



# Highbrook Plan Change Integrated Transport Assessment

PREPARED FOR HIGHBROOK LIVING LIMITED | JULY 2022





# Revision Schedule

Rev No	Date	Description	Signature of Typed Name (documentation on file)			
			Prepared by	Checked by	Reviewed by	Approved by
1	11/03/2022	First Draft	ZC/AJ	HP	DJM	DJM
2	17/03/2022	Final Draft	AJ	HP	DJM	DJM
3	01/07/2022	Final	AJ	HP	DJM	DJM



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**STATUS** Final | Project No. 310205187



# Executive summary

Stantec has been commissioned by Highbrook Living Limited to prepare an Integrated Transport Assessment (ITA) as part of a Private Plan Change request. The Plan Change seeks to rezone the western part (on the western side of Highbrook Drive) of the Applicant's wider landholding at 8 Sparky Road in Highbrook from Business – Light Industry Zone to Residential – Terrace Housing and Apartment Building Zone under the Unitary Plan. The concept of development within the THAB zoned land would then be to deliver residential development that may potentially include up to eight five-storey apartment blocks, a dairy, a café, a shared office space, approximately 10 standalone houses, and some 15 terrace houses. The concept for development within the THAB zoning on the subject land would therefore include a development scale of up to approximately 200 dwellings. This ITA assesses the traffic effects of the proposed rezoning as well as the ability of the surrounding existing and proposed transport network to support the development potential of the proposed Plan Change.

The Plan Change area, located approximately 14 km south of the Auckland Central Business District, is currently vacant however there is some industrial activity within the wider 8 Sparky Road site on the eastern side of Highbrook Drive. Further development of the eastern portion of the Applicant's land is currently in a preliminary planning phase.

The Plan Change area lies at the confluence of several major roads including Highbrook Drive, SH1 and Hellabys Road, and as such has excellent connectivity to the wider Auckland region. Despite this, vehicle access to the external road network to/from the Plan Change area is currently constrained to the current single lane, give-way controlled, left-in/left-out access of the site's connection to Highbrook Drive.

The Highbrook area and its supporting roading network is currently arranged to provide higher levels of service and access by private vehicles due to the historical development of industrial land-use activity and proximity of and accessibility by SH1 and the supporting arterial roads. There is currently limited active transportation within the Highbrook area due to the largely industrial land use, and the area is currently serviced by only two bus routes accessed via bus stops approximately 2 km away from the Plan Change site. The Plan Change proposal looks to enhance this connectivity and accessibility by a range of transport modes and will look to contribute to the enhancement of alternative travel modes in association with other land use development and public agency projects over the life of the Plan Change and its facilitated development.

As part of the Plan Change process, it is recommended that a bus stop is provided along the site frontage on Highbrook Drive to provide access to Bus Route 351 that already travels along this route. This will provide a regular connection between the site and Ōtāhuhu on the western end, and Botany on the eastern. A shuttle service is also recommended to be included in future transport plans and provisions associated with the development within the Plan Change area to further encourage active transport uptake. Details of the service should be determined in coordination with AT and other stakeholders including future residents as to the timings and destinations of the shuttle as to provide a service that would encourage the most public transportation uptake.

Vehicular access to the site will be via the proposed new four-arm signalised intersection (being delivered as part of the industrial land development within the balance part of the 8 Spark Road site), which will be located approximately 500m north of the Highbrook Drive interchange roundabout.

To consider the traffic impact of the proposed Plan Change on the surrounding road network, consideration will be given to the traffic impacts of the Plan Change development in comparison to a baseline scenario in which the site is developed with light industry, as per the current zoning. The traffic modelling shows that there are no significant differences between the baseline and development scenario, and while the extensive delays at the site intersection are not acceptable, it shows that this largely reflects existing wider network issues rather than caused by the Plan Change development. In this regard and reflecting the findings of other planning case law (such as the Landco Mount Wellington case in relation to the Stonefields development) around the responsibility of solving regional transport constraints, the resolution of these issues more properly sits with the transportation authorities rather than developers or Applicants.

Further modelling and analysis would be expected to be undertaken as part of subsequent resource consent applications for development at the site, however it is concluded the rezoning the site from Business - Light Industry Zone to Residential – Terrace Housing and Apartment Building Zone will have minimal impact on the surrounding road network. For the reasons set out in earlier sections with regard to active and public transport modes, the promotion of opportunities for future residents to adopt those non-private vehicle travel modes and requirement for the Applicant to actively participate in the provision of those walking, cycling and public transport enhancements, it is considered that the overall transport effects associated with the Plan Change are appropriate.

The development enabled by the Plan Change rezoning as sought is consistent with current government transport policies.

This ITA report concludes that the Plan Change will enable a development form and scale that is appropriately responds to its location and there is no traffic engineering and transport planning reason to preclude acceptance of the proposal.





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# 1 Introduction

Stantec has been commissioned by Highbrook Living Limited (**the Applicant**) to prepare an Integrated Transport Assessment (**ITA**) report in support of a Private Plan Change (**the Plan Change**) to the Auckland Unitary Plan - Operative in Part (**Unitary Plan**). This Plan Change seeks to rezone the western part (on the western side of Highbrook Drive) of the Applicant's wider land holding at 8 Sparky Road in Highbrook from Business - Light Industry Zone to Residential – Terrace Housing and Apartment Building Zone under the Unitary Plan. The Plan Change further seeks to apply precinct provisions to facilitate the transition from undeveloped to a residential area in an integrated and comprehensive manner.

The Plan Change area is bounded by Highbrook Drive to the south and State Highway 1 (**SH1**) to the west. The rezoning proposed will facilitate residential development of up to approximately 200 residential dwellings on the site with some minor supporting developments such as a café and convenience stores.

The transportation issues that are central to this Plan Change include:

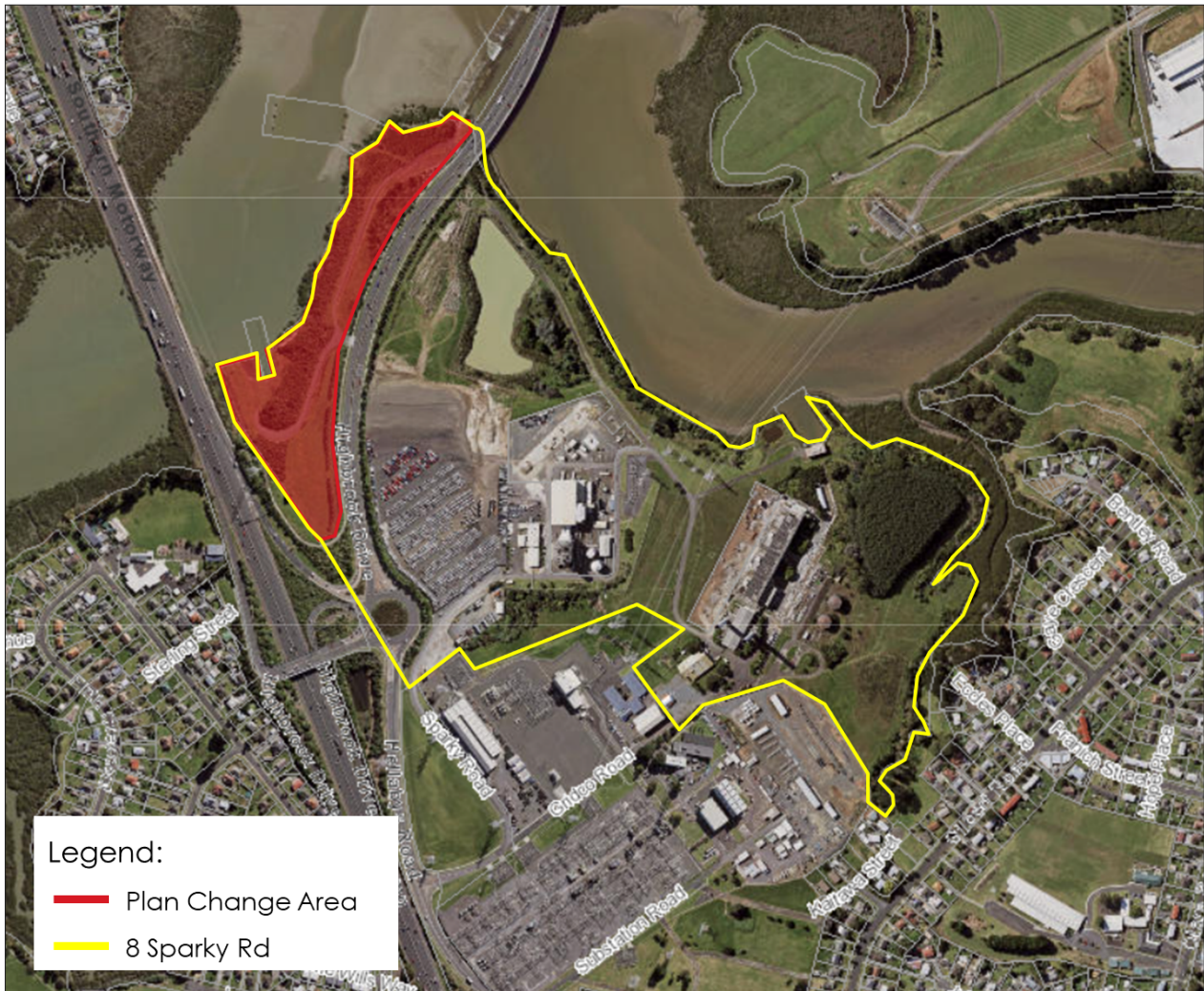
- The existing accessibility of the site to various modes of transportation;
- The ability of the design of the site to encourage a variety of transport modes to and from the site for future residents, employees, customers, and visitors;
- The ability of the development enabled by the Plan Change to be completely self-sufficient, in that any infrastructure costs required to mitigate the effects of the development will be fully met by the Applicant; and
- The ability of the proposal to be consistent with key national, regional, and local policies relating to the site accessibility and sustainability.

By way of summary, this report establishes that from a traffic and transportation perspective there is no reason to preclude acceptance of the Plan Change as described.



## 2 Plan Change Area

The Plan Change area encompasses the northern portion of the site located at 8 Sparky Road, Highbrook. **Figure 1** shows the Plan Change area in relation to existing site<sup>1</sup>.



**Figure 1: Plan Change Area in relation to 8 Sparky Road**

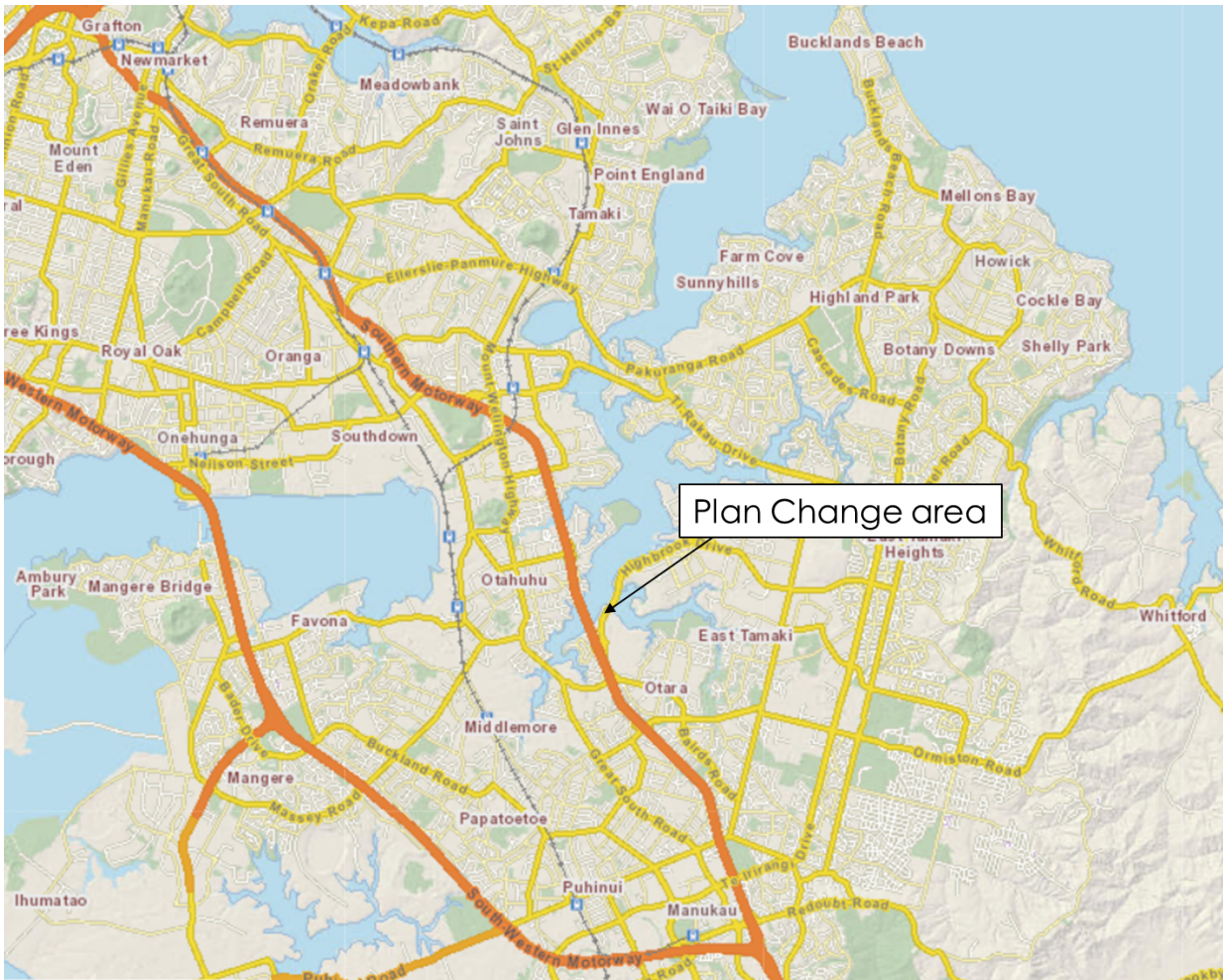
The Plan Change area is located approximately 14 km south of the Auckland Central Business District, approximately 1.8 km west of the Highbrook Business Park and 5 km north of Manukau Town Centre.

**Figure 2** shows the Plan Change area in the context of the existing surrounding road network<sup>2</sup>.

<sup>1</sup> Aerial photograph background sourced from the Auckland Council GeoMaps database

<sup>2</sup> Aerial photograph background sourced from the Auckland Council GeoMaps database





**Figure 2: Site Location in the context of the surrounding road network**

The Plan Change area forms part of the former Ōtāhuhu power station site and is bounded by Highbrook Drive to the south, the Tāmaki River to the north and SH1 to the west. SH1 runs north south to the west of the site, with motorway ramps at the Highbrook Drive / SH1 interchange and associated roundabout, approximately 460 m south of the site. The site currently has access to the wider road network via a single lane left-in/left-out access on Highbrook Drive. A proposed signalised intersection serving the industrial land within the Applicant’s wider landholding is shortly to be constructed along the Highbrook Drive frontage of the Plan Change site.

The Plan Change area is currently vacant, however, there is some industrial activity within the wider 8 Sparky Road site on the eastern side of Highbrook Drive. Further development of the eastern portion of the Applicant’s land is currently in a preliminary planning phase.

Highbrook Business Park is located approximately 1.8 km northeast of the site which includes various commercial and industrial activity. The Highbrook Business Park also include a small supermarket, restaurants, recreational facilities, and banking facilities.

The Plan Change site is also located approximately 2.5 km from the Ōtāhuhu industrial area and 4km from the East Tāmaki industrial area, respectively.

There are also a number of educational facilities in the vicinity of the site including Wymondley Road Primary School approximately 400 m west of the site (as the crow flights), Bairds Mainfreight Primary School and Kindergarten 1.9 km south of the site, and Manukau Institute of Technology approximately 2 km south of the site.

Overall, the site has good access to a variety of complementary activities in the surrounding area including to a number of employment and commercial areas.





# 3 Existing Transport Environment

## 3.1 Existing Road Network

The existing key transport links surrounding the Plan Change area are described in the following sections.

### 3.1.1 Highbrook Drive

Highbrook Drive forms the southern boundary of the site. The road is classified as an arterial route under the Unitary Plan and connects to SH1 and Hellabys Road at its western end and Allens Road at its eastern end. All three of these roads are classified as arterial routes under the Unitary Plan. In this role as an arterial road Highbrook Drive is expected to provide the primary access from SH1 to east Auckland including connecting with the suburbs of East Tāmaki and Botany.

Within the vicinity of the site, Highbrook Drive has an approximate carriageway width of 19m which accommodates two traffic lanes in each direction separated by a 3 m wide solid median. On-street parking is not permitted along this section of the road.

Highbrook Drive has a posted speed limit of 60 km/h along the majority of its length, and then reduces to 50 km/h within 250 m of the SH1 / Highbrook Drive roundabout.

### 3.1.2 State Highway 1

SH1 is a regionally significant primary arterial and motorway link that extends north-south through Auckland (with connections beyond). Within the Auckland area, SH1 provides access to key centres such as Auckland CBD, Newmarket, Manukau and Manurewa. It runs in a north south direction to the west of the Plan Change area and plays an important through connection through the region as well as direct connection to the surrounding Highbrook area. The Unitary Plan classifies the motorway as an arterial route where the function of such routes is to cater for through movements with less emphasis on providing access to abutting properties.

The Plan Change area connects to SH1 at the SH1 / Highbrook Drive roundabout which is located on the south-western corner of the Plan Change area. Access onto the motorway is controlled via traffic signal “meters” managed and controlled by Waka Kotahi | New Zealand Transport Agency (**Waka Kotahi**).

SH1 has a posted speed limit of 100km/h for both directions. In the vicinity of Highbrook, SH1 typically accommodates three lanes in each direction separated by median barriers.

### 3.1.3 Hellabys Road

Hellabys Road is classified as an arterial road under the Unitary Plan.

It connects to Highbrook Drive at its northern end and Bairds Road at its southern end. All three of these roads are classified as arterial routes under the Unitary Plan. It is a key route connecting SH1 to Ōtara and the Manukau Institute of Technology (**MIT**).

Hellabys Road forms part of the western boundary of the wider 8 Sparky Road site which gains access to the wider road network at the Hellabys Road / Gridco Road intersection. In the vicinity of the site, Hellabys Road has an approximate carriageway width of 8m which accommodates one lane in each direction separated by a marked centreline. The posted speed limit is 50km/h.

Summarily, it can be noted that the site is well connected to the surrounding suburbs and to the wider Auckland region via the arterial and state highway road network.

## 3.2 Existing Traffic Volumes

The most recent traffic counts for the surrounding non-state highway roads have been obtained from the Auckland Transport (**AT**) traffic count database and are summarised in **Table 1** below.



**Table 1: Daily and Peak Hour Traffic Counts**

Road	Location	Count Date	7-Day ADT (vpd)	5-Day ADT (vpd)	AM Peak Volume (vph)	PM Peak Volume (vph)
Highbrook Drive	Between SH1 /Highbrook roundabout and Highbrook Drive bridge	May 2021	39,350	45,659	3,530	3,500
Hellabys Road	Between SH1 / Highbrook roundabout and Gridco Road	August 2019	11,500	12,990	1,030	1,290

Overall, the current traffic volumes on the roads in the vicinity of the Plan Change area are considered to be generally consistent with the expected functions of these roads within the road network from a transport perspective.

## 3.3 Existing Accessibility

### 3.3.1 Private Vehicles

The Plan Change area lies at the confluence of several major roads including Highbrook Drive, SH1 and Hellabys Road, as detailed in Section 3.1, and as such has excellent connectivity to the wider Auckland region. Despite this, vehicle access to the external road network to / from the Plan Change area is currently constrained to the current single lane, giveaway controlled, left-in/left-out access of the site's connection to Highbrook Drive.

### 3.3.2 Public Transport

A map showing the public transport network surrounding the Plan Change area is shown in **Figure 4**.

As shown, Bus Route 325 runs along Highbrook Drive along the site frontage, however there are no existing bus stops located on Highbrook Drive in the vicinity of the Plan Change area. The nearest operational bus stops to the Plan Change area are located on Bairds Road, approximately 2km south of the site – a walk of approximately twenty minutes<sup>4</sup>. This bus stop serves the following bus routes:

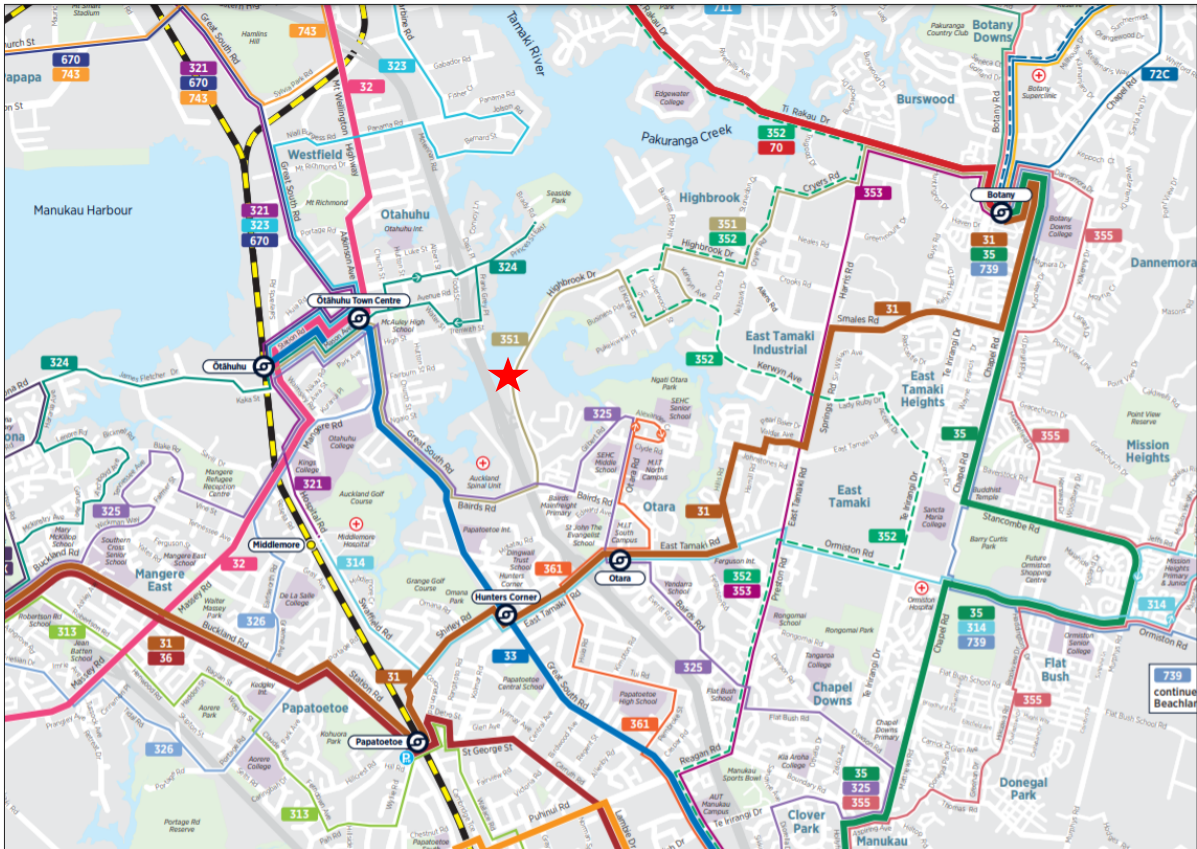
- Bus Route 325: Connecting Manukau to Mangere via Ōtāhuhu
- Bus Route 351: Connecting Ōtāhuhu to Botany

Under AT's New Network Bus Route 325 is defined as a connector service, operating at frequencies of at least 30 minutes respectively from 7:00 am to 7:00 pm, seven days a week. Bus Route 351 is defined as a local service, operating every 20 minutes during peak hours and every 30 minutes during off-peak periods.

Bus Routes 325 and 351 (supported by somewhat extended walking distances) connect the site to various public transport hubs such as Ōtāhuhu, Ōtara, and Botany from which a number of more frequent bus and train services operate to provide access across the wider Auckland metropolitan area.

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<sup>4</sup> At a typical walking speed of 1.2 metres per second (m/s).



**Figure 4: Public Transport Network (source: Auckland Transport)**

In general, the existing public transport services are relatively limited in the area, given the walking distance to the nearest bus stop and the frequency of the bus services.

### 3.3.3 Walking and Cycling

There are shared paths<sup>5</sup> provided on both sides of Highbrook Drive in the vicinity of the site. The shared path on the northern side of Highbrook Drive connects to an off-road shared path that runs along SH1 to McManus Place to the west of the Plan Change area. To the east, the shared path connects to an off-road, shared path that runs along the Tāmaki River. The shared path on the southern side of Highbrook Drive continues through the Highbrook Drive interchange roundabout to Hellabys Road.

There is a footpath that runs along the Highbrook Drive overbridge which provides access to the western side of SH1 and on-road connections to the Otāhuhu Town Centre. To access the facility, pedestrians are required to informally cross the road on the southern side of the Highbrook Drive/Hellabys Road roundabout where dropped kerbs and tactile pavers are provided.

There is a dedicated formal pedestrian crossing facility located approximately 210 m north of the Highbrook Drive interchange roundabout in the form of a signalised midblock pedestrian crossing.

Whilst there are shared paths on both sides of Highbrook Drive, the site is located more than 2 km from any complementary activities such as the Highbrook Business Park, the MIT, and the nearest supermarket and shopping centres in Otāhuhu or Otara Town Centres – requiring a walk-time of approximately 30 minutes.

In this regard, walking in the vicinity of the Plan Change area is likely to be primarily for recreation along the Tāmaki River rather than for commuting or business, however, as will be discussed in subsequent sections of this report, further additions to the walking network are proposed as part of the wider development plans of the Applicant's land holding especially on the eastern side of Highbrook Drive.

<sup>5</sup> Noting that their current form and dimensions do not fully meet current AT design expectations for full shared path facilities



### 3.3.4 Summary

The Highbrook area and its supporting roading network is currently arranged to provide higher levels of service and access by private vehicles due to the historical development of industrial land-use activity and proximity of and accessibility by SH1 and the supporting arterial roads. There is currently limited active transportation within the Highbrook area due to the largely industrial land use, and the area is currently serviced by only two bus routes accessed via bus stops approximately 2 km away from the Plan Change site. The Plan Change proposal looks to enhance this connectivity and accessibility by a range of transport modes and will look to contribute to the enhancement of alternative travel modes in association with other land use development and public agency projects over the life of the Plan Change and its facilitated development.



# 4 Road Safety

A search of the Waka Kotahi Crash Analysis System for all reported crashes for the full five-year period between 2016 to 2020, plus all available crash records from 2021 for the following search area:

- Midblock on Highbrook Drive between SH1 / Highbrook Drive roundabout and a point 100 m north of the site;
- 50 m radius at the SH1 / Highbrook Drive roundabout, including the SH1 northbound on-ramp;
- 50 m radius at the SH1 northbound on-ramp / Highbrook Drive overbridge intersection;
- Full length of Highbrook Drive overbridge;
- Full length of Hellabys Road.

Crashes on SH1 below the overbridge were not included in this analysis.

Figure 5 illustrates the crash study area.



Figure 5: Crash Study Area

A total of 75 crashes were recorded within the defined study area and period, of which only one resulted in a serious injury and 11 resulted in minor injuries. No fatal crashes were reported within the defined study area.

Table 2 provides a summary of the crash location and type.

Table 2: Crash Summary

Location	Crash Type					Total
	Lane Changing / Merging	Rear End	Failure to Give-Way	Lost Control	Other	
SH1 / Highbrook Dr roundabout	14	12	15	4	2	47
Highbrook Drive	3	1		3	2	9



Location	Crash Type					Total
	Lane Changing / Merging	Rear End	Failure to Give-Way	Lost Control	Other	
Hellabys Road				1	2	3
SH1 NB On-Ramp/Overbridge (signals)		3	3	4	2	12
SH1 NB On-Ramp		2				2
Hellabys Road / Gridco Road				1		1
SH1 SB On-Ramp	1					1
Total	18	18	18	13	8	75

As shown above, the majority of the crashes (63%) occurred at the Highbrook Drive interchange roundabout. The three main causes of crashes at the roundabout were lane-changing or merging, rear end or failure to give-way. A large portion of the lane-changing crashes occurred when vehicles were in the incorrect lane to exit the roundabout, resulting in vehicles suddenly changing lanes close to the roundabout exit. The high number of rear end crashes is likely a reflection of the congested nature of the roundabout where drivers are not expecting vehicles in front to suddenly stop.

A more detailed breakdown of the 11 minor injury and one serious injury crash is as follows:

- Six minor injury crashes and one serious injury crash occurred involving vehicles losing control and colliding with an obstruction – two on the roundabout, three crashes on Highbrook Drive and two crashes associated with vehicles turning right from SH1 Northbound Off-Ramp onto the overbridge. Alcohol was suspected in four of these crashes;
- Two minor injury crashes occurred when vehicles were entering the roundabout from the Highbrook Drive overbridge and failed to give way to vehicles on the roundabout;
- One minor injury crash occurred when a vehicle travelling from Highbrook Drive onto the overbridge was in the wrong lane and collided with an opposing vehicle when attempting to change lanes to exit the roundabout;
- One minor injury crash occurred when a heavy vehicle rear ended another vehicle;
- One minor injury crash occurred when two vehicles were merging on Highbrook Drive.

Whilst there are a high number of crashes at the Highbrook Drive interchange roundabout intersection, the crash patterns are broadly consistent with what could be expected from a busy arterial road that connects to a significant, highly trafficked motorway such as SH1. The other locations have typical crash records associated with the surrounding environment and it is considered that there are no inherent safety concerns with the current road design in support of the Plan Change.



# 5 Future Strategic Transport Network

The future transport context surrounding the Plan Change site has been assessed to understand and allow for any future, potential changes in the network relevant to the proposed Plan Change.

Auckland Transport’s Future Connect programme set out the long-term network plan for Auckland’s transport system and identifies the most important parts of the transport network and any critical issues or opportunities for active modes, public and private transport. It incorporates information from the 10-year Regional Land Transport Plan (RLTP) to identify these issues and opportunities.

A screenshot of the Plan Change area from the Future Connect programme over the first decade is shown in **Figure 6**.



**Figure 6: Future Connect Plan (first decade)**

This provides a high-level summary of the different transport modes proposed to be in place within the area in the next 10 years. As can be seen, Highbrook Drive at the site frontage is classified as a major cycling network link connecting to the north and south, as well as to SH1 to the west. As previously mentioned, shared paths are provided on each side of Highbrook Drive with no change expected in the local network from existing AT plans in the next decade.

# 6 Plan Change

## 6.1 Overview

The Applicant is requesting to rezone the land to the west of Highbrook Drive through a Private Plan Change to enable residential development to occur. The Plan Change seeks to rezone the western portion of the property at 8 Sparky Road from Business - Light Industry Zone to Residential – Terrace Housing and Apartment Building Zone (**THAB**) under the Unitary Plan. The concept of development within the THAB zoned land would then be to deliver residential development that may potentially include up to eight five-storey apartment blocks, a dairy, a café, a shared office space, approximately 10 standalone houses, and some 15 terrace houses.

This application considers 200 dwellings on the site, should an increased in dwellings be considered in the future, this will be considered as a Restricted Discretionary Activity and will therefore be subject to a revised ITA.

The Plan Change further seeks to apply precinct provisions to facilitate the transition from undeveloped to a residential area in an integrated and comprehensive manner. It is also evident that from a transportation perspective, the site is less than fit for purpose under its current zoning due to the geographical constraints of the property, which make turning circles for industrial vehicles such as semitrailers impractical to design for.

Vehicular access to the site will be via the proposed new four-arm signalised intersection (being delivered as part of the industrial land development within the balance part of the 8 Spark Road site), which will be located approximately 500m north of the Highbrook Drive interchange roundabout.

On-site parking for residents and visitors will be provided at a rate that supports urban amenity, efficient use of the land and the functional requirements of the residential and supporting retail land uses. The exact number of spaces will be confirmed at the resource consent stage; however, it is anticipated that the supply will accommodate the expected demand based on similar developments in the area, without impacting the surrounding road network.

## 6.2 Public Transport

The existing local public transport network provides limited options to and from the proposed development with two bus services in the vicinity of the development however no bus stops within a 20-minute walk of the site. Notably, despite travelling through Highbrook Drive directly, Bus Route 351 does not stop on Highbrook Drive at any point.

It is therefore recommended as part of the transport provisions supporting the Plan Change that in order to increase connectivity of the development to the wider public transport network, particularly the rapid transit network given the site's distance from the central city, a new bus stop is provided along Highbrook Drive near the signalised entry to the development that will be serviced by Bus Route 351. These bus stops will specifically be located on the departure sides of the signalised entry to the Plan Change site for maximum efficiency and safety in access. Additionally, the stops should be of high amenity to further promote use, such as the inclusion of shelters. This is expected to increase the mode share of public transport to and from the site providing a connection to Ōtāhuhu Town Centre, Ōtāhuhu Train Station, the Highbrook Business Park, and Botany Town Centre.

To further support public transport mode share, a shuttle service should be considered to directly connect the development with nearby public transport hubs such as the Middlemore and Ōtāhuhu train stations. This should be arranged in consultation with Auckland Transport and other stakeholders (potentially the on-site resident community/body corporate or similar) to maximise its efficacy in terms of timing and preferred destination. This will allow for decreased trip time to the wider public transport and rapid transit network for longer journeys, in addition to covering the lack of service of Bus Route 351 on weekends.

## 6.3 Walking and Cycling

Walking and cycling connections to the Plan Change site are currently provided via modest standard shared paths on each side of Highbrook Drive. The development will connect into and be served by the new four-arm signalised intersection in front of the Plan Change area. that is under construction at the time of the writing of this report It will provide a dedicated, safe crossing location for pedestrians and cyclists across all approaches.

While the upgraded intersection and shared paths on Highbrook Drive provide a direct connection to the Plan Change site, there are a number of existing “pinch points” where connection to the wider active transport network is difficult, such as to cross over SH1 to the west to gain access to the Ōtāhuhu Town Centre. In general, given the existing industrial nature of the area, active transport facilities in the surrounding network are not of the highest quality. The introduction of residential activity to the network will allow for an increase in active transport mode, given improved infrastructure is provided. It is thus recommended that future development within the Plan Change area proceeds uptake of every opportunity to enhance those walking and cycling connections to nearby attractors (existing or future) for residents in consultation with AT (and thus in alignment with the Traffic Design Manual) and other stakeholders in the area.



Such enhancements are underway already including a signalised intersection with pedestrian crossings at the entrance to the opposing industrial development and to the existing Plan Change site. Additional enhancements will include the extension of existing crash barriers around the Highbrook Drive, SH1, and Hellabys Road roundabout intersection to the western side. The current pedestrian crossing facilities on the Hellabys Road approach to the aforementioned roundabout intersection consist only of an unprotected island. As this crossing will be the only way to cross SH1 from the Plan Change area, enhancements should be made to the safety of those crossing by way of signage or paved coloured area, including to the awareness of vehicles approaching the crossing on the road, however, a fully signalised crossing would result in unacceptable delay to motorists. Finally, wayfinding improvements should be made to encourage pedestrian use of safe crossings and direct to local amenities.

It is noted that these connections must be made with consideration as to the volumes and speeds of traffic in the local roading network. This would mean, given the 50 km/h posted speed limit and high traffic volumes, separated cycle paths would be required. The importance of increased safety measures is further exasperated given the site's location between two Level 1A freight routes (SH1 and Highbrook Drive), resulting in a higher than otherwise usual heavy vehicle share.

## 6.4 Road Safety

The crash analysis showed no consistent crash pattern in the development area outside of that typical for an area such as that local to the Plan Change area, nor any existing issues that would be exacerbated by the Plan Change. The Plan Change is not expected to generate a significant quantum of traffic in comparison with its existing local network traffic levels. This is further elaborated in Section 8, Traffic Effects. Thus, it is not expected that the Plan Change will have a significant difference on the road safety of the local road network.

## 6.5 Future Accessibility & Recommendations

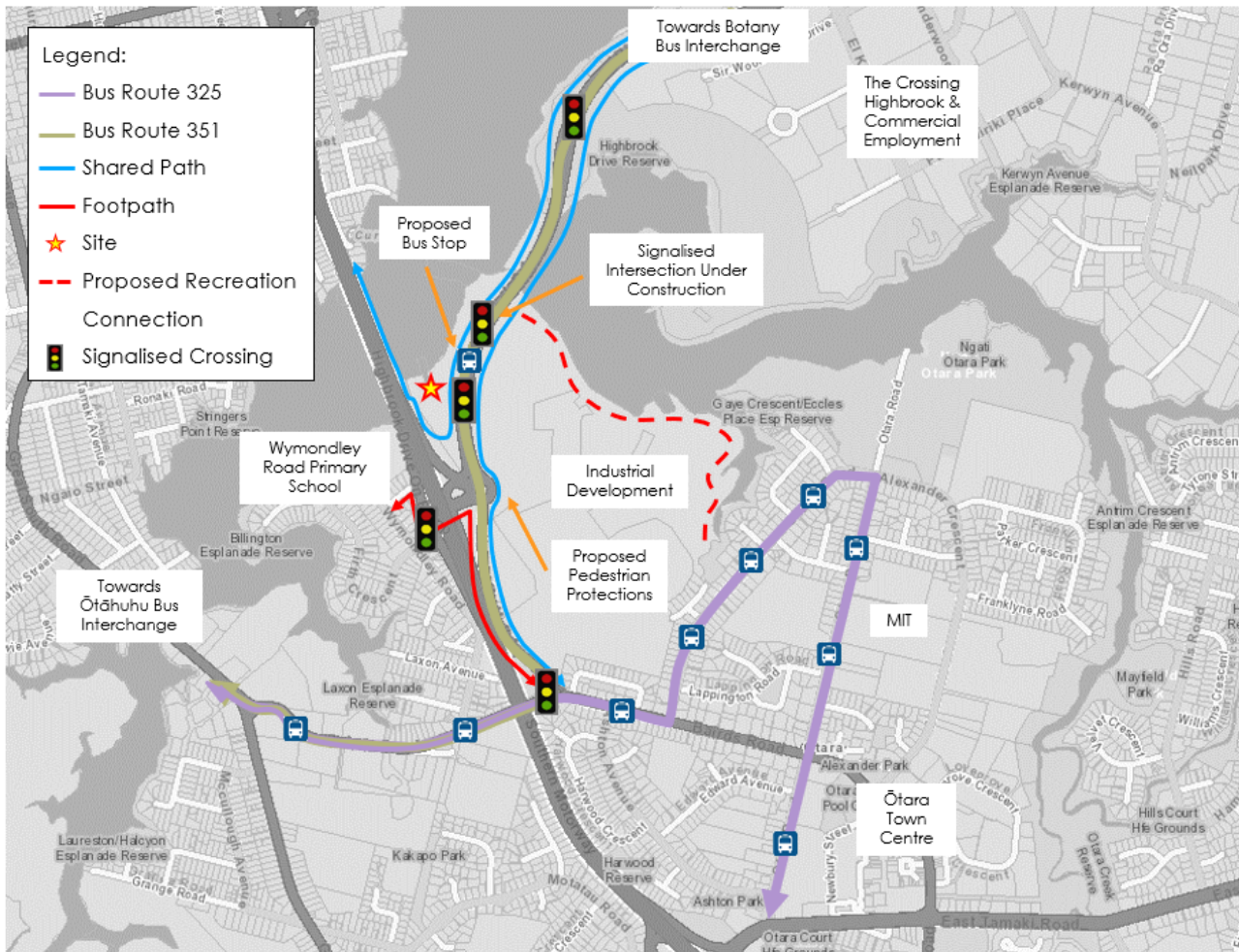
While this Plan Change proposes development on the western side of Highbrook Drive that will be generally distant from other surrounding residential areas such as in Ōtāhuhu and Ōtara, it is envisaged that further development of the industrial area on the eastern side of Highbrook Drive will occur over the short-term future that will positively affect transport patterns and movements to / from the development site. Recreational and commercial activities may be included in the industrial developments including a recreational path along the northern boundary of the site providing an enhanced active transport connection to the east toward the Ōtara Town Centre.

As previously referenced, it is recommended that public transportation and active mode provisions are developed as part of the Plan Change. This includes the addition of a bus stop on Route 351, either side of the signalised intersection that provides entry to the Plan Change area. These bus stops should be of high amenity value and constructed with safe, efficient design in mind, as well as the TDM guidelines. This will provide a regular connection between the site and Ōtāhuhu on the western end, and Botany on the eastern. The Southern and Eastern train lines are available from Ōtāhuhu station, in addition various bus services. A shuttle service is also recommended to be included in future transport plans and provisions associated with the development within the Plan Change area to further encourage active transport uptake. Details of the service should be determined in coordination with AT and other stakeholders including future residents as to the timings and destinations of the shuttle as to provide a service that would encourage the most public transportation uptake.

In addition to these changes, the signalised intersection that will make up the access to the proposed development on the Plan Change area will include a safe crossing for pedestrians and cyclists across all four approaches (assuming an entry to the future industrial development opposite the Plan Change area). This will allow for safe crossing between the residential site and industrial site. Furthermore, it is suggested that improvements are made to the pedestrian protections at the Highbrook Drive, SH1, and Hellabys Road roundabout, including crash barriers, better pedestrian safety and the island on the existing unprotected crossing, and wayfinding improvements.

The Applicant is committed to working further with the AT and other stakeholders on the integration of the proposed development into the active modes and public transportation networks. A map of recommendations within the existing transportation environment (including local attractors) can be seen in **Figure 7**:





**Figure 7: Active Modes and Public Transportation Map**

The Applicant is currently developing plans for the industrial employment zone opposite the Plan Change area. As mentioned previously, it is considered and highly beneficial for those plans to include recreational and commercial areas that will be accessible from the proposed residential activity within the Plan Change land.

Given the site's waterfront location, there are also potential future opportunities for water transport that could be considered in the future.

# 7 Traffic Effects

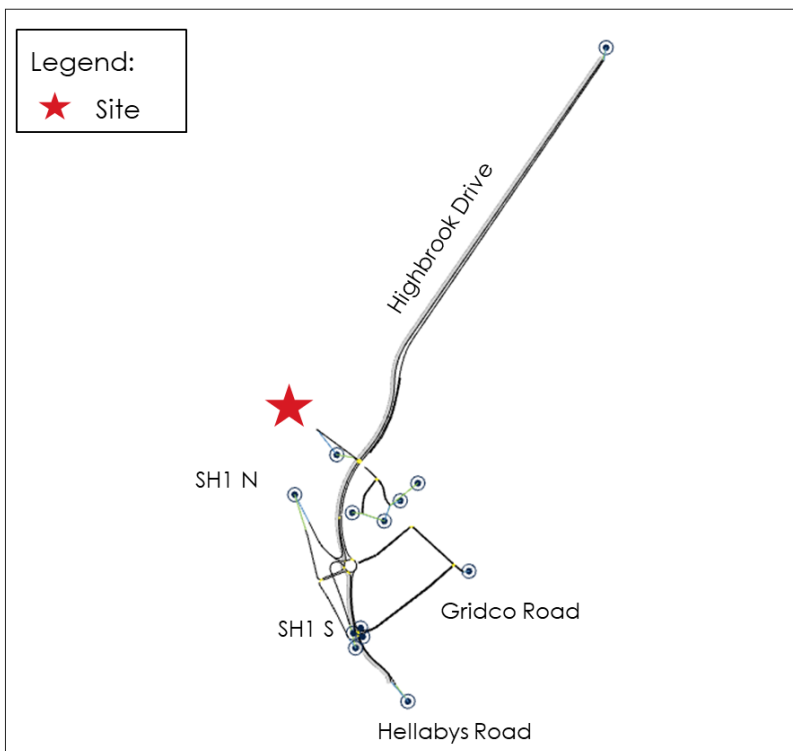
## 7.1 Modelling Methodology

### 7.1.1 Previous Assessments of the Site

Stantec previously prepared a Transportation Assessment report in November 2019 for a proposed light industrial development of the Applicant's overall site (at 8 Sparky Road) including the Plan Change area (**2019 TA report**). As part of that assessment, Stantec developed a network traffic model using Aimsun<sup>6</sup> microsimulation software package in 2016 to investigate the potential traffic effects. The model was calibrated and validated to 2016 traffic conditions and included 2022 and 2028 forecast years. Details about the development of the model can be found in Section 7 of the 2019 TA report.

The Aimsun model has been used to assist with the assessment of the traffic effects of the proposed Plan Change. Microsimulation modelling allows for the interaction of individual vehicles to be captured and provides a visual tool to assess the behaviour of the network.

**Figure 8** illustrates the extent of the Aimsun model.



**Figure 8: Model Extent**

As illustrated, the model extent principally comprises Highbrook Drive to the east, Hellabys Road to the south and SH1 to the west.

Morning and afternoon peak period models have been developed to represent the existing operation of the network. These models then formed a testing platform to evaluate the effect of the proposed development.

The model was developed for a typical weekday for the following peak periods based on traffic count data:

- AM Model period from 6:45am to 8:45am with a peak hour of 7:15 am to 8:15 am.
- PM Model period from 4pm to 6pm with a peak hour of 4.30 pm to 5.30 pm.

<sup>6</sup> Advanced Interactive Microscopic Simulator for Urban and Non-Urban Networks – Siemens

## 7.1.2 Modelling Approach

To consider the impact of the proposed Plan Change on the surrounding road network, consideration will be given to the traffic impacts of the Plan Change development in comparison to a baseline scenario in which the site is developed with light industry, as per the current zoning.

The site is currently zoned Business – Light Industrial and could therefore generate a baseline level of traffic, irrespective of the Plan Change. Euroclass on behalf of the Applicant have identified approximately 18,000 sqm of light industrial activity could be developed on the Plan Change area (i.e., western side of Highbrook Drive) and approximately 90,000sqm on the eastern side of Highbrook Drive. The developable area excludes areas such as car parking, manoeuvring areas, landscaping and stormwater management.

The Plan Change anticipates up to 200 houses within the proposed THAB zoning on the western side of Highbrook Drive whilst maintaining the Business – Light Industrial Zoning on the eastern side of the site. The site is planned to be developed by 2028 and therefore a 2028 Aimsun model has been used to investigate the traffic effects of the Plan Change.

The following two scenarios have been modelled:

- Permitted Baseline scenario (18,000sqm of industrial activity on the western side and 90,000sqm on the eastern side)
- Development Scenario (200 houses on the western side and 90,000sqm of industrial activity on eastern side)

## 7.2 Trip Generation

The expected traffic generation of the activities at the site has been estimated using the Transport for New South Wales' (formerly the Roads and Maritime Services') Guide to Traffic Generating Developments (**TfNSW Guide**).

The TfNSW Guide provides peak hour traffic generation rates for small medium density residential units (up to two bedrooms) and larger units (three or more bedrooms). The trip generation rates for the smaller residential dwellings are 4-5vpd/dwelling daily and 0.4-0.5vph/dwelling in the weekday peak hour. For the larger units, trip generation rates are 5-6.5vpd/dwelling daily and 0.5-0.65vph/dwelling in the weekday peak hours. A trip generation rate of 0.65vph/dwelling was adopted for the residential portion of the development given the constrained nature of the site.

Using the above rates, the conceptual development of up to 200 houses within the Plan Change's THAB zoning sought might be expected to generate up to approximately 130vph (inclusive of inbound and outbound movements) during the weekday peak hours.

The 2019 TA report adopted a peak hour trip generation rate of 0.5vph per 100sqm of light industrial activity and a daily trip generation rate of 4.0vpd per 100sqm. The derivation of these rates is covered in Section 6.1 of the 2019 TA report and takes into account the warehousing nature of the industrial activity.

**Table 3** compares the expected trip generation for the Plan Change area with the baseline level of traffic expected for a light industrial site.

**Table 3: Trip Generation Summary**

Scenario	Size		Trip Generation		
	Eastern Side	Western Side	Eastern Side	Western Side	Total
Baseline Scenario	90,000sqm industrial	18,000sqm industrial	450	90	540
Development Scenario	90,000sqm industrial	200 houses	450	130	580

As shown above, the total increase in traffic due to the Plan Change is therefore approximately 40vph in the peak hour.

## 7.3 Trip Distribution

The Institute of Transportation Engineers Trip Generation manual (**ITE Manual**) recommends a 26% / 74% inbound and outbound split for multi-family housing (high rise) in the morning peak hour and a 60% / 40% inbound and outbound split in the evening peak hour.

The profile of the development traffic across the full model period has been determined based on survey data collected by Stantec for similar activity types across Auckland.

**Table 4** presents the peak hour factors used for the morning and evening peak hour for each activity type.





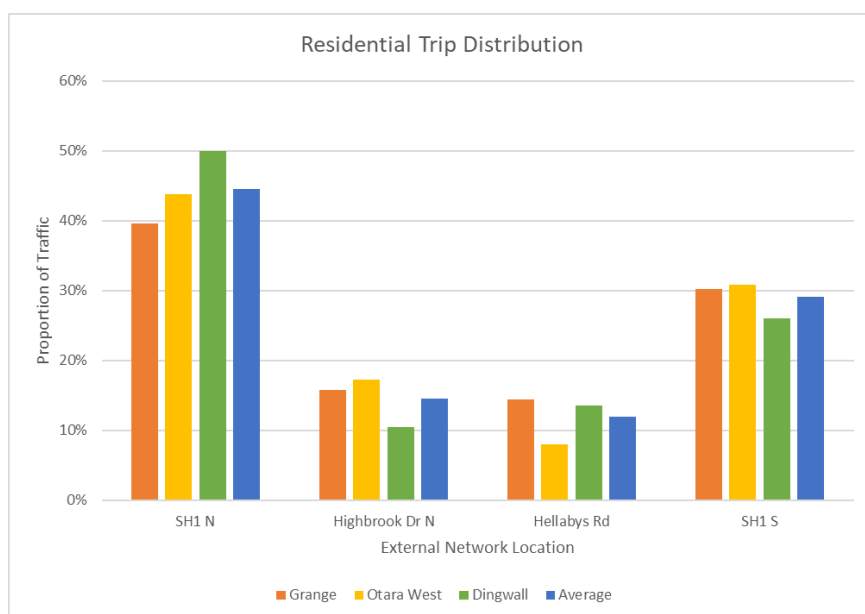
**Table 4: Peak Hour Conversion Factors**

Activity	AM Peak (1hr to 2hr)	PM Peak (1hr to 2hr)
Residential	1.7	1.8
Industrial	1.9	1.7

The development traffic has been distributed throughout the wider transport network based on the 2018 census data for the surrounding residential areas. There are four main access points to the wider network as follows:

- Highbrook Drive;
- Hellabys Road;
- State Highway North; and
- State Highway South

**Figure 9** summarises the outbound traffic distribution for Grange, Ōtara West and Dingwall to these external locations.



**Figure 9: Outbound Trip Distribution based on 2018 Census Data**

The average of the three surrounding areas trip distributions has been adopted. **Table 5** summarises the distribution of the development traffic through the surrounding road network.

**Table 5: Residential Traffic Distribution**

External Location	AM Peak (vph)			PM Peak (vph)		
	Inbound	Outbound	Total	Inbound	Outbound	Total
SH1 N	15	43	58	35	23	58
Highbrook Dr	10	28	38	23	15	38
Hellabys Rd	5	14	19	11	8	19
SH1 S	4	12	16	9	6	16
<b>Total</b>	<b>34</b>	<b>96</b>	<b>130</b>	<b>78</b>	<b>52</b>	<b>130</b>

With consideration for the baseline scenario, the potential industrial activity has been distributed to the wider network as per the assumptions outlined in section 6.2 of the 2019 TA report.

### 7.3.1 2019 Recalibration

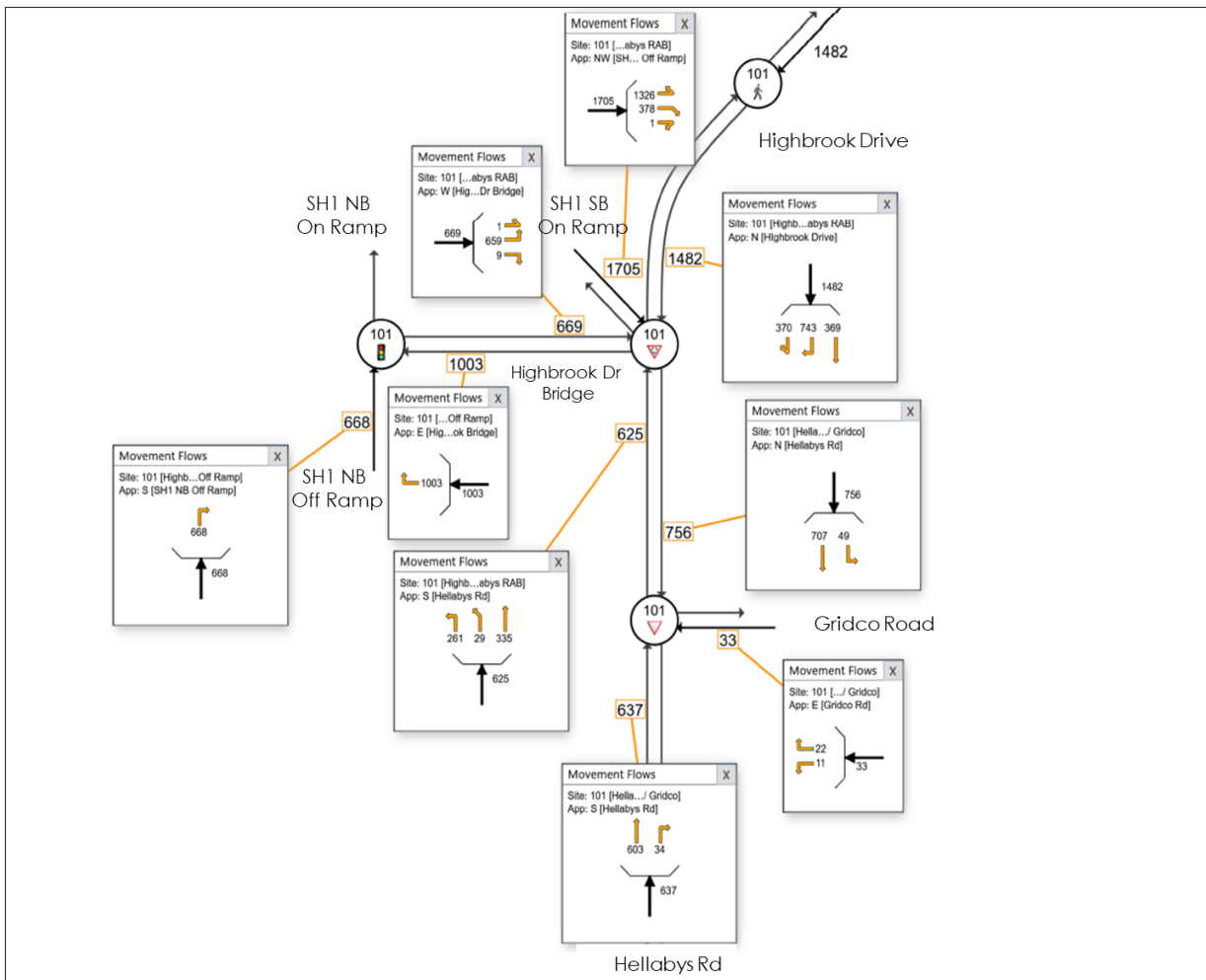
Due to recent COVID-19 restrictions and the impact on travel patterns, updated traffic surveys could not be undertaken. As agreed with Auckland Transport and Waka Kotahi, the model has instead been recalibrated to August 2019 conditions using available historical traffic count data.

The following traffic count data has been collated to update the model:

- SCATS<sup>7</sup> count data at the following signalised intersections:
  - Midblock pedestrian crossing at Highbrook Drive approximately 210m north of Highbrook Drive interchange roundabout
  - Highbrook Drive / El Kobar Drive intersection
  - Hellabys Road / Bairds Road intersection
- TMS count data on the State Highway 1 (SH1) northbound on and off-ramp
- TMS count data on the SH1 southbound on and off-ramp

A similar turning proportion at the Highbrook Drive / SH1 roundabout as observed in the 2016 surveys has been assumed.

The estimated 2019 traffic counts for the morning and evening peak hours are illustrated in **Figure 10** and **Figure 11**.



**Figure 10: 2019 AM Estimated Peak Hour Volumes**

<sup>7</sup> SCATS is the “Sydney Coordinated Adaptive Traffic System”, which is the software that is used in Auckland to coordinate the operation of traffic signal intersections.



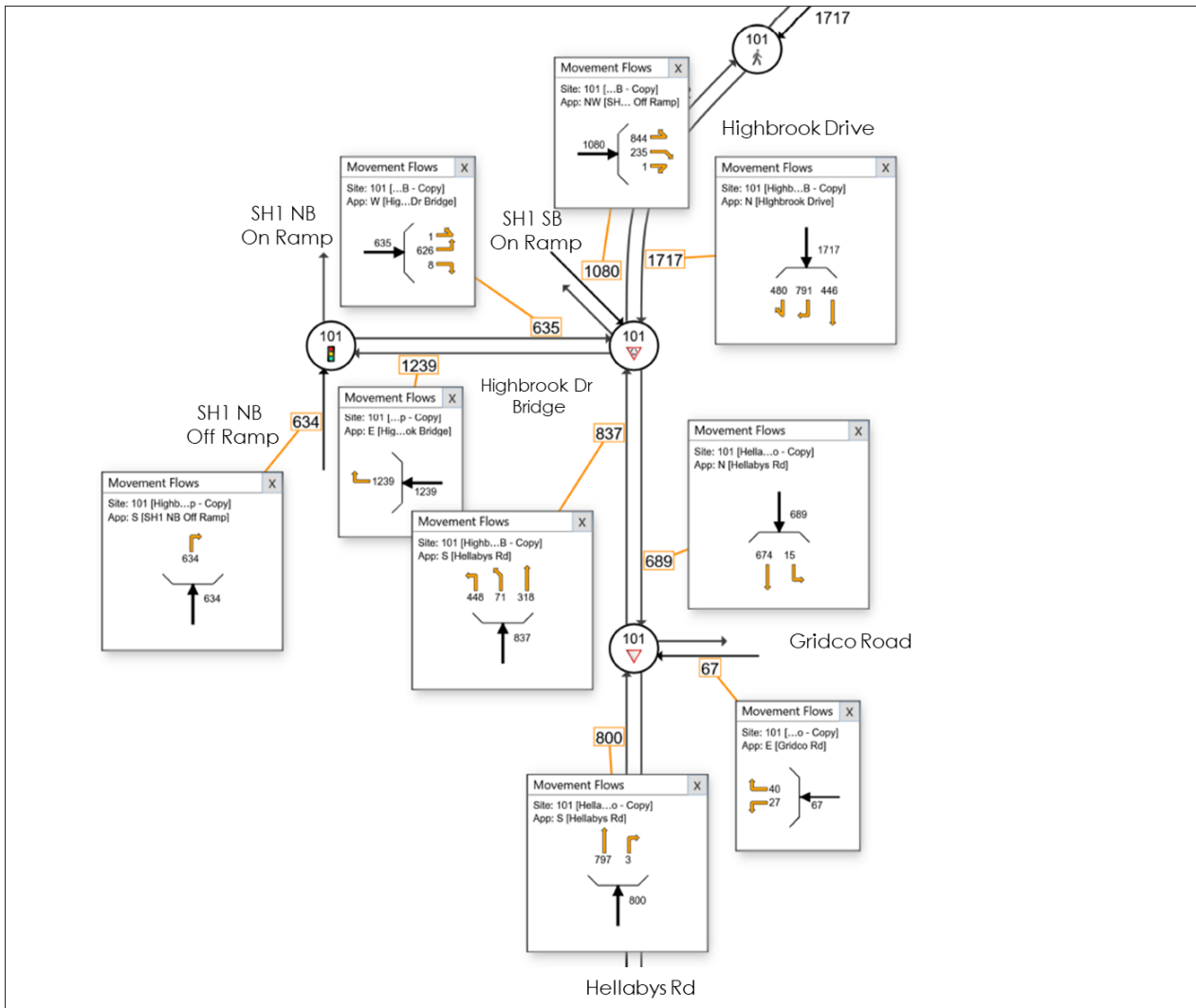


Figure 11: 2019 PM Estimated Peak Hour Volumes

### 7.3.2 2028 Forecast

The 2028 forecast has also been reviewed in light of the latest 2019 traffic count data.

As discussed within the 2019 TA report, the 2028 model was developed based on future traffic volumes from the MSM model. Outputs from the MSM model were provided by Auckland Forecasting Centre (AFC) in July 2019 for 2016 and 2028. The data showed that the Highbrook Drive and SH1 is already congested and unlikely to experience significant growth, although Hellabys Road traffic could be expected to increase by around 10 to 15%.

Table 6 and Table 7 presents the comparison between 2016 and 2028 on the key links in the network from MSM and the percentage growth between the two years.

Table 6: AM Peak Period Forecasted Growth between 2016 and 2028 from MSM – 2hr Volumes

	Highbrook Drive		Hellabys Road		SH1 North		SH1 South	
	NB	SB	NB	SB	NB Off Ramp	SB On Ramp	NB Off Ramp	SB On Ramp
<b>MSM 2016 Volumes</b>	4,232	2,722	1,113	1,319	1,906	3,032	1,237	647
<b>MSM 2028 Volumes</b>	4,183	2,817	1,440	1,459	1,926	2,850	1,260	799



	Highbrook Drive		Hellabys Road		SH1 North		SH1 South	
	NB	SB	NB	SB	NB Off Ramp	SB On Ramp	NB Off Ramp	SB On Ramp
% Growth between 2016 and 2028	-1%	3%	29%	11%	1%	-6%	2%	23%
% Growth between 2019 and 2028	-1%	3%	22%	8%	1%	-5%	1%	18%

**Table 7: PM Peak Period Forecasted Growth between 2016 and 2028 from MSM – 2hr Volumes**

	Highbrook Drive		Hellabys Road		SH1 North		SH1 South	
	NB	SB	NB	SB	NB Off Ramp	SB On Ramp	NB Off Ramp	SB On Ramp
<b>MSM 2016 Volumes</b>	3,614	3,794	894	1,801	1,886	2,590	1,118	1,095
<b>MSM 2028 Volumes</b>	3,956	3,639	1,093	2,051	1,829	2,610	1,374	881
% Growth between 2016 and 2028	9%	-4%	22%	14%	-3%	1%	23%	-20%
% Growth between 2019 and 2028	7%	-3%	17%	10%	-2%	1%	17%	-15%

A linear growth rate between 2016 and 2028 has been assumed and interpolated to understand the expected growth between 2019 and 2028. These growth factors have been applied to the latest 2019 traffic count data to develop a 2020 model.

These models then formed a testing platform to evaluate the effect of the proposed development.

## 7.4 Modelling Results

### 7.4.1 Intersection performance

The morning and evening peak hour comparison for each of the key intersections is summarised in **Table 8 and 9** respectively. More detailed performance outputs for individual turning movements have been provided in **Appendix A**.

**Table 8: Modelling Results - Morning Peak Hour**

Intersection	Approach	Baseline		With Development	
		Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SH1 SB Off-Ramp / Highbrook Drive / Hellabys Road (roundabout)	SH1 SB Off Ramp	25	C	25	C
	Highbrook Drive	81	F	106	F
	Hellabys Road	29	C	36	D
	Highbrook Drive Bridge	55	D	64	E



Intersection	Approach	Baseline		With Development	
		Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SH1 NB On-Ramp / Highbrook Drive Bridge (signals)	SH1 NB Off Ramp	26	C	49	D
	Highbrook Drive Bridge	14	B	16	B
Gridco Road / Hellabys Road (priority)	Hellabys Road (S)	3	A	3	A
	Gridco Rd	162	F	150	F
	Hellabys Rd (N)	3	A	3	A
Highbrook Drive / Site Access (signals)	Industrial Access	51	D	55	E
	Highbrook Drive (NE)	18	B	47	D
	Plan Change Access	57	E	55	E
	Highbrook Drive (SW)	23	C	39	D

**Table 9: Modelling Results for Evening Peak Hour**

Intersection	Approach	Baseline		With Development	
		Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SH1 SB Off-Ramp / Highbrook Drive / Hellabys Road (roundabout)	SH1 SB Off Ramp	5	A	4	A
	Highbrook Drive	61	E	68	E
	Hellabys Road	132	F	175	F
	Highbrook Drive Bridge	27	C	27	C
SH1 NB On-Ramp / Highbrook Drive Bridge (signals)	SH1 NB Off Ramp	28	C	28	C
	Highbrook Drive Bridge	51	D	55	E
Gridco Road / Hellabys Road (priority)	Hellabys Road (S)	44	E	67	F
	Gridco Rd	>1000s <sup>8</sup>	F	>1000s	F
	Hellabys Rd (N)	3	A	3	A
Highbrook Drive / Site Access (signals)	Industrial Access	57	E	55	D
	Highbrook Drive (NE)	21	C	23	C
	Plan Change Access	53	D	51	D
	Highbrook Drive (SW)	15	B	15	B

The results show that the surrounding Highbrook Drive and associated parts of the network is congested in both the baseline and development scenario with significant delays across all intersections modelled. At all intersections in both the AM and PM peak, the development scenario only has a marginal increase (acknowledging the congested network)

<sup>8</sup> Full delay cannot be captured due to off network queuing



and, in some cases, a decrease in delay from the baseline scenario as a result of some redistribution of traffic movements and reallocation of queueing extents between intersections.





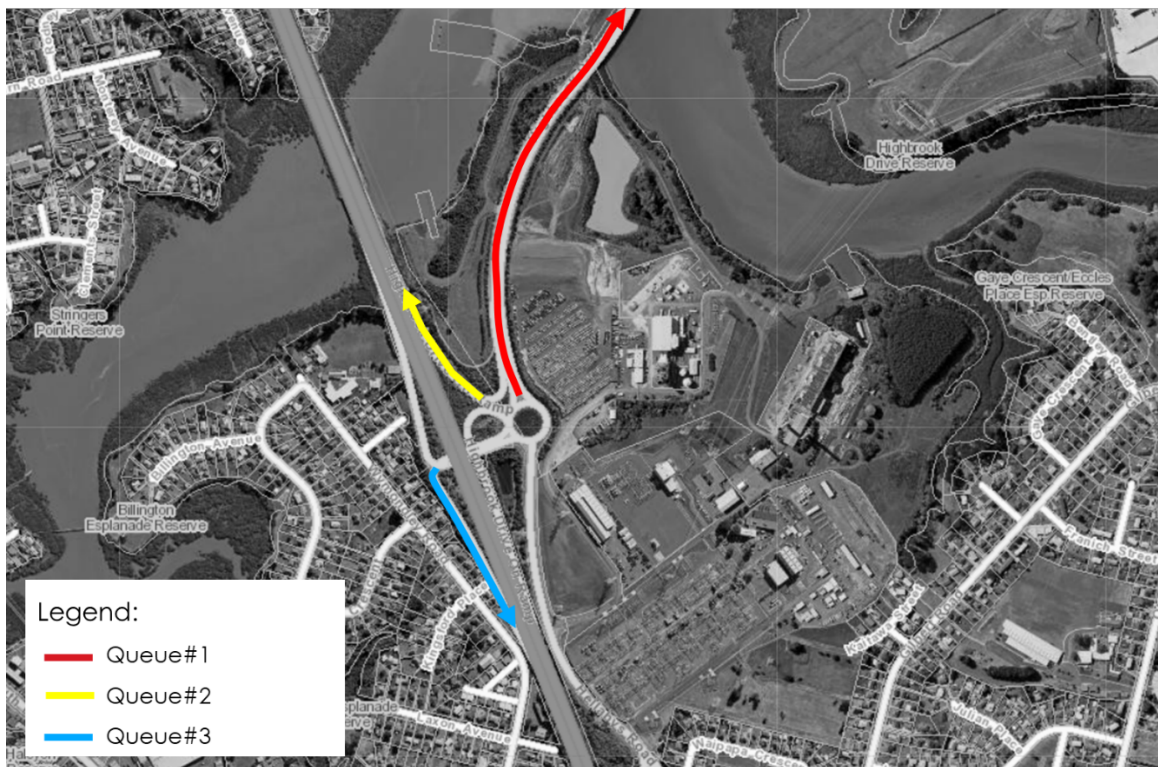
In the AM peak, the largest increase in delay is along the Highbrook Drive northern approach to the SH1 SB Off-Ramp / Highbrook Drive / Hellabys Road roundabout. The increase is 25 seconds of delay which is not significant when considering the congested network. In the PM peak, the largest increase in delay of 43 seconds, is expected at the southern approach of the SH1 SB Off-Ramp / Highbrook Drive / Hellabys Road roundabout. Again, this is not significant for what is an already congested area, with this approach currently operating at LOS F.

In the peak hours, there is significant delay for vehicles exiting Gridco Road onto Hellabys Road, with minimal available gaps in Hellabys Road traffic, resulting in Gridco Road motorists likely having to wait for a courtesy gap to exit the intersection. This is only affecting approximately 150 vehicles in a peak hour, of which, this site is also owned by Euroclass. It is anticipated that this intersection will be upgraded to signals as the industrial activity on the eastern side of Highbrook Road is intensified. This will be considered by a separate resource consent. It should also be noted that a 40%/60% split of trip distribution between Highbrook Road to the north, and Gridco Road to the west, has been assumed for the industrial development. The internal layout is still being determined and therefore there could be less traffic using Gridco Road and more using the Highbrook Road signalised access.

## 7.4.2 Network Queuing Assessment

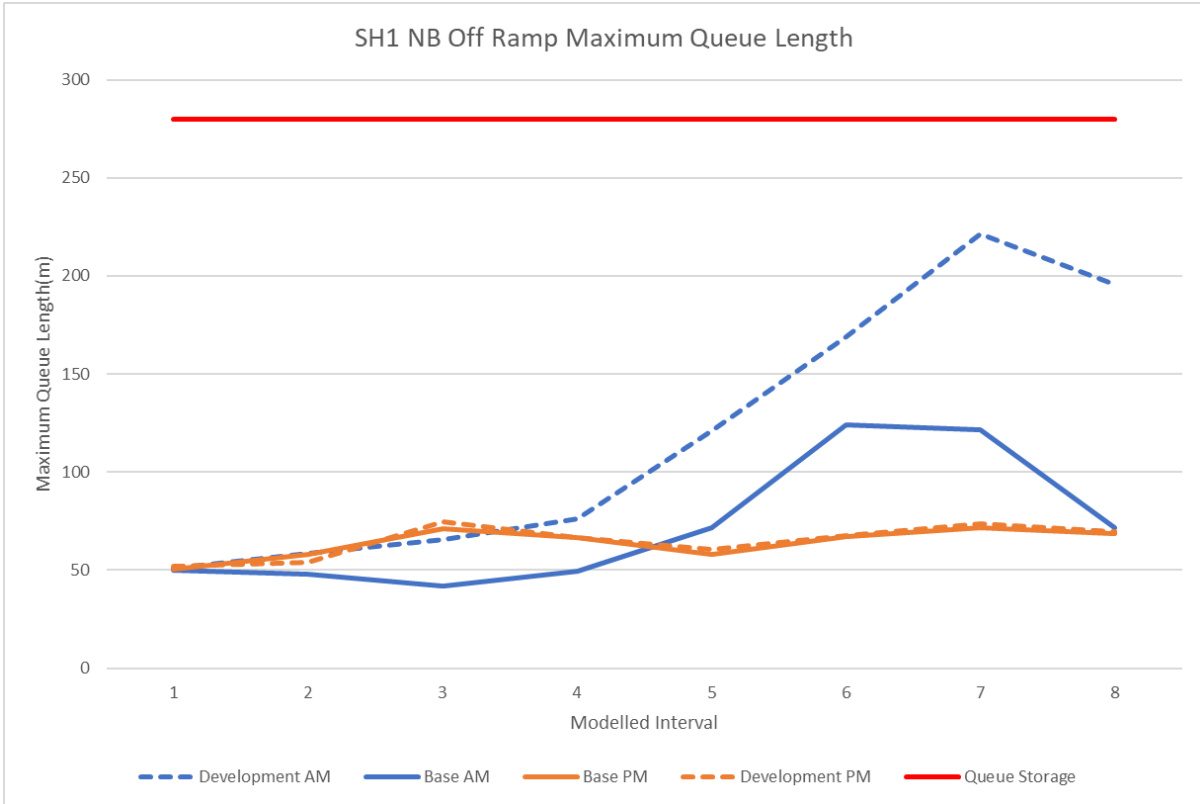
To consider the impact of the development on the wider road network, queuing analysis has also been undertaken to review the queues within the network during the AM and PM peaks. A review of the peak queue length within a 15-minute period over the 2-hour AM and PM peak was undertaken to assess the SH1 southbound off ramp queue, the SH1 northbound off ramp queue, and the Highbrook Drive southbound northern approach at the Highbrook Drive/SH1 offramp/ Hellabys Road intersection.

A representation of the queues that are being assessed in the form of a Queue Length Diagram can be seen in **Figure 12**.

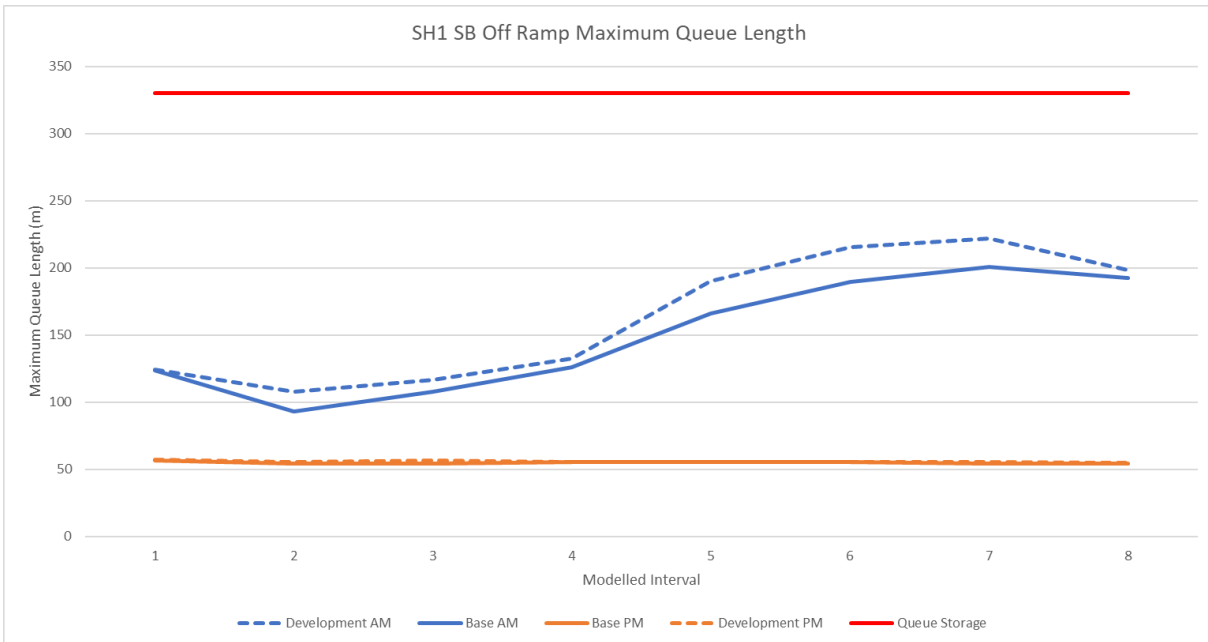


**Figure 12: Queue Assessment Location**

Note that **Figure 12** is only representative of the location of the queues, not of their respective modelled lengths. The queue length modelling results can be seen for each intersection across different modelled intervals in **Figure 9** to **Figure 13**. It is noted that the queue length within the site was found not to go beyond approximately 50 m, or about 6 vehicles. Though the design of any development on the site has not been finalised, this could be more than easily accommodated for.

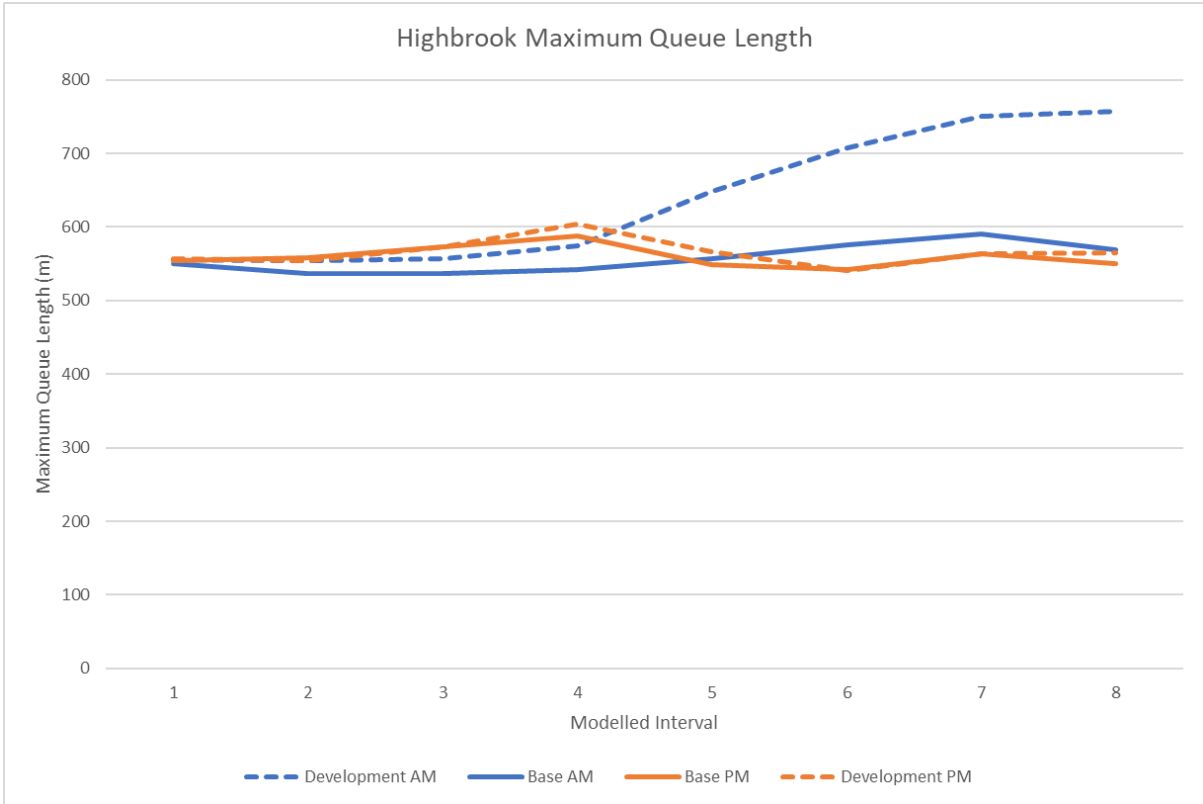


**Figure 13: SH1 Northbound Off-Ramp Maximum Queue Length**



**Figure 14: SH1 Southbound Off-Ramp Maximum Queue Length**

Whilst modelled queue lengths are generally increased by the development, these increases are minimal when compared to the pre-existing queue lengths. Additionally, it is noted that the maximum modelled queue lengths shown above are well within the lengths of the off-ramp at 330m for the northbound off-ramp and 250m for the southbound off-ramp.



**Figure 15: Highbrook Drive Maximum Queue Length**

It is seen from the results shown in **Figure 15** that the peak period has significant congestion and long queues at the northern approach to the Highbrook Drive / SH1 / Hellabys Road intersection. The queues in both the AM and PM peak will extend well beyond the proposed signalised site access intersection. Given the existing traffic environment regularly results in queues extending back to the location of the signals on Highbrook Drive and beyond, the results show that the development traffic does not have a significant impact on the queue length beyond the baseline scenario.



# 8 Integration with Transport Policy

## 8.1 Government Policy Statement on Land Transport

The Government Policy Statement (**GPS**) on Land Transport sets out the Government's desired outcomes and priorities for the land transport sector. It describes what the Government expects to achieve through the National Land Transport Fund and the manner in which funding is allocated to upgrade and maintain the land transport network. The GPS was released in September 2020 and took effect from 1 July 2021. The GPS provides strategic direction for a 10-year period until 2030/2031 to improve the performance of the land transport system. The GPS has five transport outcomes to achieve, and summarises the objectives of these outcomes as follows:

- (i) Inclusive access – enabling all people to participate in society through access to social and economic opportunities;
- (ii) Healthy and safe people – protecting people from transport-related injuries and harmful pollution, and making active travel an attractive option;
- (iii) Environmental sustainability – transitioning to net zero carbon emissions, and maintaining or improving biodiversity, water quality, and air quality;
- (iv) Resilience and security – minimising and managing the risks from natural and human-made hazards, anticipating and adapting to emerging threats, and recovering effectively from disruptive events; and
- (v) Economic prosperity – supporting economic activity via local, regional, and international connections, with efficient movements of people and products

The GPS outlines four strategic priorities for land transport investment to best contribute to improving our communities' wellbeing and livability, which are described below:

- (i) Safety – developing a transport system where no-one is killed or seriously injured;
- (ii) Better travel options – providing people with better transport options to access social and economic opportunities;
- (iii) Climate change – developing a low carbon transport system that supports emissions reductions, while improving safety and inclusive access; and
- (iv) Improving freight connections – for economic development.

The proposed development involves changing the zoning from Business - Light Industrial into THAB in order to provide a variety of housing arrangements and accompanying facilities. The expected on-site facilities are likely to include a café, dairy, and shared office workspace. This has positive, inclusive of health and environmental benefits and is likely to enable improved accessibility for all age groups (young and old) via an internal and external walkway linkages. The signalised four-arm intersection at the entry to the site with pedestrian crossings on all four approaches will insure safe active mode access to the proposed industrial facility redevelopments across the road.

The anticipated provision of on-site facilities will encourage local business use and working from home, given their proximity to the development's dwellings. This encourages economic prosperity and aligns with the GPS.

The rezoning will encourage increased public transport uptake via a recommended additional bus stops on Route 351 on Highbrook Drive near the development access. Additionally, private transport/shuttles are recommended to be provided for as part of the future residential development phases to provide direct access to local transportation hubs such as the Middlemore and Ōtāhuhu train stations, organized in conjunction with future resident stakeholders and AT. This is seen as a resilient approach as it places an emphasis on public transport rather than relying solely on the roading network.

It is, therefore, demonstrated that the proposed project in Highbrook integrates very well with the strategic priorities and the themes outlined in the GPS.

## 8.2 National Policy Statement on Urban Development 2020

The National Policy Statement on Urban Development 2020 (**NPSUD**) sets out the Government's desired objectives and policies for urban developments. The NPSUD was released in July 2020, and came into effect from August 2020. The objectives of the NPSUD are outlined below:



**Objective 1:** New Zealand has well-functioning urban environments that enable all people and communities to provide for their social, economic, and cultural wellbeing, and for their health and safety, now and into the future.

**Objective 2:** Planning decisions improve housing affordability by supporting competitive land and development markets.

**Objective 3:** Regional policy statements and district plans enable more people to live in, and more businesses and community services to be located in, areas of an urban environment in which one or more of the following apply:

- (a) the area is in or near a centre zone or other area with many employment opportunities
- (b) the area is well-serviced by existing or planned public transport
- (c) there is high demand for housing or for business land in the area, relative to other areas within the urban environment.

**Objective 4:** New Zealand's urban environments, including their amenity values, develop and change over time in response to the diverse and changing needs of people, communities, and future generations.

**Objective 5:** Planning decisions relating to urban environments, and FDSs, take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).

**Objective 6:** Local authority decisions on urban development that affect urban environments are:

- (a) integrated with infrastructure planning and funding decisions; and
- (b) strategic over the medium term and long term; and
- (c) responsive, particularly in relation to proposals that would supply significant development capacity.

**Objective 7:** Local authorities have robust and frequently updated information about their urban environments and use it to inform planning decisions.

**Objective 8:** New Zealand's urban environments:

- (a) support reductions in greenhouse gas emissions; and
- (b) are resilient to the current and future effects of climate change

Though the aforementioned objectives are largely not specifically transportation related, they will heavily impact the design of the Plan Change area for residential purposes, which in turn will influence the transportation effects of the site. Outlined in Objective 2, the NPSUD requires regional policy statements and district plans enable more people to be serviced by public transport. Public transport integration of the site is of the utmost importance to the client and the development's integration into the local public transportation network is a cornerstone of its transportation design. Its proximity to current public transportation services will not only be directly extended through additional stops, but by that of private development shuttles to nearby public transportation hubs. The client is willing to work closely with the relevant local governmental bodies to insure the development is cohesive in this regard. This preference for public transportation solutions to any possible transportation issues raised by the development are further relevant to Objective 8, supporting reduced greenhouse gas emissions through encouragement more efficient transportation modes.

## 8.3 Auckland Plan 2050

The Auckland Plan is Auckland Council's 30-year strategy to ensure Auckland grows in a way that will meet the opportunities and challenges of the future. Initially produced in 2012, a new plan was released in June 2018. Since the original Plan was released, the Auckland Unitary Plan has been introduced and several significant infrastructure developments have been completed. The Auckland Plan shows how Auckland will prepare for an expected population increase of 39% by 2043, and the key challenges Auckland faces in dealing with this population growth. Other key challenges identified are sharing prosperity with all Aucklanders and reducing environmental degradation.

The Auckland Plan is comprised of six outcomes where significant progress is targeted, one of which addresses transport and access. The Auckland Plan summarises this outcome as "Aucklanders will be able to get to where they want to go more easily, safely and sustainably."

The transport and access outcomes outline three directions:

- (i) Better connect people, places, goods and services;
- (ii) Increase genuine travel choices for a healthy, vibrant and equitable Auckland; and
- (iii) Maximise safety and environmental protection.

The Auckland Plan also includes seven focus areas for the transport and access outcome:

- (i) Make better use of existing transport networks;
- (ii) Target new transport investment to the most significant challenges;
- (iii) Maximise the benefits from transport technology;



- (iv) Make walking, cycling and public transport preferred choices for many more Aucklanders;
- (v) Better integrate land use and transport decisions;
- (vi) Move to a safe transport network, free from death and serious injury; and
- (vii) Develop a sustainable and resilient transport system.

The future development of dwellings facilitated by the Plan Change will provide an opportunity for the public transport network to be expanded and further developed, to effectively serve the proposed urbanization of the site. The anticipated development sets up a framework and support for an integrated transport system to be created with additions to the existing bus services and new shuttle services, which will encourage people to be connected with places, goods and services. The expected facilitation of on-site services within the future residential development will improve the attractiveness of the active transport modes, reducing reliance upon private vehicle trips.

Residents within the future development will also have more travel options beyond private vehicles mainly to public transport, due to the proposed additional bus stop and shuttle services expected to increase the connectivity of the Plan Change area to the external network. This demonstrates that the proposed project integrates well with the transport and access outcomes of the Auckland Plan.

## 8.4 Auckland Unitary Plan

The Auckland Unitary Plan, which has been operative in part since November 2016, has the following objectives with regards to transport infrastructure:

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

Encouragement of public transport modes enables the adverse effects of the traffic generated by the developments to be mitigated. The addition of a signalised intersection to the site's access will provide for safe travel to the recommended additional bus stop on Highbrook Drive, and a potential shuttle service will provide safe travel to the wider public transport system. This will ultimately provide the benefits of an integrated network by providing residents with transportation choices, thereby reducing the effects of generated traffic by reducing the relative demand for private vehicle travel.

In summary, the Plan Change area is well located to a variety of transportation modes. With the additional public transport facilities proposed the development will integrate well with both the objectives of the Unitary Plan and the existing and future transportation network.

## 8.5 Auckland Transport Alignment Project

Given the growth challenges that Auckland is facing, and the need for some big transport decisions to deal with this, the Government and Auckland Council have agreed on the need for a collaborative approach to improving alignment on a long-term strategic approach to transport in Auckland. A new edition of the Auckland Transport Alignment Project (ATAP) was released in March 2021 to provide a package to develop Auckland's transport system over the next 10 years. An important part of this work is to agree an indicative investment package that guides statutory funding plans like Auckland's Regional Land Transport Plan and the National Land Transport Programme. Over the past five years, ATAP has enabled significant progress on improving transport in Auckland. The ATAP focuses on three main investment areas; operational costs (including maintenance), asset renewals, and new infrastructure. Within new infrastructure, a great emphasis has been placed on rapid transit, road network, safety, walking and cycling, bus and ferry improvements, and more.

Ultimately, ATAP aims to provide Auckland with a transport system that provides safe, reliable and sustainable access. It contains investment to be made in projects to assist growth over the next decade (2021 – 2031), while identifying future priorities beyond 2031. It recommends investment be made in short and medium-term projects to assist growth over the next decade while working to protect routes for longer-term projects.

There are no projects planned for delivery, within proximity of the Highbrook area, between 2021 and 2031.



## 8.6 Regional Land Transport Plan (RLTP)

The Regional Land Transport Plan (**RLTP**), prepared by Auckland Transport with Waka Kotahi and Kiwi rail, identifies the priority of several key region-wide transport projects over a ten-year period. The current RLTP was adopted in 2021 and covers the period 2021-2031. Projects outlined in the existing RLTP are outlined in ATAP.

The key transport challenges the RLTP attempts to address are climate change and the environment, safety, access to employment and social opportunities, and travel choices. The anticipated residential development in accordance with the THAB zoning sought will integrate well with the RLTP by aligning well with these strategic challenges the RLTP addresses. The integration of different land uses allows active modes and public transport to be prioritised as a transport mode. This will enhance the relative resilience of the area.

## 8.7 Regional Public Transport Plan (RPTP)

The Auckland Regional Public Transport Plan (**RPTP**) seeks to deliver an improved public transport network in Auckland by increasing public transport frequency along key transport corridors and simplifying ticketing to improve user experience.

The vision of the RPTP is to deliver *“An integrated, efficient and effective public transport network that offers a wider range of trips and valued by Aucklanders”*. To achieve this vision, Auckland’s public transport system needs to deliver:

- Services that align with future land use patterns;
- Services that meet customer needs;
- Increased passenger numbers;
- Increased public transport mode share; and
- Improved value for money.

The proposed development is not currently well served by the public transport network. The increased activity within Highbrook that will be facilitated by the THAB zoning sought will improve the economic viability of providing additional bus routes or bus stops to serve the Highbrook area. The proposed rezoning does not hinder Auckland Council and Auckland Transport from achieving the deliverables outlined in the RPTP.

## 9 Conclusion

This ITA has been prepared to support the Plan Change to rezone land to the west of Highbrook Drive at 8 Sparky Road from Business - Light Industry Zone to Residential – THAB Zone under the Unitary Plan. The Plan Change will enable up to approximately 200 residential dwellings on the site with an expected range of supporting land uses such as a dairy, a café and a shared office space. This ITA has considered the future transport networks and land uses within Highbrook and the surrounding areas.

Descriptions, analyses and assessments provided in the ITA has shown that the development of residential dwellings at the site, compared with the development of light industry at the site, will have acceptable impact on the surrounding road network (given the commitments to a range of non-private car travel modes and option for future residents within the THAB zoned land), which is already significantly congested. Further analysis and optimisation of the site intersection design is expected to be undertaken as part of future consent stages.

To encourage public transport use for future residents and visitors to the development, it is recommended that a bus stop, of high amenity, safety, and efficiency in design, be installed along the site frontage on Highbrook Drive. This bus stop will be serviced by Bus Route 351 which already travels along this section of Highbrook Drive, and provides connections to Ōtāhuhu Town Centre, Ōtāhuhu Train Station, the Highbrook Business Park and Botany Town Centre. It is further recommended that a shuttle service be implemented in support of future residential development within the Plan Change land to enhance the connection with nearby public transport hubs such as the Middlemore and Ōtāhuhu train stations. This should be planned and designed in consultation with the future residential community and AT representatives to maximise its efficacy in terms of timing and preferred destination.

To encourage active mode uptake from future residents traveling to local attractors, improvements will be made to the safety of the Highbrook Drive, SH1, and Hellabys Road roundabout. These will include crash barriers on the western path, safer crossing amenities such as a protected island, and better wayfinding measures. This will be complemented by the provision of pedestrian crossing phases on all four approaches of the new signalised intersection at the entry of the Plan Change area.

The development enabled by the Plan Change rezoning as sought is consistent with current government transport policies.

In summary, there is no traffic engineering and transport planning reason to preclude acceptance of the proposal.

**Stantec New Zealand**



# Appendix

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We design with community in mind



# **Appendix A** Modelling Results



AM Modelling Results:

Baseline

Intersection	Appr & Turn	Count	Mvmt Delay	Mvmt LOS	App Delay	App LOS	Int Del	Int LOS
SH1 SB Off-Ramp / Highbrook Dr (Roundabout)	NW Left	1274	8	A	25	C	48	D
	NW Thru	500	67	E				
	NW Right	0	0	A				
	NE Left	491	84	F	81	F		
	NE Thru	689	81	F				
	NE Right	447	80	F				
	S Left	350	17	B	29	C		
	S Thru	44	39	D				
	S Right	503	37	D				
	W Left	0	0	A	55	D		
	W Thru	770	54	D				
	W Right	39	76	E				
	SH1 NB On-Ramp / Highbrook Dr (Signals)	S Right	819	26	C	26	C	19
E Right		1037	14	B	14	B		
Gridco / Hellabys (Priority)	S Thru	856	2	A	3	A	162	F
	S Right	39	3	A				
	E Left	11	28	D	162	F		
	E Right	44	162	F				
	N Left	140	3	A	3	A		
N Thru	890	2	A					
Highbrook Dr / Site (Signals)	SE Left	20	54	D	51	D	21	C
	SE Thru	0	0	A				
	SE Right	36	50	D				
	NE Left	64	19	B	18	B		
	NE Thru	1631	18	B				
	NE Right	18	64	E				
	NW Left	11	57	E	57	E		
	NW Thru	0	0	A				
	NW Right	6	57	E				
	SW Left	57	19	B	23	C		
SW Thru	2341	19	B					
SW Right	145	76	E					

With Development:

Intersection	Appr & Turn	Count	Mvmt Delay	Mvmt LOS	App Delay	App LOS	Int Del	Int LOS
SH1 SB Off-Ramp / Highbrook Dr (Roundabout)	NW Left	1266	9	A	25	C	59	E
	NW Thru	503	63	E				
	NW Right	0	0	A				
	NE Left	482	108	F	106	F		
	NE Thru	709	105	F				
	NE Right	454	105	F				
	S Left	348	20	C	36	D		
	S Thru	44	46	D				
	S Right	492	46	D				
	W Left	0	0	A	64	E		
	W Thru	749	62	E				
W Right	39	92	F					
SH1 NB On-Ramp / Highbrook Dr (Signals)	S Right	798	49	D	49	D	30	C
	E Right	1056	16	B	16	B		
Gridco / Hellabys (Priority)	S Thru	846	3	A	3	A	150	F
	S Right	38	3	A				
	E Left	10	16	C	150	F		
	E Right	44	150	F				
	N Left	138	3	A	3	A		
	N Thru	888	2	A				
Highbrook Dr / Site (Signals)	SE Left	22	55	D	55	E	43	D
	SE Thru	0	0	A				
	SE Right	33	56	E				
	NE Left	64	47	D	47	D		
	NE Thru	1601	47	D				
	NE Right	3	103	F				
	NW Left	12	54	D	55	E		
	NW Thru	0	0	A				
	NW Right	72	55	E				
	SW Left	29	30	C	39	D		
	SW Thru	2314	35	C				
SW Right	147	115	F					

PM Modelling Results:

Baseline:

Intersection	Appr & Turn	Count	Mvmt Delay	Mvmt LOS	App Delay	App LOS	Int Del	Int LOS
SH1 SB Off-Ramp / Highbrook Dr (Roundabout)	NW Left	832	1	A	5	A	53	D
	NW Thru	304	15	B				
	NW Right	0	0	A				
	NE Left	666	62	E	61	E		
	NE Thru	806	60	E				
	NE Right	405	61	E				
	S Left	404	160	F	132	F		
	S Thru	57	97	F				
	S Right	307	102	F				
	W Left	0	0	A	27	C		
	W Thru	734	26	C				
W Right	17	38	D					
SH1 NB On-Ramp / Highbrook Dr (Signals)	S Right	750	28	C	28	C	42	D
	E Right	1215	51	D	51	D		
Gridco / Hellabys (Priority)	S Thru	756	44	E	44	E	1880	F
	S Right	5	35	D				
	E Left	23	1576	F	1880	F		
	E Right	52	1880	F				
	N Left	47	3	A	3	A		
	N Thru	940	2	A				
Highbrook Dr / Site (Signals)	SE Left	116	63	E	57	E	20	C
	SE Thru	0	0	A				
	SE Right	73	48	D				
	NE Left	29	24	C	21	C		
	NE Thru	1725	20	C				
	NE Right	10	72	E				
	NW Left	22	52	D	53	D		
	NW Thru	0	0	A				
	NW Right	39	54	D				
	SW Left	11	13	B	15	B		
	SW Thru	1841	14	B				
SW Right	30	65	E					

With Development:

Intersection	Appr & Turn	Count	Mvmt Delay	Mvmt LOS	App Delay	App LOS	Int Del	Int LOS
SH1 SB Off-Ramp / Highbrook Dr (Roundabout)	NW Left	861	1	A	4	A	62	E
	NW Thru	303	15	B				
	NW Right	0	0	A				
	NE Left	651	69	E	68	E		
	NE Thru	817	68	E				
	NE Right	413	68	E				
	S Left	381	210	F	175	F		
	S Thru	54	134	F				
	S Right	300	137	F				
	W Left	0	0	A	27	C		
	W Thru	758	27	C				
	W Right	16	39	D				
	SH1 NB On-Ramp / Highbrook Dr (Signals)	S Right	767	28	C	28	C	45
E Right		1209	55	E	55	E		
Gridco / Hellabys (Priority)	S Thru	743	67	F	67	F	1645	F
	S Right	5	60	F				
	E Left	19	1216	F	1645	F		
	E Right	42	1645	F				
	N Left	46	3	A	3	A		
	N Thru	926	2	A				
Highbrook Dr / Site (Signals)	SE Left	118	60	E	55	D	21	C
	SE Thru	0	0	A				
	SE Right	71	46	D				
	NE Left	29	24	C	23	C		
	NE Thru	1723	23	C				
	NE Right	11	72	E				
	NW Left	7	53	D	51	D		
	NW Thru	0	0	A				
	NW Right	45	50	D				
	SW Left	69	14	B	15	B		
	SW Thru	1823	14	B				
SW Right	30	62	E					

# CREATING COMMUNITIES

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Communities are fundamental. Whether around the corner or across the globe, they provide a foundation, a sense of belonging. That's why at Stantec, we always **design with community in mind**.

We care about the communities we serve—because they're our communities too. We're designers, engineers, scientists, and project managers, innovating together at the intersection of community, creativity, and client relationships. Balancing these priorities results in projects that advance the quality of life in communities across the globe.

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