or warp around the south of the Local Centre zone. We do not think the proposed zoning reflects a land parcel, and this may be influencing the proposed location and extent of that zone.

### ***Residential Zoning - Terrace Housing and Apartment Zone (THAB)- remedies sought***

51. We want any THAB zone location and extent to be based on a reasoned analysis and reflect the intent of the zone which is to provide density around a transport hub and/or a town centre. | 114.15
52. We want the transition edge of THAB to the Mixed House Suburban zone to contain a local road to create a natural transition space between the different densities and building scale/forms. | 114.16

### **Mixed Rural Zone:**

53. A mixed rural zone is proposed at the northern part of the plan change area.
54. This is a response to the obvious flaw with the original (pre-notification but rejected by the council) proposal which proposed this flood plain area as suitable for residential development.
55. The main issue with this zoning is that the land will not be able to be further developed or subdivided.
56. The outcome is that the 'key move' of a green corridor extending to the river, and an esplanade reserve vested as public space to the council cannot be realised. The maintenance and enhancement of public access to and along rivers is a matter of national importance under the RMA. The current proposal fails to achieve this.

### ***Mixed Rural Zone – relief sought***

57. We want provision to require the 20m margin of land from the stream to be zoned as public open space and vested to the council. | 114.17
58. We want the green corridor to be extended to the open space esplanade reserve and be available for public access. The river is an important taonga for our community. Previous development has turned its back to it. | 114.18

## Flooding and Stormwater:

59. We are concerned that current best practice stormwater system design methodologies (as outlined within Appendix 10) would not adequately address adverse effects of the development. Council's current practice has failed Riverhead as evidenced in the Auckland Floods February 2023 where new developments designed to council's standards resulted in flooding harm.
60. We request robust peer review and an overall bottom line requirement that stormwater will not cause upstream or downstream adverse effects.
61. Objective (6) is very weak in that it that allows for the outcome of inadequate stormwater management:  
*(6) Stormwater is managed to avoid, as far as practicable, or otherwise minimise or mitigate, adverse effects on the receiving environment.*
62. In our view, if there is so much uncertainty that the requestor seeks scope for it to not be 'practicable to 'avoid, remedy or mitigate adverse stormwater effects', then this indicates a lack of confidence that stormwater issues can be appropriately addressed. We consider that the objective must be amended to remove the caveat 'as far as practicable' so the adverse stormwater effects must be avoided, remedied or mitigated.
63. Stormwater systems across the plan change area are proposed via a 'central stormwater management treatment spine' intended to be part of a 'multi-purpose green corridor' To ensure a coordinated delivery there needs to be a requirement for this to be designed and agreed prior to development.
64. Without an overarching agreed plan for the stormwater corridor, it is not clear how an overall integrated stormwater system will result from development of multiple individual lots and/or stages and what specific land parts must occur on. The risk is that fragmented and uncoordinated design and implementation would result due to a lack of design clarity and responsibilities.
65. Despite a 'designed' stormwater spine system' being proposed, zoning is not used to clarify the location and extent of the system. The extensive land required for this purpose is inappropriately zoned residential. Zoning would provide certainty of the land required for the stormwater and green corridor purposes.
66. A matter of significant concern is that the open space and stormwater functions of the corridor will be located over many separate parcels, landowners, and development stages. It is also located on parcels owned by parties not subject to the plan change.

67. There is no requirement for the overall green corridor to be designed prior to development. If this was a requirement then it would be clear what needs to occur and where. The lack of clarity will likely result in a fragmented outcome overall due to separate parties leading different parts of the development at different times.
68. It is recommended that a policy be added to require a clear overall design for the combined stormwater and open space corridor needs to be agreed by council prior to development within the precinct. We request objectives, policies and standards be included to define the corridor, its various functions, and require it to be implemented in a staged and coordinated manner.
69. Policy 17 states:  
*“(17) Require subdivision and development to be consistent with the water sensitive approach outlined in the **supporting stormwater management plan**, including: ...”*  
  
It is not appropriate for a plan change to require adherence to a document that has not been reviewed and accepted by the council. The report itself clarifies: *“This report has been prepared solely for the benefit of our client with respect to the particular brief and it may not be relied upon in other contexts for any other purpose without the express approval by CKL.”*
70. In general, it is not good practice for an enduring planning document (the AUP OP) to refer to a third party report prepared in support of a plan change.
71. The supporting stormwater report was prepared when 22 Duke Street was proposed to be zoned for residential development. This land is now largely proposed to be zoned rural, and consequently could not be subdivided. This casts doubt as to whether this land can still be used for stormwater management and conveyance to the Rangitopuni tributary. It is not clear if this affects the integrity of the stormwater report findings.

### ***Flooding and Stormwater - relief sought***

- |     |  |        |
|-----|--|--------|
| 72. | We want robust peer review and an overall bottom line requirement in the plan change provisions that stormwater will not cause upstream or downstream adverse effects.   | 114.19 |
| 73. | We want the clause of ‘as far as practicable’ to be removed from Objective (6), for example: <i>“Stormwater is managed to avoid, or minimise or adequately mitigate, adverse effects on the receiving environment.”</i>          | 114.20 |
| 74. | We want a requirement for the overall stormwater corridor system and green network design to be agreed with council prior to development and not incrementally addressed via multiple separate development proposals. This would | 114.21 |



likely require staging of development to align with development of the stormwater/green network corridor necessary to support that development.

75. We want clarity of the intended use and function of 22 Duke Street with regard to stormwater. | 114.22

## Wastewater:

76. Residents report that the existing system is prone to failure, often setting off alarms particularly during rain events, we understand due to groundwater and ingress of water into the council's system. The concern is that the existing poor performing system is not fit for purpose overall, and that expanding it over a large area with high groundwater will negatively impact everybody.

## Wastewater – relief sought

77. We want provisions which ensure that the wastewater system is appropriate and fit for purpose, and that addition of the plan change area will not negatively impact existing and future users. | 114.23

## Parks and Reserves:

78. The 'multi-purpose green corridors' are defined by the requestor as a 'key move' from an urban design perspective. This outcome agreed and supported in principle.
79. There is no requirement that the green corridor be offered to council for vesting, but this is commonly required under existing AUPOP precinct plans to provide certainty for council and developers. In our mind, a green corridor is not a wider road with more street trees.
80. Riparian margins are to be vested, but these are minimal and go nowhere near establishing the green corridor which needs to be located on a variety of land tenures. There needs to be a requirement that land necessary for the green network, but not accepted for vesting by council, is developed and held by an entity, like the proposal for riparian margins. Otherwise, parts of the network might not get delivered.
81. The intent of a contiguous open space network comprising of stormwater and passive open space functions is supported. Unfortunately, the provisions fail to define what the corridor will comprise of in real terms and do not require it to be delivered in practice. For example, what will be located in-between the stormwater ponds?
82. Policy (13)(d) suggests *"Co-locates smaller open spaces along the multi-purpose green corridor to achieve a connected network of open space."*

83. This policy shows a lack of consideration that the separately proposed ‘neighbourhood parks’ are limited to 3 separate locations and a flawed presumption that council would accept ad-hoc vesting of a range of “smaller parks” required to join-up the green corridor network. The network may be partly on the road reserves, but if this is the intention, then that needs to be clear and also needs to be a requirement of the road design.

84. The policy fails to incorporate the depth of the description of the green corridor in the s32 report:

*“The central north-south multi-purpose green corridor is a key structuring component in both the Greenways Plan and the proposed Structure Plan. Along with the collector road, this green corridor accommodates both passive and active open spaces, footpaths and dedicated cycleways. It also incorporates an existing intermittent stream.”*

85. A clear description the intended corridor composition and the types of land it will occupy is required in the plan. As noted, it appears that parts of the green network would likely be upon road reserve. However, there are no provisions which explain this or require ‘linking roads’ to deviate from a standard design to perform this function. For example, to ensure that necessary roads are designed to be a width adequate to contain a high level of green infrastructure in a dedicated or protected zone within the road reserve.

86. Clear expectations are needed in the plan to ensure that the multiple components of the green networks are considered and delivered in the whole, from the perspectives of parks to vest, stormwater devices and the road corridor. Without this being a clear directive it is likely that conventional design would be applied to the various parts, and overall the green network would not be cohesively designed and delivered.

87. Overall, clear objectives, policies, standards and design/outcome expectations are required in the plan to ensure the overall ‘multi-purpose green corridors’ is delivered as anticipated. Policy 13 as drafted will not achieve this outcome.

88. The precinct description seeks to realise “...the opportunity to establish green corridors through the precinct”. Policy (13) only requires the council to encourage “...the provision of a continuous and connected multi-purpose green corridor”. The word ‘encourage’ is a weak and non-committal directive. Clauses (a) to (d) provide an unclear framework without specific detail of what is ‘required’ to be achieved. A stronger word such as ‘require’ is needed to ensure the overarching urban design ‘key move’ of the green corridor is delivered.

89. Policy 17 requires development and subdivision to provide “... a central stormwater management treatment spine through the precinct in general accordance with the multi-purpose green corridor in the locations indicatively shown on IX.10.2 Riverhead: Precinct plan 2;” This cannot be achieved in isolation of an overall agreed plan which spans the plan change area.
90. The supporting Stormwater and Flooding assessment contains a ‘Preliminary Masterplan’ which shows significant areas of land to be occupied by stormwater devices and green infrastructure, extending in area at some locations much further than shown on Precinct Plan 2.
91. If this drawing represents the modelled stormwater requirements, then the precinct plan should also include the same information so that developers and the community can understand what is required.

Auckland | A20405

Figure 10: Preliminary Master Plan - Version 10 (Source: Urban Acumen)



92. The supporting Urban Design report (Named Neighbourhood Design Statement) shows the multi-purpose green corridor extending via the land a 22 Duke Street to the Rangitopuni tributary and beyond via existing and potential future esplanade reserves alongside the stream and river.
93. We support the connection and the esplanade reserve alongside the tributary and note the extensive high quality esplanade reserve that has resulted from the Riverhead South network. A long term aspiration is to have a complete network of coastal connections. The proposed zoning of 22 Duke Street as (predominantly) Mixed Rural removes the possibility of subdivision and vesting of esplanade reserve along the tributary. The small parts which are proposed to be residentially zoned would appear to still leave the parent site over 4HA, and therefore not trigger the esplanade reserve vesting upon subdivision. We expect that this is an unintended consequence of changing the proposed zoning. We request that the 20m margin of

the tributary be zoned Open Space – Conservation, as part of the plan change, and that it's heavily weed infested margins be restored and planted, and that land be vested to the council. These are the outcomes which would have occurred if the land was able to be subdivided and are necessary to secure a necessary part of the long-term aspirational esplanade reserve network.

94. Objectives, policies and standards are also required to achieve public access links from the development to the zoned esplanade reserve. If 22 Duke Street is available for stormwater management purposes, then this outcome should be easily achieved, especially if parcels are subdivided as drainage reserves, as this may trigger the 4Ha or less lot size adjacent to the tributary to trigger esplanade reserve vesting.



95. There is no direct requirement to deliver the 3 proposed neighbourhood parks, only an indirect reference to section E38. We seek a direct requirement to deliver the parks, presuming support from council parks division.
96. One high value (notable value) Beech tree is identified which is clustered with many impressive specimen trees (including a 13m tall Kauri). The Beech sits within a cluster of magnificent trees worthy of retention and is an obvious location for a Neighbourhood Park. Policy (12) seeks that the Beech tree is incorporated into an open space, but Precinct Plan 2 does not identify this location for a Neighbourhood Park. This inconsistency needs to be corrected. This cluster of trees, planted by a family who have been in Riverhead for multiple generations could further help connect the character of existing Riverhead to that of the plan change area.
97. The Beech tree and surrounds should not be compromised by stormwater functions which also appear to be proposed within this location (refer structure plan) page 8.



98. Policy 12 does not require the retention of ‘other mature trees that are worthy of retention’ by caveating the policy with ‘*where possible*’. We seek that the option to ‘not retain worthy trees’ be removed and more directive wording applied. The site is a huge greenfield area with a lot of flexibility for development locations. Any trees of value should be required to be retained. The value of this cluster extends beyond the arboriculture assessment.
99. Large trees located near the CRH appear to not be recorded in the arboricultural report which appears to be an error.
100. The green corridor graphic, or ‘east-west connections reflecting potential original portage routes promoting awa ki awa linkage’ is shown on Precinct Plan 1 extending along and outside of the southern plan change boundary. Policy 19 contains an obtuse requirement for development to acknowledge key views and spiritual connections respond to identified on IX.10.1 Riverhead: Precinct plan 1 in the layout and/or design of development; in particular, sightlines to Te Ahu and Pukeharakeke, and connections to Papakoura Awa and Te Tōangaroa.
101. We of course cannot speak for mana whenua but note that the actual outcomes required are limited to locating and orientating streets and public open spaces to reference and respect the Māori cultural landscape values. This is unlikely to result in any material outcome in the development form. The proposed west-east roading pattern already adequately achieves the expected outcome. It is not clear how the development is required to respond to the southernmost connection, that is not even within the plan change area.

### ***Parks and Reserves – relief sought***

- |   |        |
|---|--------|
| 102. We want the requirement and composition for the green corridor to be determined and agreed in principle with council prior to any development, so that the required environmental, stormwater and connectivity outcomes are understood and delivered appropriately and fully by each discrete development parcel or stage.                 | 114.24 |
| 103. We seek that necessary parts of the green corridor infrastructure which do not comprise of roads, neighbourhood parks or drainage reserves are offered to council for vesting or protected and maintained in perpetuity by an appropriate legal mechanism (as per IX.6.3. Riparian margin).  | 114.25 |
| 104. We want a clear description the intended corridor composition is required in the plan, and an explanation of how the multiple components of the green networks are to be determined and delivered in the whole, from the perspectives of parks to vest, stormwater devices and the road corridor, and any other land that may be required. | 114.26 |



105. We want the green corridor to extend to the Rangitopuni tributary and provide a public connection to a zoned open space esplanade reserve. | 114.27
106. Overall, clear objectives, policies, standards and design/outcome expectations are required in the plan to ensure the overall 'multi-purpose green corridors' is delivered as anticipated, because Policy 13 as drafted will not achieve this outcome. | 114.28
107. We want a neighbourhood park to be located to include the Beech tree and the overall grove of high value trees at this location. | 114.29

### **Retirement Village (Matvin Group land):**

108. The technical approach of the plan change with respect to the Matvin retirement village land is unclear. It is noted in the s32 report but not in the plan change provisions. It is also noted in the urban design report as a consented development, containing buildings up to 5 stories tall, with 410 dwellings including 310 apartments. It is also included in the supporting stormwater report.
109. The plan change maps and provisions do not respond to the scale and poor urban design connectivity outcomes of the retirement village development. The only response is to propose zoning part of the site as THAB and the remainder as Mixed House Suburban, and Sub-Precinct B. This is of concern because the retirement village is located at the interface of the plan change area and existing Riverhead at Cambridge Road. It occupies a 500 metre long flank and only provides for a single pedestrian cross connection, available during daylight hours only.
110. The development of the retirement village is not certain to occur, however, the plan change proposal treats it as a certainty. Evidenced by the lack of local roads, pedestrian connectivity, or a considered interface with Cambridge Road, all of which would be expected on a greenfield area some 10 Hectares in area and positioned at a critical location. If the retirement village does not go ahead then the plan change should be able to provide a good practice development framework for this area consistent with the remainder of the plan change area, and adopting the key design drivers of the Urban Design report, being:
  - a connected physical environment
  - an integrated community
  - access to nature
  - vibrant and local
  - housing choice and affordability
  - proximity/convenience
111. Concerningly, despite recognising the retirement village (by way of omitting expected outcomes such as a green corridor, local roads and pedestrian connectivity, and a considered interface at Cambridge Road) the plan change also

does not propose any wider response to the retirement village form and function, should it go ahead.

112. For example, the Urban Design report recommends: *“a transition between taller buildings around the centre to lower densities and building forms in the remaining areas of the site” (pg 51)*. Requiring roads and pedestrian routes to interface with the lone public route through the retirement village should also be required in the plan change. The Sub-precincts which seek to provide some level of transition of buildings do not adjoin the retirement site but are contained within it.
113. Especially concerning is the detrimental impact that the retirement village will have on connectivity for the northern part of the plan change area and movements to and from the adjacent existing Riverhead. This matter is noted also in our transport section.

### **Retirement Village (Matvin Group land) – remedies sought**

114. It is requested that the plan change be complete and robust in terms of dealing with the two scenarios of the retirement village being in place or not. Requiring cross-site connectivity and local roads for the scenario of the retirement village not being built.

114.30

### **Structure Plans and Consultation:**

115. Back in 2006, prior to being rezoned for development, Riverhead South also went through a plan change which was informed by a Structure Plan. This was Council led and involved the community through a series of consultation meetings including interactive design workshops. The people of Riverhead were actively involved in a meaningful way over a carefully planned process.
116. The structure plan was adopted into the then Rodney District plan ‘SPECIAL 30 (RIVERHEAD SOUTH) ZONE’. This included a comprehensive range of issues, objectives, policies, standards and assessment criteria to ensure that development reflected the needs of the community and council’s intent, whilst providing for good quality development.
117. That document delivered a planning framework informed by community participation. A range of built form outcomes are visible in Riverhead South today which were a product of this community/council collaborative process. Most significantly there was an emphasis on dwellings being set back from the street and for low or no front fences. These create a sense of spaciousness and openness at the front of houses and make for safe streets with high levels of passive surveillance.
118. These previously expressed community desires are not captured by the proposed plan change. The obvious outcome is that the character of the plan change area will be markedly different and not consistent with existing Riverhead. Density can be

provided, but it can also be balanced with adequate and open front yards and a requirement for trees. Mature trees are a defining element of existing Riverhead, including Riverhead south where significant trees were retained and sites are large enough to accommodate new large growing species.

119. In stark contrast the 'Structure Plan' (refer Appendix 4) supporting the current plan change application was not prepared with meaningful community involvement. Community consultation involved a meeting over a coffee with some members of the RCA, 2 'drop in community sessions and a summary of 'feedback'. In our view, these represent a token level of consultation designed to 'tick the box'.
120. We do not understand why the previous council led (but developer funded) process was collaborative and genuinely engaging, and the current process has been superficial, how is that democratic?
121. The Quality Planning website outlines good practice consultation for structure planning. It says:

*Consultation with key stakeholders and the community affected is an important component of the structure plan development process. The number and type of stakeholders identified and consulted with for a structure plan will depend on the scale and characteristics of the area and the issues to be managed.*

*To assist with consultation, it is good practice to develop an overall consultation plan for all groups including key stakeholders, tangata whenua and the wider community. This helps to identify all stakeholder and ensure that consultation and communications are managed in an integrated and co-ordinated way. This can also help to provide certainty to stakeholders about the opportunities to input into the structure plan process and the how the various consultation processes will be integrated into the final output. It is important that the communication or consultation plan recognises the potential for land ownership to change during the course of the structure planning exercise and any subsequent RMA plan changes.*

*Commencing consultation early in the process is important, and can help with:*

- *obtaining stakeholder buy-in to the process;*
- *gauging community and stakeholder levels of acceptance to broad concepts (such as the overall level of development) being proposed;*
- *fulfilling statutory duties under the RMA, LGA and Land Transport Management Act;*
- *incorporating and working through stakeholder concerns and aspirations while there is flexibility in the process to do so;*
- *identifying constraints and opportunities.*



122. In our view the consultation process fell well short of best practice. This is evidenced by how poorly the current plan change portrays the concerns and aspirations of the community compared to the previous process which involved meaningful involvement and consultation.
123. We are not out to stop change or development, as evidenced by involvement in the previous planning process. Rather we seek to ensure that the good things promised (such as the green corridor and infrastructure improvements) are properly designed, will be delivered as described (and when needed prior to adverse construction effects), and that due consideration is given to simple changes that could better integrate the plan change area with existing Riverhead, such as adequate front yards and tree planting. We very much would have preferred this submission to say that the process has been collaborate and effective, rather than needing to write such an involved submission and speak to these issues at a hearing and appeals if it gets to that.
124. We welcome the opportunity to conference with the requestors to resolve any matters of difference pre-hearing. | 114.31

**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Oscar Fernando BARRERO LOPEZ  
**Date:** Wednesday, 15 May 2024 9:31:00 am

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

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16 Leebank Crescent  
Riverhead  
Auckland 0820

**Submission details**

**This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:

Property address: 16 Leebank Crescent, Riverhead

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

I have lived in Riverhead for over 5 years now and with the current house building plan I feel frustrated with the lack of resources and infrastructure to support the community as it is. Now you are thinking on adding over 1500 dwellings to the existing infrastructure?

Access road: In the mornings just to take MW 16 it is required to queue from Hallertau or further for about 25 to 35 just to be able to reach the highway. this is a single lane each way, to converge with the already heavy traffic coming from Kumeu and Huapai - also on a single lane each way. Not fear to have another 1,500 cars added to the existing road system that has no plans for upgrading.

Public Transport: Use of public transport is not an option due to cancellations, delays and frequency, how is it possible to have only one service (route) per hour?

Public school: My daughters are in Riverhead School (Only school available in the area) and from the year they started we have seen how the green space in the school has been reduced to



accommodate for new students. Kids do not have green space for activities and we are not in zone for any other school close by. What are the considerations to build a new housing development if the schooling for kids is not given a priority?

We only have school in the area until year 8, I have not seen any plans to build a High Schools in the area. This should be available before starting a project of the magnitude you are proposing.

Storm Water systems: During the floodings of last year, the land that is been released for the proposed development was badly affected and I am worried that the plan is still ahead in an area that all of you know is flood prone.

I or we seek the following decision by council: Decline the plan change

115.1

Submission date: 15 May 2024

### **Attend a hearing**

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?  
No

### **Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Mayson Day  
**Date:** Wednesday, 15 May 2024 10:45:36 am

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Mayson Day  
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Agent's full name: Mayson Day  
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37 Pohutukawa Parade  
Riverhead  
Riverhead 0820

**Submission details**

**This is a submission to:**  
Plan change number: Plan Change 100 (Private)  
Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:  
Property address: 37 pohutukawa parade  
Map or maps:  
Other provisions:  
Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified  
Do you wish to have the provisions you have identified above amended? No  
The reason for my or our views are:  
I really do not have the time to read all of the many many pages of the reports however I share many of the local views that the traffic on Coatesville Riverhead Highway is terrible currently, let alone with the addition on 1,400 - 1,700 homes. I don't oppose development persay but we need road upgrade before even looking at any further development.

I or we seek the following decision by council: Decline the plan change, but if approved, make the amendments I requested

116.1

Details of amendments: greatly increase the CR Highway layout to cater for the influx of housing.

116.2

Submission date: 15 May 2024

**Attend a hearing**

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Johan Vollebregt  
**Date:** Wednesday, 15 May 2024 11:30:40 am

---

The following customer has submitted a Unitary Plan online submission.

#### **Contact details**

Full name of submitter: Johan Vollebregt

Organisation name:

Agent's full name:

Email address: johan@millgrove.co.nz

Contact phone number: 021544898

Postal address:

6 Mill Grove  
Riverhead  
Riverhead 0820

#### **Submission details**

##### **This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### **My submission relates to**

Rule or rules:

Appendix 8 integrated transport assessment & Appendix 10 Stormwater and flooding assessment

Property address: 6 Mill Grove, Riverhead

Map or maps: Appendix 8 Figure 17,18,19,21 and Appendix 10 figure 8 & 10

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

Appendix 8

The increased traffic that will eventuate from the new proposed plan changed and eventually the development will create a huge influx to the roads that in the current state cannot handle the amount of cars on the road at peak hour times. The congestion at the Old north road/ SH16 is significant during the peak hours of travel during the weekdays as well as the weekends. The current proposal shows another roundabout to be installed at the intersection of SH16 and Coatesville Riverhead road (CRH). The construction of this roundabout will create a gridlock between the two roundabouts and I do not believe it will help the flow of traffic from CRH as the constant flow of traffic from Taupaki/Kumeu side will have right of way. Currently when exiting CRH onto SH16 in peak hours, it takes oncoming traffic to allow you in otherwise you have no chance. This will be the same issue with a roundabout. Potentially a free merging lane from CRH left onto SH16 would work better to continue the free flow of traffic from CRH. The direction of traffic through riverhead road will eventually congest the existing roundabout at old north road even more which is

already heavily congested. Looking into the other direction when driving from CRH towards Albany highway, the peak hour flow is excessive and new development will eventually make this even worse. The attended discussions with the community and development representatives have explained that no planning has been put in place as of yet, and the commencement of the construction will likely go ahead before the roads are fixed. The infrastructure needs to be put in place before the development can go ahead.

#### Appendix 10

The current stormwater design indicates increased flow from the northern side of the development via the duke street culvert. We were heavily affected by the anniversary day floodings and further dates following that. The current stream that collects the water from riverhead forest and areas south of the river cannot handle the current flow of water that comes through it at the best of times. Several debris and blockages that have been removed from the stream following the events but there are several bottle necks throughout the stream especially the waterfall at mill grove walkway. The current infrastructure that has been installed in duke street, and lack of infrastructure on Cambridge road overwhelms the systems resulting in surcharging of the scruffy domes and then water discharging overground into duke street. The current outlet at the culvert located at the bottom of duke street currently sits half submersed reducing the diameter to 300-350. When the river rises during a downpour, the 750 outlet gets blocked and then water travels backwards again surcharging onto the road. Duke street has an unfortunate dip in the road which begins to capture water which has achieved depths of up 1.0m. The properties located at 5,7 and 9 then become the weak points for overflow and result in private land becoming flooded. Especially number 5 Mill Grove who sits the lowest in the street. Once the water has hit capacity in their properties it will continue to surcharge over the road of Mill Grove. At this point the road drains at the bottom of Mill Grove have become overwhelmed as the outlets have become submerged at the waterfall outlet. The water then continues overland and begins to effect our property of 6 Mill Grove. During the anniversary floodings we saw on more than 1 occasion the river peak an increase in height of over 2.5-3.0m. We then become sitting ducks with literally no where to go. I understand the proposed development has intention of reticulation ponds, detention tanks etc.. but when considering the current situation I do not believe the influx of underground water will improve or have no less affect to the current stream.

I or we seek the following decision by council: Decline the plan change

117.1

Submission date: 15 May 2024

#### Attend a hearing

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?  
Yes

#### Declaration

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.



**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Hazel Purcell  
**Date:** Wednesday, 15 May 2024 1:15:49 pm

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Hazel Purcell

Organisation name:

Agent's full name:

Email address: purcellhazel@gmail.com

Contact phone number:

Postal address:

PO Box 515

Kumeu

Auckland 0841

**Submission details**

**This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:

Stormwater/ flooding

Land Use

Traffic

Property address: 14B Gumdiggers Lane

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

The area to the north of the proposed development, Duke St, Wautiti Lane, Crabfields already experiences flooding in people's homes due to previous poor development strategies. It is not credible to suggest that developing more of this area will not add to the existing problems. No body believes the developers' claims they can engineer their way around this.

Why are we developing good agricultural land for housing and extending Auckland's sprawl problems. Auckland Council should compulsory purchase large privately owned residential estates in Parnell, Remuera and other central suburbs to intensify the existing urban centres. And developers should be forced to develop these areas, not green belts.

The road network (in the absence of any meaningful public transport) connecting the village to SH16 and in turn SH16 to the Nor-western motorway is inadequate. A roundabout at SH16 CRH is a going to add to the problem, it needs to be a slipway.

I or we seek the following decision by council: Decline the plan change | 118.1

Submission date: 15 May 2024

### Attend a hearing

Do you wish to be heard in support of your submission? No

### Declaration

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Stephen Tiney  
**Date:** Wednesday, 15 May 2024 2:01:08 pm

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Stephen Tiney

Organisation name:

Agent's full name:

Email address: s.tiney@live.com

Contact phone number:

Postal address:  
 42 Kaipara Portage Road  
 Riverhead  
 Auckland 0820

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:  
 Riverhead Landowners Group

Property address:

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

The highway around Riverhead can not cope with the traffic now, so adding extra cars will add to this issue

Also the infrastructure water, sewage ect can just about cope now.

There will need to be a great investment by the council to upgrade the area concerned

I or we seek the following decision by council: Decline the plan change

119.1

Submission date: 15 May 2024

#### Attend a hearing

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Michelle Lynda Cushnie  
**Date:** Wednesday, 15 May 2024 2:45:44 pm

---

The following customer has submitted a Unitary Plan online submission.

**Contact details**

Full name of submitter: Michelle Lynda Cushnie

Organisation name:

Agent's full name:

Email address: mitchpilina@hotmail.com

Contact phone number: 0211828007

Postal address:

53 Queen Street

Riverhead

Auckland 0820

**Submission details**

**This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

**My submission relates to**

Rule or rules:

Property address: Land identified in the Private Plan Change by Riverhead Landowner Group, 80.5 hectares on western side of Riverhead

Map or maps:

Other provisions:

All areas.

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

The reasons for my views are:

The current and planned infrastructure aren't adequate.

It is not in keeping with the character of the Riverhead village area.

Issues with Transport.

Traffic!

Turning left out of Coatesville Riverhead Highway onto state Highway 16 is a disaster and something needs to be done about this intersection before any development/building/clearing of the area.



The upgrades from the end of the North Western Motorway at Brigham Creek, all the way to Kumeu need to be done before any more North-West development past the end of the motorway. The current one-lane and one-lane bridge over Ngongetepara Stream are not coping as too much development has been allowed in the area without the roading infrastructure upgrade first to cope with the population growth. Its bad enough battlting the traffic going into the city for work but we have to battle traffic just to leave our own town.

Evacuation – Natural Emergency. With traffic gridlocked leaving Riverhead each weekday and even on weekends, and then gridlock all along State Highway 16, I don't think Riverhead could cope with an evacuation should we ever need one.

Issues with Stormwater and Wastewater, particularly after the February floods. Lack of acknowledgement that all this extra building will mean more pressure on the already overwhelmed drainage in our area.

Issues with Commercial Zoning

Lack of greenspace/nature being provided. This is a community who prides itself on its rural appeal, this will be ruined if this development goes ahead.

Proposed Parks and reserves are inadequate.

I or we seek the following decision by council: Decline the plan change

120.1

Submission date: 15 May 2024

### **Attend a hearing**

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?  
Yes

### **Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

## **Submission to Auckland Council: Opposition to Plan Change 100 (Riverhead)**

**Introduction** I am writing to express my strong opposition to Plan Change 100 (PC 100) concerning the proposed development in Riverhead. As a resident of this community, I have significant concerns about the adverse impacts this development will have on our infrastructure, community character, traffic conditions, and overall quality of life. I urge the Auckland Council to reject PC 100 for the reasons outlined below.

**Inadequate Infrastructure** The current infrastructure in Riverhead is already struggling to cope with the existing population. Our community is serviced by a single lane in and out, which leads to severe traffic congestion, particularly during peak hours. Residents, including my neighbours and myself, are forced to leave as early as 5 am to avoid being stuck in traffic for extended periods. Adding more residents without substantial infrastructure improvements will exacerbate this situation, leading to gridlock and further deterioration of quality of life.

Public transport options are also inadequate. Buses are caught in the same traffic jams as private vehicles until they reach the motorway, making them an ineffective alternative. Without dedicated bus lanes or significant improvements to public transport infrastructure, additional development will only increase the burden on our already stretched system.

**Character of Riverhead Village** Riverhead prides itself on its rural charm and community spirit. The proposed development under PC 100 is not in keeping with the character of our village. This community values its open spaces, tranquility, and the sense of connection with the natural environment. The large-scale development proposed will transform Riverhead from a peaceful rural village into a crowded suburban area, destroying the very essence of what makes it unique and appealing to its residents. I support the statement from the Riverhead Community Association stating the following:

Back in 2006, prior to being rezoned for development, Riverhead South also went through a plan change which was informed by a Structure Plan. This was council led and involved the community through a series of consultation meetings including interactive design workshops. The people of Riverhead were actively involved in a meaningful way over a carefully planned process.

The structure plan was adopted into the then Rodney District plan 'SPECIAL 30 (RIVERHEAD SOUTH) ZONE'. This included a comprehensive range of issues, objectives, policies, standards and assessment criteria to ensure that development reflected the needs of the community and council's intent, whilst providing for good quality development.

It is important to reiterate that this planning document represents a process informed by community participation. The issues raised and development direction provided by this document remains relevant and was formative in the actual development we see today at Riverhead South.

We want to cover it in some detail because this is what has guided the character of new development in Riverhead South. Selected parts are copied below. Please read the source document for the full text:

[http://www.aucklandcity.govt.nz/council/documents/districtplanrodney/dp\\_chapter12\\_special30.pdf](http://www.aucklandcity.govt.nz/council/documents/districtplanrodney/dp_chapter12_special30.pdf)

**SPECIAL 30 (RIVERHEAD SOUTH) ZONE' Issues** raised include:

*Development in the Riverhead South area needs to retain the key elements that make up the character of the existing Riverhead settlement and so that new development integrates with this existing character.*

*Development in the Riverhead South area needs to be serviced with an appropriate public water and wastewater systems.*

*Poor urban design, including inappropriate scale and siting of the built form and architectural design that does not respond appropriately to the natural environment and other built forms will adversely affect the future amenity values experienced in Riverhead.*

**Lack of Essential Connectivity** Riverhead lacks essential connectivity infrastructure. There is no footpath connecting us to the nearest towns, let alone to Auckland city. Additionally, there are no bike lanes, bus lanes, or transport lanes. The existing infrastructure cannot support the current population, let alone the significant increase that would result from the proposed development. For instance, turning left out of Coatesville Riverhead Highway onto State Highway 16 is already a dangerous and congested intersection. This situation demands urgent attention and resolution before any further development can be considered.

**Traffic Congestion** Traffic congestion in and out of Riverhead is already a significant issue. Commuters face long delays, and the situation will worsen with additional development. The upgrades needed from the end of the Northwestern Motorway at Brigham Creek to Kumeu must be completed before any further development is considered. One lane is insufficient to handle the current traffic volumes, creating a bottleneck that impacts travel times and safety.

The one-lane bridge over Ngongetepara Stream is another critical point of concern. This bridge is already a bottleneck with existing traffic levels, and the proposed development will only exacerbate the issue. Without significant investment in upgrading these key infrastructure points, allowing more development is irresponsible and unsustainable.

**Street Quality and Local Road Conditions** Existing streets in Riverhead are of poor quality, often with open drains, lack of footpaths, and unformed carriageway edges. Some blocks are poorly connected and contain unformed paper roads. The development enabled by PC 100 will require years of earthworks and construction, which will further deteriorate our already poor-quality roads. Heavy vehicle activity will greatly increase on local roads, posing congestion, risks, and dangers to all road users, including children.

The proposed "limited local road upgrades" are inadequate as they are planned to be delivered in a fragmented, staged manner. These upgrades should be in place prior to the commencement of main site earthworks to mitigate traffic impacts from the start.

**Emergency Evacuation Concerns** Given the current traffic gridlock in Riverhead, especially during weekdays and weekends, evacuation during a natural emergency would be nearly impossible. The area would not be able to cope with the necessary rapid evacuation, posing a significant risk to residents.

**Stormwater and Wastewater Issues** Following the February floods, stormwater and wastewater systems are already overwhelmed. The proposed development will put additional pressure on these systems, increasing the risk of flooding and other environmental hazards. There has been a lack of acknowledgment of these issues in the planning documents.

**Schooling and Education Facilities** There is no high school in Riverhead, and the nearest high school, Massey High, is already at capacity with a catchment zone extending to Muriwai, Waimauku, Coatesville, and Bethells. The proposed development will increase the demand for

educational facilities without providing solutions for accommodating this growth. The council must address the need for a new high school to serve the growing population.

**Commercial Zoning and Parks** The proposed parks and reserves are inadequate, with no clear requirement for their implementation in the plan. Policies 7 to 9 (Street network, built form, and open space) in the Riverhead Plan Change do not explicitly mention the requirement to provide neighbourhood parks, raising concerns about the actual delivery of these amenities. Is there going to be a retirement village as this was left out of the plan?

#### **Commercial Zoning – what we want**

We want any proposed commercial zoning to be justified by economic analysis that is based on a clear outline of existing zoning and activities in Riverhead, including under-utilising of zoned land and potential capacity, and recognition of the activities and services that would be provided by the retirement village.

We want any proposed commercial zoning to be justified by economic analysis that is based on a well-reasoned and justifiable customer catchment which recognises the commercial and retail centres of Kumeu, Westgate and Albany, and does not unrealistically anticipate that people who live near these centres would instead travel to Riverhead for their shopping needs.

We want any new business zoning to demonstrate a consolidated and legible town centre, not a series of strip commercial areas fronting the highway. *Most importantly removing the proposed Local Centre Zone opposite Riverhead Point Road because this zone is not needed.*

#### **Residential Zoning - Terrace Housing and Apartment Zone (THAB)**

We want any THAB zone location to be based on a reasoned analysis and reflect the intent of the zone which is to provide density around a transport hub and/or a town centre.

We want the area zoned THAB to be considered in terms of appropriate scale and location, and not based on an existing parcel or landholding.

We want the transition edge of THAB to the Mixed House Suburban zone to contain a local road to create a natural transition space between the different densities and building scale/forms.

**Conclusion** In conclusion, Plan Change 100 is unsuitable for Riverhead due to inadequate infrastructure, incompatibility with the rural character of the village, severe traffic congestion, poor street quality, and the lack of essential connectivity and educational facilities. I urge the Auckland Council to reject PC 100 and prioritize addressing the current infrastructure deficiencies before considering any further development in our area.

Thank you for considering these concerns.

Sincerely,

[Your Name]

[Your Address]

[Riverhead Resident]

**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Mathew Glanfield  
**Date:** Wednesday, 15 May 2024 3:30:37 pm

---

The following customer has submitted a Unitary Plan online submission.

#### **Contact details**

Full name of submitter: Mathew Glanfield  
 Organisation name: Belay Professional Services Limited  
 Agent's full name: Mathew Glanfield  
 Email address: mglanfie@gmail.com  
 Contact phone number: 0211342877  
 Postal address:  
 6 Kent Street  
 Riverhead  
 Riverhead  
 Auckland  
 Auckland 0820

#### **Submission details**

##### **This is a submission to:**

Plan change number: Plan Change 100 (Private)  
 Plan change name: PC 100 (Private): Riverhead

##### **My submission relates to**

Rule or rules:  
 Land identified in the Private Plan Change by Riverhead Landowner Group, 80.5 hectares on western side of Riverhead

Property address: 6 Kent Street, Riverhead

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:  
 Transportation infra is already poor. Over the last 4 years to get into the CBD a home 'leave time' was 6.30, now its usually 5.30/5.45am.....and often traffic is backed from the CRHWY intersection at Boric all the way back to Hallertau. Stupid....not good enough, and NO plans to remedy this. The proposed roundabout WILL NOT resolve these issues with this coming development.

Wastewater infra is shit. Every heavy rain sets the eONE systems off. Then, to get them services I have to pay them \$\$\$\$ even though we don't have a choice. And flooding in the area is significant and often. Your best practice wastewater management is not adequate.

I am not against development. I am against development when shit infra is all we have, this does



not create healthy communities, all it creates is a bunch of stressed people who have a poor quality of life.

We also need to manage and retain green corridors, this seems to have been lost.

There has been no meaningful community involvement during this process.

I or we seek the following decision by council: Decline the plan change

121.1

Submission date: 15 May 2024

### **Attend a hearing**

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?

Yes

### **Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Maraetai Land Development Limited  
**Date:** Wednesday, 15 May 2024 4:30:40 pm  
**Attachments:** [Plan Change 100 Submission\\_20240515161437.888.pdf](#)

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Maraetai Land Development Limited

Organisation name:

Agent's full name:

Email address:

Contact phone number: 021845327

Postal address:

C/- Campbell Brown Planning Limited PO Box 147001 Ponsonby AUCKLAND 1144  
 Ponsonby  
 Auckland 1144

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:

n/a

Property address: Site located at Riverhead Road, Coatesville-Riverhead Highway, Cambridge Road, and Duke Street, Riverhead

Map or maps: n/a

Other provisions:

n/a

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

n/a

I or we seek the following decision by council: Approve the plan change without any amendments

Details of amendments:

Submission date: 15 May 2024

Supporting documents

Plan Change 100 Submission\_20240515161437.888.pdf

122.1

**Attend a hearing**

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?  
Yes

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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# SUBMISSION ON PRIVATE PLAN CHANGE 100 - RIVERHEAD

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**To:** Auckland Council  
Private Bag 92300  
Auckland 1142

**Name of Submitter:** Maraetai Land Development Limited

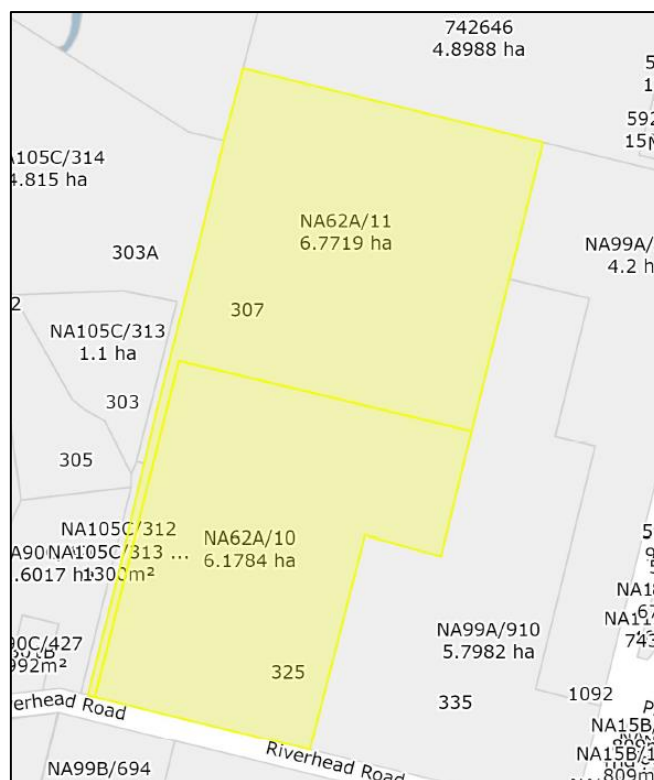
**Maraetai Land Development Limited** ('the submitter') provides this submission on Private Plan Change 100: Riverhead.

Auckland Council has accepted a private plan change request to the Auckland Unitary Plan (Operative in Part) from Riverhead Landowner Group under Schedule 1 to the Resource Management Act 1991 (RMA). The purpose of the private plan change is described in the public notice as being to:

- Rezone 6 ha of land in Riverhead from Future Urban to Rural-Mixed Rural zone;
- Rezone 75.5 ha to a mix of Residential – Mixed Housing Suburban, Residential – Terrace Housing and Apartment Building, Business – Local Centre and Business – Neighbourhood Centre zones with associated precinct provisions; and
- Shift the Rural Urban Boundary to align with the boundary between the proposed Rural Mixed Rural zoning and the urban zones.

The submitter has an interest in two parcels of land (12.95ha total) contained within the plan change area. Lot 1 DP 109763 and Lot 2 DP 109763, as displayed on the following page.

These lots are proposed to be rezoned to the Residential – Mixed Housing Suburban Zone as part of this private plan change, within the Riverhead Precinct boundary. The amended Rural Urban Boundary location would align with the western boundary of these lots, and a Stormwater Management Area Flow – 1 control would be imposed across the extent of these lots.



The Submitter could not gain an advantage in trade competition through this submission and the submission does not raise matters that relate to trade competition or the effects of trade competition.

The Submitter **supports in principle** the Private Plan Change 100: Riverhead.

**The reasons for the Submitter's support in principle are:**

1. The private plan change would generally promote the sustainable management of natural and physical resources, in accordance with Part 2 of the Resource Management Act 1991 ('the Act');
2. The private plan change is consistent with the objectives and policies of the Auckland Unitary Plan and other provisions in relevant statutory planning instruments;
3. The private plan change ensures that a well-connected and integrated neighbourhood is achieved that facilitates efficient movement of people and goods through a variety of travel modes as demonstrated on the three proposed precinct plans; and
4. The private plan change ensures that appropriate road infrastructure is provided to enable the planned growth and intensification of this part of Auckland.

**Relief sought:**

The submitter seeks, subject to the matters below being satisfactorily addressed, that the Council approve the private plan change.

- The submitter wishes to be involved in the processing of this private plan change going forward, such as being informed of any changes in its design or timeline.



- The submitter wishes to be involved in any further submissions processes that may be required as part of the processing of this private plan change.

**The submitter wishes to be heard in support of this submission. If other parties make a similar submission, the submitter would consider presenting a joint case with them at any hearing.**



Philip Brown  
Campbell Brown Planning Limited  
For and on behalf of Neil Construction Limited as its duly authorised agent.

13 May 2024

**Address for service of submitter:**

C/- Campbell Brown Planning Limited  
PO Box 147001  
Ponsonby  
**AUCKLAND 1144**

**Attention:** Philip Brown

**Telephone:** (09) 394 1694

**Mobile:** 021845327

**Email:** philip@campbellbrown.co.nz

**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Andrew Coombes and Tara Hatherley  
**Date:** Wednesday, 15 May 2024 4:30:43 pm

---

The following customer has submitted a Unitary Plan online submission.

#### **Contact details**

Full name of submitter: Andrew Coombes and Tara Hatherley

Organisation name:

Agent's full name: Tara Hatherley

Email address: andrewandtara@xtra.co.nz

Contact phone number: 021484404

Postal address:  
28 Cambridge Road  
Riverhead  
Auckland 0820

#### **Submission details**

##### **This is a submission to:**

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### **My submission relates to**

Rule or rules:

Property address: Land identified in the Private Plan Change by Riverhead Landowner Group, 80.5 hectares on western side of Riverhead

Map or maps:

Other provisions:

We want the Council to DECLINE the plan change for the following reasons;

Transport - all of the roads in Riverhead require upgrading BEFORE anything else happens. The roads are poorly formed with open table drains, only one pedestrian crossing, single lane in each direction, horrendous traffic leaving Riverhead and going through Riverhead in the morning and afternoon, exacerbated by the lack of roundabout at the SH16/Coatesville Riverhead Hwy intersection, a very poorly scheduled bus timetable (which is also unreliable) and unsafe conditions for pedestrians. All of this must be addressed BEFORE any changes go ahead.

Stormwater & Wastewater - the current system is extremely inadequate, as evidenced during the Auckland Floods last year. Our property was affected and our sheds flooded. Our driveway and part of our backyard turned into a creek with rapids and our front yard was a pond. The current plan is to use the proposed residential area for stormwater control, which is unrealistic as the developers will be using that area for the best financial gain, not for the greater good of the community and the best practice in stormwater flood control. Their Stormwater & Flooding Assessment is outdated and relies on using the northern parcel as flood plain land, but doesn't answer whether this will be reliable to contain floodwater. The green corridor is much narrower than the land required by the stormwater report, so how does this make sense? It simply does not. Regarding the wastewater system, during heavy rains the Ecoflow systems don't cope and the alarms keep ringing. This system needs improving and the plan change is very vague on making the system 'adequate'.

Parks & Reserves - There are no objectives, policies, or standards that require the parks to be provided. This is a technical flaw which results in a very weak requirement to provide the parks. Without a clear requirement to deliver them, the parks might not result. Why would developers provide them if they don't have to?

The Green Corridor - A north-south and east-west 'green corridor' is proposed. The plan change seeks a lot of flexibility about what the green corridor is, what it does and where it is located. The provisions are so non-committal a connected corridor (as shown on the Precinct Plan) would be unlikely to result in practice. Parts that are not directly required for stormwater would be developed for residential as this is more profitable. And the stormwater issue is still unresolved.

Zoning - Firstly, is the Retirement Village going ahead or not? We believed it was not, and it is not recognised in the proposed zoning or precinct provisions. But in some supporting documents it is recognised. Hopefully it isn't going ahead, due to the stormwater issues raised above, as we live down the hill from it on Cambridge Road, and we are terrified of what will happen to our property once that permeable land is built on. Back to zoning - the proposed commercial zones are a terrible idea and unnecessary. The economic report says that people from Kumeu and as far as Dairy Flat will come use services here - this is ridiculous - Kumeu has their own very well stocked commercial area, and why would people from Dairy Flat come to Riverhead when they can far more easily and quickly go to Albany?

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:  
As above.

I or we seek the following decision by council: Decline the plan change

123.1

Submission date: 15 May 2024

### **Attend a hearing**

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission?  
No

### **Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Michelle Marshall  
**Date:** Wednesday, 15 May 2024 5:00:42 pm

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Michelle Marshall

Organisation name:

Agent's full name: Michelle Marshall

Email address: waihekegirl@yahoo.co.nz

Contact phone number:

Postal address:

1 Newton Road

Riverhead

Riverhead 0820

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)

Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:

Property address: Riverhead

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

They are inadequate. Although very wordy they in no way take into account the character of Riverhead, the already awful traffic snarls, the existing issues with flooding, lack of public transport options and impact of thousands of new residents in a small town.

I or we seek the following decision by council: Decline the plan change

124.1

Submission date: 15 May 2024

#### Attend a hearing

Do you wish to be heard in support of your submission? No

#### Declaration

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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**From:** [Unitary Plan](#)  
**To:** [Unitary Plan](#)  
**Subject:** Unitary Plan Publicly Notified Submission - Plan Change 100 (Private) - Steve John Keene  
**Date:** Wednesday, 15 May 2024 7:15:35 pm

---

The following customer has submitted a Unitary Plan online submission.

#### Contact details

Full name of submitter: Steve John Keene  
 Organisation name: platinum developments ltd  
 Agent's full name: Steve John Keene  
 Email address: stevekeene33@gmail.com  
 Contact phone number:  
 Postal address:  
 stevekeene33@gmail.com  
 Riverhead  
 Riverhead 0820

#### Submission details

##### This is a submission to:

Plan change number: Plan Change 100 (Private)  
 Plan change name: PC 100 (Private): Riverhead

##### My submission relates to

Rule or rules:  
 Land identified in the private plan change by Riverhead land owner group, 80.5 hectares on western side of riverhead.

Property address: 80.5 heactares on western side of riverhead.

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:  
 Proposed commercial zoning. Riverhead has enough undeveloped commercial Mix'd use and local Centre sites readily available for development. Approx 10,000 sq meters of undeveloped land exist between Alice st , George St and Coatesville Riverhead Highway. Why would anybody consider allowing the same zoning away from the existing local center, especially when this needs to be developed first. Riverhead went through a stringent structural plan and this area was designated and opted as the preferred local center.

I or we seek the following decision by council: Decline the plan change

125.1

Submission date: 15 May 2024

#### Attend a hearing

Do you wish to be heard in support of your submission? No

**Declaration**

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.

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