Drury Infrastructure Funding and Financing (DIFF) – Cost Allowances Report Addendum

Prepared for Auckland Council
Prepared by Beca Limited

27 March 2024

Contents

Revision History

Revision N°	Prepared By	Description	Date
1	Joshua Hafoka	Issue to Auckland Council for Comment	22/02/2024
2	Joshua Hafoka	Incorporating comments for Auckland Council	29/02/2024
3	Joshua Hafoka	Summary table of assumptions	1/03/2024
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Document Acceptance

Action	Name	Signed	Date
Prepared by	Joshua Hafoka	[redacted]	27/03/2024
Reviewed by	Varshen Pillay	[redacted]	27/03/2024
Approved by	Rob Mason	[redacted]	27/03/2024
on behalf of	Beca Limited		

1 Executive Summary

This report serves as an addendum to the Drury Infrastructure Funding and Financing (DIFF) Cost Allowances report produced by Te Tupu Ngātahi (Supporting Growth Alliance) in August 2022. The DIFF Cost Allowances report sets out the process and noted allowances for projects that have been included in the DIFF programme to inform Auckland Council (Council) considerations of funding and financing options Drury Developer Contributions (DC) workstream.

This assessment only includes projects from the Drury DC workstream that may experience a change in scope following the government's approval of funding from the NZUP South Auckland Package to progress the Waihoehoe Road and State Highway 22 Drury projects.

The updated project scope for DC inclusion is determined on the basis of the scope determined in the previous Drury DC workstream and is modified depending on the overlapping/adjacent NZUP project design to achieve the form of the project specified in the previous Drury DC workstream. This assessment documents the updated assumptions (engineering and property) for the cost allowances, and also the outcomes of the updated beneficiary analysis.

Table 1-1 below is a summary of the change in base physical works costing for each of the projects in the previous Drury DC workstream that are considered to have been affected by the NZUP projects.

Table 1-1: Summary of the Change in Base Physical Works Costing for Projects affected by NZUP

Ref	Description	Original Base Physical Works Cost Unescalated ($M)	Updated Base Physical Works Cost Unescalated ($M)	Scope Change (original vs updated)
1a	GSR improvements - Waihoehoe Rd to Drury Interchange	4.7	2.0	Original DC assumption of active modes on both sides was reduced to a shared path on one side only as part of the NZUP design. This facility is appropriate for an interim option so no further interim active mode upgrades are allowed for along the corridor. Two directional active mode bridges were initially proposed on both sides of the Hingaia Stream bridge as an interim option, although the single 4m wide shared path bridge proposed through NZUP is considered an adequate interim option. Signalisation of the Firth St intersection is not proposed as part of NZUP, so these costs have been retained for the DC analysis.
1b	GSR improvements - Waihoehoe Rd to Drury Interchange	7.0	7.6	Scope of interim project constructed through NZUP is less than the initial interim project included in the DC analysis (active modes on both sides reduced to shared path on one side only). Therefore increased scope within 1b to achieve the ultimate form of the corridor (i.e. active modes on both sides of the corridor).
2a	GSR improvements - From Drury School to Waihoehoe Rd	4.4	2.4	Intersection upgrade at GSR/Waihoehoe that was previously assumed to be included in 2a (in the previous DC analysis) is now considered in relation to projects 9a and 9b as this is more suitable. Some kerb realignment assumed within NZUP scope.
2b	GSR improvements - From Drury School to Waihoehoe Rd	11.3	0.0	Scope change from previous DC assumption of 4 lanes to 2 general traffic lanes plus bus lane in the latest SGA work completed. Kerb and channel with active modes in the berm was constructed as part of the interim option (2a) so therefore, negligible additional DC works required to achieve ultimate form.
3	Intersection upgrade on GSR/Karaka Rd intersection	2.0	0.0	Full project included within NZUP design.

Ref	Description	Original Base Physical Works Cost Unescalated ($M)	Updated Base Physical Works Cost Unescalated ($M)	Scope Change (original vs updated)
9a	Upgrade in Norrie Rd/GSR/Waihoehoe intersection (2-lane)	4.5	0.0	Full project included within NZUP design.
9b	Upgrade in Norrie Rd/GSR/Waihoehoe intersection (multi-lane)	4.4*	0.0	Full project included within NZUP design.
23a	Waihoehoe Rd West upgrades-between GSR & Kath Henry Lane	2.1	0.0	Full project included within NZUP design.
23b	Waihoehoe Rd West upgrades-between GSR & Kath Henry Lane	16.7*	0.0	Full project included within NZUP design.
23c	Waihoehoe Rd West upgrades-between Kath Henry Lane & Fitzgerald Rd	1.5	1.2	The NZUP design incorporates active mode components on the eastern side of the Kath Henry Lane intersection previously assumed in the interim stage that are now redundant, reducing the overall scope.
23d	Waihoehoe Rd West upgrades-between Kath Henry Lane & Fitzgerald Rd	3.7	3.7	When 23d is constructed, the taper at the tie-in to the Kath Henry Lane intersection (indicated in the NZUP design) will be reconstructed. Therefore, this does not change the scope of 23d.
36a	Bremner-Norrie Road – 2-lane interim option	9.6	9.3	Minor overlap with NZUP design near the GSR/Waihoehoe Rd intersection with some active mode facilities provided, therefore a small portion of the original DC scope is removed.
36b	Complete Bremner-Norrie Road connection to 4-lanes	9.2	9.2	The western approach to the GSR/Waihoehoe Rd intersection will need to be reconstructed to provide the additional approach lanes so no change in scope resulting from the NZUP project.
41a	Jesmond Rd upgrades from SH22 to Waipupuke development boundary	5.3	0.0	Full project included within NZUP design.

Ref	Description	Original Base Physical Works Cost Unescalated ($M)	Updated Base Physical Works Cost Unescalated ($M)	Scope Change (original vs updated)
41b	Jesmond Rd from SH22 to Waipupuke development boundary	5.7	5.7	No change in scope, NZUP works within the extents of 41b will be reconstructed to build the required ultimate form along this corridor.
44	Intersection at SH22/Burberry Rd (likely to close entirely)	2.0	2.0	No change in scope as there is no overlap with NZUP design.
52	Intersection upgrade- on SH22/ McPherson Rd/Karaka Rd (Auranga B1)	2.0	2.0	No change in scope as there is no overlap with NZUP design.
53	New intersection east of Jesmond Rd (Auranga B1 main street)	2.0	2.0	No change in scope as there is no overlap with NZUP design.

*The costs for Projects 9b and 23b have been sourced from the Drury Arterial Network DBC and is inclusive of allowances.

The assumptions around the change in property acquisition for each of the above projects can be found in **Appendix A**, this Appendix also summarises the change in unit rate assumptions used for the above costing.

In addition, following a reassessment of the beneficiary analysis it was concluded that since there were no changes to the previous land use assumptions as part of the NZUP project updates and that the form and role of the NZUP project designs are similar to the original DC projects, there are no changes to either the causation or beneficiary assessments and subsequently the overall beneficiary analysis.

2 Introduction

This report serves as an addendum to the Drury Infrastructure Funding and Financing (DIFF) Cost Allowances report produced by Te Tupu Ngātahi (Supporting Growth Alliance) in August 2022. The DIFF Cost Allowances report sets out the process and noted allowances for projects that have been included in the DIFF programme to inform Auckland Council (Council) considerations of funding and financing options for the infrastructure needed to enable land development in accordance with Council's Structure Plan in Drury.

The transport network used for the DIFF programme within the Drury Developer Contributions (DC) workstream is set out in Figure 2-1 below. Project scope definitions (especially opportunities for interim stages) were indicative only to inform the cost allowances and have not been based on design. Therefore, cost allowances were based on judgement and simplified unit rates, rather than from specific design and quantity measurements. The initial project costs were developed using a combination of linear rates and/or extraction from the Drury South Detailed Business Case.

Figure 2-1: Drury Transport Network - DIFF Programme Referencing

Following the government's approval of funding from the NZUP South Auckland Package to progress the Waihoehoe Road and State Highway 22 Drury projects, this addendum documents the updated assumptions for the cost allowances, and also the outcomes of the updated beneficiary analysis. In addition, there has also been one other update based on the outcome of further investigation into the Frequent Transit Network (FTN) network between Drury and Papakura.

A Transport Assessment report that defined each of the projects in the DIFF programme was released alongside the DIFF Cost Allowances report in late 2022. A further addendum to this report was produced in April 2023 which addressed updated inputs provided by Council. The changes in this updated transport assessment has little effect on this addendum, with the exception of minor changes to project descriptions and inclusions.

3 Determination of Project Scope

3.1 Scope and Design Assumptions

This addendum only includes projects from the Drury DC workstream that may experience a change in scope due to the NZUP projects. The scope of the projects to be included in the DC has been determined by the extent of their respective overlap with the NZUP projects:

- State Highway 22
- Ngākōroa Station (Drury West)
- Drury Central Station
- Waihoehoe Road
- Great South Road (from the SH22 Interchange to the Waihoehoe Road intersection)

The updated project scope for DC inclusion is determined on the basis of the scope determined in the previous Drury DC workstream and is modified depending on the overlapping/adjacent NZUP project design to achieve the form of the project specified in the previous Drury DC workstream. This assessment also considers the project staging, which influences the extent of the effect of the NZUP project on the interim versus ultimate stage.

There has also been one additional change to the Great South Road (from Waihoehoe to the Drury School) project arising from further investigation into the route requirements which has resulted in a lesser upgrade than previously assumed.

3.2 Property Acquisition

Property cost allowances are modified for each project through a subtractive approach, with property acquisition carried out for the NZUP projects being subtracted from the original cost allowance for each project. There are several criteria which have been considered to determine the property acquisition to be excluded:

- If the previous DC assumption was that no property acquisition is required, this assumption remains unchanged
- If there is no change to the engineering assumptions for the project, the property acquisition assumed previously remains unchanged unless the NZUP land acquisition plans indicate otherwise
- If the original project is fully superseded by the NZUP design, all of the property acquisition previously assumed for the project is likely to be removed from the DC model
- If the land acquisition plans for the NZUP indicate additional land acquisition that was included within the initial property cost estimates, then these estimates are adjusted to reflect any reduction in land.

3.3 Beneficiary Analysis (Causation and Beneficiary Assessment)

The original beneficiary analysis notes that DCs should be allocated both to those who cause the need for the project(causation) as well as those who benefit from it (beneficiaries). The causation assessment costs were previously allocated to areas based on an assessment of whether the projects were likely to be required to support the planned new urban development (this assessment was based on the previous land use assumptions for the Drury growth area). Within the scope of this assessment, it was assumed that there were no changes to the previous land use assumptions from the previous DC workstream. Therefore, no changes to the causation assessment.

For the beneficiary assessment costs were proportionally allocated to sub-areas based on an assessment of the areas/communities or movements that would gain improved transport outcomes, accessibility, safety, travel choice or network resilience.

The beneficiary assessment for the NZUP project update have been assessed considering the following:

- Who benefits? (including the land use surrounding the project)
- How they benefit? (including the purpose, capacity, location or expected outcomes of the project)

The NZUP project designs are of a similar form and role in the transport network compared to the original DC projects, and therefore do not have a considerable difference in capacity or outcomes. As such, there have been no changes to the beneficiary assessment for this addendum.

Therefore, in summary there are no changes to either the causation or beneficiary assessment, and subsequently overall beneficiary analysis due to the latest NZUP projects.

4 Updated Basis of Specific Project Cost Allowances

This section sets out the assumptions that inform the cost allowances for each individual project that is considered to have been affected by the NZUP projects. For ease of reference, the section numbering relates to the reference numbering included within the DIFF programme.

This section focuses on the change from the previous DIFF Cost Allowances report, and therefore briefly notes the previous assumptions to contrast the modifications assumed in this assessment.

The images shown in the below section illustrate the project extents and how they compare with the NZUP project designs.

1 Great South Road Improvements: Waihoehoe Road to Drury Interchange

This project extends from the intersection with Waihoehoe Road to the Drury Interchange as shown in Figure 4-1. There are two stages proposed for this corridor:

1a. 2-lane urban- existing road layout with active modes on both sides

1b. 4-lane urban- existing road layout with active modes on both sides

Figure 4-1: Drury Locality Map – Great South Road, Waihoehoe Rd to Drury Interchange

1a Interim Option: Existing 2-lanes with active modes provided

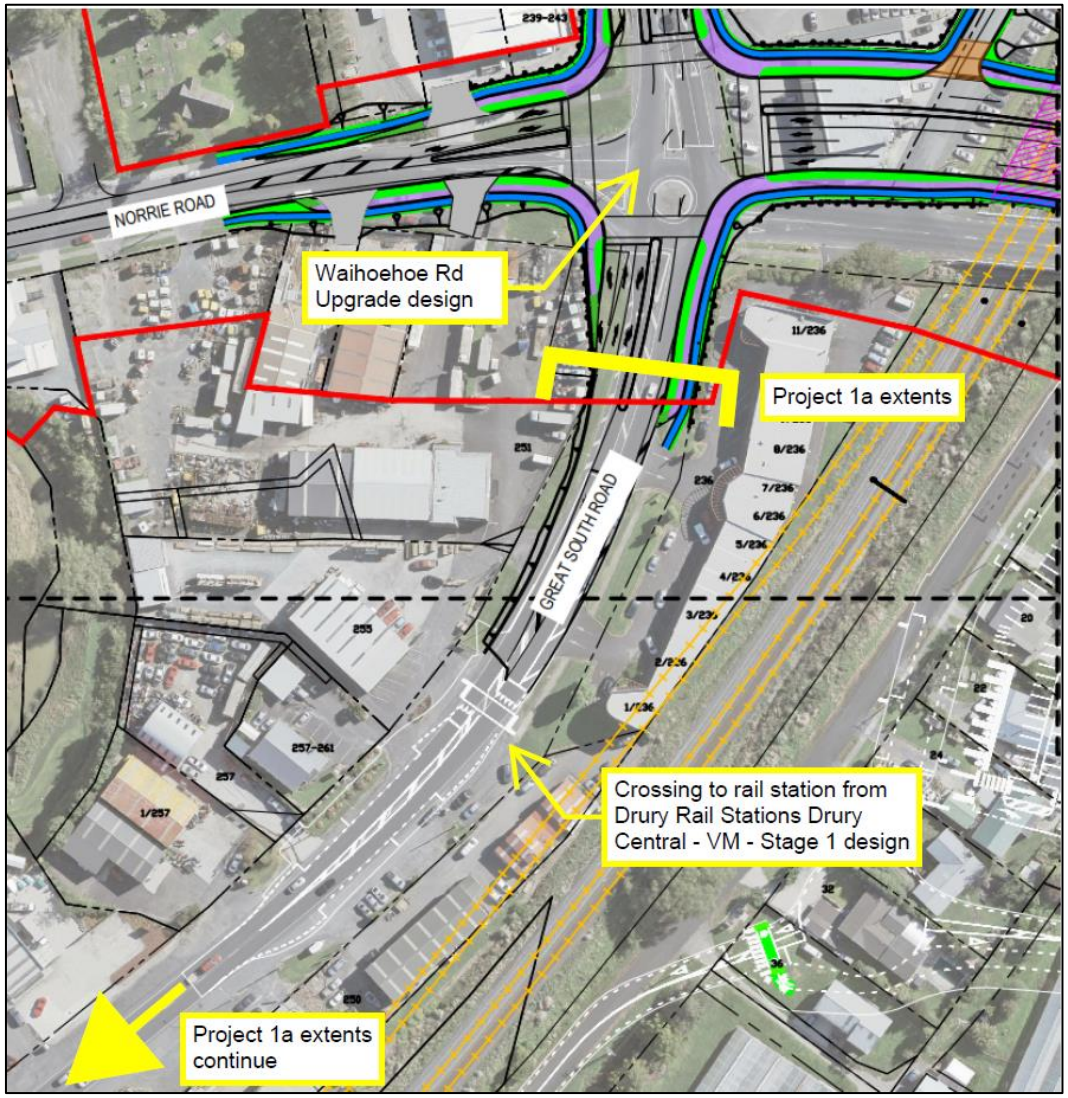

Figure 4-2: Extent of works for project 1a

Design Cost Allowance Assumptions:

Transport corridor/intersection before project:	Scope and assumptions in previous DC assessment	NZUP project engineering/scope assumptions within project extent	Changes to DC assumptions/scope	Revised DC assumptions/scope
2-lane urban arterial with kerbline along some of the extents. Crosses Hingaia Stream.	- Linear rate 1 for 'Roadside Berm Construction' for the addition of separated footpath and cycleway on each side with associated kerb and channel. This has been applied over a length of **810m** to reflect an upgrade to both sides of the road. - New pedestrian bridge added to both sides of the Hingaia Stream Bridge. Each shared path bridge is **40m long and 3m wide**. - Signalisation of the Firth St intersection – included as a Simple Signalised intersection.	Overlap with crossing to access train station in Drury Rail Stations Drury Central - VM - Stage 1 design. Partial overlap with Waihoehoe Road Upgrade design on approach to GSR/Waihoehoe Rd intersection. Assume extents of 1a end at the start of LT bay indicated in Waihoehoe Rd Upgrade design. Drury Rail Stations Drury Central - VM - Stage 1: design indicates new kerbline at midblock crossing on both sides to accommodate crossing facilities, bus stops and active mode improvements. Assume **80m** linear rate 1 on western side, and **70m** linear rate 1 on eastern side. NZUP will provide bi-directional active mode facility on North/West side of Great South Road including parallel bridge at same level as current road one. There will be minimal kerb and channel work and Firth St will not be signalised. Therefore, almost all of previous assumptions superseded by NZUP design besides Firth St signals.	It is accepted that provision of a shared path with kerb and channel on one side of the road will suffice for an interim option. Therefore linear rates for berm upgrades can be removed from the assessment. A Shared path bridge is provided on one side to support the shared path. Therefore no interim bridge works are required. The NZUP project does not include signalisation of the Firth Street intersection, so this is required in the interim option.	- Signalisation of the Firth St intersection – included as a 'Simple Signalised intersection.

Property Cost Allowance Assumptions:

Previous DC property assumptions	NZUP project property scope assumptions/change	Revised DC property assumptions
Assumed works can occur in existing road corridor. No property acquisition required.	No reduction in DC scope needed, as there was no property acquisition assumed previously.	No property acquisition required.

1b Future Option: 4-lane option with active modes provided

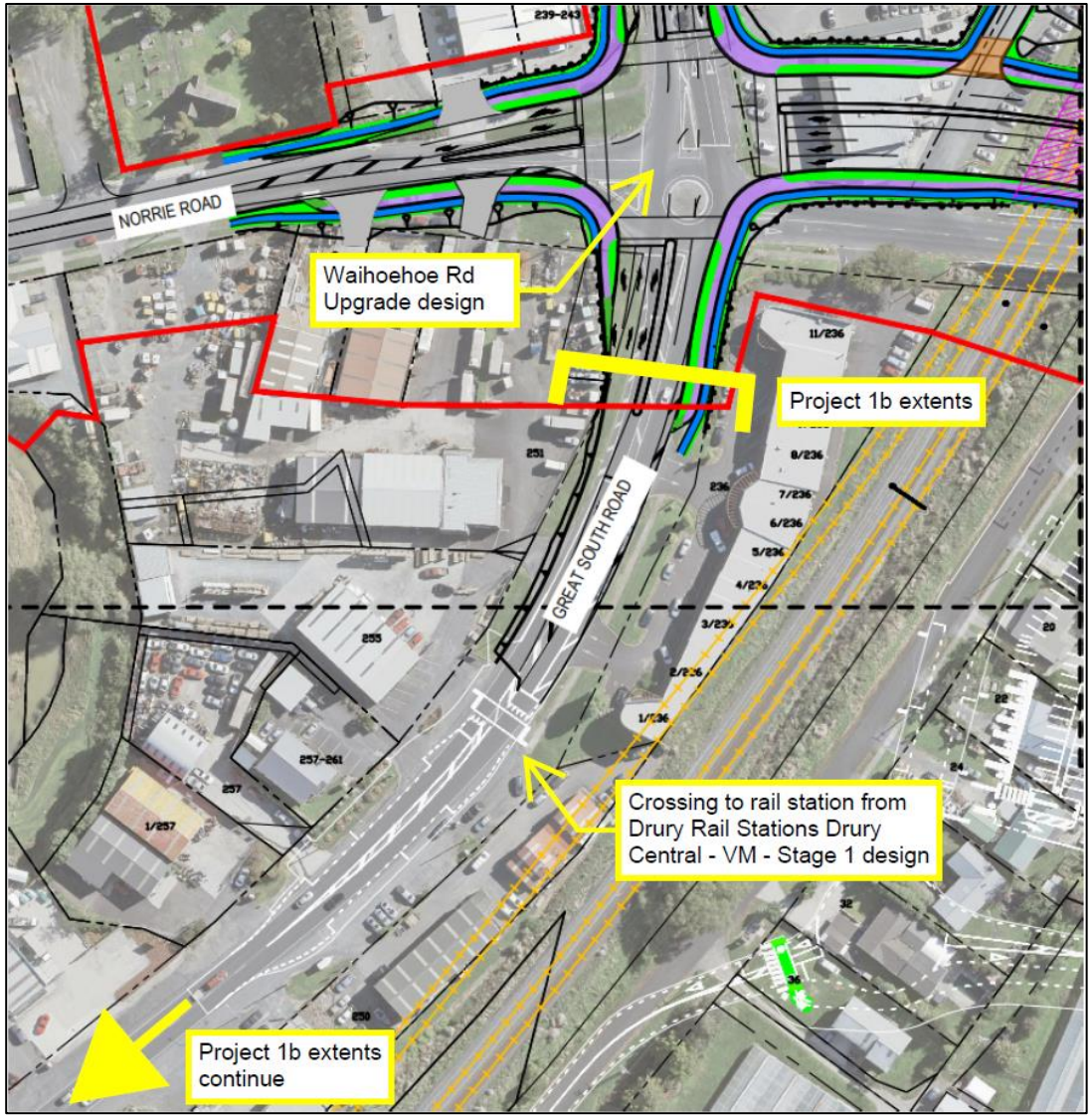

Figure 4-3: Extent of works for project 1b

Design Cost Allowance Assumptions:

Transport corridor/intersection before project:	Scope and assumptions in previous DC assessment	NZUP project engineering/scope assumptions within project extent	Changes to DC assumptions/scope	Revised DC assumptions/scope
Extents from GSR/Waihoehoe Rd intersection to Drury Interchange. 2-lane urban with kerb and channel with active modes. Crosses Hingaia Stream with active mode bridges alongside road bridge.	Cost based on measure and value of set of prelim design drawings by Te Tupu Ngātahi. Assumes new pavement, berm, bridge across Hingaia Stream, allowance for upgrade up to GSR/Waihoehoe intersection. The length that the cost estimate considered was longer than the actual project length, as some of the extents included within the cost estimate were assumed to be constructed as part of the NZUP SH1 Papakura to Drury project at the SH1 interchange. **60%** of cost of full buildout works assumed for full 4-lane to account for reduced length of design relative to cost estimate as well as portion of retained works from interim.	Crossing to rail station from Drury Rail Stations Drury Central - VM - Stage 1 design is likely to be reconstructed, alongside kerblines in design. Waihoehoe Rd Upgrade accounts for 4-lanes at tie-in, although this tapers to 2-lanes. Assume 4-lane extent up to intersection is included within 9a rather than 1b. Kerblines within extents of 1a near this intersection are likely to be reconstructed to accommodate 4-lanes. There will be few components retained from NZUP projects, besides minor length near GSR/Waihoehoe intersection, of which little will be retained as new kerb and channel are likely to be reconstructed on both sides. As the scale of works for 1a is reduced from its previous assumption, it is assumed that additional works at the bridge across Hingaia Stream will be required to reach the ultimate form for 1b. Therefore, higher rate than cost report (**65%** of cost of full 4-lane buildout works).	Increase from 60% to 65% of measure and value cost for prelim design drawings.	**65%** of cost of full buildout works previously assumed for full 4-lane.

Property Cost Allowance Assumptions:

Previous DC property assumptions	NZUP project property scope assumptions/change	Revised DC property assumptions
Existing road reserve is wide, assumed works can occur in existing road corridor. No property acquisition required.	Similar project scope, previously assumed no property acquisition required, therefore no change in DC scope needed.	No property acquisition required.

2 Great South Rd Improvements: Waihoehoe Rd to Drury School

This project extends from the intersection with Waihoehoe Road, north to the Drury School as shown in Figure 4-4.

There are two stages proposed for this corridor:

2a. 2-lane urban- existing road layout with active modes on both sides

2b. 4-lane urban- existing road layout with active modes on both sides

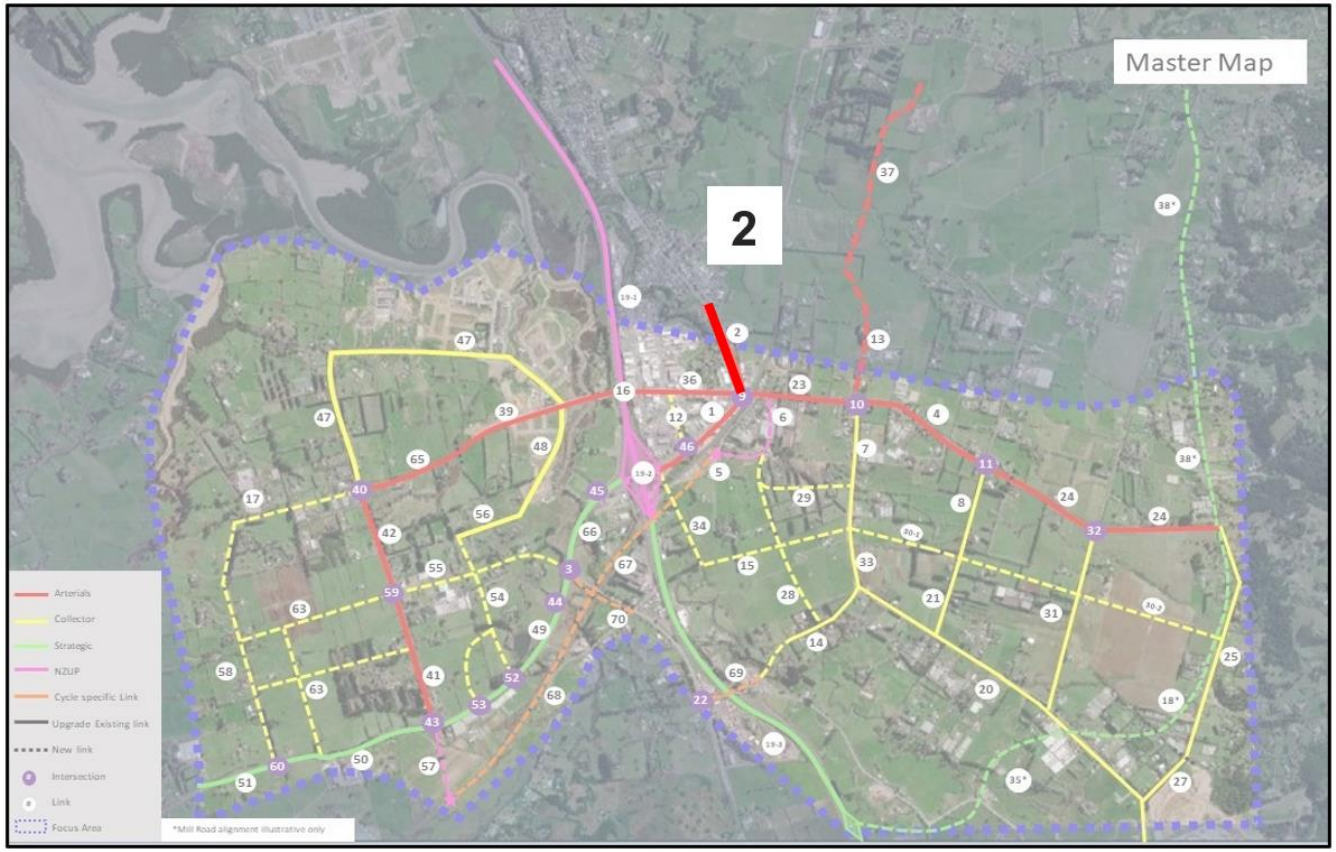

Figure 4-4: Drury Locality Map – Great South Road: Waihoehoe Rd to Drury School

2a Interim Option: Existing 2-lanes with active modes provided

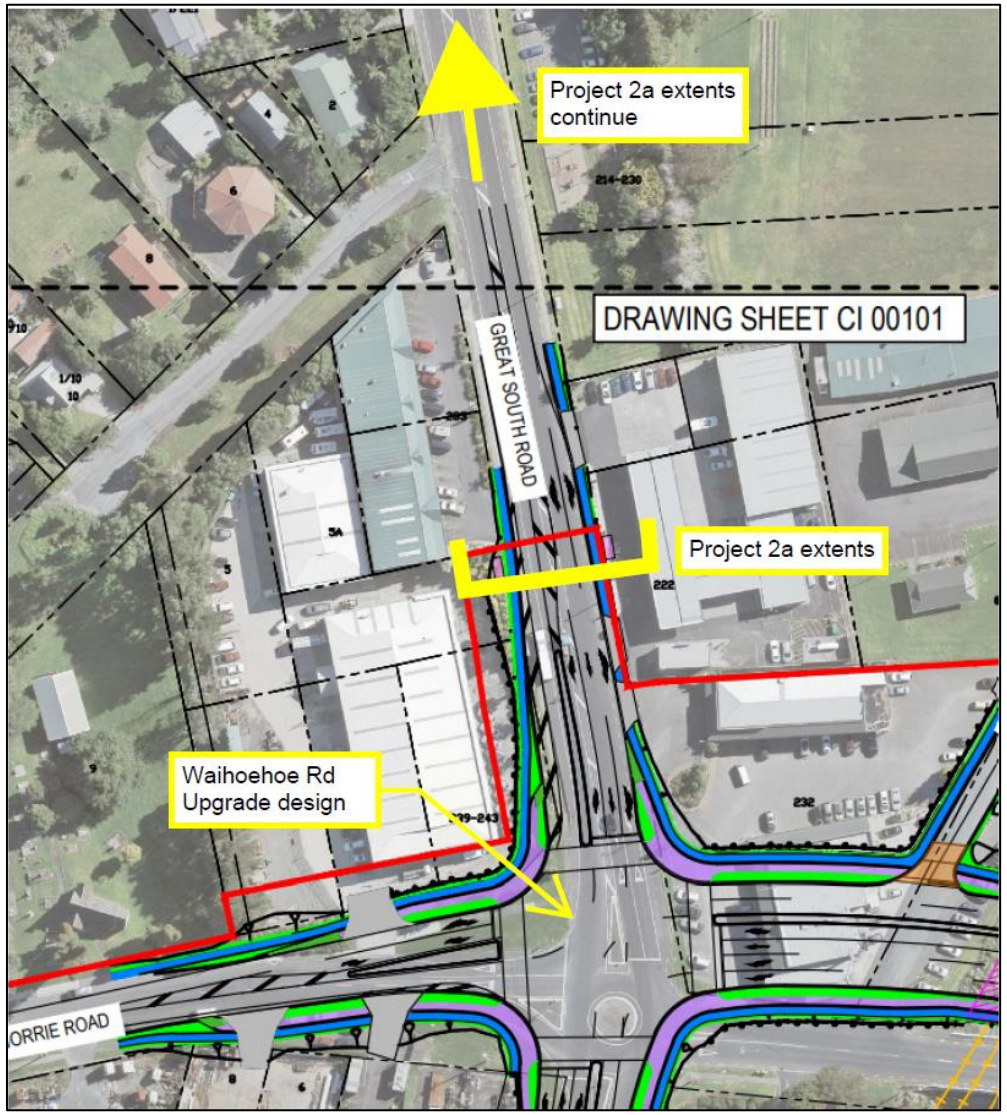

Figure 4-5: Extent of works for project 2a

Design Cost Allowance Assumptions:

Transport corridor/intersection before project:	Scope and assumptions in previous DC assessment	NZUP project engineering/scope assumptions within project extent	Changes to DC assumptions/scope	Revised DC assumptions/scope
2-lane urban arterial with kerbline for almost entire extent.	Active mode facilities extend 600m from northern boundary of Drury School site. - Linear rate for 'Roadside Berm Construction' for the addition of separated footpath and cycleway on each side. This has been applied over a length of **1200m** to reflect an upgrade to both sides of the road. - Signalisation of the Great South Road/ Waihoehoe Road intersection – included as a Simple Signalised intersection	Overlap with Waihoehoe Rd Upgrade Design on northern leg of intersection. Assume extents of 2a extend to start of RT bay in Waihoehoe Rd Upgrade design. Waihoehoe Rd Upgrade western side: design indicates new kerbline, footpath and retaining structure on western side of road, although retaining structure is within the extents of the intersection (9a). **20m** linear rate 1 for new kerbline/footpath on western side within extents of 2a. Waihoehoe Rd Upgrade eastern side: design indicates new footpath on eastern side of road, and new kerb and channel where the road transitions from one lane to 2 on approach to intersection. **40m** footpath retrofit for new footpath, **40m** linear rate 1 for new kerb and channel. Waihoehoe Rd Upgrade design does not indicate any cycle facilities within the extents of 2a. Limited space on western side due to retaining structure, assume no cycle facilities to be implemented	All linear rate 1 that has been assumed for NZUP project design overlaps with the linear rate 1 extents originally assumed in DC model, therefore reduce original assumptions by 20+40 = **60m**. Some kerbline in NZUP design does not include cycle facilities, add footpath retrofit rate for **80m**. Signalisation of GSR/Waihoehoe Rd intersection is excluded, as the intersection upgrades will be included within the extents of 9a.	- Linear rate 1 for 'Roadside Berm Construction' for the addition of separated footpath and cycleway on each side. This has been applied over a length of **1140m** to reflect an upgrade to both sides of the road. - Footpath retrofit for **80m** for additional cycle facilities

Transport corridor/intersection before project:	Scope and assumptions in previous DC assessment	NZUP project engineering/scope assumptions within project extent	Changes to DC assumptions/scope	Revised DC assumptions/scope
		on western side near intersection, and these will begin on western side outside of the extents of the Waihoehoe Rd Upgrade design. **80m** footpath retrofit rate included in 2a (not NZUP) for cycle facilities on eastern side.		

Property Cost Allowance Assumptions:

Previous DC property assumptions	NZUP project property scope assumptions/change	Revised DC property assumptions
Assumed works can occur in existing road corridor. No property acquisition required.	No reduction in DC scope needed, as there was no property acquisition assumed previously.	No property acquisition required.

2b Future Option: 4-lane option with active modes provided

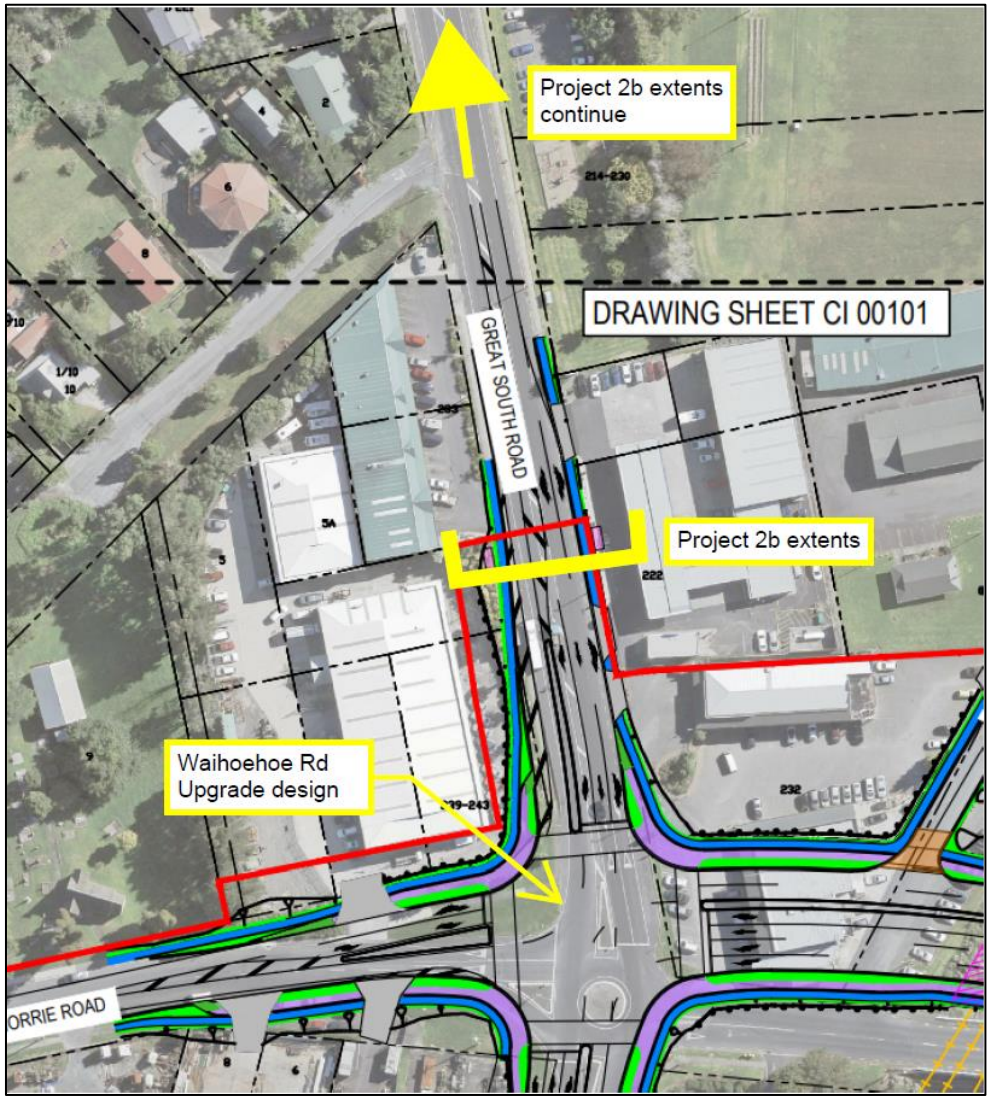

Figure 4-6: Extent of works for project 2b

Design Cost Allowance Assumptions:

Transport corridor/intersection before project:	Scope and assumptions in previous DC assessment	NZUP project engineering/scope assumptions within project extent	Changes to DC assumptions/scope	Revised DC assumptions/scope
2-lane urban with active mode facilities on both sides for almost the entire length, as is outlined in 2a.	Previous DC cost report assumptions: - Linear rate for '4-lane transport corridor brownfields' for the reconstruction of the existing road and provision of a full width 4-lane corridor with active modes on each side. This has been applied over the full length of **600m**. - Upgrade of the Great South Road/ Waihoehoe Road intersection which was signalised as part of the interim works – included as a 'Simple Signalised intersection'. However, this form is superseded by the recent SGA business case that identifies this a 3-lane corridor with a bus lane in the northbound direction through this section.	Overlap with Waihoehoe Rd Upgrade design on northern leg of intersection. Northern leg design considers road space for future 2-lane northbound exit, so the costs will be minimal to transition this to a 3-lane bus priority corridor. Assume extents continue to start of RT bay at tie in, same as for 2a. As corridor is to be 3-lanes with northbound bus lane only, assume the interim project (2a) provides kerb and channel in the correct location so that implementation of the bus lane is a simple line marking exercise on top of the interim form. Therefore, assume any costs associated with 2b are very minimal and therefore 2b can be excluded from the DC model	Removal of all previous DC cost assumptions: - Linear rate for '4-lane transport corridor brownfields' for the reconstruction of the existing road and provision of a full width 4-lane corridor with active modes on each side. This has been applied over the full length of **600m**. - Upgrade of the Great South Road/ Waihoehoe Road intersection which was signalised as part of the interim works – included as a 'Simple Signalised intersection'.	No significant works required for 2b; no cost included in DC.

Property Cost Allowance Assumptions:

Previous DC property assumptions	NZUP project property scope assumptions/change	Revised DC property assumptions
- Existing cross section is 20m at southern end. Assume that 4m would be required from each side over a length of 380m up to East Street (i.e., 3,040m2). - Existing Cross section north of East Street is 25m wide. Assume that 3m would be required over a length of 70m (210m2). - Existing Cross Section is 20m up to school's northern boundary. Assume 8m acquisition over length of 170m (1,360m2).	Previous property assumptions assumed 4 lane corridor. However, SGA 3-lane is assumed to fit within the corridor space provided in 2a, so no additional property required for 2b.	No property acquisition required.

3 SH22 Great South Road/Karaka Road Intersection Upgrade

The project includes signalisation of the existing intersection and provision of an active mode facility as shown in Figure 4-7.

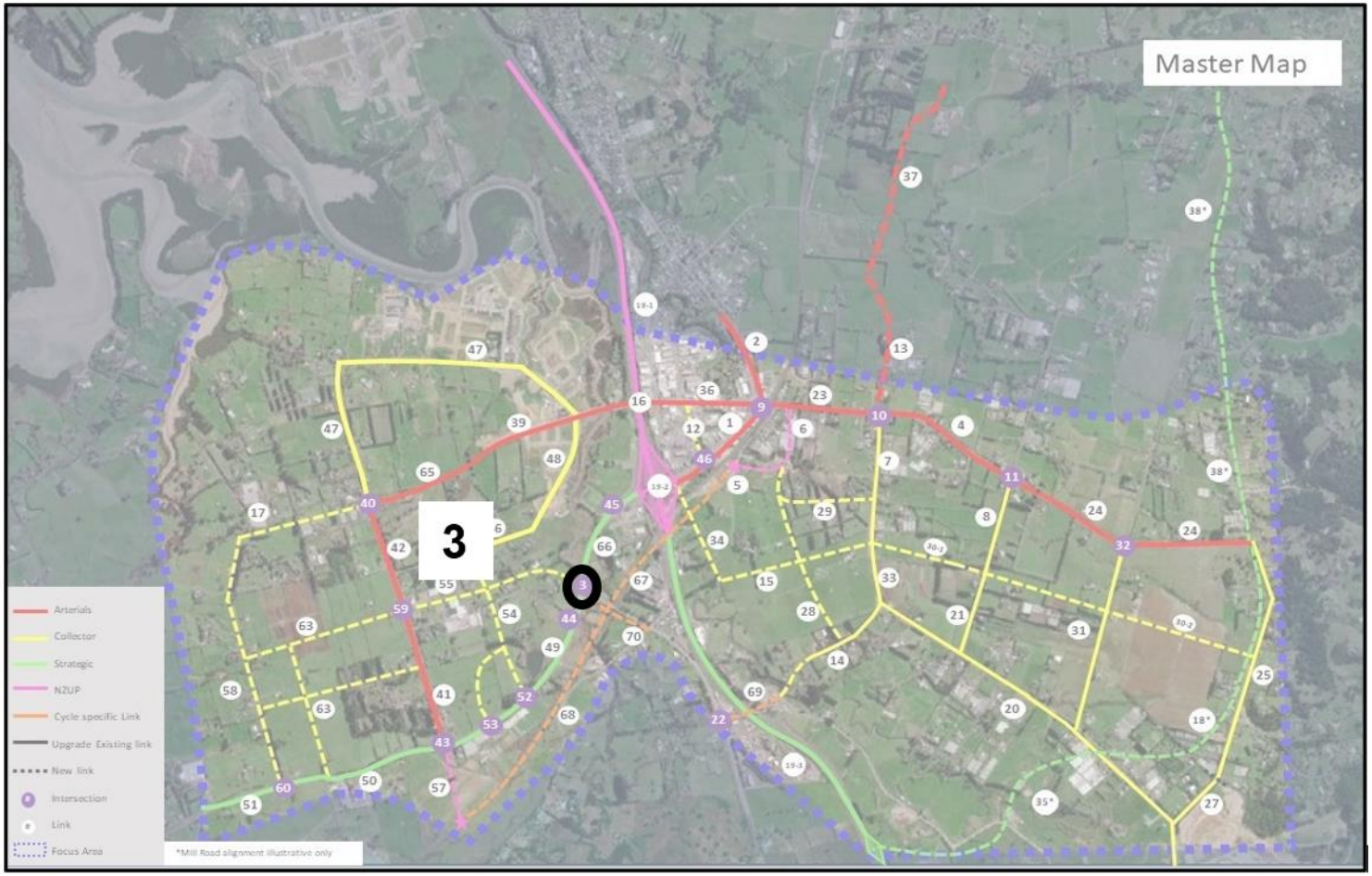

Figure 4-7. Drury Locality Map - SH22 Great South Road / Karaka Road intersection

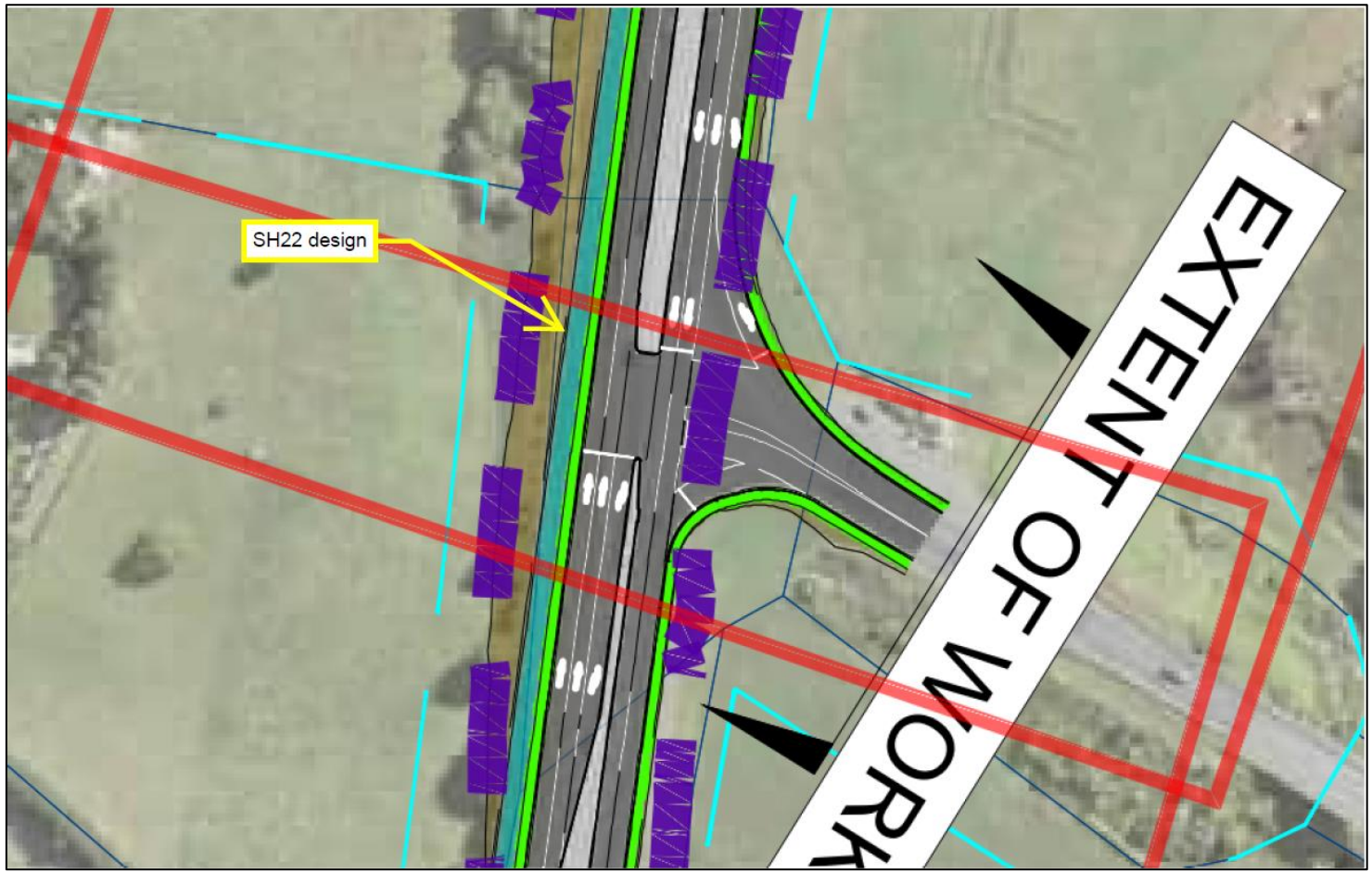

Figure 4-8: Extent of works for project 3

Design Cost Allowance Assumptions:

Transport corridor/intersection before project:	Scope and assumptions in previous DC assessment	NZUP project engineering/scope assumptions within project extent	Changes to DC assumptions/scope	Revised DC assumptions/scope
Rural, unsignalised.	Simple signals rate assumed, includes active mode upgrades at intersection.	SH22 design indicates 4-lane signalised intersection with active mode improvements. Full overlap with SH22 design, assume project excluded from DC model.	Removal of simple signals rate.	Full overlap with SH22 design, assume no signal rate included for DC.

Property Cost Allowance Assumptions:

Previous DC property assumptions	NZUP project property scope assumptions/change	Revised DC property assumptions
Existing road reserve is wide, assumed works can occur in existing road corridor. No property acquisition required.	Same project scope, previously assumed no property acquisition required, therefore no change in DC scope needed.	No property acquisition required.

9 Great South Rd/ Waihoehoe Rd/ Norrie Rd Intersection

This project includes an upgrade of the intersection and provision of an active mode facility. The location of the intersection is shown in Figure 4-9.

There are two stages proposed for this corridor:

9a. Interim Upgrade of the existing roundabout to traffic signals

9b. Upgraded of the interim signalised intersection to accommodate future growth

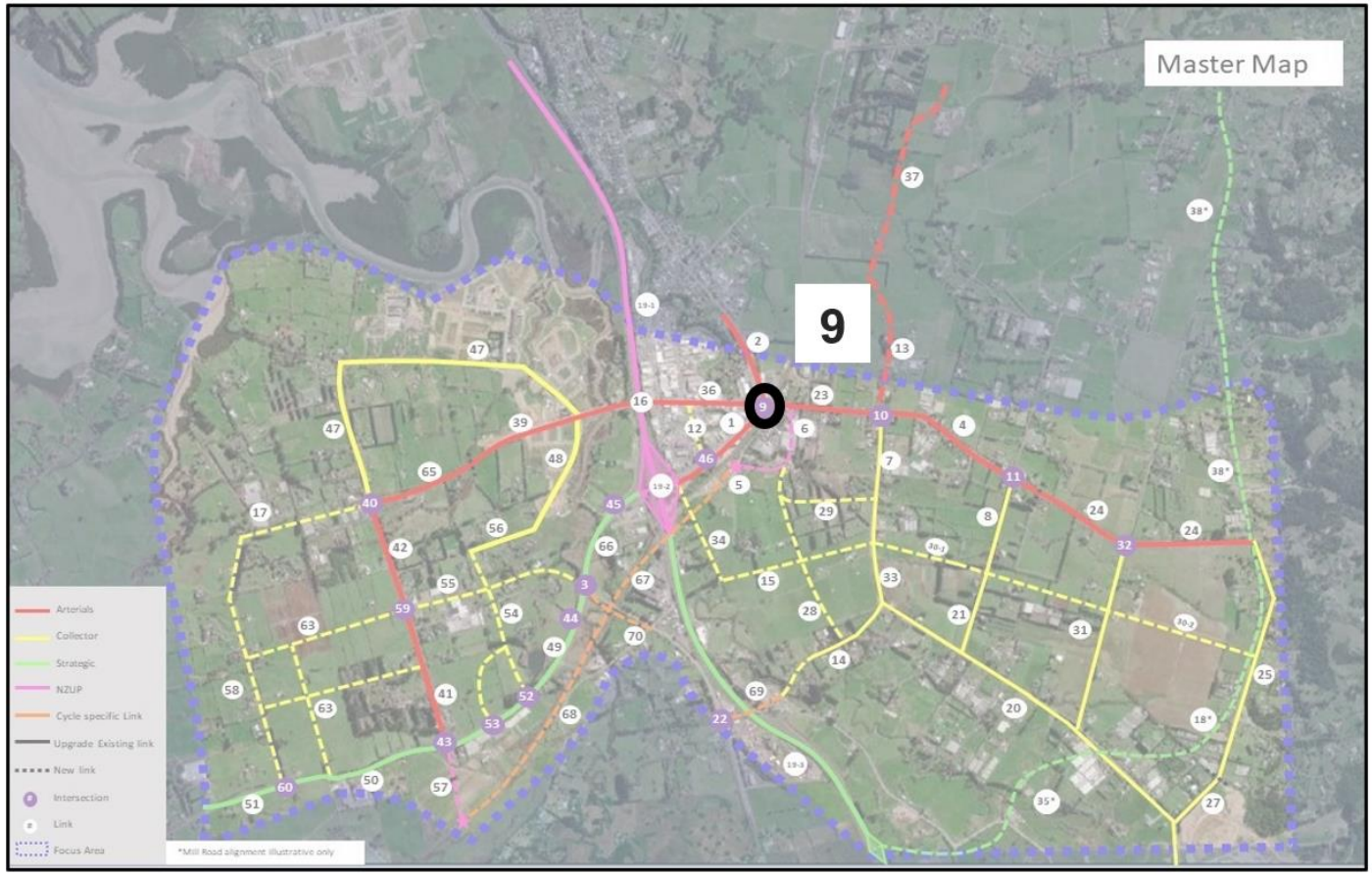

Figure 4-9: Drury Locality Map – Great South Rd/ Waihoehoe Rd/ Norrie Rd intersection

9a Interim Signalisation of existing intersection

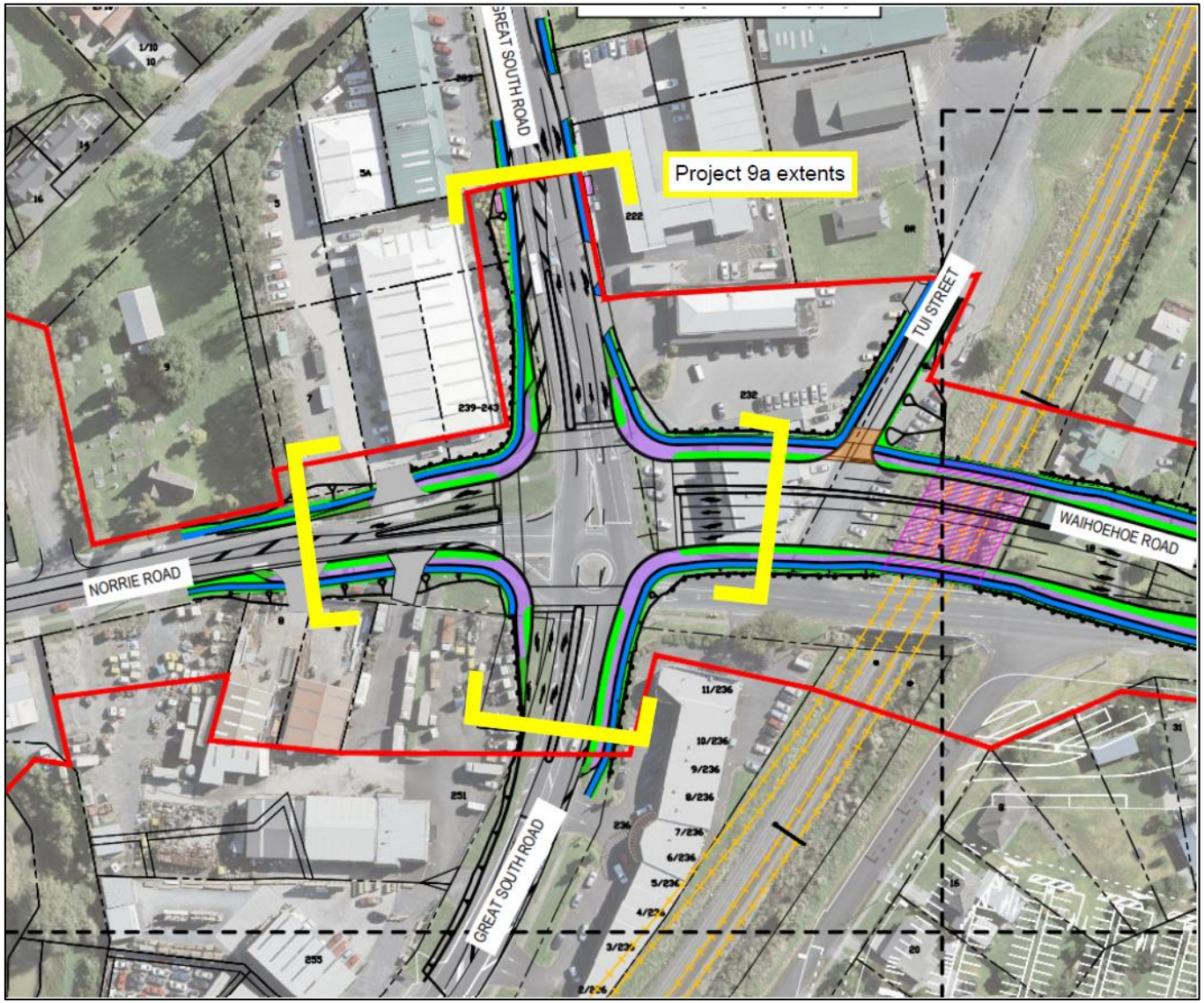

Figure 4-10: Extent of works for project 9a

Design Cost Allowance Assumptions:

Transport corridor/intersection before project:	Scope and assumptions in previous DC assessment	NZUP project engineering/scope assumptions within project extent	Changes to DC assumptions/scope	Revised DC assumptions/scope
Urban roundabout.	Complex signals rate assumed for full reconstruction to new form.	Waihoehoe Road Upgrade includes full signalisation to align with future FTN bus requirements.	NZUP project covers the entire extents of the previous DC assumption, Removal of complex signals rate as it is no longer required.	Full overlap with SH22 design, assume no signal rate included for DC.

Property Cost Allowance Assumptions:

Previous DC property assumptions	NZUP project property scope assumptions/change	Revised DC property assumptions
It is assumed that the installation of signals will impact on adjacent property on the southeastern corner of the intersection. Land acquisition will be required to accommodate the 6-lane approach proposed. This would only be required temporarily for final layout, although acquisition would be required in the interim as the position of the final intersection would be further to the north. The area required for the interim signals is estimated to be 515m^2.	Intersection form is superseded by NZUP design. Therefore, no property acquisition that was previously assumed is retained in the DC.	No property acquisition included in DC

9b Upgrade of the signalised intersection to align with future growth

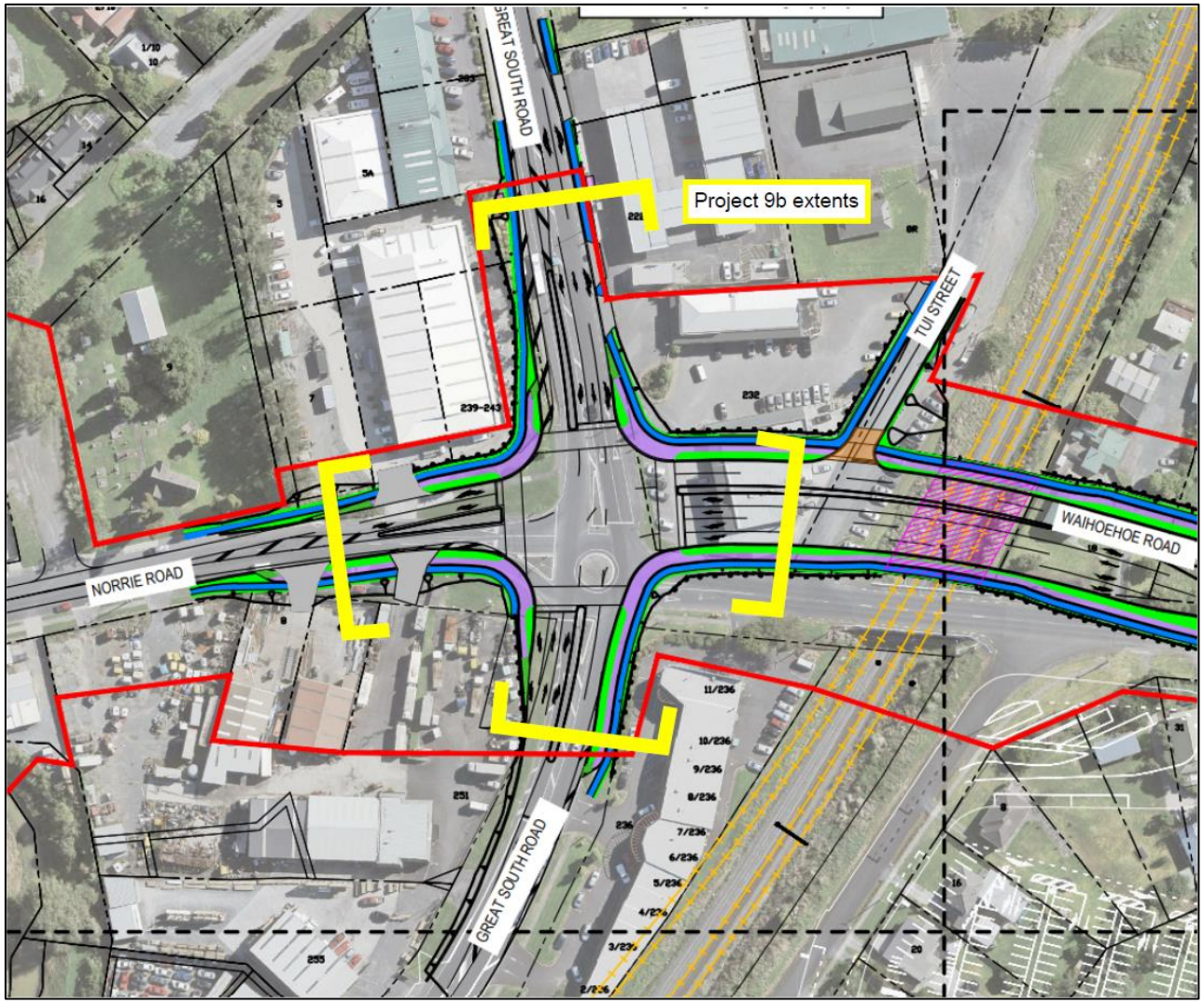

Figure 4-11: Extent of works for project 9b

Design Cost Allowance Assumptions:

Transport corridor/intersection before project:	Scope and assumptions in previous DC assessment	NZUP project engineering/scope assumptions within project extent	Changes to DC assumptions/scope	Revised DC assumptions/scope
Waihoehoe Rd Upgrade design - 2-lane signalised intersection.	70% of cost from DBC assessment, accounting for retained facilities from interim.	Waihoehoe Road Upgrade includes full signalisation to align with future FTN bus requirements.	No cost associated with this project, reduction of 70% of DBC cost estimate to 0%.	No cost associated with this project included in DC as the works to upgrade to 4 lanes are minor.

Property Cost Allowance Assumptions:

Previous DC property assumptions	NZUP project property scope assumptions/change	Revised DC property assumptions
There will be additional land required to accommodate the final form of the intersection, particularly on the eastern side of the intersection. The cost of each property was evaluated during the DBC phase. For this intersection, the total property cost evaluated from the DBC has been adopted. Signals will impact on adjacent property on the southeastern corner. Land acquisition will be required to accommodate the 6-lane approach proposed. This was only required temporarily for final layout, although would be required in the interim.	Intersection form is almost completely superseded by NZUP design. No corridor widening beyond NZUP design assumed. Therefore, no property acquisition that was previously assumed is retained in the DC.	No property acquisition required.

23 Waihoehoe Rd Upgrade: Great South Rd to Fitzgerald Rd

This project extends from the intersection with Great South Road to the intersection with Fitzgerald Road (as shown in Figure 4-12). This covers a length of approximately 670m.

This corridor is separated into 2 sections, with two stages proposed for each section:

23a. Interim active modes upgrade between Great South Road and Kath Henry Lane

23b. Staged Upgrade to 4-lane corridor with separated active mode facilities on both sides between Great South Road and Kath Henry Lane

23c. Interim active modes upgrade between Kath Henry Lane and Fitzgerald Road

23d. Staged Upgrade to 4-lane corridor with separated active mode facilities on both sides between Kath Henry Lane and Fitzgerald Road

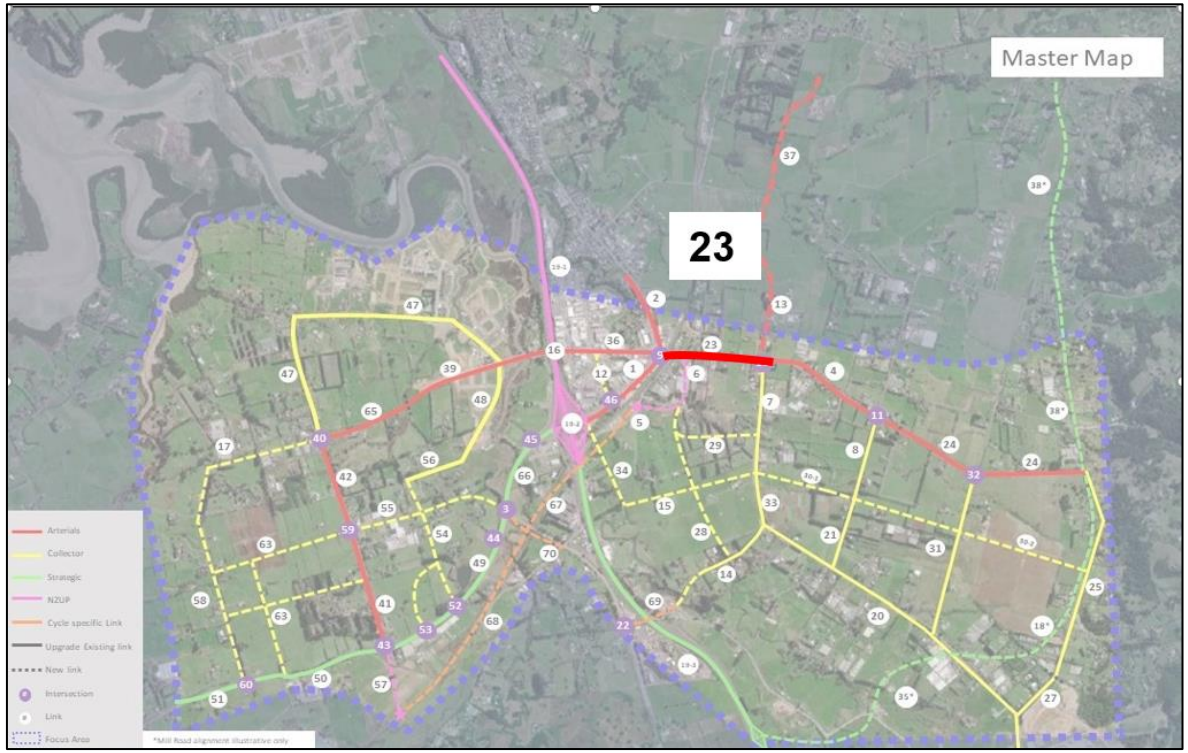

Figure 4-12: Drury Locality Map – Waihoehoe Rd Upgrade: Great South Road to Fitzgerald Rd

23a Interim active modes upgrade – GSR to Kath Henry Lane

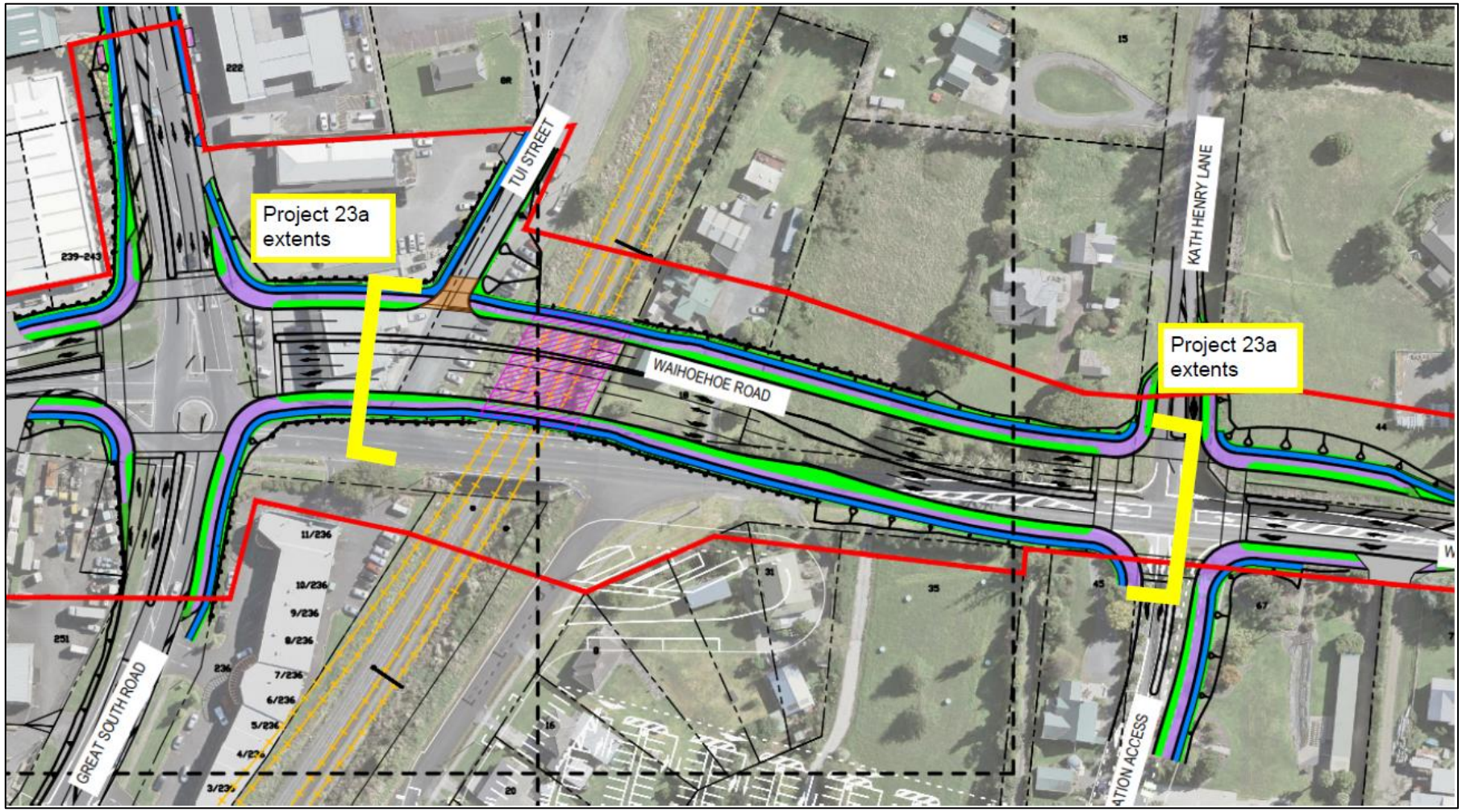

Figure 4-13: Extent of works for project 23a

Design Cost Allowance Assumptions:

Transport corridor/intersection before project:	Scope and assumptions in previous DC assessment	NZUP project engineering/scope assumptions within project extent	Changes to DC assumptions/scope	Revised DC assumptions/scope
Rural 2-lane corridor, no kerb and channel.	- Active mode facilities on both sides, **520m** linear rate 1 assumed. - 2 120m2 active mode bridges alongside existing bridge, **240m²** total No upgrade to the Kath Henry Ln intersection as the project is an active mode upgrade only. Assume the boundary between the two projects is at the centre of the Kath Henry Ln intersection.	Overlap with Waihoehoe Road Upgrade design. Design includes final 4 lanes for future FTN with active mode facilities on both sides. This facility accommodates the full corridor upgrade, therefore the full costs of 23a can be removed from the DC model.	Removal of previous DC assumptions as there is full overlap with the NZUP design.	Full overlap with SH22 design, assume no costs included in DC.

Property Cost Allowance Assumptions:

Previous DC property assumptions	NZUP project property scope assumptions/change	Revised DC property assumptions
To accommodate the new pedestrian/ cycle bridges, an area of approximately 100m² would be required on north side of Waihoehoe Road.	NZUP design supersedes previous DC assumption. Therefore, no property acquisition that was previously assumed is retained in the DC.	No property acquisition required.

23b Staged Upgrade to 4-lane corridor – Great South Road to Kath Henry Lane

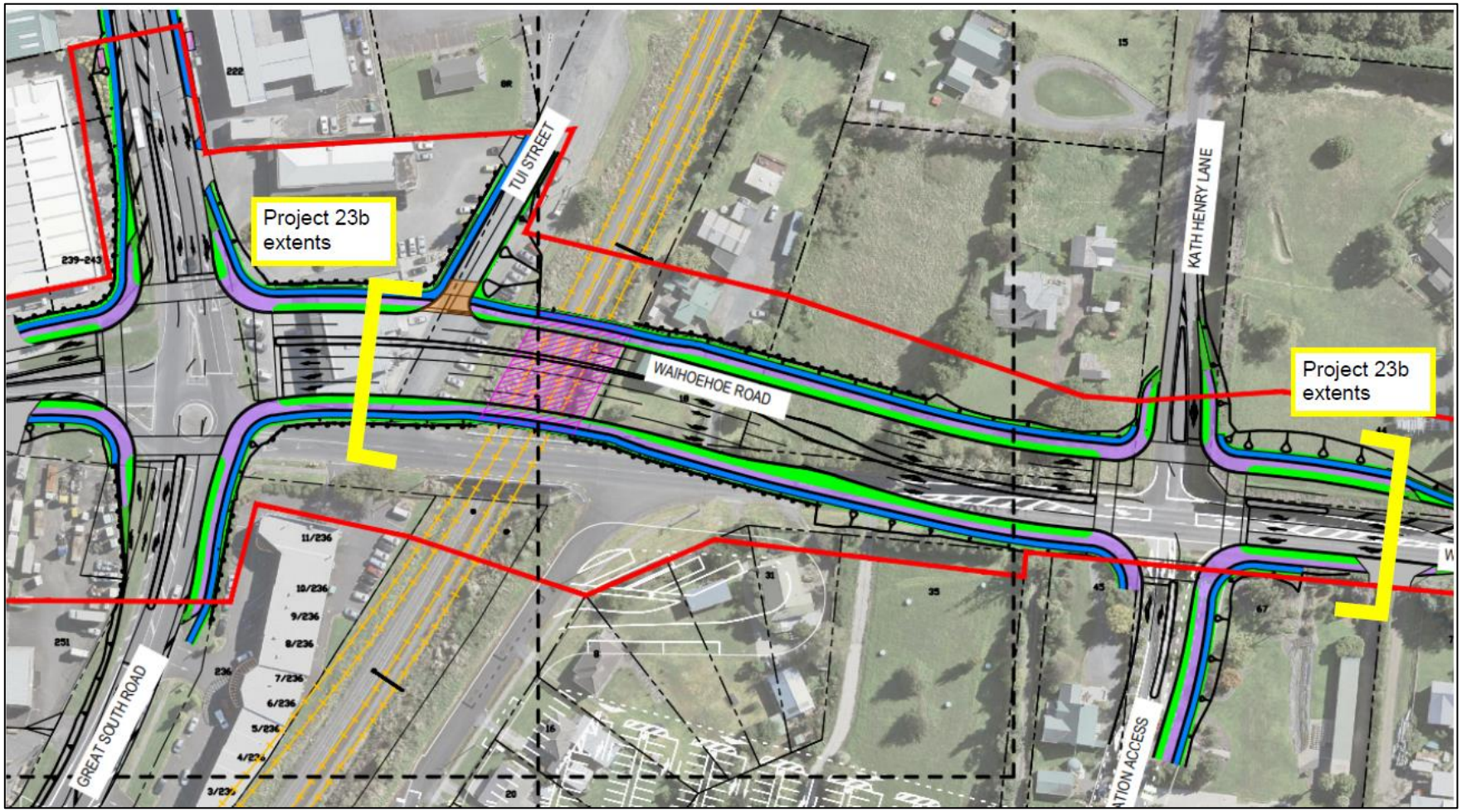

Figure 4-14: Extent of works for project 23b

Design Cost Allowance Assumptions:

Transport corridor/intersection before project:	Scope and assumptions in previous DC assessment	NZUP project engineering/scope assumptions within project extent	Changes to DC assumptions/scope	Revised DC assumptions/scope
2-lane corridor with active mode facilities on both sides as outlined in 23a.	Measure and value of DBC design. Assumes full reconstruction of western section, over about 220m to allow extra height for electrification requirements for the NIMT. Kerb and channel and active modes on southern side remain, although road is reconstructed. Intersection with Kath Henry Ln signalised, full intersection included within scope of 23b. Most interim works redundant (besides southern berm), bridges would also need to be reconstructed. Assumed 100% of measure and value cost of DBC design.	Form of Waihoehoe Rd Upgrade design is realigned, 4 lanes, with Kath Henry Ln signalised. Similar level of works required compared to DBC design. Waihoehoe Rd Upgrade design fully supersedes the project, so no cost associated with 23b.	Full overlap with NZUP design, assume no works required for 23b as they are already completed in NZUP design, Reduction of 100% of DBC cost allowance.	No cost in DC.

Property Cost Allowance Assumptions:

Previous DC property assumptions	NZUP project property scope assumptions/change	Revised DC property assumptions
The property cost allocated for this project is the full property cost identified in the Drury Arterial Network DBC for this section. As the interim option is constructed within the existing corridor, with minor impact on a property to the south, the final land acquisition to the north would be fully allocated to the final stage where the new bridge is constructed.	NZUP design supersedes previous DC assumption. Therefore, no property acquisition that was previously assumed is retained in the DC.	No property acquisition required.

23c Interim active modes upgrade – Kath Henry Lane to Fitzgerald Road

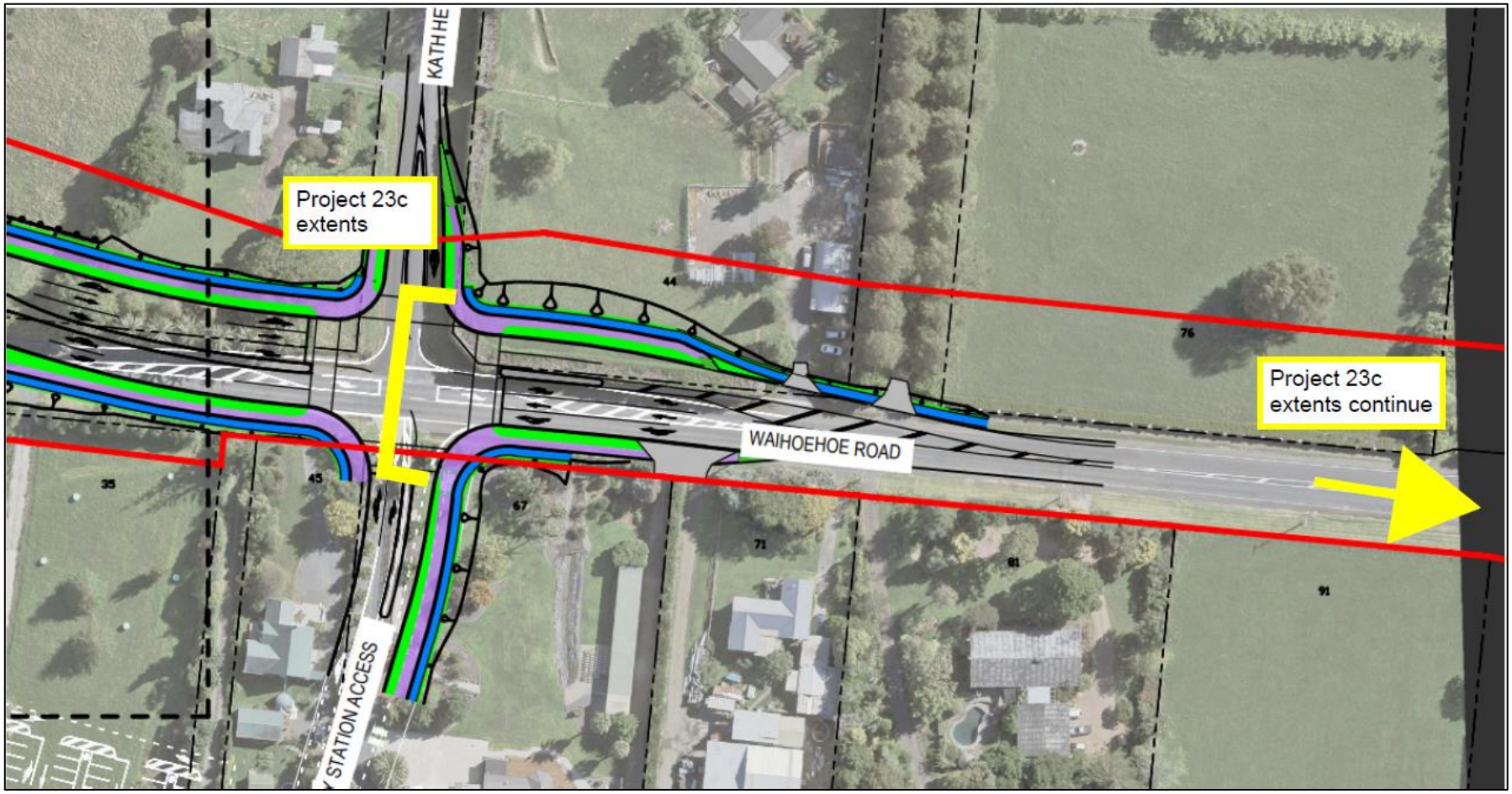

Figure 4-15: Extent of works for project 23c

Design Cost Allowance Assumptions:

Transport corridor/intersection before project:	Scope and assumptions in previous DC assessment	NZUP project engineering/scope assumptions within project extent	Changes to DC assumptions/scope	Revised DC assumptions/scope
Rural 2-lane corridor, no kerb and channel.	Active modes on both sides of the road. 'Linear rate 1 for 'Roadside Berm Construction' for the addition of separated footpath and cycleway on each side. This has been applied over a length of **740m** to reflect an upgrade to both sides of the road. The project does not include the Kath Henry Ln intersection as it is an active mode upgrade only. Assume the boundary between the two projects is at the centre of the Kath Henry Ln intersection, so the total project length is 370m, up to the Fitzgerald Rd intersection.	Overlap with Waihoehoe Road Upgrade design near Kath Henry Ln intersection. Design indicates 4 lanes on the eastern side of the Kath Henry Lane intersection with sufficient active mode facilities from Kath Henry Ln intersection over a length of 60m, before tapering into the existing 2 lanes. Kerbline for **120m** on northern side. **60m** of this does not have cycle facility. Kerbline for **80m** on southern side. **50m** of this does not have active mode facilities. Footpath retrofit for **60m** on northern side and **50m** on southern side should be included in 23c, as these are not included in NZUP design.	Remove **200m** linear rate 1 from previous DC assumptions for new kerbline included in NZUP design. Add 60m + 50m = **110m** footpath retrofit to DC project assumptions for active mode facilities along NZUP design extents where these facilities are not present.	- Linear rate 1 for 'Roadside Berm Construction' for the addition of separated footpath and cycleway on each side. This has been applied over a length of **540m** to reflect an upgrade to both sides of the road. **- 110m** footpath retrofit along extents of NZUP project where there is insufficient active mode facilities to meet DC project requirements.

Property Cost Allowance Assumptions:

Previous DC property assumptions	NZUP project property scope assumptions/change	Revised DC property assumptions
It is assumed that all works can be accommodated within the existing road reserve. No property acquisition required.	Same project scope, previously assumed no property acquisition required, therefore no change in DC scope needed.	No property acquisition required.

23d Staged Upgrade to 4-lane corridor – Kath Henry Lane to Fitzgerald Road

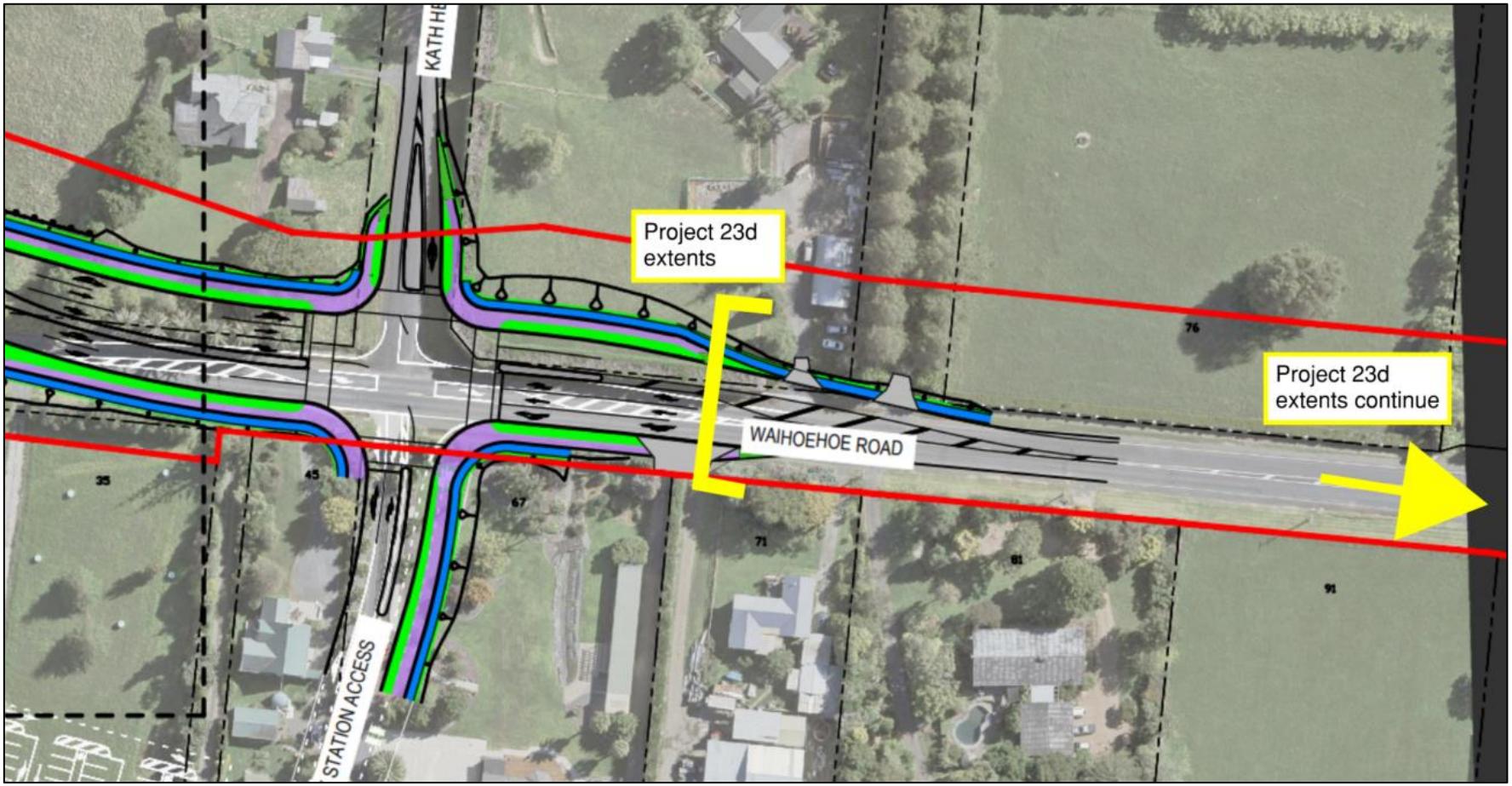

Figure 4-16: Extent of works for project 23d

Design Cost Allowance Assumptions:

Transport corridor/intersection before project:	Scope and assumptions in previous DC assessment	NZUP project engineering/scope assumptions within project extent	Changes to DC assumptions/scope	Revised DC assumptions/scope
2-lane corridor with active mode facilities on both sides as outlined in 23c.	Previous DC assumptions allow for a shift in road to the north, with carriageway reconstruction. Kerb and channel on southern side remain. As most interim works are redundant, it was assumed only a small section of southern berm area remain, this cost saving is minimal compared to rest of works. Linear rate for '4 Lane brownfields upgrade'. This has been applied over a length of **240m**.	Waihoehoe Road Upgrade design includes 4-lanes at Kath Henry intersection with 50m tie-in, where it tapers to 2-lanes to the east. The intersection at Kath Henry Ln and tie in in the eastern leg is within the extents of project 23b and is therefore not included in the extents of 23d. There is a length of approximately **350m** from Kath Henry Ln to Fitzgerald Rd. **50m** is tie-in so outside of 23d scope, **50m** is assumed to be tie-in for project 10 at Fitzgerald Rd so also outside of 23d scope. Therefore, approx. **250m** included in scope of 23d which is similar to **240m** assumed in previous DC assessment. Therefore, minimal overlap with NZUP design as the components included in the taper in NZUP design are likely to be reconstructed.	No change.	Linear rate for '4 Lane brownfields upgrade'. This has been applied over a length of **240m**.

Property Cost Allowance Assumptions:

Previous DC property assumptions	NZUP project property scope assumptions/change	Revised DC property assumptions
The property cost allocated for this project is the full property cost identified in the Drury Arterial Network DBC. As the interim option is constructed within the existing corridor, with minor impact on a property to the south, the final land acquisition to the north would be fully allocated to the final stage.	NZUP design is wider than interim scope, requiring further property acquisition from the ultimate scope. The acquired property for the NZUP design therefore does not need to be acquired for the DC project, shown in Figure 4-17. Half of the temporary acquisition on 44 Waihoehoe Road is removed from the DC as the NZUP design includes sufficient width near the intersection with Kath Henry Lane. - 833m^2 permanent land acquisition assumed for 44 Waihoehoe Road removed from DC assumption - 439m^2 temporary land acquisition assumed for 44 Waihoehoe Road removed from DC assumption - 48m^2 permanent land acquisition assumed for 76a Waihoehoe Road removed from DC assumption	- 549m^2 permanent land acquisition assumed for 44 Waihoehoe Road - 440m^2 temporary land acquisition assumed for 44 Waihoehoe Road - 283m^2 permanent land acquisition assumed for 76a Waihoehoe Road

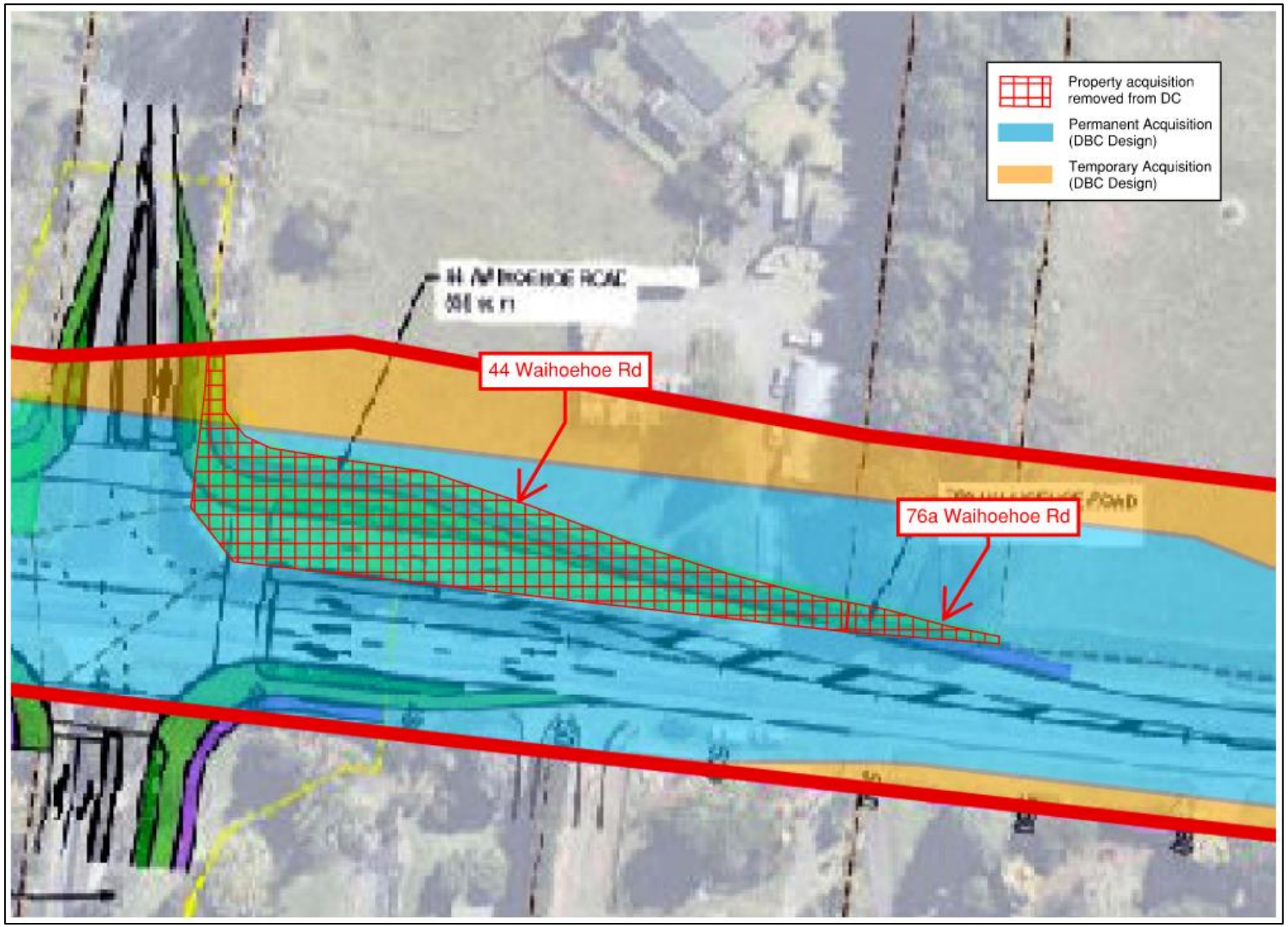

Figure 4-17. Updated property acquisition assumptions overlaying NZUP design for project 23d

36 Bremner Road/ Norrie Road Upgrade

This project extends from the bridge over the Ngākōroa Stream (ch1260) to west of the Great South Road intersection (ch1900) as indicated in Figure 4-18. Total length of the section is 640m and this includes 3 bridges: Ngākōroa Stream bridge, SH1 motorway overbridge, and the Hingaia Stream Bridge.

There are two stages proposed for this corridor:

36a. Interim 2-lane urban- upgrade of existing road layout with active modes on both sides

36b. Staged Upgrade to 4-lane corridor with separated active mode facilities on both sides (excluding Bridge structure). Bridge structure is included in 36c, which will not have any scope change resulting from NZUP projects

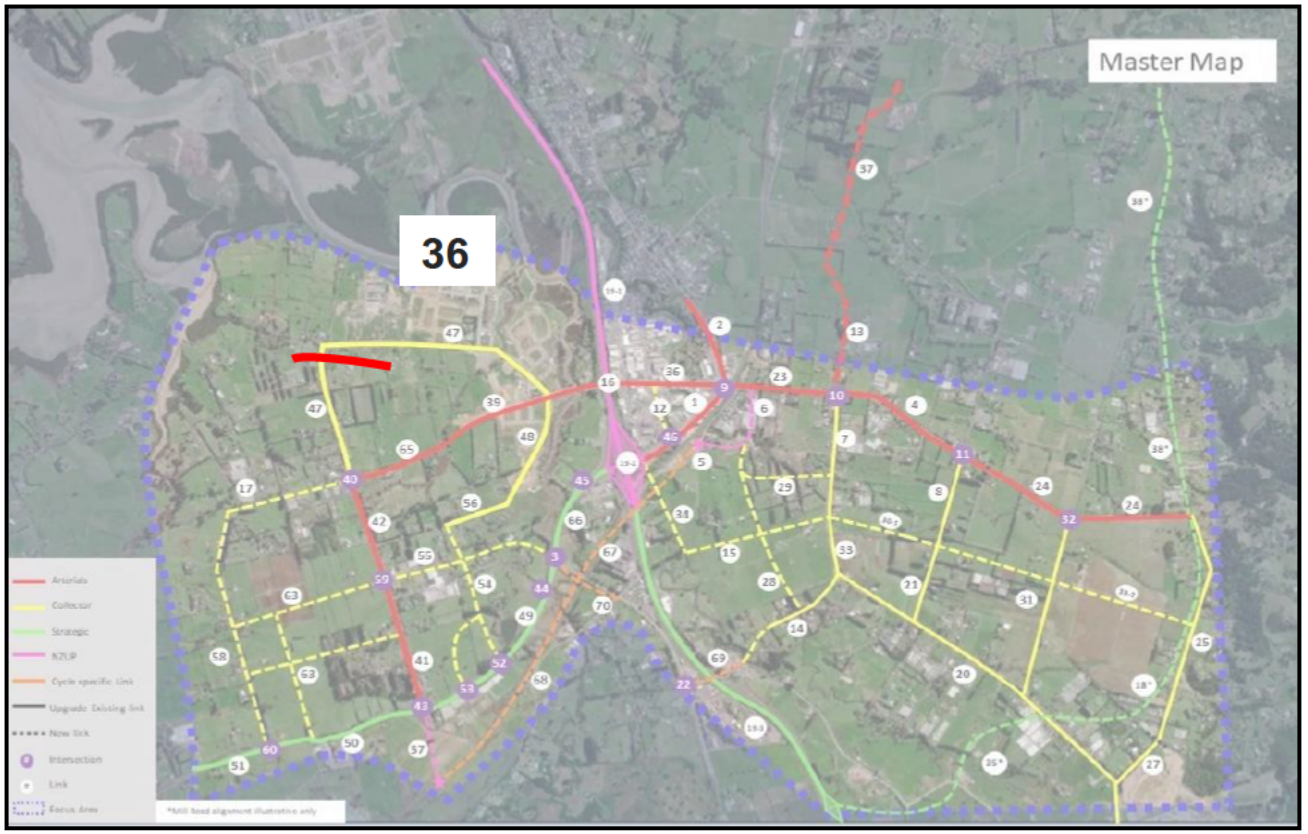

Figure 4-18: Drury Locality Map – Bremner Road/ Norrie Road Upgrade

36a Interim 2-lane corridor with active modes

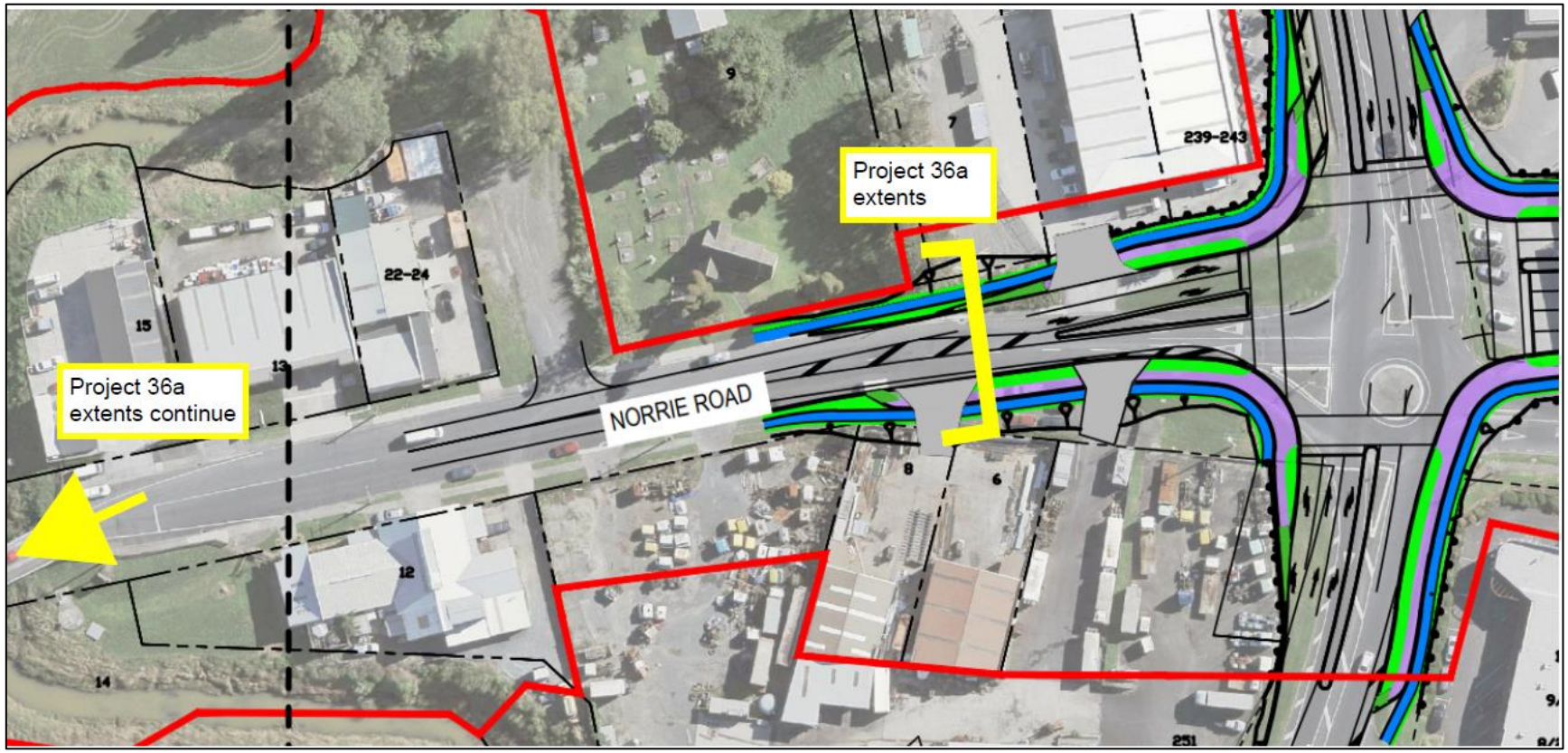

Figure 4-19: Extent of works for project 36a

Design Cost Allowance Assumptions:

Transport corridor/intersection before project:	Scope and assumptions in previous DC assessment	NZUP project engineering/scope assumptions within project extent	Changes to DC assumptions/scope	Revised DC assumptions/scope
2 lane urban, with kerb and channel. Brownfields where there will be new alignment of road.	Scope from Creek St to Norrie Rd tie-in. Retrofitting active modes to existing corridor and providing a 2-lane connection from Bremner Road to the western end of Norrie Rd. - New Bridge of **1120m2** over Hingaia Stream - Linear rate for 'Roadside Berm Construction' for the addition of separated footpath and cycleway on each side of the road between Creek Street and Firth Street. This has been applied over a length of **200m** to reflect an upgrade to both sides of the road. - Linear rate for a new '2-lane Transport Corridor' for the new section of road between Firth street and Norrie Road tie-in, excluding the bridge. This has been applied over a length of **210m**. - Simple signals rate for Bremner/Firth intersection.	NZUP design has 30m overlap with 36a, of which the previous DC assumption was 2 lane transport corridor rate. Alignment of road should follow the existing alignment for this extent, so this 30m on each side (**60m** total) can be assumed to be linear rate 2 for NZUP extents rather than 2 lane transport corridor rate. Linear rate 2 considers retaining structure required indicated by design.	Assume 36a ends at start of RT bay at the tie in to GSR/Waihoehoe intersection indicated in the Waihoehoe Rd Upgrade design. Tie-ins are included in project 9a. Reduce previous DC assumptions on 2 lane transport corridor rate by **30m**	- New Bridge of **1120m2** over Hingaia Stream - Linear rate for 'Roadside Berm Construction' for the addition of separated footpath and cycleway on each side of the road between Creek Street and Firth Street. This has been applied over a length of **200m** to reflect an upgrade to both sides of the road. - Linear rate for a new '2-lane Transport Corridor' for the new section of road between Firth street and Norrie Road tie-in, excluding the bridge. This has been applied over a length of **180m**. - Simple signals rate for Bremner/Firth intersection.

Property Cost Allowance Assumptions:

Previous DC property assumptions	NZUP project property scope assumptions/change	Revised DC property assumptions
To accommodate the new 2-lane corridor between Firth Street and the Norrie Road tie-in, several commercial properties would be required. The areas have been measured through the Drury Arterial Network DBC and these costs have been included directly.	30m of interim form is superseded by NZUP design. Therefore property associated with this 30m of the interim stage is removed from the previous DC property assumptions. Properties falling within this scope include 6 Norrie Road, 8 Norrie Road, and 251 Great South Road. 6 and 8 Norrie Road were previously noted to be fully acquired and are alongside the 30m superseded section, so are removed from DC property assumption and shifted to the ultimate project. The area of 251 Great South Road originally assumed to be acquired is shifted to the ultimate project as the NZUP design indicates this is not required in the interim. - 675m^2 permanent land acquisition assumed for 6 Norrie Road removed from DC assumption (shifted to ultimate stage) - 683m^2 permanent land acquisition assumed for 8 Norrie Road removed from DC assumption (shifted to ultimate stage) - 3039m^2 permanent land acquisition assumed for 251 Great South Road removed from DC assumption (shifted to ultimate stage).	- 0m^2 permanent land acquisition assumed for 6 Norrie Road - 0m^2 permanent land acquisition assumed for 8 Norrie Road - 0m^2 permanent land acquisition assumed for 251 Great South Road

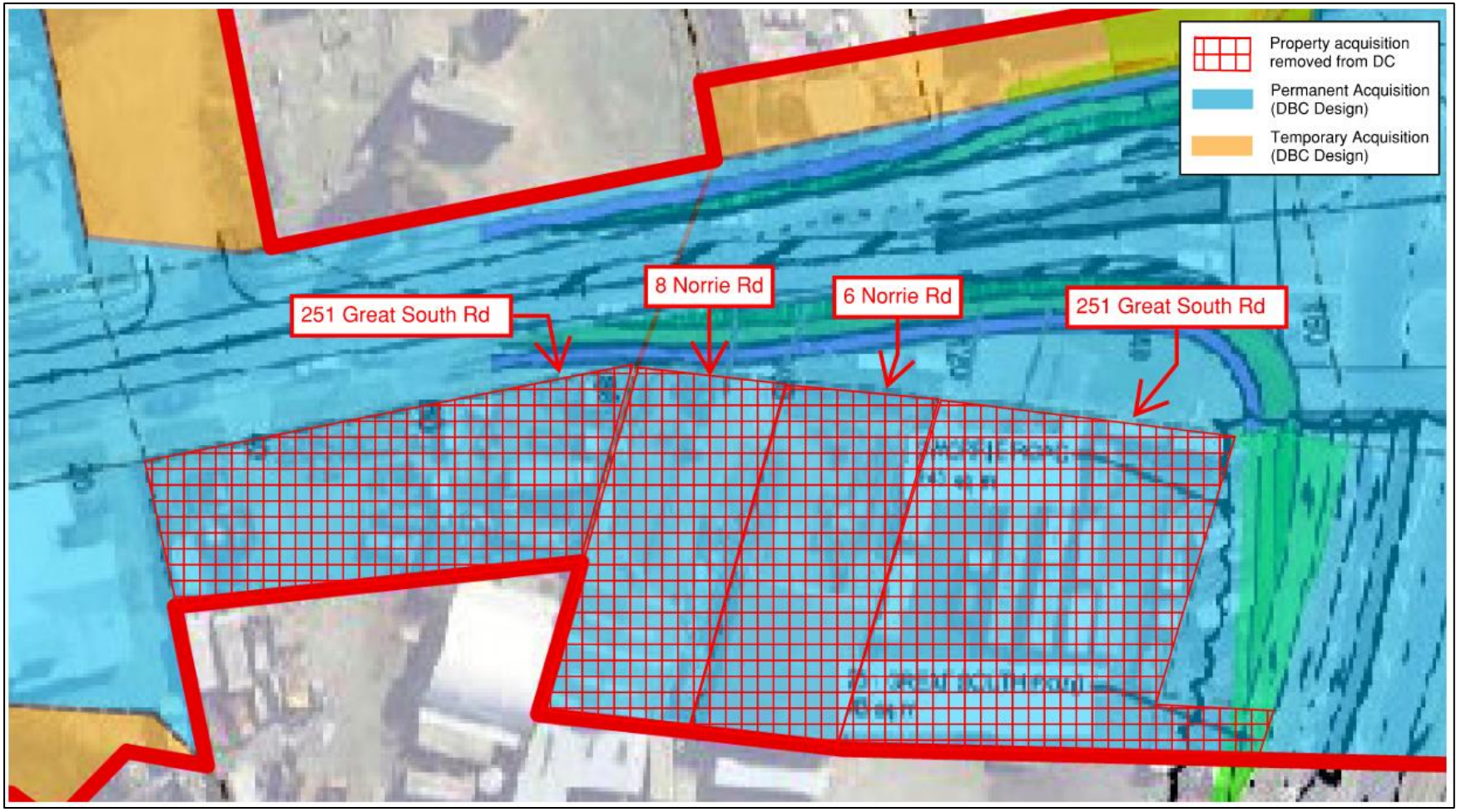

Figure 4-20. Updated property acquisition assumptions overlaying NZUP design for project 36a

36b Staged Upgrade to 4-lane corridor

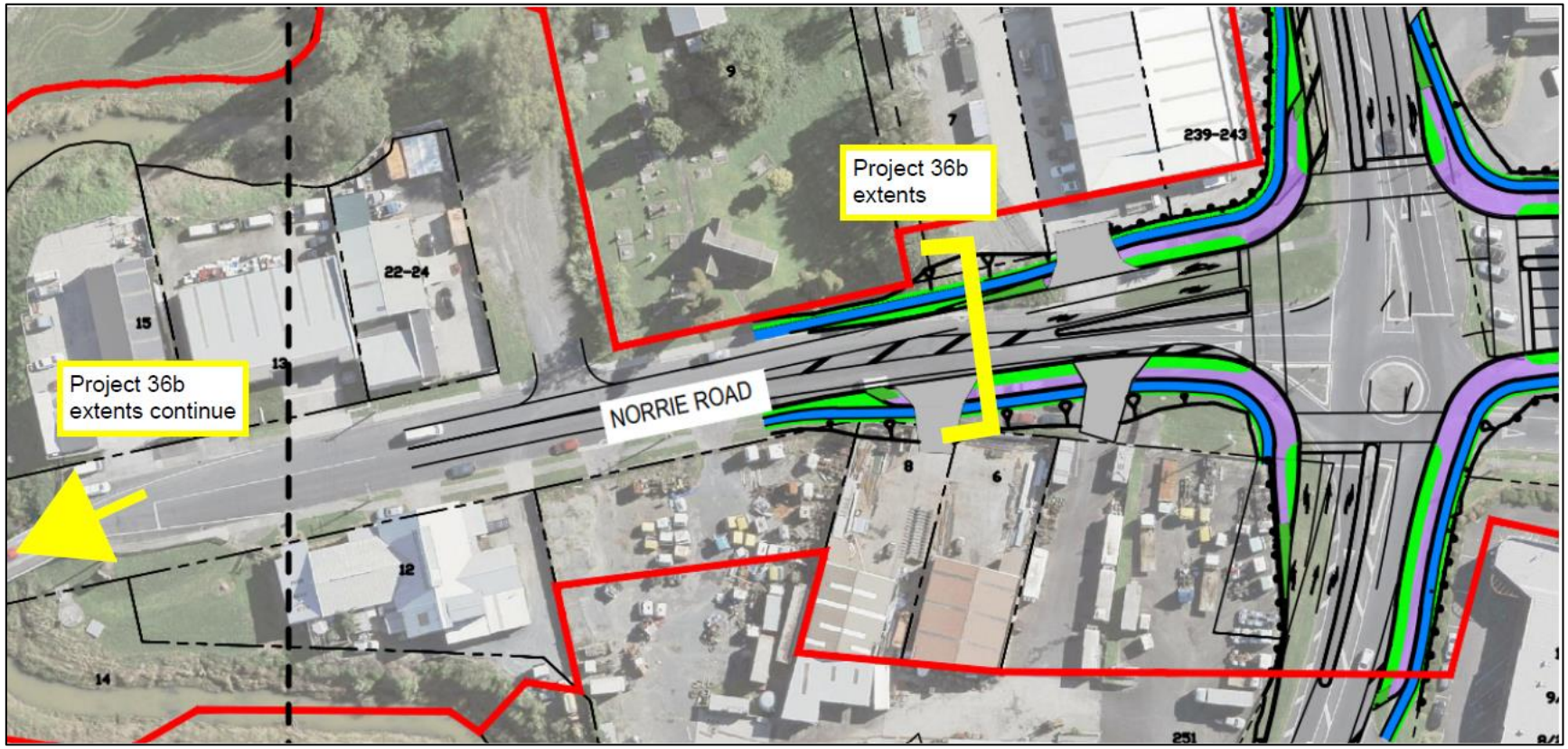

Figure 4-21: Extent of works for project 36b

Design Cost Allowance Assumptions:

Transport corridor/intersection before project:	Scope and assumptions in previous DC assessment	NZUP project engineering/scope assumptions within project extent	Changes to DC assumptions/scope	Revised DC assumptions/scope
2 lane urban with kerb and channel and active mode facilities on both sides, as outlined for 36a.	Project extents from western end of Ngākōroa stream bridge to Norrie Rd tie-in. - Widen the new section east of Norrie road to 4 lanes over a length of **180m** with extra over, assume interim is future proofed for extra over. - Corridor upgrade from 2 lanes to 4-lanes over a length of **280m** for existing section of Bremner Rd - **12m** of Bridge Widening for 3 bridges, total length of **180m** - 2 sets of simple signal upgrade for Firth Street and Creek Street	Assume only northern kerbline of 30m from NZUP project as outlined in 36a may be retained, which is minimal relative to remainder of works. Assume no change to DC cost from previous.	No change from previous DC assumptions.	- Widen the new section east of Norrie road to 4 lanes over a length of **180m** with extra over, assume interim is future proofed for extra over. - Corridor upgrade from 2 lanes to 4-lanes over a length of **280m** for existing section of Bremner Rd - **12m** of Bridge Widening for 3 bridges, total length of **180m** - 2 sets of simple signal upgrade for Firth Street and Creek Street

Property Cost Allowance Assumptions:

Previous DC property assumptions	NZUP project property scope assumptions/change	Revised DC property assumptions
To accommodate the new 2-lane corridor between Firth Street and the Norrie Road tie-in, the remaining properties identified in the Drury Arterial Network DBC will need to be acquired. These have been measured and valued through the Drury Arterial Network DBC and these costs have been included directly.	The only overlap of NZUP design within extents of 36b with property is for batter/retaining, which will be temporarily acquired. Therefore this will not have effect on the ultimate property acquisition. The permanent property acquisition originally assumed for 36a would have been excluded from the property acquisition for 36b. As the property acquisition for this 30m section is no longer required for 36a, it is now required for 36b. Therefore, the excluded permanent property acquisition from 36a is added to 36b. - 675m^2 permanent land acquisition from interim stage for 6 Norrie Road shifted to ultimate stage - 683m^2 permanent land acquisition from interim stage for 8 Norrie Road shifted to ultimate stage - 3039m^2 permanent land acquisition from interim stage for 251 Great South Road shifted to ultimate stage	- 675m^2 permanent land acquisition assumed for 6 Norrie Road - 683m^2 permanent land acquisition assumed for 8 Norrie Road - 3039m^2 permanent land acquisition assumed for 251 Great South Road

41 Jesmond Road Upgrade – southern section

This project extends along Jesmond Road from the intersection with State Highway 22 in the south to the southern boundary of the Waipupuke Development (Plan Change 61). This covers a total length of approximately 520m.

There are two stages proposed for this corridor:

41a. Interim 2-lane upgrade with active modes

41b. 4-lane upgrade to accommodate the future 4-lane FTN

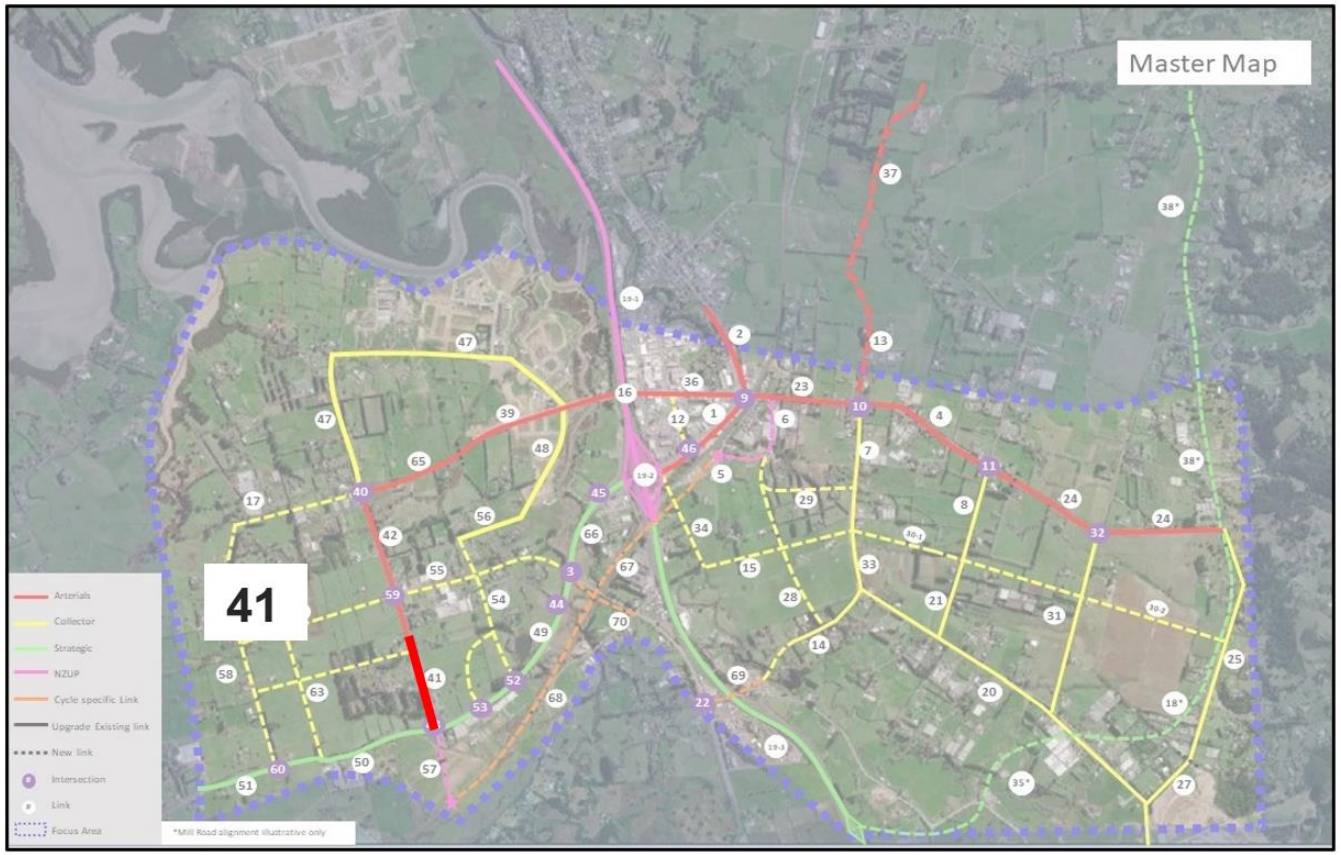

Figure 4-22: Drury Locality Map – Upgrade of Jesmond Road (southern extent)

41a Interim 2-lane upgrade with active modes

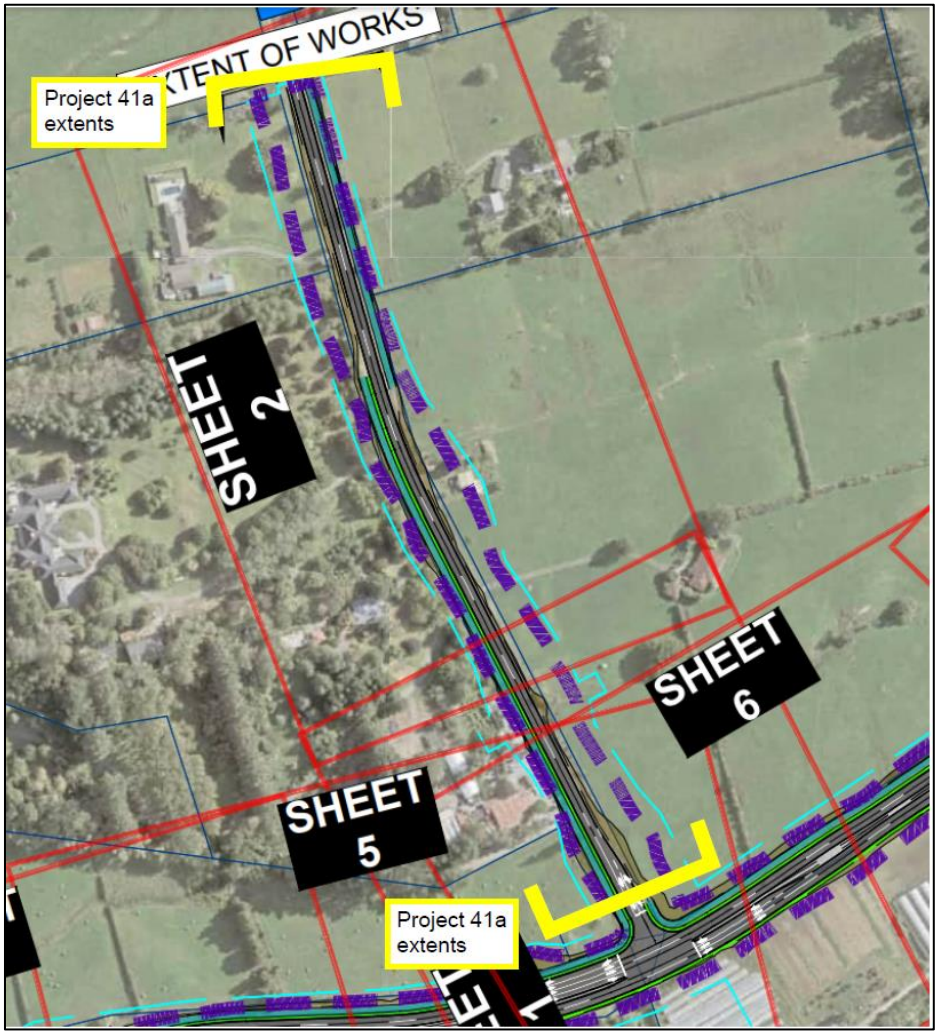

Figure 4-23: Extent of works for project 41a

Design Cost Allowance Assumptions:

Transport corridor/intersection before project:	Scope and assumptions in previous DC assessment	NZUP project engineering/scope assumptions within project extent	Changes to DC assumptions/scope	Revised DC assumptions/scope
2-lane rural, no kerb and channel.	Full reconstruction of road assumed to achieve 2 lane. Interim active mode facility constructed on western side of road. **520m** 2-lane rate.	SH22 design of Jesmond road covers same extents and is the similar form as previous DC assumption (2 lane with active modes on western side). Assume full overlap, so reduction of cost included in DC for 41a removed.	Reduction of 2-lane transport corridor rate from **520m** to **0m**	Full overlap with NZUP design, assume no works required for 41a as they are already completed in NZUP design, no cost in DC.

Property Cost Allowance Assumptions:

Previous DC property assumptions	NZUP project property scope assumptions/change	Revised DC property assumptions
As the interim option will be accommodated within the existing road corridor, there is no allowance for property acquisition.	Same project scope, previously assumed no property acquisition required, therefore no change in DC scope needed.	No property acquisition required.

41b 4-lane upgrade to accommodate the future 4-lane FTN

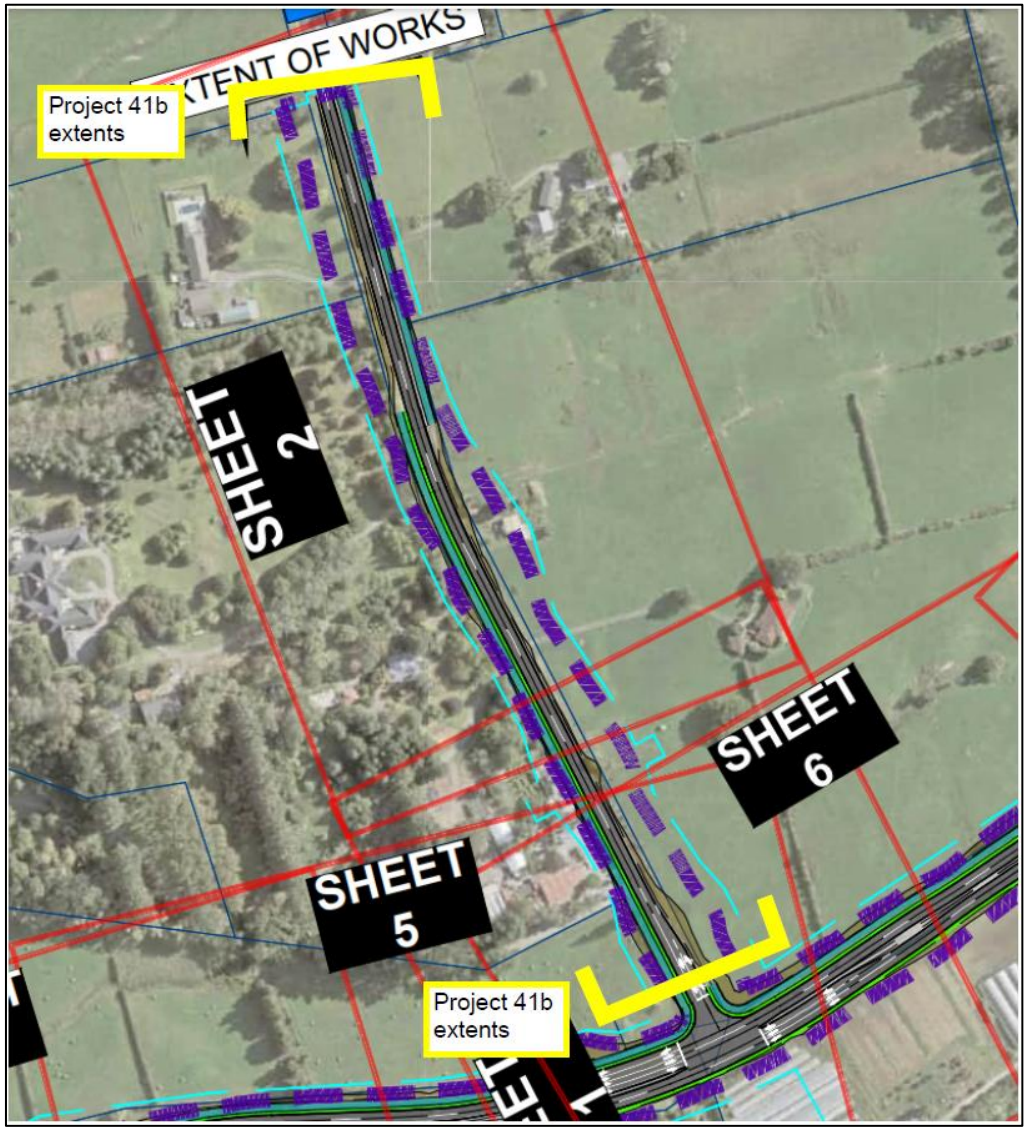

Figure 4-24: Extent of works for project 41b

Design Cost Allowance Assumptions:

Transport corridor/intersection before project:	Scope and assumptions in previous DC assessment	NZUP project engineering/scope assumptions within project extent	Changes to DC assumptions/scope	Revised DC assumptions/scope
2 lane urban with active mode facility on western side, as detailed in 41b.	- **220m** extra over for widening on western side of road at northern end - **300m** 4 lane brownfields rate on southern side as widening moves to the eastern side of the road to tie into SH22	SH22 design is 2 lane and matches with interim form. Therefore, it is assumed that the assumptions for previous DC assessment remain, as these have already been reduced to account for retained works, which are now part of the SH22 design.	No change from previous DC assumptions.	- **220m** extra over for widening on western side of road at northern end - **300m** 4 lane brownfields rate on southern side as widening moves to the eastern side of the road to tie into SH22.

Property Cost Allowance Assumptions:

Previous DC property assumptions	NZUP project property scope assumptions/change	Revised DC property assumptions
The property cost allowance for the final 4-lane upgrade is based on the Drury Arterial Network DBC. It is assumed that property has already been acquired for the State Highway 22 intersection, and the property acquisition would be limited to that indicated by the cost estimate summary for Segment 5 in the DBC. This allows for property cost for the full upgrade of Jesmond Road, extending over a length of 950m, although the section of Jesmond Road included in this upgrade is 320m (assuming the southern 200m section is acquired for construction of the SH22/Jesmond Road intersection). Therefore, a proportional cost of 34% of the DBC property cost has been allocated to this project.	As NZUP design is similar form to previously assumed DC design, assume previous assumptions for ultimate form remain, therefore there is no change to DC assumptions.	No change from previous DC property assumptions.

44 State Highway 22/ Burberry Road Intersection Upgrade

This project includes the upgrade of the existing priority-controlled intersection to a signalised intersection.

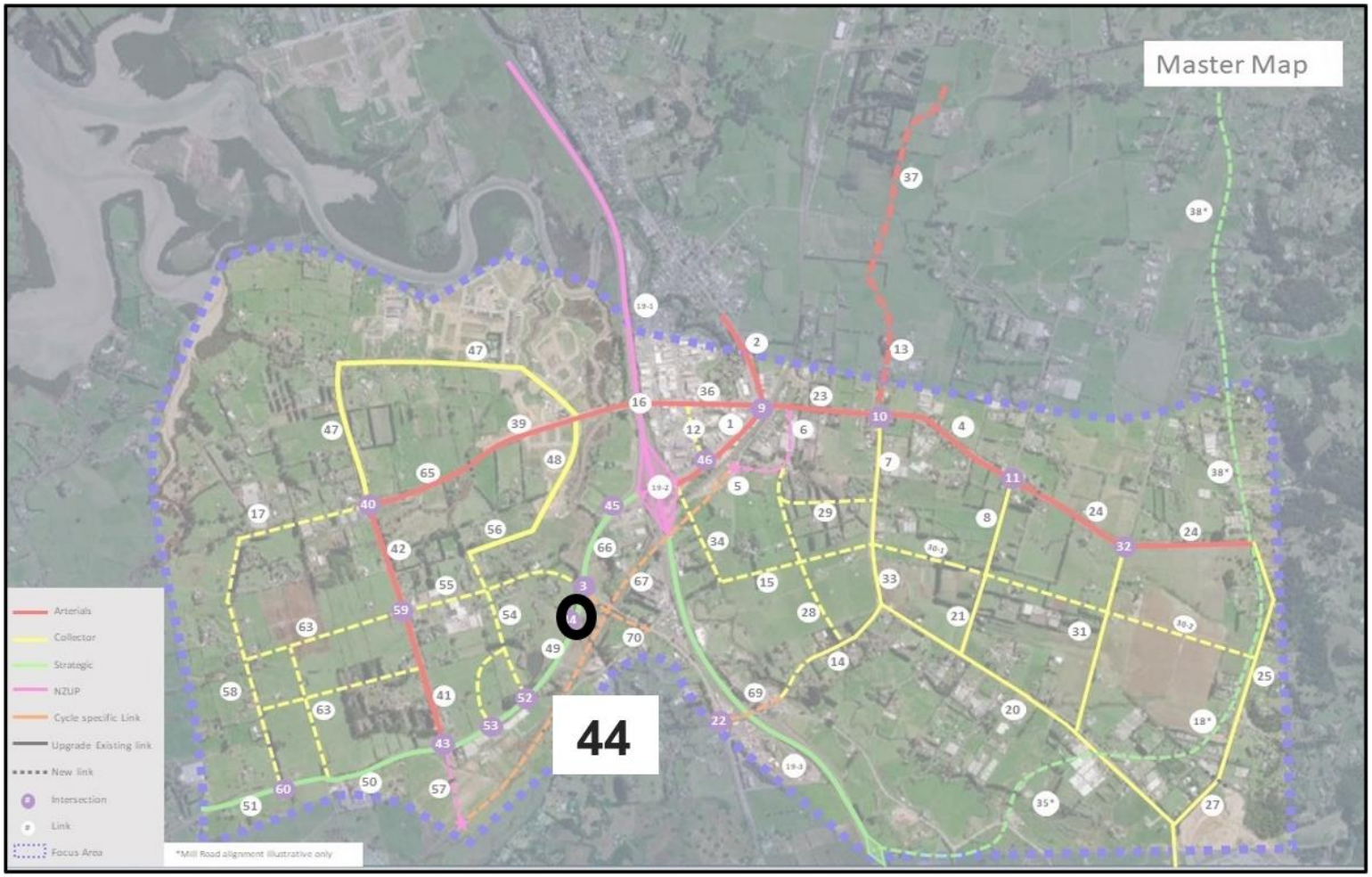

Figure 4-25: Drury Locality Map – New intersection at SH22/ Burberry Road

Design Cost Allowance Assumptions:

Transport corridor/intersection before project:	Scope and assumptions in previous DC assessment	NZUP project engineering/scope assumptions within project extent	Changes to DC assumptions/scope	Revised DC assumptions/scope
Existing priority controlled intersection.	Upgrade to simple signalised intersection.	SH22 design does not include intersection, although includes 4 lanes across the location of the intersection. As the pavement and much of kerb and channel will be retained from SH22 design, assume additional works required are limited to traffic signal hardware and localised widening/works on Jesmond Road leg. Therefore assume simple signals rate is included in DC assessment, same as previous DC assumption.	No change from previous DC assumptions.	Upgrade to simple signalised intersection.

Property Cost Allowance Assumptions:

Previous DC property assumptions	NZUP project property scope assumptions/change	Revised DC property assumptions
It is assumed that the signalisation can be accommodated within the existing road reserve. Therefore, there is no allowance for property acquisition for his project.	No reduction in DC scope needed, as there was no property acquisition assumed previously.	No property acquisition included in DC.

52 State Highway 22/ Macpherson Road Intersection Upgrade

This project includes the upgrade of the existing priority-controlled intersection to a signalised intersection.

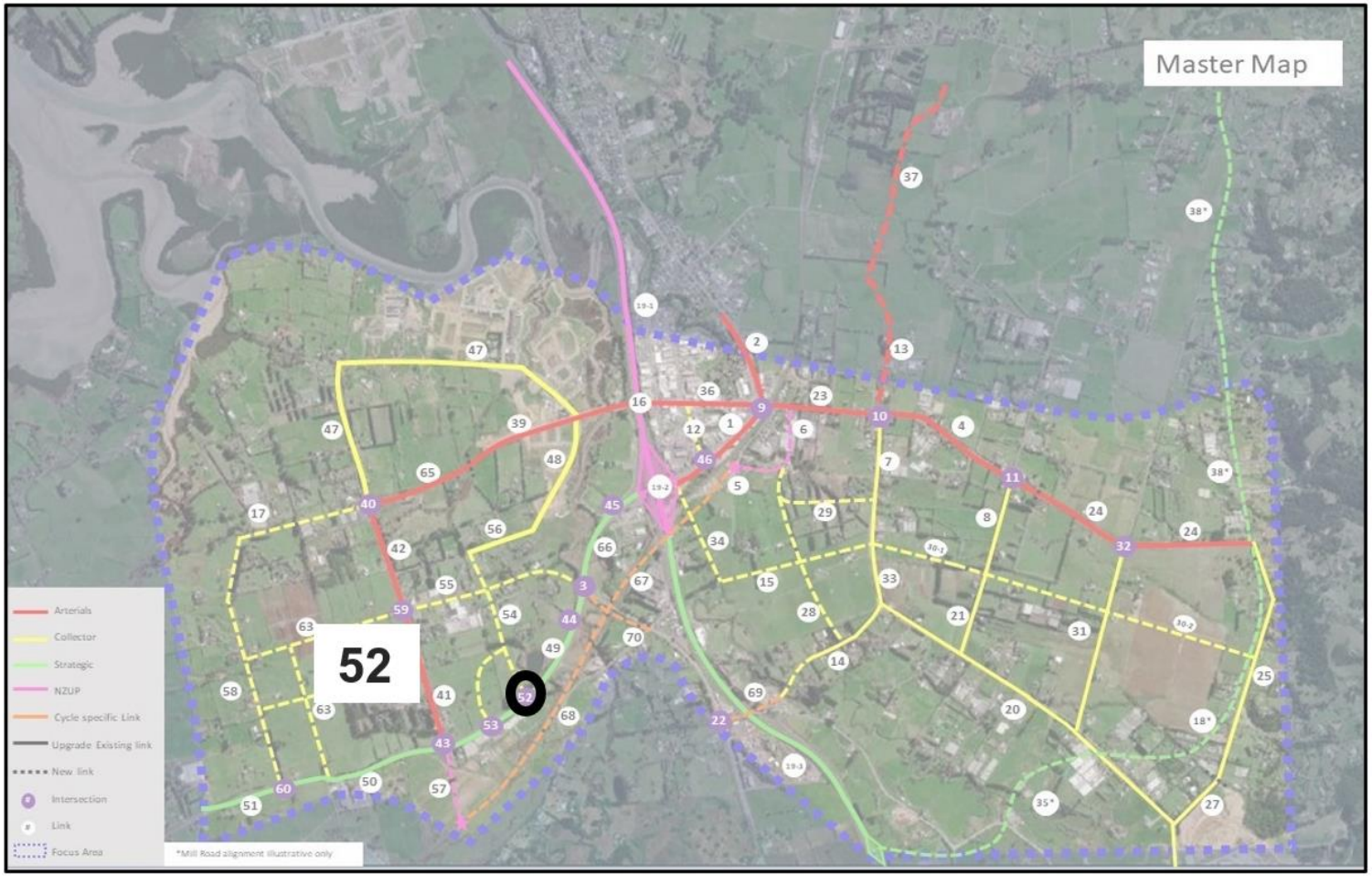

Figure 4-26: Drury Locality Map – New intersection at SH22/ McPherson Road

Design Cost Allowance Assumptions:

Transport corridor/intersection before project:	Scope and assumptions in previous DC assessment	NZUP project engineering/scope assumptions within project extent	Changes to DC assumptions/scope	Revised DC assumptions/scope
Existing 2-lane rural corridor.	Upgrade to simple signalised intersection.	SH22 design does not include intersection, although includes 4 lanes across the location of the intersection. As the pavement and much of kerb and channel will be retained from SH22 design, assume additional works required are limited to traffic signal hardware and localised widening/works on Macpherson Road leg. Therefore assume simple signals rate is included in DC assessment, same as previous DC assumption.	No change from previous DC assumptions.	Upgrade to simple signalised intersection.

Property Cost Allowance Assumptions:

Previous DC property assumptions	NZUP project property scope assumptions/change	Revised DC property assumptions
It is assumed that the signalisation can be accommodated within the existing road reserve. Therefore, there is no allowance for property acquisition for his project.	No reduction in DC scope needed, as there was no property acquisition assumed previously.	No property acquisition included in DC.

53 New Intersection on State Highway 22 to serve the Auranga Development

This project includes the upgrade of the existing priority-controlled intersection to a signalised intersection.

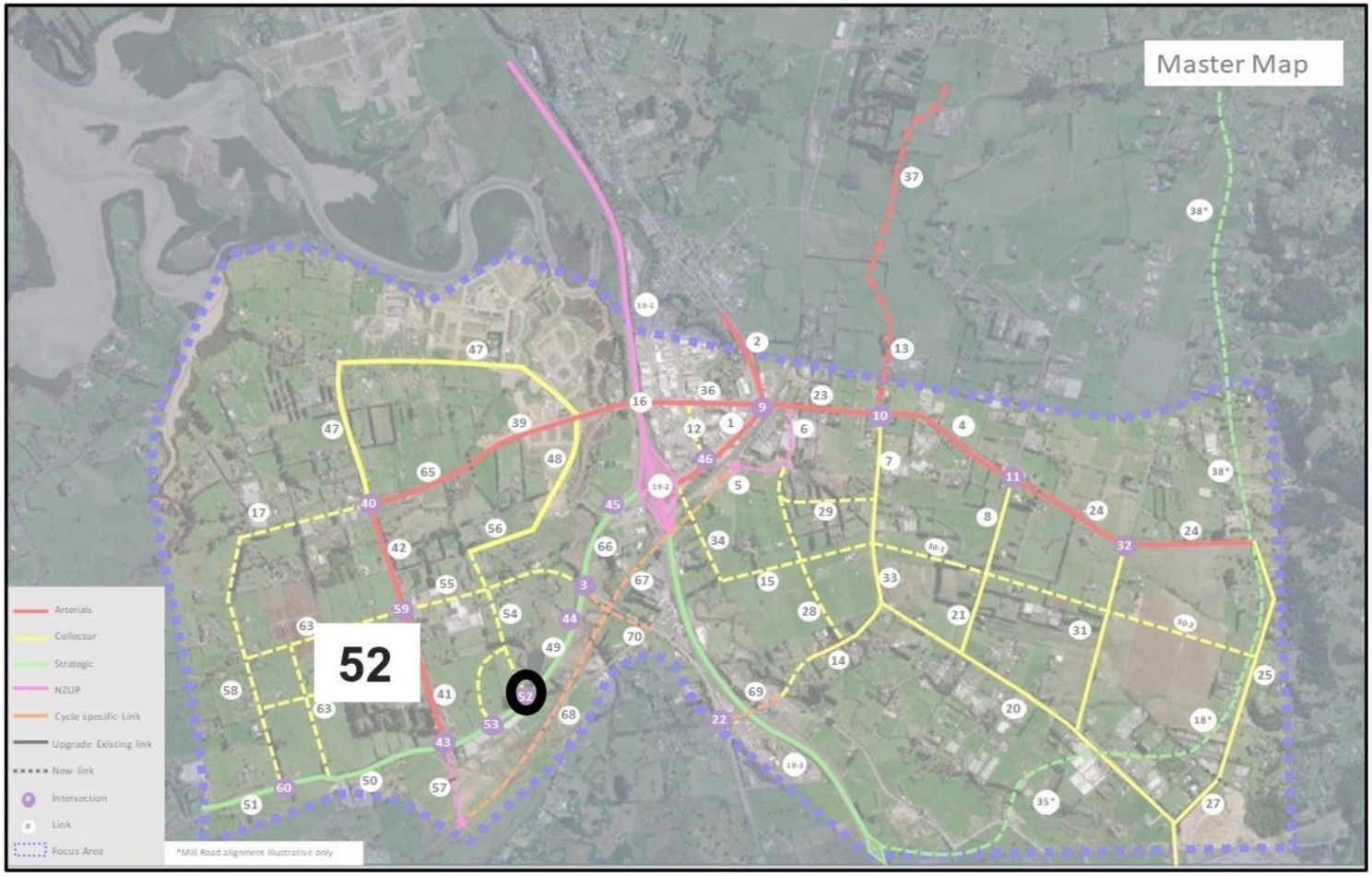

Figure 4-27: Drury Locality Map –New Intersection on State Highway 22 to serve the Auranga Development

Design Cost Allowance Assumptions:

Transport corridor/intersection before project:	Scope and assumptions in previous DC assessment	NZUP project engineering/scope assumptions within project extent	Changes to DC assumptions/scope	Revised DC assumptions/scope
Existing 2-lane rural corridor.	Upgrade to simple signalised intersection.	SH22 design does not include intersection, although includes 4 lanes across the location of the intersection. As the pavement and much of kerb and channel will be retained from SH22 design, assume additional works required are limited to traffic signal hardware and localised widening/works on the Auranga Development leg. Therefore assume simple signals rate is included in DC assessment, same as previous DC assumption.	No change from previous DC assumptions.	Upgrade to simple signalised intersection.

Property Cost Allowance Assumptions:

Previous DC property assumptions	NZUP project property scope assumptions/change	Revised DC property assumptions
It is assumed that the signalisation can be accommodated within the existing road reserve. Therefore, there is no allowance for property acquisition for his project.	No reduction in DC scope needed, as there was no property acquisition assumed previously.	No property acquisition included in DC.

Appendix A: Summary of DC Unit Rates and Property Acquisition Assumptions for Impacted Projects

Table 4-1 is a summary of the unit rates and property acquisition assumptions that can be used for costing the projects affected by the latest NZUP updates. For this assessment, only properties that have been affected by the NZUP project updates have been reflected in the table below.

Table 4-1: Summary of DC Unit Rates and Property Acquisition Assumptions for Projects affected by the NZUP projects.

Ref	Original DC Unit Rate Assumptions	Updated DC Unit Rate Assumptions	Original DC Property Acquisition Assumption	Updated DC Property Acquisition Assumption
1a	• 810m linear rate 1 • 240m3 bridge area • New signals simple	• New signals simple	N/A	N/A
1b	• 60% of measure and value DBC cost	• 65% of measure and value DBC cost	N/A	N/A
2a	• 1200m linear rate 1 • New signals simple	• 1140m linear rate 1 • 80m footpath retrofit	N/A	N/A
2b	• 600m brownfields 4-lane rate • New signals simple	• No rate included	• 4610m^2 total Future Urban Zone land requirement	• 0m^2 Future Urban Zone land requirement
3	• New simple signals	• No rate included	N/A	N/A
9a	• New signals complex	• No rate included	• 515m^2 permanent acquisition 236 Great South Road	• 0m^2 permanent acquisition 236 Great South Road
9b	• 70% cost from DBC assessment	• No rate included	• 231m^2 permanent acquisition 239-243 Great South Road • 785m^2 temporary acquisition 239-243 Great South Road • 367m^2 permanent acquisition 2 Norrie Road • 210m^2 temporary acquisition 7 Norrie Road	• 0m^2 permanent acquisition 239-243 Great South Road • 0m^2 temporary acquisition 239-243 Great South Road • 0m^2 permanent acquisition 2 Norrie Road • 0m^2 temporary acquisition 7 Norrie Road
23a	• 520m linear rate 1 • 240m^2 bridge area	• No rate included	• 100m^2 permanent acquisition 18 Waihoehoe Road	• 0m^2 permanent acquisition 18 Waihoehoe Road

Ref	Original DC Unit Rate Assumptions	Updated DC Unit Rate Assumptions	Original DC Property Acquisition Assumption	Updated DC Property Acquisition Assumption
23b	• 100% measure and value DBC design	• No rate included	• 3760m² permanent acquisition 18 Waihoehoe Road • 80m² temporary acquisition 236 Great South Road • 4350m² permanent acquisition 232 Great South Road • 688m² permanent acquisition Railway Network • 1728m² temporary acquisition Railway Network • 92m² permanent acquisition 222 Great South Road • 72m² temporary acquisition 222 Great South Road • 1761m² permanent acquisition 28 Waihoehoe Road • 1348m² temporary acquisition 28 Waihoehoe Road	• 0m² permanent acquisition 18 Waihoehoe Road • 0m² temporary acquisition 236 Great South Road • 0m² permanent acquisition 232 Great South Road • 0m² permanent acquisition Railway Network • 0m² temporary acquisition Railway Network • 0m² permanent acquisition 222 Great South Road • 0m² temporary acquisition 222 Great South Road • 0m² permanent acquisition 28 Waihoehoe Road • 0m² temporary acquisition 28 Waihoehoe Road
23c	• 740m linear rate 1	• 540m linear rate 1 • 110m footpath retrofit	N/A	N/A
23d	• 240m 4-lane brownfields	• 240m 4-lane brownfields	• 1382m² permanent acquisition 44 Waihoehoe Road • 879m² temporary acquisition 44 Waihoehoe Road • 331m² permanent acquisition 76a Waihoehoe Road	• 549m² permanent acquisition 44 Waihoehoe Road • 440m² temporary acquisition 44 Waihoehoe Road • 283m² permanent acquisition 76a Waihoehoe Road
36a	• 200m linear rate 1 • 1120m² bridge area • New signals simple • 210m 2-lane rate	• 200m linear rate 1 • 1120m² bridge area • New signals simple • 180m 2-lane rate	• 675m² permanent acquisition 6 Norrie Road • 683m² permanent acquisition 8 Norrie Road • 3039m² permanent acquisition 251 Great South Road	• 0m² permanent acquisition 6 Norrie Road • 0m² permanent acquisition 8 Norrie Road • 0m² permanent acquisition 251 Great South Road

Ref	Original DC Unit Rate Assumptions	Updated DC Unit Rate Assumptions	Original DC Property Acquisition Assumption	Updated DC Property Acquisition Assumption
36b	• 2 new signals simple • 180m extra over for future 4-lane • 280m brownfields 4 lane rate	• 2 new signals simple • 180m extra over for future 4-lane • 280m brownfields 4 lane rate	• 0m^2 permanent acquisition 6 Norrie Road • 0m^2 permanent acquisition 8 Norrie Road • 0m^2 permanent acquisition 251 Great South Road	• 675m^2 permanent acquisition 6 Norrie Road • 683m^2 permanent acquisition 8 Norrie Road • 3039m^2 permanent acquisition 251 Great South Road
41a	• 520m 2-lane rate	• No rate included	N/A	N/A
41b	• 220m extra over for future 4-lane • 300m brownfields 4-lane rate	• 220m extra over for future 4-lane • 300m brownfields 4-lane rate	N/A	N/A
44	• New signals simple	• New signals simple	N/A	N/A
52	• New signals simple	• New signals simple	N/A	N/A
53	• New signals simple	• New signals simple	N/A	N/A