496 East Coast Road, Windsor Park

Proposed Plan Change

Integrated Transportation Assessment Report

20 January 2025

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1 INTRODUCTION

Commute Transportation Consultants (Commute) has been engaged to prepare an Integrated Transportation Assessment (ITA) for a proposed zoning change at 496 East Coast Road, Windsor Park , Auckland (referred to as the 'site'). It is proposed change the zoning at the site from 'Open Space – Sport and Recreation Zone' to 'Residential – Mixed Housing Urban Zone'.

A likely development scenario on the site has been investigated and is likely to feature up to 100 dwellings, comprised of the following:

- 100 x terraced units (3+ bedrooms);
- 100 x parking spaces, and
- 100 x bicycle parking spaces.

All vehicle access is proposed to occur via a new road connection to Noel Williams Place, which connects to East Coast Road to the north. Pedestrian access is also proposed to East Coast Road.

This report assesses the transport-related matters of the proposal, including:

- A description of the site and its surrounding transport environment;
- A description of the key transport-related aspects of the proposed development;
- The likely trip generating potential of the site and effects on the road network;
- The parking and loading provisions of the development and compliance with Unitary Plan standards, and
- The proposed form of access arrangements for vehicles and pedestrians, and compliance with Unitary Plan standards.

These and other matters are addressed in detail in this report. By way of summary, it is considered that the proposed development, as detailed in this report, will have minor traffic effects to the function, capacity, and safety of the surrounding transport network.

2 EXISTING ENVIRONMENT

2.1 SITE LOCATION

Figure 1 shows the location of the site in relation to the surrounding road environment.

Figure 1: Site Location

Figure 2 shows the Plan Change area.

Figure 2: Plan Change Area

The site is located in Windsor Park, Auckland. As noted, the site comprises a single lot at 496 East Coast Road, Windsor Park with a total area of 63,800 m^2. As shown in Figure 2, the Plan Change site only forms part of the overall site.

The site is currently zoned 'Open Space – Sport and Recreation Zone' and is bounded by 'Residential – Mixed Housing Suburban Zone' land to the west and south, and 'Residential – Terrace Housing and Apartment Building Zone' land to the north and east.

2.2 ROAD NETWORK

2.2.1 EAST COAST ROAD

East Coast Road is classified as an arterial road in a Unitary Plan. East Coast Road serves an important north-south connection alongside State Highway 1.

East Coast Road in front of the site has a road reserve width of approximately 30 m with a sealed carriageway of approximately 18.0 m. East Coast Road near the site provides two vehicle lanes and two cycle lanes in each direction, separated by a flush median.

Pedestrian footpaths are provided on both sides of East Coast Road. There are a pair of bus stops on East Coast Road west of the East Coast Road/ Windsor Place intersection. East Coast Road has a posted speed limit of 50 km/hr. Photograph 1 shows the existing layout of East Coast Road.

Photograph 1: East Coast Road – Looking East

2.2.2 NOEL WILLIAMS PLACE

Noel Williams Place is a cul-de-sac running in a north-south direction and connecting to East Coast Road at its northern end. Noel Williams Place is not classified as an arterial road in the Unitary Plan and is classified as a 'Secondary Collector' road in the One Network Road Classification. Noel Williams Place primarily provides vehicle access to residential properties and local recreation activities.

Noel Williams Place in front of the site has a road reserve width of approximately 20 m with a sealed carriageway of approximately 6.5 m. Noel Williams Place near the site is unmarked and caters for a single lane traffic in each direction, and provides uncontrolled kerbside parking on both sides of the road at its southern end.

Pedestrian footpaths are provided on both sides of Noel Williams Place. The Noel Williams Place/ East Coast Road intersection is uncontrolled however the vehicle priorities are obvious given its T-intersection arrangement. Noel Williams Place has a posted speed limit of 50 km/hr. Photograph 2 shows the existing layout of Noel Williams Place and Photograph 3 shows the Noel Williams Place/ Noel Williams Place intersection.

Photograph 2: Noel Williams Place – Looking South

Photograph 3: Noel Williams Place/ East Coast Road Intersection

2.3 ACCESSIBILITY

2.3.1 PRIVATE VEHICLES

The site is well connected to the wider Auckland Region via the nearby arterial road at East Coast Road. Further south, East Coast Road provides connection to Constellation Drive which provides a link to State Highway 1. The site is some 13 km from the Auckland City Centre, 4 km from the Albany Metropolitan Centre and 6 km from the Takapuna Metropolitan Centre.

At peak times, travel times between the site and the City Centre approximately range from 20 minutes to 45 minutes as traffic flows are sensitive to traffic demands on the Auckland Harbour Bridge.

2.3.2 PUBLIC TRANSPORT

Figure 3 shows public transport services currently operating near the site. A pair of bus stops on East Coast Road west of the East Coast Road/ Windsor Place intersection which provide service to Route 878. This route provides a connection between Browns Bay to the north and to the Constellation public transport interchange to the south. Pedestrian provisions are acceptable with footpaths along the route to the above stops. Another pair of bus stops on East Coast Road are located either side of Hastings road, provided service to the same Route 878.

The Constellation public transport interchange provides direct connections to the Auckland CBD to the south, and to Albany to the north.

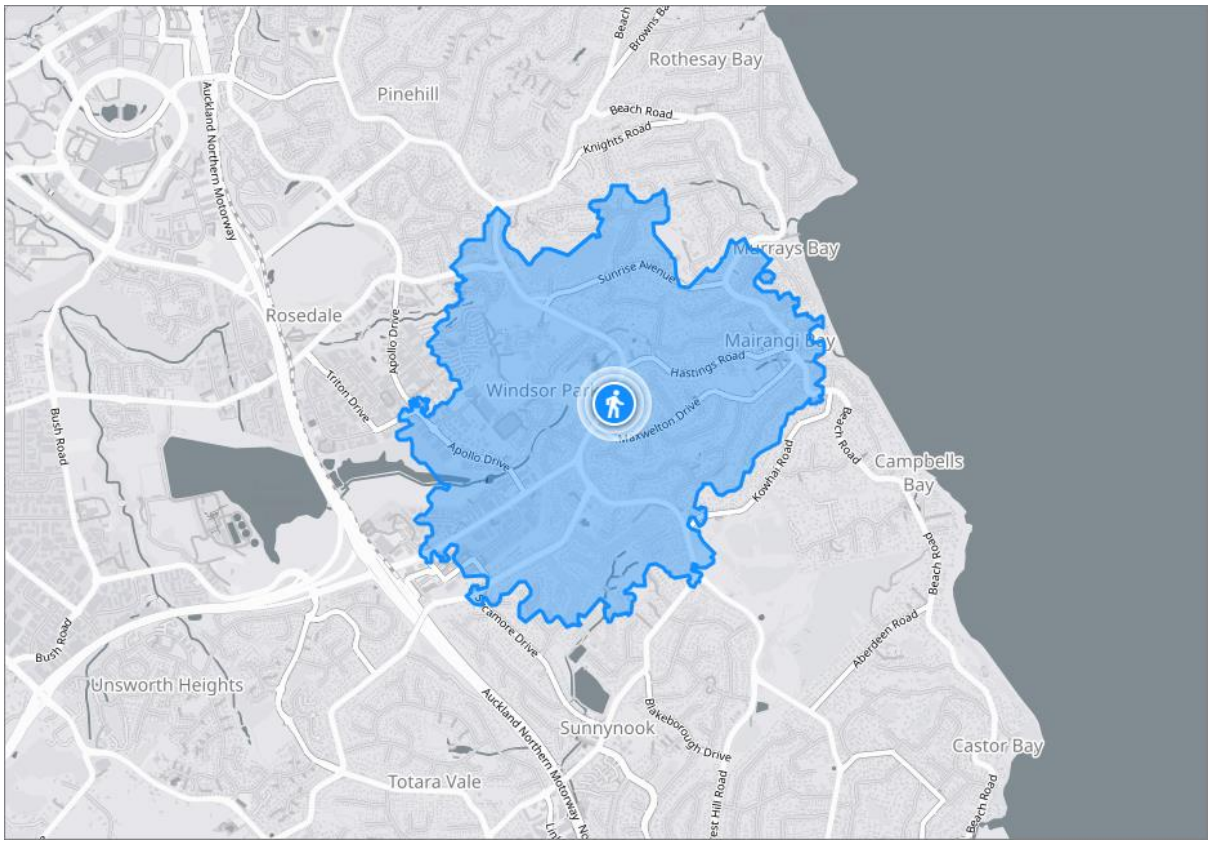
Figure 3: Public Transport

2.3.3 WALKING

The Austroads Guide to Traffic Engineering Practice Part 13 – Pedestrians indicates that the practical walking distance for non-recreational walking trips is in the order of 1.5 km. Using the practical walking distance of 1.5 km and the 15th percentile walking speed of a typical fit, healthy adult of 1.3 m/s, gives a journey time of 20 minutes. This is in line with New Zealand data in the Pedestrian Planning and Design Guide, which states that for walking trips, half are more than 10 minutes and 18% are more than 20 minutes.

Figure 4 overleaf shows the walking catchment from the site.

Figure 4: Walking Catchment



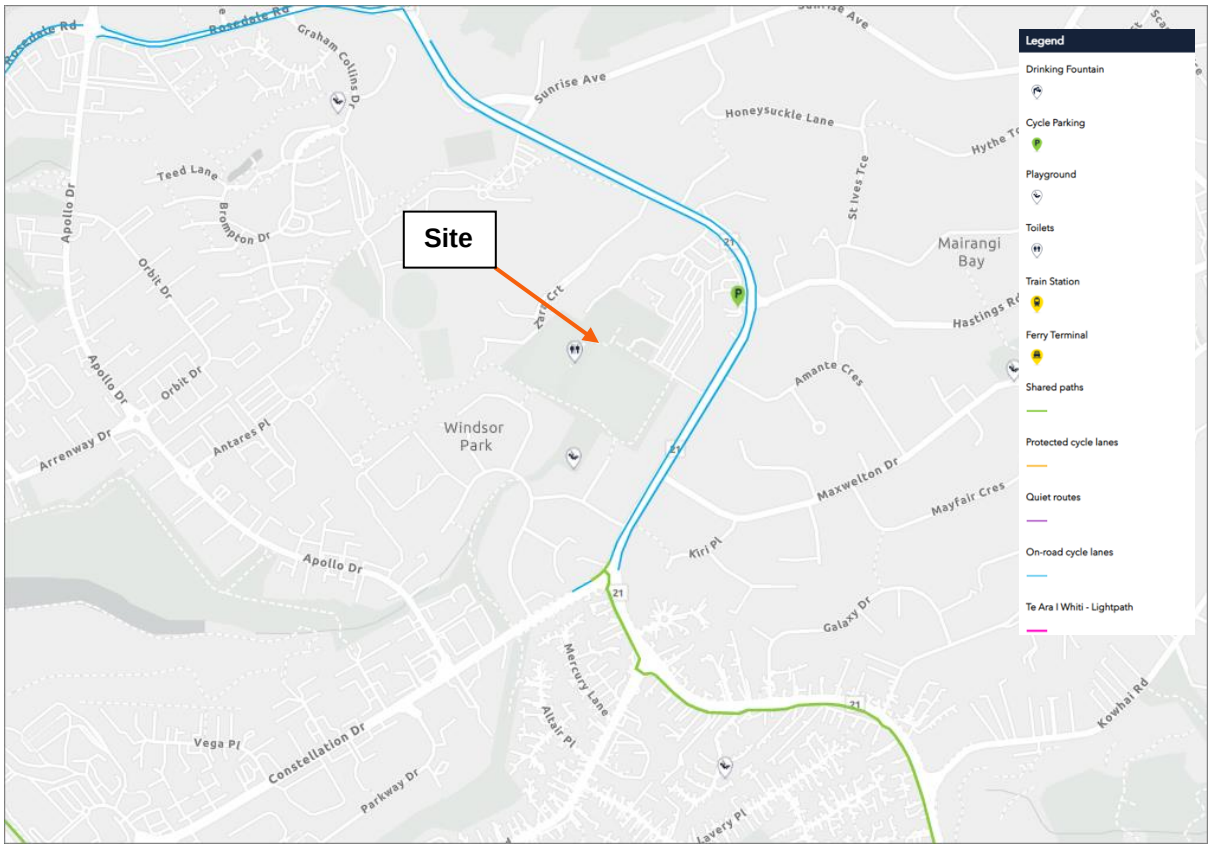
As shown above, a number of activities are within walking distance of the site.

2.3.4 CYCLING

The Auckland Transport Cycleway Map[1] identifies East Coast Road near the site as providing 'on-road cycle lanes'. Figure 5 shows an excerpt of the Auckland Transport Cycleway Map near the site.

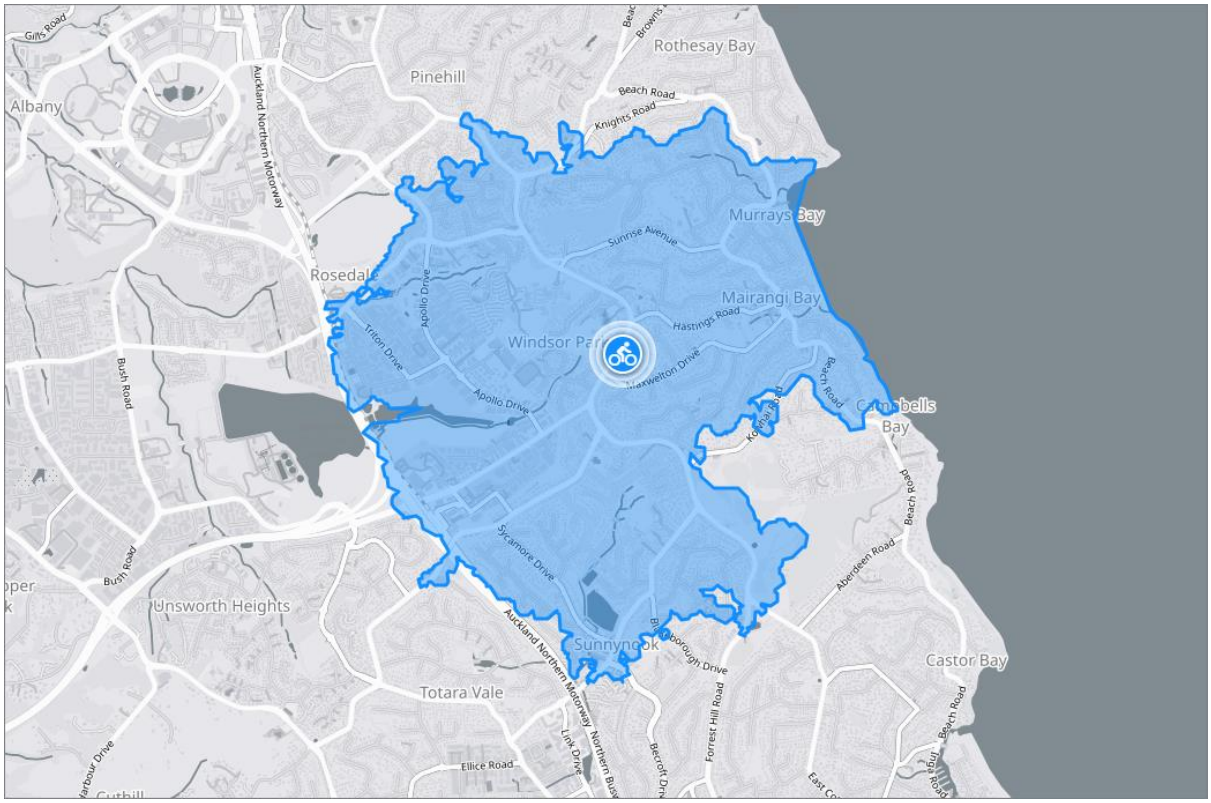
[1] https://maps.at.govt.nz/arcgis/apps/webappviewer/index.html?id=88a582e934f6473dba32cb3ab909890a

Figure 5: Auckland Transport Cycleway Map



Based on New Zealand Transport Agency Research Report 426, the average cycling trip length is approximately 3 km. This translates to approximately a 10 minute ride at 15-20km/h. Figure 6 shows a 10 minute cycling catchment from the site.

Figure 6: Cycling Catchment



As shown previous, a number of activities are within cycling distance of the site, particularly educational activities.

2.4 TRAFFIC VOLUMES

2.4.1 AUCKLAND TRANSPORT TRAFFIC VOLUMES

Table 1 outlines traffic volumes for East Coast Road near the site.

Table 1: Auckland Transport Traffic Volumes

Road	Location	Date	7-Day ADT (veh/ day)	Peak Hour Volume (veh / hr)	
East Coast Road	Between Windsor Place and Sunrise Avenue	May 2022	24,000	2,500 (AM)	2,400 (PM)

As shown above, East Coast Road carries approximately 24,000 vehicles per day (vpd) which is typical of an arterial road in Auckland.

2.4.2 SURVEYED TRAFFIC VOLUMES

Turning count surveys were undertaken at the following intersections:

- East Coast Road/ Tudor Place intersection;
- East Coast Road/ St Johns School access intersection; and
- East Coast Road/ Noel Williams Place intersection.

The surveys were undertaken on Thursday 8 February 2024. The results of the surveys are summarised in Table 2 and Table 3 below.

Table 2: Traffic Volumes – East Coast Road/ Noel Williams Place

	AM					PM				
	Cars	Trucks	Buses	Cyclists	AM Total	Cars	Trucks	Buses	Cyclists	PM Total
East Coast Rd (East)	**953**	**18**	**10**	**6**	**987**	**1373**	**19**	**5**	**11**	**1408**
Left into Noel Williams Pl	7	1	0	0	8	8	1	0	0	9
Thru to East Coast Rd (West)	946	17	10	6	979	1365	18	5	11	1399
Noel Williams Pl	**26**	**1**	**0**	**1**	**28**	**65**	**1**	**0**	**1**	**67**
Left into East Coast Rd (West)	19	0	0	1	20	40	1	0	1	42
Right into East Coast Rd (East	7	1	0	0	8	25	0	0	0	25
East Coast Rd (West)	**1466**	**23**	**14**	**9**	**1512**	**802**	**10**	**3**	**7**	**822**
Thru to East Coast Rd (East)	1450	23	14	9	1496	787	9	3	7	806
Right into Noel Williams Pl	16	0	0	0	16	15	1	0	0	16
Grand Total	2445	42	24	16	2527	2240	30	8	19	2297

Table 3: Traffic Volumes – East Coast Road/ Tudor Place & East Coast Road/ St Johns School Access

	AM					PM				
	Cars	Trucks	Buses	Cyclists	AM Total	Cars	Trucks	Buses	Cyclists	PM Total
Tudor Pl	**22**	**0**	**0**	**0**	**22**	**11**	**0**	**0**	**0**	**11**
Left into St Johns	0	0	0	0	0	0	0	0	0	0
Left into East Coast Rd (East)	13	0	0	0	13	10	0	0	0	10
Right into East Coast Rd (West	9	0	0	0	9	1	0	0	0	1
St Johns	**65**	**0**	**0**	**0**	**65**	**13**	**0**	**0**	**0**	**13**
Left into East Coast Rd (East)	46	0	0	0	46	8	0	0	0	8
Right into East Coast Rd (West	19	0	0	0	19	5	0	0	0	5
Right into Tudor Pl	0	0	0	0	0	0	0	0	0	0
East Coast Rd (East)	**962**	**18**	**10**	**6**	**996**	**1411**	**23**	**4**	**8**	**1446**
Right into Tudor Pl	4	0	0	0	4	7	0	0	0	7
Thru to East Coast Rd (West)	916	18	10	6	950	1403	23	4	8	1438
Right into St Johns	42	0	0	0	42	1	0	0	0	1
East Coast Rd (West)	**1463**	**23**	**13**	**7**	**1506**	**780**	**14**	**4**	**6**	**804**
Left into St Johns	42	0	0	0	42	2	0	0	0	2
Left into Tudor Pl	3	0	0	1	4	2	0	0	0	2
Thru to East Coast Rd (East)	1418	23	13	6	1460	776	14	4	6	800
Grand Total	2512	41	23	13	2589	2215	37	8	14	2274

The traffic volumes suggest that East Coast Road carries approximately 2,300-2,400 vph and Noel Williams Drive carries approximately 50-90 vph. These volumes are typical of an arterial road and local road in peak commuter periods.

2.5 CRASH HISTORY

A search of the road safety record using the NZTA Crash Analysis System (CAS). The search has been carried out to identify all reported crashes near the site in the five-year period from 2019 to 2023

as well as any crashed entered for 2024. The search area includes the three surveyed intersections detailed above, as well as the East Coast Road / Windsor Place and East coast Road / Windsor Park Carpark intersections and the full length of Noel Williams Drive.

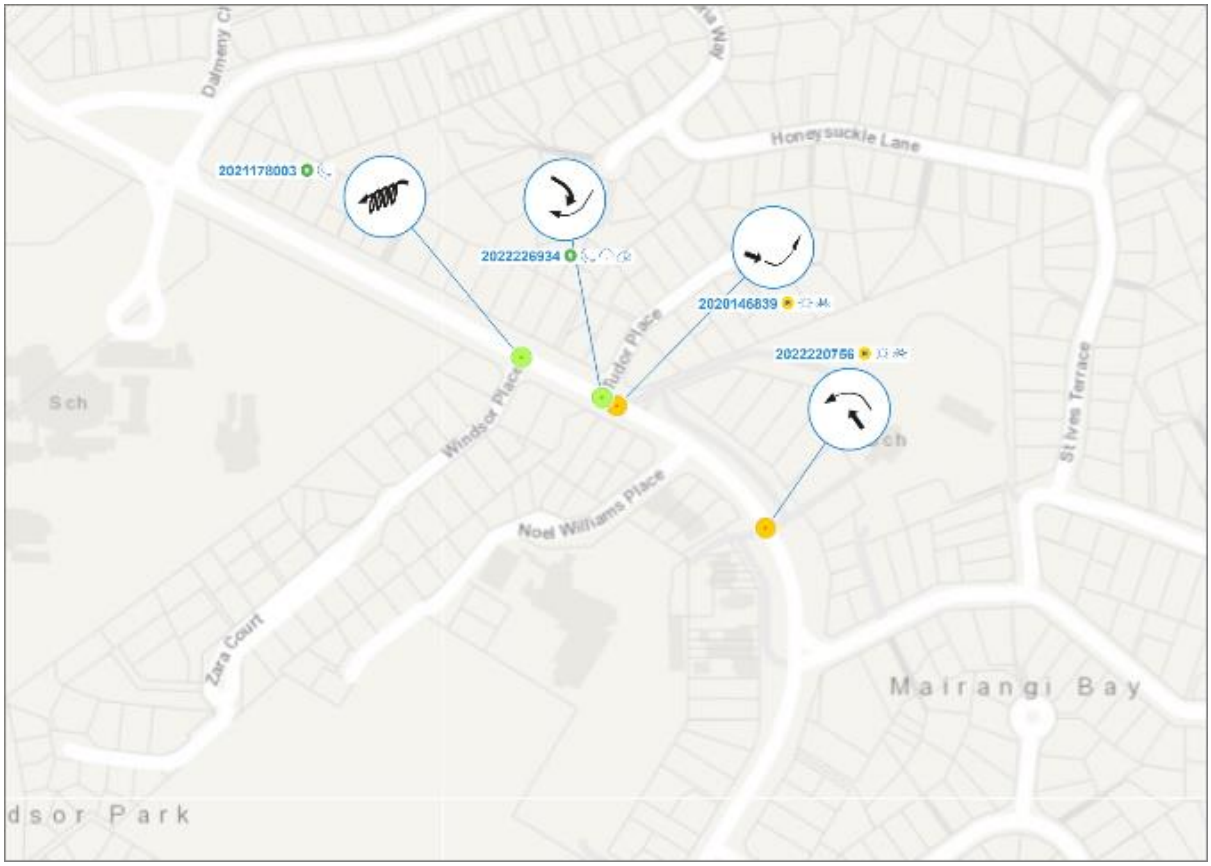
A total of four crashes were identified. Table 4 summarises these crashes.

Table 4: Crash Summary

Location	Number/ Predominant Crashes	Injuries
East Coast Road / Windsor Place Intersection	1 crash 1 crash chased by Police	1 non-injury crash 0 injury crashes
East Coast Road / Tudor Place Intersection	2 crashes 1 cyclist crash, 1 turning vehicle crash	1 non-injury crash 1 injury crashes
East Coast Road / Windsor Park Carpark access intersection	1 crash 1 cyclist crash	0 non-injury crashes 1 injury crash

As detailed above, the crash history does not reflect a particular traffic safety concern with the area surrounding the site. The collision diagram is detailed below.

Figure 7: Crash Collision Diagram

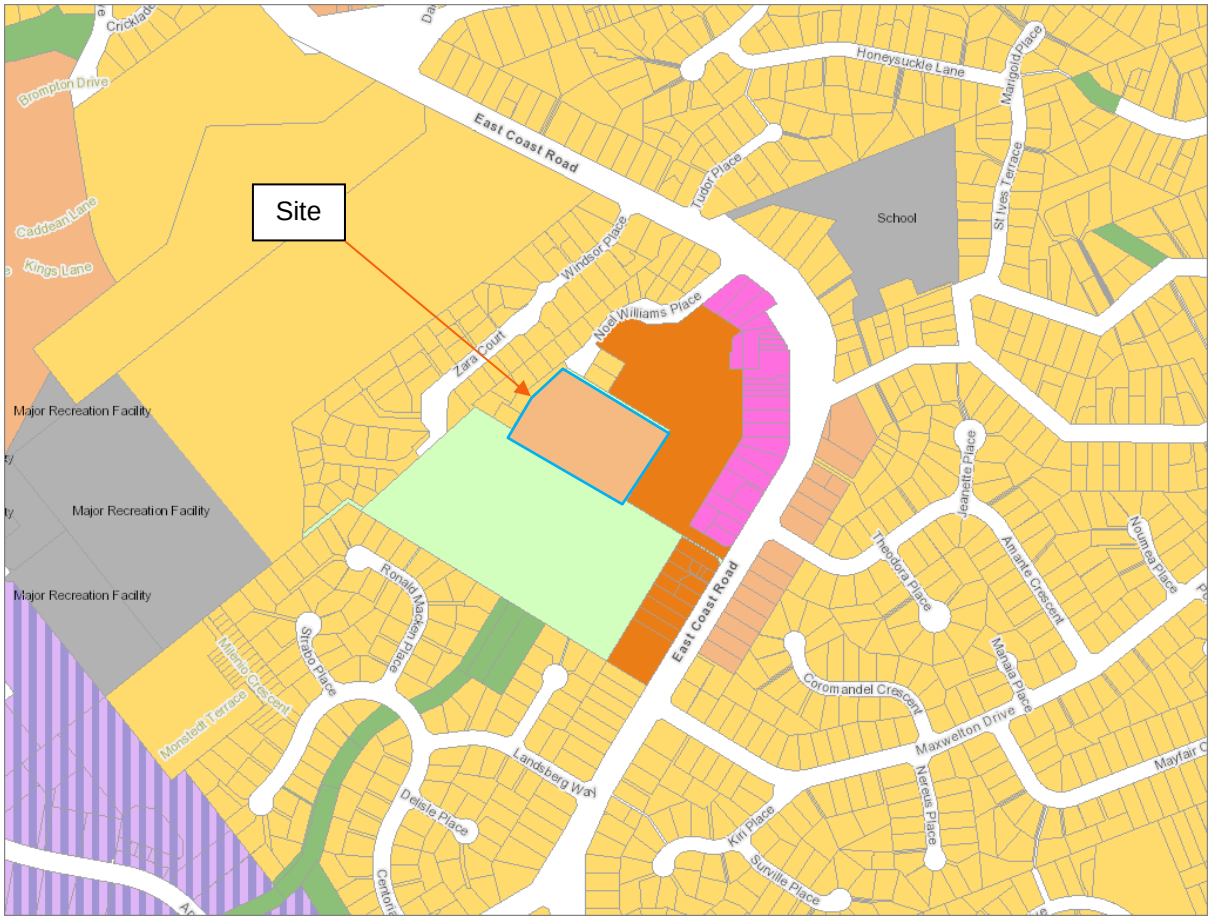


As will be described, the proposed development is considered to add relatively small additional traffic movements onto East Coast Road and is therefore not expected to significantly affect the operation and safety of the nearby intersections.

3 THE PROPOSAL

The Plan Change proposes rezoning the existing site from 'Open Space – Sport and Recreation Zone' to 'Residential – Mixed Housing Urban Zone' as shown in Figure 8.

Figure 8: Proposed Zoning



As can be seen, the proposed zoning is consistent with neighbouring land.

A likely development scenario on the site has been investigated and is likely to feature approximately 100 dwellings, comprised of the following:

- 100 x terraced units (3+ bedrooms);
- 100 x parking spaces, and
- 100 x bicycle parking spaces.

All vehicle access is proposed to occur via a new road connection to Noel Williams Place, which connects to East Coast Road to the north. Pedestrian access is also proposed to East Coast Road.

Rubbish is proposed to be collected on-site using a private contractor such as Green Gorilla or Rubbish Direct. Rubbish compounds and one loading space are provided on-site.

Figure 9 shows a concept development for the site.

Figure 9: Concept Development

4 TRIP GENERATION

4.1 GUIDELINES

The RTA Guide[2] is commonly used by traffic engineering practitioners in Australasia to assess the traffic generating potential of various land uses. In New Zealand, the RTA Guide is frequently used for assessing residential developments.

The proposed development is best represented by "*medium density residential flat buildings"* due to their smaller size and lower number of occupants. With respect to the assessment of permitted development on the site, given the lot sizes, larger dwellings with a greater number of parking spaces are provided. As such, this assessment also uses *"dwelling house"* rates.

4.2 EXISTING SITE TRIP GENERATION

The site currently comprises sports fields and existing sports club rooms.

The main sports fields are to the south of the subject site and these are not being modified as part of the proposal. The subject site provides a grassed area used for informal recreation, and for sports teams to warm up on before using the main sports fields. As such, this grassed area is not considered to feature any significant existing trip generation.

The existing club rooms are proposed to be demolished, with new club rooms constructed to the south of the subject site. Negligible changes between the existing and future trip generation characteristics of the club rooms are anticipated. The club rooms will still be accesses from the existing Windsor Park car park.

4.3 PERMITTED DEVELOPMENT SCENARIO TRIP GENERATION

The site is currently zoned 'Open Space – Sport and Active Recreation Zone' and therefore no dwellings are permitted to be constructed with this zoning.

4.4 PROPOSED TRIP GENERATION

As noted previously, up to100 dwellings are anticipated on-site. The trip generation has been estimated using the RTA Guide rates for *medium density residential flat buildings* as follows:

- Peak hour trip generation – 0.65 trips per dwelling, and
- Daily trip generation – 6.5 trips per dwelling.

The 100 dwellings are therefore estimated to generate 65 trips in the peak hour and 650 trips per day.

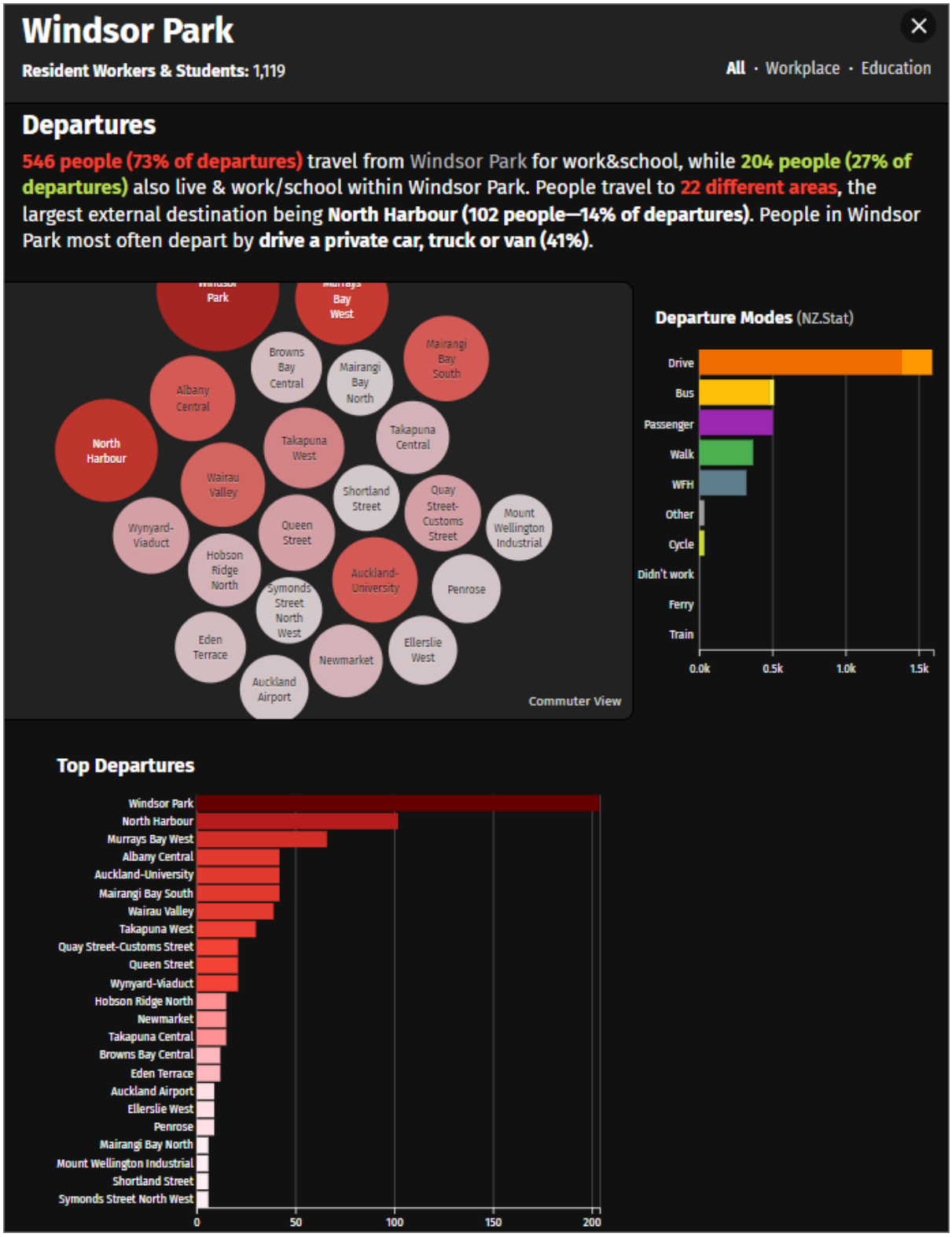
4.5 ACCEPTABILITY OF PROPOSED RTA RATES

We have analysed the 2018 'commuter waka' data from Statistics NZ to understand travel to work and education patterns in the Windsor Park statistical area. There is relatively high usage of public transport with some 14% of departures from the area i.e. residents, using buses or ferries. There are

[2] The Roads and Traffic Authority of New South Wales – Guide to Traffic Generating Developments (RTA), Version 2.2, October 2002

also high levels of ride sharing with some 15% of departures being as a passenger in a car, truck, van or company bus. Figure 10 shows this data.

Figure 10: Census Transport Patterns for Windsor Park



Based on the commuter data detailed above, as well as the previously discussed existing public transport and active mode facilities, the RTA trip rates are considered reasonable.

4.6 TRIP DISTRIBUTION / MODEL GENERATION

4.6.1 DISTRIBUTION ASSUMPTIONS

All trips associated with the proposed development (100 dwellings) have been added to the existing road network traffic volumes summarised in Section 2.4.2. It is noted that the existing trips generated by the site have not been removed from the network therefore resulting in a conservative analysis.

In terms of inbound/outbound percentages, the following has been assumed:

- Morning Peak Hour – 70% outbound, 30% inbound
- Evening Peak Hour – 30% outbound, 70% inbound.

The key intersection for assessment is the East Coast Road/ Noel Williams Place intersection, as this intersection caters for all development traffic. Additional vehicle movements at the intersections have been assigned to the network based on existing turning movement patterns as follows.

4.6.2 EXISTING TRAFFIC MOVEMENTS

Figure 11 and Figure 12 show the existing traffic movements (taken from the survey data detailed previously.

Figure 11: Existing Traffic Movements – Weekday Morning Peak Hour

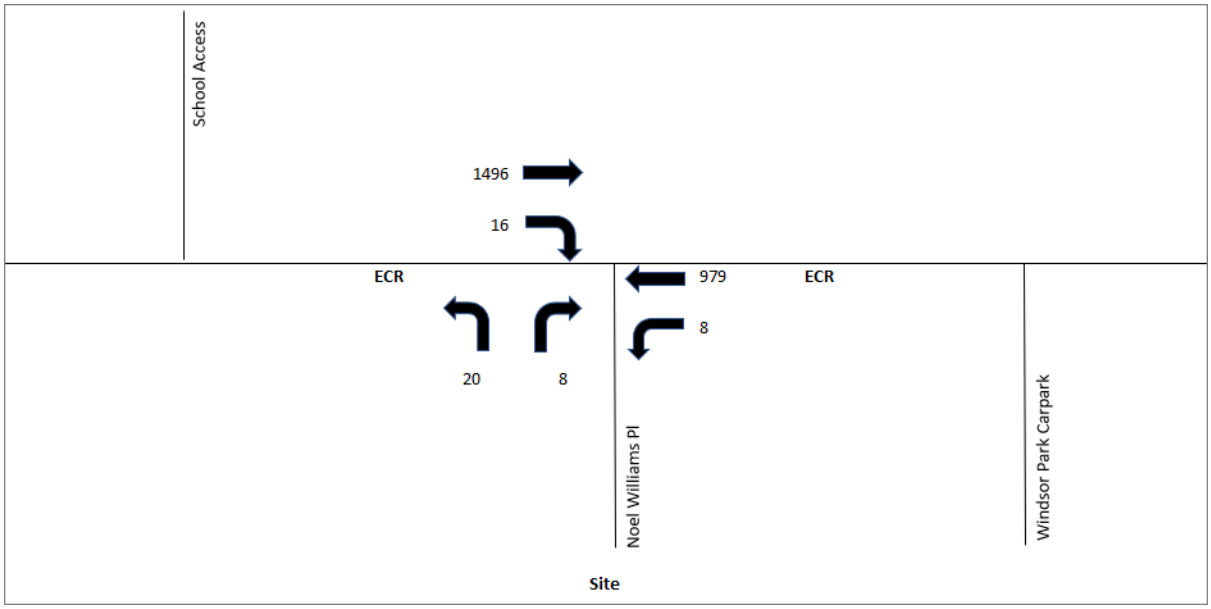
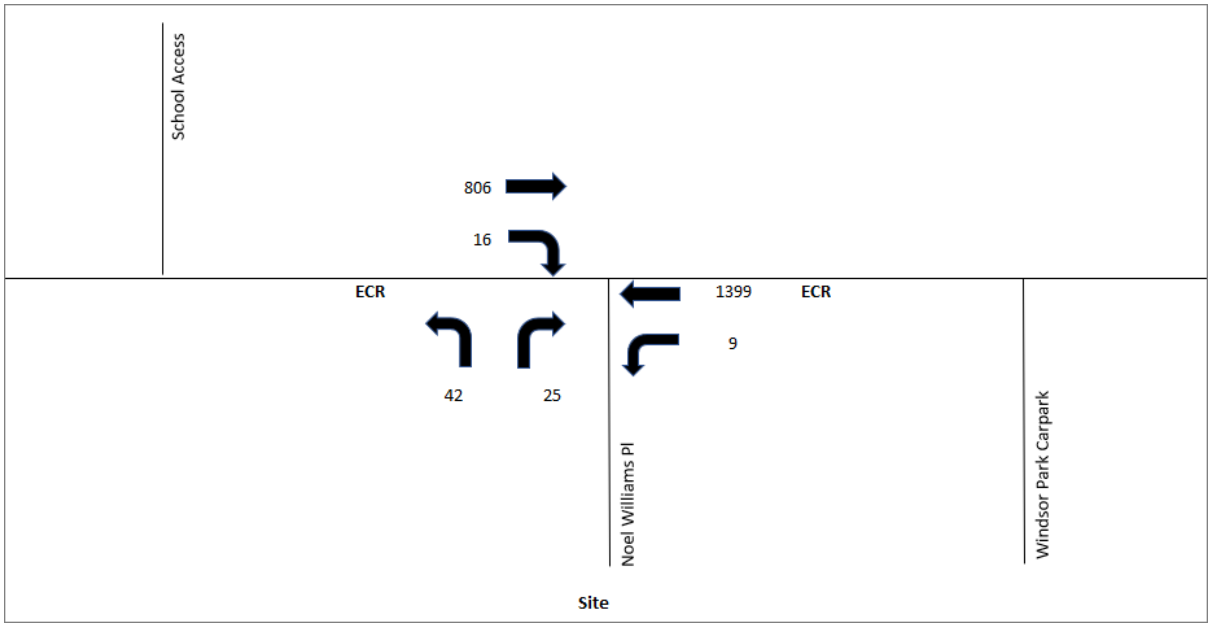


Figure 12: Existing Traffic Movements – Weekday Evening Peak Hour



4.6.3 ADDITIONAL TRAFFIC MOVEMENTS

Figure 13 and Figure 14 show the estimated additional traffic movements generated by the development.

Figure 13: Additional Traffic Movements – Weekday Morning Peak Hour

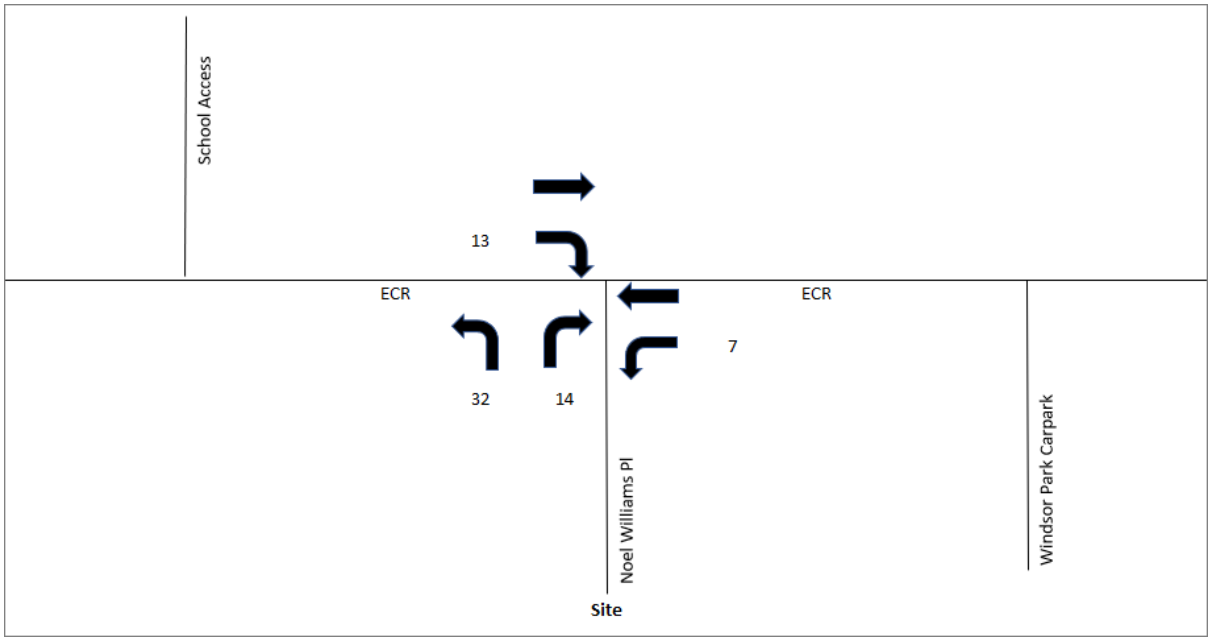
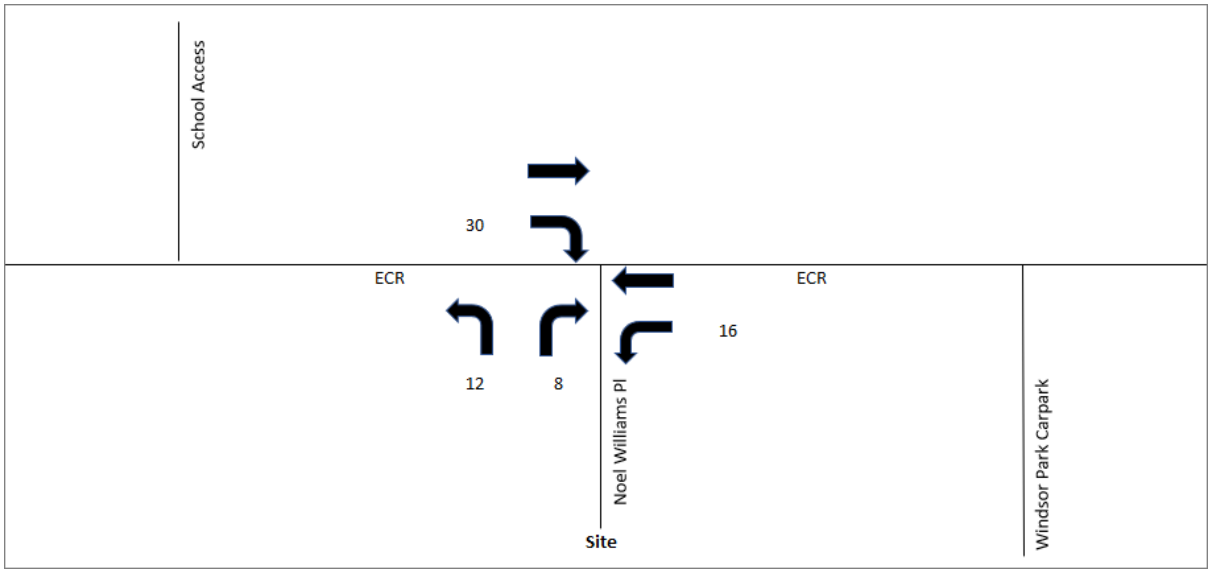


Figure 14: Additional Traffic Movements – Weekday Evening Peak Hour



5 ASSESSMENT OF EFFECTS

5.1 GENERAL

The traffic effects of the proposed development (100 dwellings) on the performance of the East Coast Road/ Noel Williams Place intersection have been assessed using the traffic modelling software SIDRA.

The results presented in this report include the Degree of Saturation, which is a measure of available capacity and the Level of Service ("LOS"), which is a generalised function of delay. For signal-controlled intersections, a Degree of Saturation of less than 0.90 is considered to be acceptable. LOS A and B are very good and indicative of free-flow conditions; C is good; D is acceptable; and E and F are indicative of congestion and unstable conditions.

The assessment below identifies the effect of the additional vehicle trips.

5.2 ASSESSMENT METHODOLOGY

The intersection has been observed to operate with a two-stage right turn out movement, as is typical for four-lane priority controlled intersections such as this. A proportion of right turning vehicles onto East Coast Road will use the flush median to turn into, before merging into the eastbound traffic flow. This essentially reduces delay for these right turning vehicles. This has been assessed by using a Sidra network model, to enable a two-stage right turn out movement for a proportion of vehicles.

The existing intersection performances detailed below have been calibrated by reviewing the existing delays to right turning vehicles and the minor leg queues at the intersection. The existing delays and queues for the right turn out movement are detailed in Table 5 below.

Table 5: Existing Turning Delay and Queues – Right Turn Out

Peak Period	Average Delay	Average Queue
Morning	21s	0-1 vehicles
Evening	35s	1-2 vehicles

As will be detailed in Section 5.3 below, the Sidra models below are considered to be an accurate representation of existing conditions, and therefore are appropriate for development assessment.

The typical Sidra network layout is provided in **Attachment A**. The right turn out delay is calculated by adding the through movement from the southern leg of the 'southern intersection' to the right turn movement from the southern leg of the 'northern intersection'.

5.3 ROAD NETWORK ASSESSMENT

5.3.1 EAST COAST ROAD/ NOEL WILLIAMS PLACE INTERSECTION

5.3.1.1 MORNING PEAK HOUR

The East Coast Road/ Noel Williams Place intersection is a priority-controlled T-intersection. Table 5 and Table 6 summarise the morning peak hour intersection performance.

Table 5: East Coast Road/ Noel Williams Place Intersection Performance – Existing Morning Peak Hour

MOVEMENT SUMMARY

Site: 101 [ECR / Noel Williams Pl - AM Existing - North (Site Folder: AM Existing)] Network: N

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que
South: RT Bay											
3	R2	8	1.0	8	1.0	0.019	8.7	LOS A	0.0	0.2	0.76
Approach		8	1.0	8	1.0	0.019	8.7	LOS A	0.0	0.2	0.76
West: ECR West											
11	T1	1575	5.0	1575	5.0	0.417	0.2	LOS A	0.0	0.0	0.00
Approach		1575	5.0	1575	5.0	0.417	0.2	NA	0.0	0.0	0.00
All Vehicles		1583	5.0	1583	5.0	0.417	0.2	NA	0.0	0.2	0.00

MOVEMENT SUMMARY

Site: 101 [ECR / Noel Williams Pl - AM Existing - South (Site Folder: AM Existing)] Network: N101

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que
South: Noel Williams Pl											
1	L2	21	1.0	21	1.0	0.022	6.6	LOS A	0.0	0.2	0.48
2	T1	8	1.0	8	1.0	0.034	13.8	LOS B	0.0	0.2	0.73
Approach		29	1.0	29	1.0	0.034	8.6	LOS A	0.0	0.2	0.55
East: ECR East											
4	L2	8	1.0	8	1.0	0.275	4.7	LOS A	0.0	0.0	0.00
5	T1	1031	5.0	1031	5.0	0.275	0.1	LOS A	0.0	0.0	0.00
Approach		1039	5.0	1039	5.0	0.275	0.1	NA	0.0	0.0	0.00
West: ECR West											
12	R2	17	1.0	17	1.0	0.042	12.6	LOS B	0.1	0.4	0.73
Approach		17	1.0	17	1.0	0.042	12.6	NA	0.1	0.4	0.73
All Vehicles		1085	4.8	1085	4.8	0.275	0.6	NA	0.1	0.4	0.03

Table 6: East Coast Road/ Noel Williams Place Intersection Performance – Development Morning Peak Hour

MOVEMENT SUMMARY

Site: 101 [ECR / Noel Williams Pl - AM Dev - North (Site Folder: AM Development)] Network: N

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que
South: RT Bay											
3	R2	23	1.0	23	1.0	0.053	8.9	LOS A	0.1	0.4	0.77
Approach		23	1.0	23	1.0	0.053	8.9	LOS A	0.1	0.4	0.77
West: ECR West											
11	T1	1575	5.0	1575	5.0	0.417	0.2	LOS A	0.0	0.0	0.00
Approach		1575	5.0	1575	5.0	0.417	0.2	NA	0.0	0.0	0.00
All Vehicles		1598	4.9	1598	4.9	0.417	0.3	NA	0.1	0.4	0.01

MOVEMENT SUMMARY

Site: 101 [ECR / Noel Williams Pl - AM Dev - South (Site Folder: AM Development)] Network: N

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que
South: Noel Williams Pl											
1	L2	55	1.0	55	1.0	0.056	6.6	LOS A	0.1	0.6	0.49
2	T1	23	1.0	23	1.0	0.095	14.6	LOS B	0.1	0.7	0.75
Approach		78	1.0	78	1.0	0.095	9.0	LOS A	0.1	0.7	0.56
East: ECR East											
4	L2	16	1.0	16	1.0	0.277	4.7	LOS A	0.0	0.0	0.00
5	T1	1031	5.0	1031	5.0	0.277	0.1	LOS A	0.0	0.0	0.00
Approach		1046	4.9	1046	4.9	0.277	0.2	NA	0.0	0.0	0.00
West: ECR West											
12	R2	31	1.0	31	1.0	0.078	12.9	LOS B	0.1	0.8	0.74
Approach		31	1.0	31	1.0	0.078	12.9	NA	0.1	0.8	0.74
All Vehicles		1155	4.6	1155	4.6	0.277	1.1	NA	0.1	0.8	0.06

As shown above, the performance of the intersection during the morning and evening peak hour is excellent, with all intersection movements continuing to operate at LOS A or LOS B with the additional development trips. Intersection queuing, average delays and degrees of saturation are very low indicating the ability to accommodate additional traffic movements.

The right turn out onto East Coast Road increases from 22.5s average delay, to 23.5s average delay following the addition of the development trips. As such, the additional trips are considered to feature minimal effects in the morning peak hour.

5.3.1.2 EVENING PEAK HOUR

Table 7 and Table 8 summarise the evening peak hour intersection performance.

Table 7: East Coast Road/ Noel Williams Place Intersection Performance – Existing Evening Peak Hour

MOVEMENT SUMMARY

Site: 101 [ECR / Noel Williams Pl - PM Existing - North (Site Folder: PM Existing)] **Network: N1**

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que
South: RT Bay											
3	R2	26	1.0	26	1.0	0.027	4.2	LOS A	0.0	0.2	0.47
Approach		26	1.0	26	1.0	0.027	4.2	LOS A	0.0	0.2	0.47
West: ECR West											
11	T1	848	5.0	848	5.0	0.225	0.1	LOS A	0.0	0.0	0.00
Approach		848	5.0	848	5.0	0.225	0.1	NA	0.0	0.0	0.00
All Vehicles		875	4.9	875	4.9	0.225	0.2	NA	0.0	0.2	0.01

MOVEMENT SUMMARY

Site: 101 [ECR / Noel Williams Pl - PM Existing - South (Site Folder: PM Existing)] **Network: N1**

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que
South: Noel Williams Pl											
1	L2	44	1.0	44	1.0	0.062	8.3	LOS A	0.1	0.6	0.58
2	T1	26	1.0	26	1.0	0.237	33.3	LOS D	0.2	1.8	0.90
Approach		71	1.0	71	1.0	0.237	17.6	LOS C	0.2	1.8	0.70
East: ECR East											
4	L2	9	1.0	9	1.0	0.392	4.7	LOS A	0.0	0.0	0.00
5	T1	1473	5.0	1473	5.0	0.392	0.2	LOS A	0.0	0.0	0.00
Approach		1482	5.0	1482	5.0	0.392	0.2	NA	0.0	0.0	0.00
West: ECR West											
12	R2	17	1.0	17	1.0	0.097	24.8	LOS C	0.1	0.8	0.89
Approach		17	1.0	17	1.0	0.097	24.8	NA	0.1	0.8	0.89
All Vehicles		1569	4.8	1569	4.8	0.392	1.2	NA	0.2	1.8	0.04

Table 8: East Coast Road/ Noel Williams Place Intersection Performance – Development Evening Peak Hour

MOVEMENT SUMMARY

Site: 101 [ECR / Noel Williams Pl - PM Dev - North (Site Folder: PM Development)] Network:

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que
South: RT Bay											
3	R2	35	1.0	35	1.0	0.036	4.2	LOS A	0.0	0.3	0.47
Approach		35	1.0	35	1.0	0.036	4.2	LOS A	0.0	0.3	0.47
West: ECR West											
11	T1	848	5.0	848	5.0	0.225	0.1	LOS A	0.0	0.0	0.00
Approach		848	5.0	848	5.0	0.225	0.1	NA	0.0	0.0	0.00
All Vehicles		883	4.8	883	4.8	0.225	0.2	NA	0.0	0.3	0.02

MOVEMENT SUMMARY

Site: 101 [ECR / Noel Williams Pl - PM Dev - South (Site Folder: PM Development)] Network: N

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que
South: Noel Williams Pl											
1	L2	57	1.0	57	1.0	0.079	8.3	LOS A	0.1	0.6	0.58
2	T1	35	1.0	35	1.0	0.335	38.0	LOS E	0.4	2.6	0.92
Approach		92	1.0	92	1.0	0.335	19.5	LOS C	0.4	2.6	0.71
East: ECR East											
4	L2	26	1.0	26	1.0	0.397	4.7	LOS A	0.0	0.0	0.00
5	T1	1473	5.0	1473	5.0	0.397	0.2	LOS A	0.0	0.0	0.00
Approach		1499	4.9	1499	4.9	0.397	0.2	NA	0.0	0.0	0.00
West: ECR West											
12	R2	48	1.0	48	1.0	0.288	29.5	LOS D	0.4	2.7	0.91
Approach		48	1.0	48	1.0	0.288	29.5	NA	0.4	2.7	0.91
All Vehicles		1639	4.6	1639	4.6	0.397	2.2	NA	0.4	2.7	0.07

As shown above, the performance of the intersection during the morning and evening peak hour is excellent, with all intersection movements continuing to operate at LOS A with the additional development trips. The right turn into Noel Williams Place operates at LOS D in the evening peak hour with the additional development trips, which is considered acceptable for an arterial road in a peak hour.

The right turn out onto East Coast Road increases from 37.5s average delay, to 42.2s average delay following the addition of the development trips. As such, the additional trips are considered to feature minimal effects in the morning peak hour.

Overall, the existing intersection is considered to be able to accommodate the additional development traffic without compromising safety or operational efficiency.

6 PARKING

6.1 AUCKLAND UNITARY PLAN REQUIREMENTS (E27.6.2)

As per the latest version of the Unitary Plan, all minimum parking requirements for residential activity in residential zones have been deleted (refer T37 to T46A table references in the Unitary Plan). Furthermore, there are no maximum parking requirements.

As a result of the above, any number of parking spaces could be provided on-site (including none at all) and satisfy the Unitary Plan parking standards. With 100 parking spaces proposed, the estimated provision can satisfy Unitary Plan parking requirements regardless of the underlying residential zone.

6.2 LIKELY PARKING DEMAND

Residential development can increase the demand for on-street parking if the parking demand of a site exceeds the parking supply available on that site. A contributing factor of this was the policy shift and the parking provisions in the Unitary Plan, which reduced the minimum parking requirements to levels which often do displace parking onto the street, and the recent National Policy Statement on Urban Development 2020 (NPS-UD) which essentially removes parking minimums from any development within major territorial authorities such as Auckland.

These were intentional moves to enable greater housing supply and reduce housing costs (by reducing the amount of space on-site needed for parking). There was an expectation that Auckland Council and specifically Auckland Transport would then manage on-street parking through parking controls (time limited parking, paid parking for example) if necessary.

Despite the above however, the likely parking demand has been estimated based on the housing typologies outlined in Section 3. The RTA parking demand rates have been used as these have been used for trip generation purposes, and are considered reasonable. The expected parking demand has been estimated using the *'medium density residential flat building'* rates as follows:

> *"The recommended minimum number of off-street, resident parking spaces is 1 space for each unit, plus an additional 1 space per each 5 x 2 bedroom unit or part thereof. Also, an additional 1 space per each 2 x 3 or more bedroom unit or part thereof is recommended.*
>
> *An additional one space per each five units for visitor parking or part thereof is recommended."*

Therefore, for the 100 dwellings proposed, in the typologies outlined in Section 3, it is expected there would be a parking demand of 100 resident spaces, an additional 50 resident spaces and 20 visitor spaces (170 spaces in total). As the proposed development will provide an estimated 100 parking spaces on-site, there could be an increased demand for up to 70 parking spaces on-street. It is considered unlikely however given the nature and scale of the development, that more than one parking space per dwelling would be required. As such, it is considered more likely that there would be increased demand for up to 20 parking spaces.

Given the availability of parking in the area, notably on Noel Williams Place and in the adjacent Windsor Park carpark, there is considered to be suitable parking availability to accommodate additional parking if required.

6.3 BICYCLE PARKING (E27.6.2)

Table 9 outlines the Unitary Plan bicycle parking requirements for the proposed development.

Table 9: Unitary Plan Bicycle Parking Requirements

Activity	Short Stay (Visitors)	Long Stay (Residents)
Residential (Developments of 20 or more dwellings)	1 per 20 dwellings	1 per dwelling without a dedicated garage

With 100 dwellings on-site, a total of 100 resident bicycle parking spaces are required and 5 visitor bicycle parking spaces are required. It is intended to meet these requirements and the exact location is to be confirmed but there is ample space to accommodate these provisions.

6.4 ACCESSIBLE PARKING

The Unitary Plan requires that accessible parking be provided as per the requirements of the Building Code and NZS 4121[3]. The Building Act[4] states that accessible parking is not required for residential dwellings. No accessible spaces are proposed on-site.

6.5 LOADING (E27.6.2)

The dwellings on the site are estimated to have a GFA less than 5,000 m^2 therefore no loading space is required ('all other activities' up to 5,000 m^2).

Given the number of dwellings the development can be served by either public or private rubbish collection. The servicing provisions can be detailed in future consenting stages.

6.6 PARKING SPACE DIMENSIONS (E27.6.3)

A total of 100 parking spaces can be provided on-site comprising:

- 100 x 90 degree spaces (2.5 m wide x 5.0 m deep with 6.7 m manoeuvring aisle).

All spaces meet the minimum Unitary Plan parking dimensions.

The concept design has considered vehicle tracking and the spaces at the end of the aisle have therefore been widened to aide tracking to and from these spaces. There are two stacked pairs of parking spaces. E27.6.3.3 of the Unitary Plan states:

> *"Where a dwelling provides more than one parking space, these may be stacked. Stacked parking means access is required through another parking space."*

Each stacked pair of parking spaces is proposed to be allocated to the same resident to ensure cars can be moved easily when required.

[3] NZS4121:2001, Design for Access and Mobility: Buildings and Associated Facilities

[4] https://www.legislation.govt.nz/act/public/2004/0072/latest/DLM309341.html

7 ACCESS

7.1 NOEL WILLIAMS PLACE EXTENSION

An extension of the Noel Williams Place carriageway will provide access to the site, connecting to the Noel Williams Place cul-de-sac at its southern end. The new road will connect to an internal loop road via a priority controlled t-intersection. Pedestrian and cyclist access is also proposed via this extension. The proposed connection will be a private road.

An assessment of the existing Noel Williams Place cross sectional widths is detailed in Figure 15 and Table 9 below.

Figure 15: Noel Williams Place Cross Section Locations

Table 9: Noel Williams Place Cross Section Widths

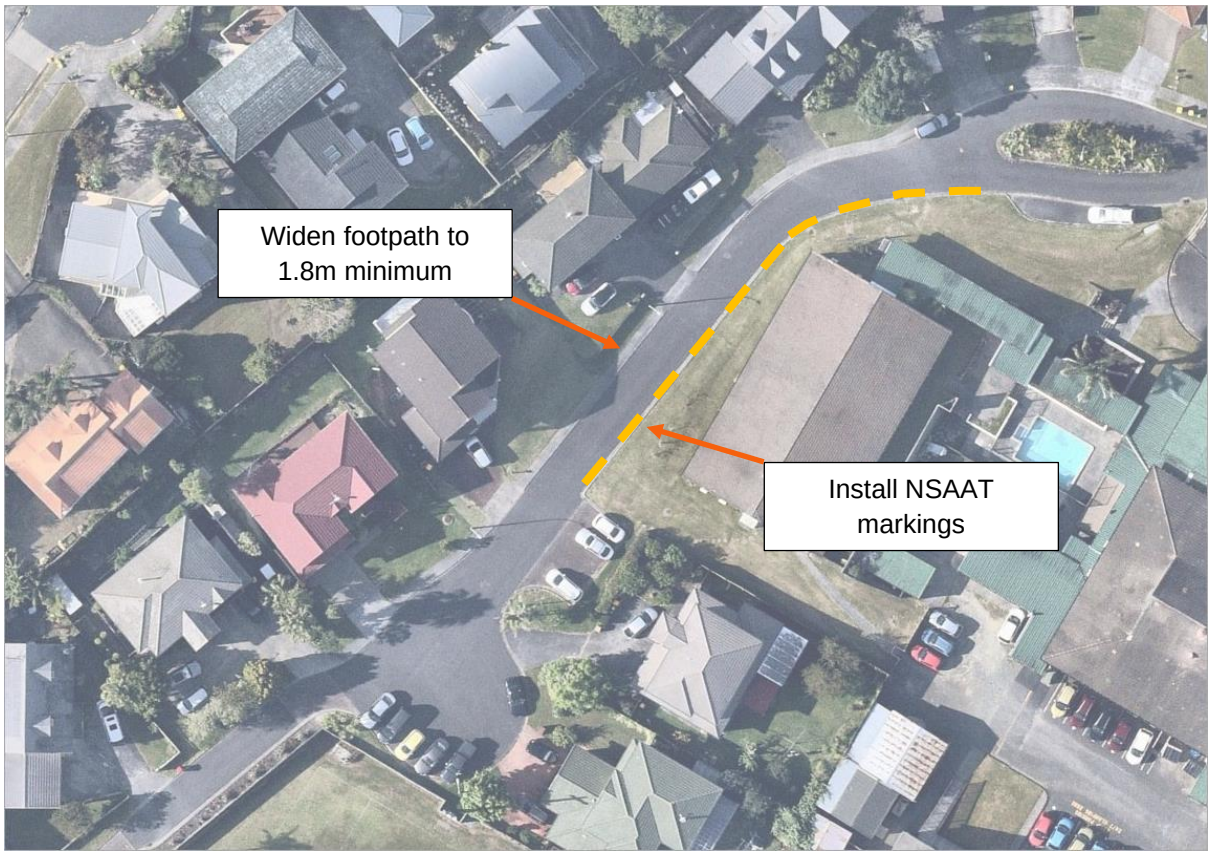
Location	Footpath(s)	Median	Carriageway
1	North/West side – 1.5m South/East side – no footpath	No median	6.0m
2	North/West side – 1.2m South/East side – no footpath	4.5-5.0m	North side – 3.5m South side – 3.7m
3	North/West side – 1.2m South/East side – no footpath	No median	5.2m-5.5m
4	North/West side – 1.2m South/East side – no footpath	No median	20m

As shown above, the carriageway width in Location 3 varies between 5.2m and 5.5m wide. Typically, a two-way carriageway should be a minimum of 5.5m wide for its full length to accommodate two-way vehicle movement. It is acknowledged that the existing road is narrower than this minimum in some places, however has been observed to currently operate satisfactorily. It is also noted that any widening works in this area would be difficult, given the existing constraints present. To mitigate this width shortfall, it is recommended that NSAAT markings are installed on the eastern side of the carriageway in this narrower location.

The existing footpath also only measures 1.2m wide, and should be increased to 1.8m wide to accommodate the increased pedestrian volumes.

The proposed Noel Williams Place road upgrades are detailed in Figure 16 below.

Figure 16: Noel Williams Place Upgrades



It is recommended that the new road extension within the site continues this cross section, with a 5.5m wide carriageway. The footpath width within the site should measure a minimum of 1.8m wide.

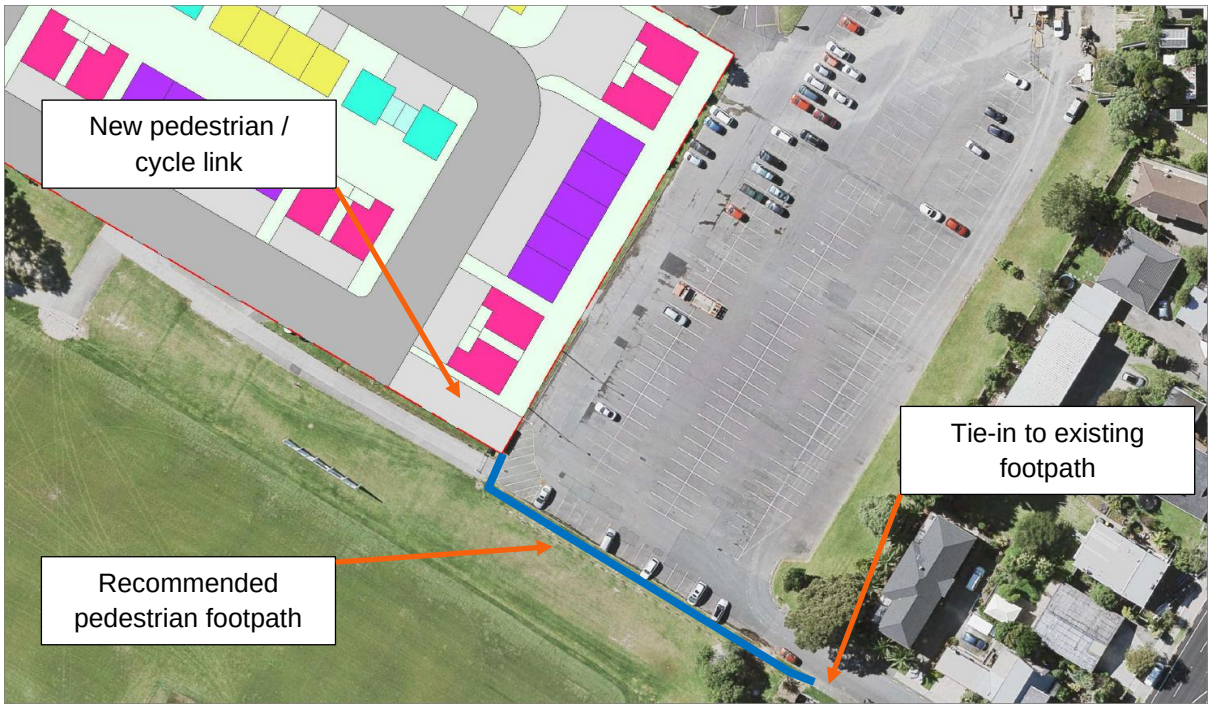
7.2 ACTIVE MODES

As noted, pedestrian access routes are proposed between the site and East Coast Road, and between the site and Noel Williams Place. The new footpaths within the site should be a minimum 1.8 m wide and separated from the vehicle access. The development will also provide direct pedestrian connections to Windsor Park to the east and south, thereby providing an alternative to vehicle transport for the local residents.

Cyclists can access Noel Willaims Place directly via the new internal road. Cyclists are also provided access to the east via the pedestrian / cycle link. As such, cyclists are considered to be well catered for by the proposed development.

The proposed active mode links and the recommended upgrades are detailed in Figure 17 below.

Figure 17: Pedestrian and Cycle Upgrades



The upgrades detailed above are considered to suitably accommodate pedestrians and cyclists.

Lighting will be provided for personal safety and low level landscaping will also be provided to enhance its appearance.

7.3 UNITARY PLAN REQUIREMENTS

7.3.1 VEHICLE ACCESS RESTRICTIONS (E27.6.4.1)

Vehicle Access Restrictions (VAR) apply, and vehicle crossings must not be constructed or used to provide vehicle access across that part of a site boundary, which:

(a) is located within 10 m of any intersection as measured from the property boundary;
(b) is subject to the following types of Vehicle Access Restriction as identified on the planning maps in the zones listed in Table E27.6.4.1.1;
(c) has frontage to an arterial road as identified on the planning maps; or
(d) is located closer than 30 m from a railway level crossing limit line.

The proposed vehicle crossings within the site intend to satisfy the VAR rules detailed above. The vehicle crossings adjacent to the new priority controlled t-intersection may need to be shifted to satisfy this rule.

7.3.2 CROSSING SEPARATION AND NUMBER OF VEHICLE CROSSINGS (E27.6.4.2)

Table E27.6.4.2.1 specifies that one driveway per 25 m of frontage (or part thereof) can be provided for 'all other sites' not subject to a vehicle access restriction or within specific geographic locations in the central area. Each dwelling will feature a maximum of one vehicle crossing, and therefore satisfies this rule.

Table E27.6.4.2.1 also specifies that the minimum separation distances between vehicle crossings are 6 m where crossings serve the same site, and 2 m where they serve adjacent sites (however this can be combined to one crossing if it is 6 m in width or less).

The proposed crossings will satisfy this rule.

7.4 VEHICLE CROSSING AND VEHICLE ACCESS WIDTHS (E27.6.4.3)

In relation to the proposed vehicle crossing on the site, the Unitary Plan requires the following:

For residential sites serving more than 10 parking spaces

- Minimum width of crossing at site boundary – 5.5 m (two-way);
- Maximum width of crossing at site boundary – 6.0 m (two-way), and
- Minimum formed access width – 5.5 m (providing for two-way movements).

The proposed crossings will satisfy this rule and will be designed in accordance with AT TDM Standard VX0201.

7.4.1 GRADIENT OF ACCESS (E27.6.4.4)

Rule E27.6.4.4.1 of the Unitary Plan outlines the requirements for vehicle access gradients. The requirements are detailed below:

- Maximum gradient of 1 in 5 (20%) for residential accesses;
- Maximum gradient of 1 in 8 (20%) for accesses used by heavy vehicles;
- Gradient changes exceeding 1 in 8 (12.5%) at the summit or 1 in 6.7 (15%) at a sag must include transition sections. Transition sections are typically a minimum of 2m long; and
- A 4m long platform with maximum gradient of 1 in 20 (5%) is required adjacent to and within the property boundary.

The accesses will all be essentially flat and therefore will comply with this requirement.

7.5 SIGHT DISTANCE

7.5.1 INTERSECTION SIGHT DISTANCE

Austroads Safe Intersection Sight Distance (SISD) is considered the appropriate design standard for sight distance for a new road intersection. The new Noel Williams Place extension / New Road intersection features a posted speed limit of 50km/h. The Austroads sight distance requirement for a 50km/h design speed, 2.0s reaction time and 2.0s observation time is 83m.

The new intersection will satisfy these requirements.

7.5.2 VEHICLE CROSSING SIGHT DISTANCE

The RTS-6 Guidelines for Visibility at Driveways document (RTS-6 Guide) states that for driveways accessing onto a ‘Local Road’ with a 50 km/h operating speed, the required sight distance is 40 m.

The proposed crossings will satisfy this requirement, and where they don’t, additional mitigation will be proposed.

8 CONSTRUCTION TRAFFIC

The development site is currently an unoccupied sports field, therefore demolition works are not required and earthworks can begin immediately.

Until land use consent is approved, a contractor cannot be appointed and therefore exact construction details are difficult to determine at this stage. Despite that, it is expected that all construction truck movements to and from the site will be via East Coast Road and then Noel Williams Place or the Windsor Park carpark. The earth works phase is being applied for in a separate consent process and can be undertaken over an extended period to minimise traffic effects if necessary.

As is typical with a development of this scale, it is recommended that a Construction Traffic Management Plan (CTMP) should be developed to manage construction effects. As a minimum, it is considered that the Construction Traffic Management Plan should include the following:

- Construction dates and hours of operation including any specific non-working hours for traffic congestion/noise etc, aligned with normally accepted construction hours in the Auckland Region;
- Truck route diagrams between the site and external road network;
- Temporary traffic management signage/details for both pedestrians and vehicles, to manage the interaction of these road users with heavy construction traffic, and
- Details of site access/egress over the entire construction period and any limitations on truck movements. All egress points should be positioned to achieve appropriate sight distances.

Based on experience of constructing similar projects, and bearing in mind capacity within the existing road network, with the appropriate Construction Traffic Management Plan in place and the above measures implemented, it is considered that construction activities can be managed to ensure any generated traffic effects are appropriately mitigated.

9 CONCLUSIONS

Based on the assessments undertaken in this report, it is concluded:

- The crash history does not highlight any safety concerns near the site;
- The site has good accessibility to various transport modes: walking, cycling, bus, and private vehicle;
- The concept development proposes 100 dwellings in a mix of typologies. The effects of the proposed increase in vehicles are expected to be negligible with all existing roads and intersections capable of accommodating this additional traffic;
- The level of parking on-site meets Unitary Plan requirements;
- In terms of likely parking demand, this can be satisfied by a combination of on-site parking, and available on-street parking resources near the site;
- An extension of the Noel Williams Place carriageway will provide access to the site. Sight distance at the new intersection is considered acceptable and can meet relevant guidelines;
- Construction effects can be managed with a Construction Management Plan (CTMP).

It is recommended that:

- NSAAT markings are installed on the eastern side of the Noel Williams Place carriageway where width is less than 5.5m wide. The footpath should be widened to minimum 1.8m as shown in Figure 16.
- The new road extension carriageway within the site should measure 5.5m minimum with a 1.8m wide footpath;
- A new footpath connection between the site and the Windsor Park carpark access should be provided as shown in Figure 17; and
- A Construction Traffic Management Plan (CTMP) should be developed to manage construction effects.

From our assessment of the proposal, and subject to the recommendations detailed above, the generated traffic effects of the proposed re-zoning are considered to be negligible and there is no reason, from a transport perspective, to preclude approval of the development.

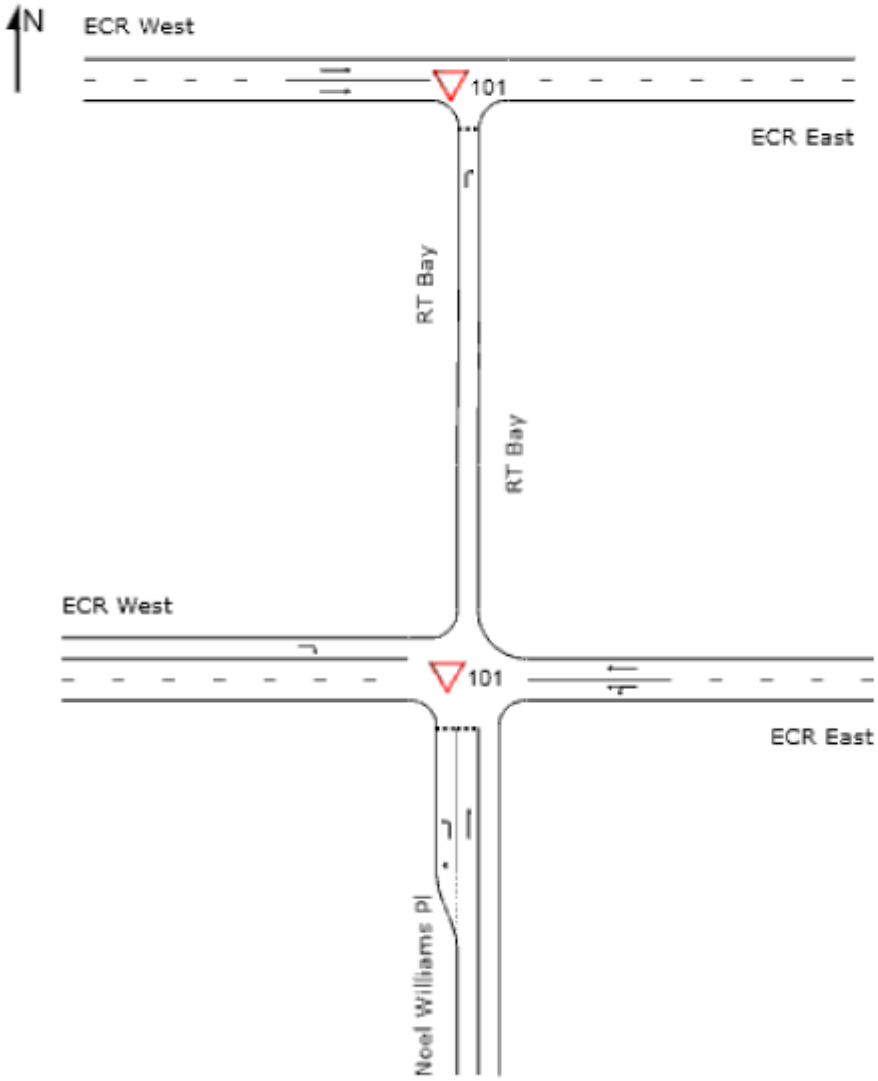
ATTACHMENT A – SIDRA NETWORK LAYOUT

NETWORK LAYOUT

Network: N101 [AM Existing (Network Folder: General)]

New Network
Network Category: (None)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



SITES IN NETWORK