

Submissions to the
Transport & Industrial Relations
Select Committee

on

a petition by Glyn Williams and 7320 others

relating to

urgently fixing safety and congestion issues at
Warkworth's State Highway 1 intersection
with Hill Street, Sandspit Road, Elizabeth Street,
Matakana Road, Millstream Place, and Kowhai Park.

Presented by:

Glyn Williams,
Secretary

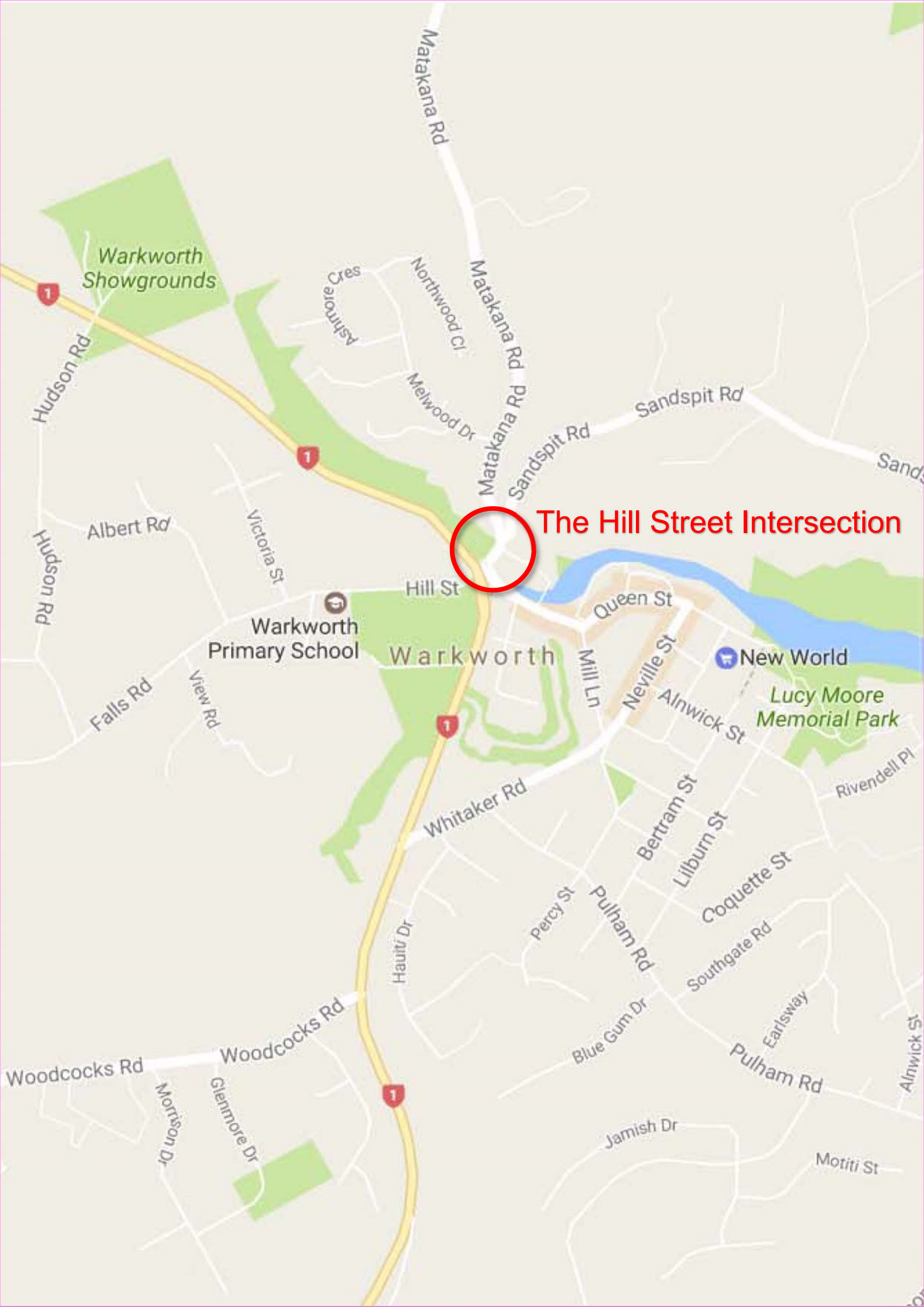
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Warkworth Showgrounds

The Hill Street Intersection

Warkworth Primary School

Warkworth

New World

Lucy Moore Memorial Park

Executive Summary

- The design of Warkworth's State Highway 1 intersection at Hill Street hasn't changed since 1974, is outdated, confusing, dangerous, and hasn't adapted to the growth in local and through traffic.
- Unacceptable congestion at the Intersection occurs over several hours every day. During holiday periods, queues as long as 5km in every direction delays traffic by more than an hour.
- The development of future urban zones to the north and west of the Intersection, which will increase Warkworth's population from 4,500 to 24,500, will create more traffic at the Intersection. Construction traffic is already a significant problem at the Intersection. The Motorway and Matakana Link construction will create additional congestion peak periods.
- By the time that the Motorway, Western Collector, and Matakana Link are complete, the traffic at the Intersection will have increased. NZTA have identified that between 2016 and 2026, Intersection traffic will increase from 35,900 Annual Average Daily Traffic (AADT) to 42,350. Sandspit Road traffic volumes will double to 18,200 AADT.
- The function of the Intersection will change from a northern gateway to a central distributor/hub with significant through traffic connecting South Warkworth with the Motorway.
- NZTA and Auckland Transport announced a \$2million fund to investigate and design the Intersection but won't commence works until the completion of the Motorway, Matakana Link, and Western Collector in 2022, citing the risk of disruption and adverse effects on the environment.
- Auckland Council is currently upgrading Kowhai Park, involving significant earthworks and road works. The traffic management and environmental measures for the works, however, invalidate NZTA's concerns about disruption and adverse effects on the environment.
- Our experts have designed several options that eliminates congestion by increasing the capacity of the Intersection and minimising disruption by utilising flat land in the adjacent road and public reserves.
- The problem will get significantly worse and the time to fix Hill Street is **now**.

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1. The Petition

Our petition collected 7320 written and 1772 online signatures between 1 December 2016 and 1 April 2017. The wording of the petition was:

*I, the undersigned,
request that the House of Representatives recommend to the Government,
as part of the New Zealand Transport Agency's "SH1 Warkworth Intersection improvements" project,
that it prioritise design, funding, and works improvements for the Hill Street Intersection
(being the Intersections of State Highway 1, Hill Street, Elizabeth Street, Matakana Road, Sandspit Road,
Millstream Place, and Kowhai Park)
to address current and future safety and congestion issues
and commence necessary works before any other nearby works exacerbate congestion at the Intersection.*

The wording was carefully chosen for the following reasons:

1. That there was a NZTA project to specifically improve four Warkworth Intersections, three of those intersections were upgraded, but a major upgrade to the Hill Street Intersection was shelved;
2. That other roading projects - such as the Puhoi to Warkworth Motorway Road of National Significance, Matakana Link Road, and Western Collector Ring road – were touted as 'fixes' to the Hill Street Intersection so were given priority over an upgrade of the Intersection;
3. That the feasibility of the Motorway was based on a major upgrade of the Intersection, but that upgrade was shelved before the Motorway's resource consent hearing;
4. That subsequent traffic data and projections by the NZTA and Auckland Transport have shown that the other roading projects will not 'fix' the Intersection, but will exacerbate safety and congestion problems at the Intersection; and
5. That excuses to not upgrade the Intersection – such as the risk of disruption and ecological harm – are unsubstantiated and have been disproved by Auckland Council's upgrade of the adjacent Kowhai Park.



The Fix Hill Street Now team presenting the petition to Rodney Member of Parliament, Mark Mitchell.

2. Background

Warkworth's State Highway 1 intersection with Hill Street - 60 kilometres north of Auckland - is the source of much congestion, particularly at weekends throughout the summer. Northbound State Highway 1 traffic backs up 15km to Johnstones Hill Tunnels at holiday weekends. Returning southbound traffic also queues 4-5km on State Highway 1, Matakana, and Sandspit roads. The Intersection can reach capacity at any time of the day even on normal days. This is the only Intersection on SH1 in Warkworth not to be recently upgraded by NZTA.

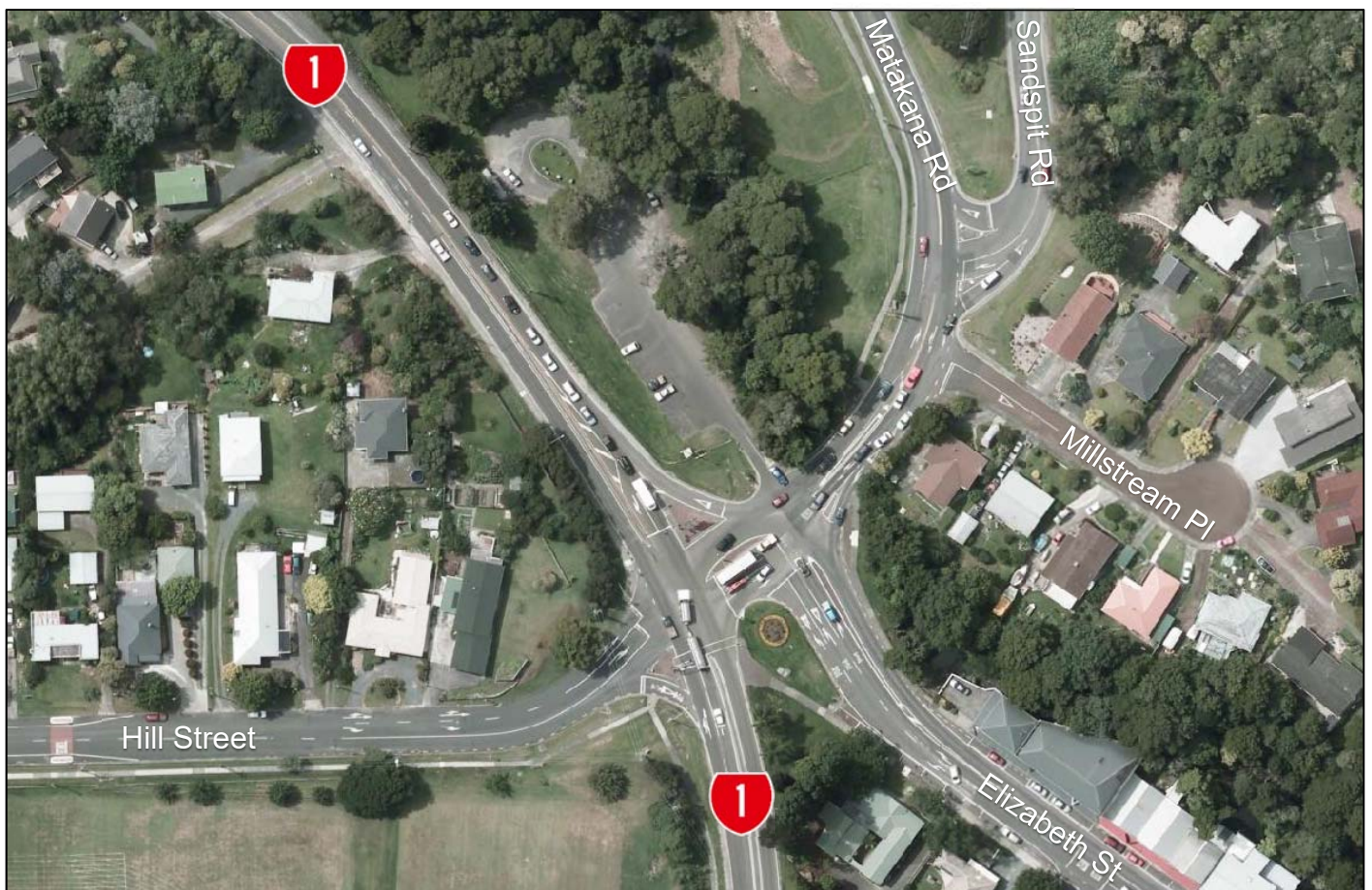
The photograph below, taken from Auckland Council GIS records, shows 5 major points of conflict at just one single point of time.

The Intersection is controlled by NZTA as part of the State Highway network. The minor roads are controlled by Auckland Transport.

NZTA planned to upgrade the Intersection in 2008. This was shelved when the NZTA claimed that the Puhoi to Warkworth Motorway Road of National Significance would solve the problem.

Auckland Council proposed Warkworth as a satellite town in the Unitary Plan in 2013 and has increased the proposed new Urban Boundary at least twice since that plan was published. This will result in Warkworth's population growing 540% from 4500 to 24500 residents.

The Intersection, which is at the hub of this growth, has not been identified as a Transport Project for Urban Growth until now.



Auckland Council's 2010 GIS photo of Warkworth's State Highway 1 Intersection at Hill Street.

3. Design Problems

The Intersection has been in existence since 1926 and took on its current geometry in 1954. Subsequent improvements have been only minor in nature.

Numerous incremental changes have been made in recent years but the improvements have not kept pace with current traffic growth of 4-5% per annum.

The complexity and limited size of the Intersection is the crux of the problem with some legs having to give way to 5 different directions at the same time. The Intersection is running at capacity most of the day.

Holiday traffic compounds the problem with traffic queued for up to 5 kilometres and delays of 1-2 hours not uncommon. Tourist operators are not able to service cruise ships as they cannot guarantee to get their customers back on time.

The wider Warkworth business community is already suffering because of the Intersection's bad reputation for gridlock and delays - not only in so-called holiday peak periods. It needs to be made clear that Warkworth is the hub of the entire region having the only supermarkets, banks, WINZ office, medical services and diverse retail operations.

Many sections of the residential community feel trapped in their homes by the regular congestion and grid-lock caused by the Intersection.

If there is congestion when an emergency occurs, volunteers first find it hard to get to their station and then find it hard to get to the emergency. This is a serious health and safety issue that puts the community at risk.



The shape of the Intersection hasn't changed since its formation in 1954. Millstream Place was built in 1971. (Photo taken in 1955. Source: National Library)

4. Safety & Economic Problems

4.1. Pedestrian safety is a major issue.

Pedestrians east of the Intersection have been totally disregarded by the current traffic regime. When we addressed the problem of the crossing facility, we were told that 'Warrant was not met.' In other words, not enough people were using the 'crossing facility' to justify a 'pedestrian crossing.' When it is so dangerous, it is not surprising that people in the north-east drive to town or they drive their children to school even if they have to add to the congestion. It is not surprising that the Warrant was not met.

4.2. Emergency services struggle with the Intersection.

Due to the risk that medical professionals cannot respond within the 'Golden Hour', the rescue helicopter is often called when there is congestion at the Intersection.

4.3. Kowhai Park is the front entrance to Warkworth.

The park to the north is a good example of native bush and includes an historic lime kiln, one of the earliest examples of our industrial heritage. Local volunteers have recently completed track development and weed control to make this a tourist attraction for Warkworth. The public toilets and carpark are well used and currently being upgraded. There is no safe access from Kowhai Park to Warkworth. Roundabout construction, using part of the Kowhai carpark, would be an opportunity to make an attractive entrance feature for both Warkworth and for Kowhai Park.

4.4. Tourism growth is now limited by access.

Tourism to the Matakana and coast area has increased markedly in recent years but is now constrained by congestion. A good example is that cruise ship operators will not send coaches to the area because they cannot guarantee getting them back before the ship departs.

4.5. Warkworth business is stifled.

Warkworth's business and retail trade is seriously hampered by congested and confusing access to the CBD. The Intersection is a deterrent for people considering visiting Warkworth or returning if they do.

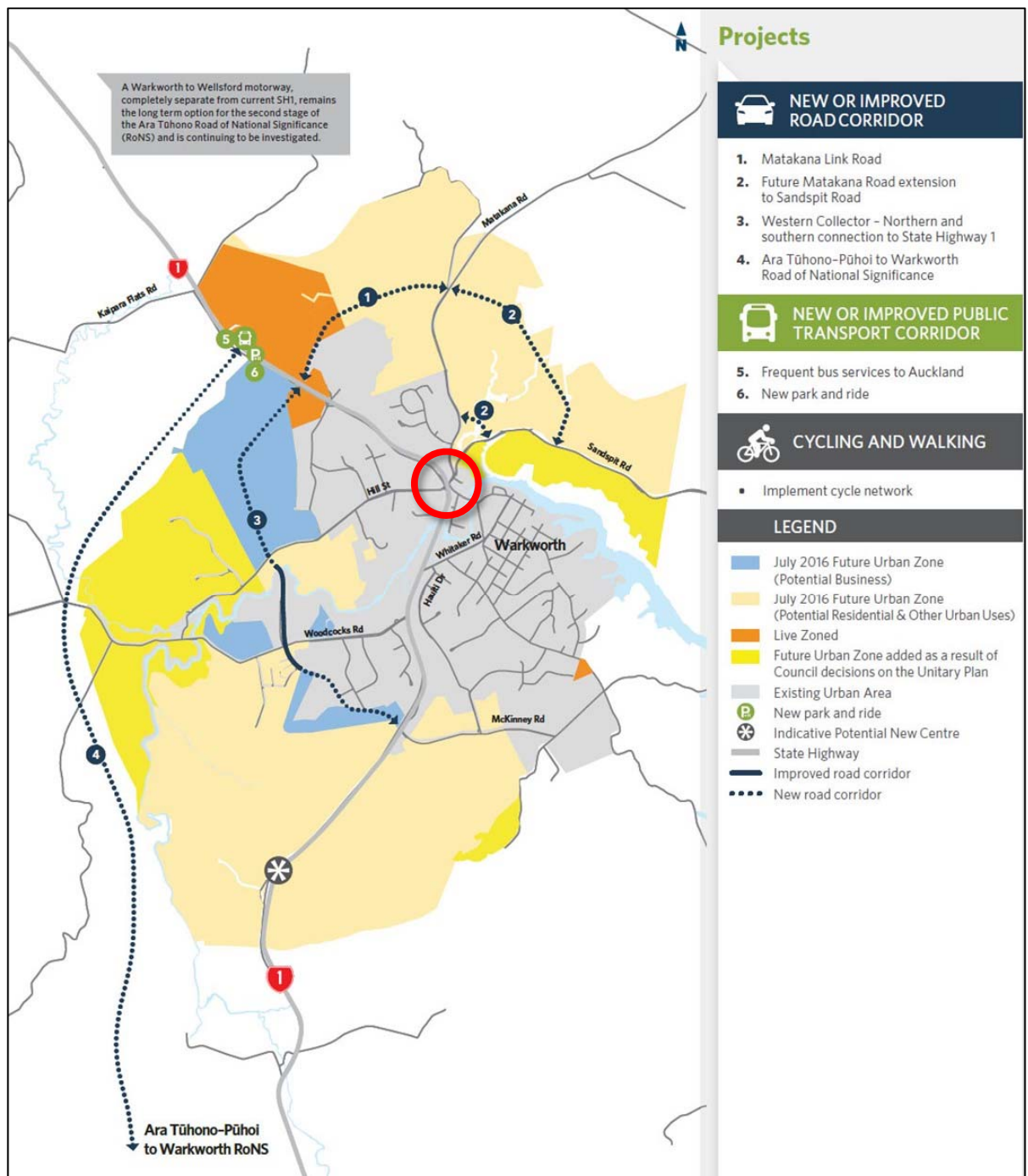


The St. John Ambulance depot is 800 metres south of the Intersection on State Highway 1.

5. Zoning & Roding Projects

Warkworth's current road network is a 'hub and spoke' layout, relying on the Intersection as a regional distributor to arterials. Auckland Transport and the NZTA propose building a 'rim' between the spokes to divert traffic around the Intersection, including a Western Collector to the west of State Highway 1 and a Matakana Link Road (and eventually a Sandspit Link) to the east.

Since the proposed development of the 'rim-road', Auckland Council's Unitary Plan has expanded the urban boundary to the north and west of the Intersection, allowing for a further 2300 houses before the completion of the Motorway and rim-roads. In the meantime, the Intersection must contend with construction traffic and additional urban traffic.



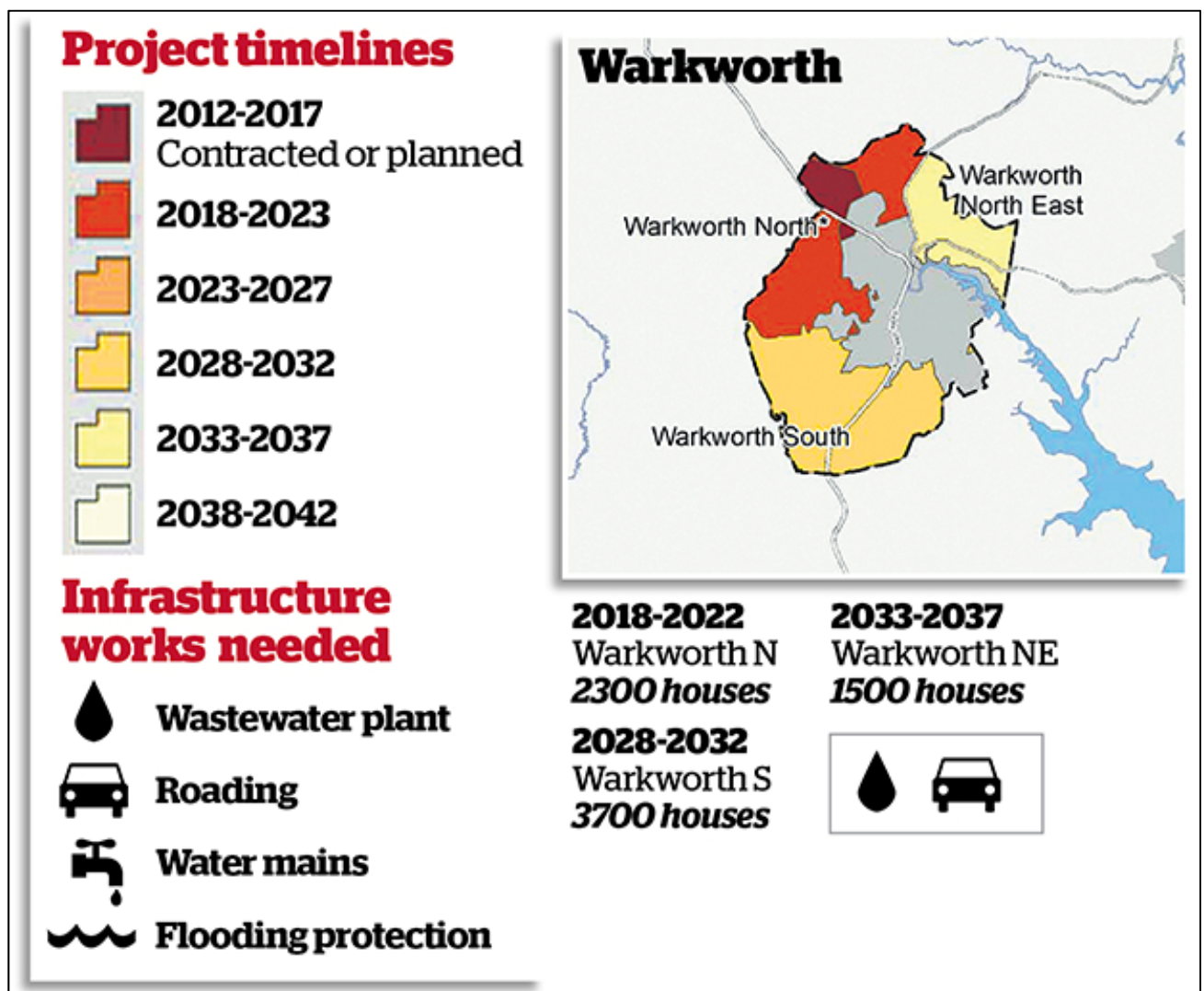
In the Auckland Council's 2016 Transport For Urban Growth document, the Hill Street Intersection isn't taken into account. We have highlighted it with a red circle.

The Transport for Future Growth is phasing in future urban zones, starting with Warkworth North. The Warkworth North zones includes the Matakana Link and Western Collector roading projects, being developed mostly by one developer. The Warkworth North East zone, which would include the Sandspit Link road between Sandspit Road and the Matakana Link, is proposed to be phased in after 2033.

Sandspit Road services the Mahurangi Peninsula (Snells Beach, Algies Bay, Sandspit), which has a population greater than Warkworth. It also serves a greater population than Matakana Road. By 2026, Sandspit Road traffic volumes will double to 18,200 AADT.

The only alternative route in 2021 for Sandspit Road traffic is via Sharp Road, which currently handles 1,825 AADT. Sharp Road is not suitable to carry an additional 18,200 vehicles per day. Matakana Road between Sharps Road and the Matakana Link is not suitable to carry the combined traffic of Matakana and Sandspit Roads - 31,200 AADT.

If Intersection construction 'disruption' is a genuine justification for the prioritisation of the Matakana Link and Western Collector, then the Sandspit Link should be given equal priority.



6. Growth

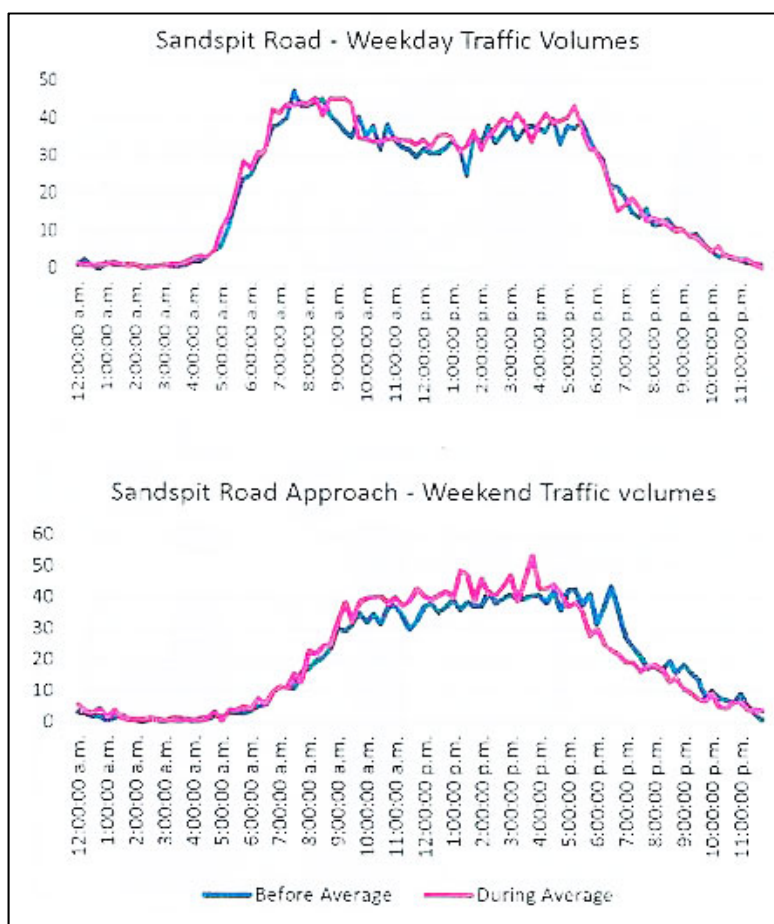
The current traffic growth of 4-5% per annum will be compounded by the 540% population increase to Warkworth due to the major growth cells of the Auckland Unitary Plan. The original proposed Unitary Plan establishes Warkworth as a satellite town with a local population predicted to increase from 4,500 to 20,000 in the next 15 years. The final version increases that to approximately 24,500.

To further compound the problem, the first growth cell is to the north of the Intersection while the current CBD and business centres are to the south. Current information is that the developers are already well through the planning and design stage and the growth will happen earlier than predicted.

The Intersection simply cannot cope with this growth. Officials previously suggested that the situation at the Intersection will be ameliorated by the new Puhoi to Warkworth Motorway and the Matakana Link. NZTA's more recent analysis, however, shows that reductions have only a small effect and this is completely overwhelmed by urban growth.

The Intersection has a current capacity of 3000-3200 vehicles per hour, which is reached most daylight hours. Traffic lights and the configuration of the adjoining roads impedes flow. Ideally, a 6000+ per hour capacity is needed to accommodate peak flows over the next twenty years.

Traffic will never be less than it is now.



Sandspit Road average traffic volumes before and during the November 2016 Elizabeth Street trial. The road is at a capacity of ~400 vehicles per hour (9000 vehicles per day) for most daylight hours. By 2026, the traffic will double to 18200 per day and will continue to give way to increasing Matakana Road traffic. Source: Auckland Transport.

6.1. NZTA Revised Traffic Projections for Warkworth Roads

In response to Parliamentary Written Question 532(2017), the NZTA revised its 2026 projections for traffic volumes at the Intersection to take into account unanticipated traffic growth between 2009 and 2016, the effects of new roading projects, and Auckland Unitary Plan urban zone changes.

In the table below, the 2009 actual data and 2026 projections were given as evidence for the 2014 Puhoi to Warkworth Motorway resource consent application. Less than two years since that evidence was given, traffic at the Intersection is close to exceeding those 2026 projections.

Based on NZTA's revised projections, Intersection traffic will increase 18% from 35,900 to 42,350 AADT. This contradicts NZTA's repeated public statements that the Motorway and other roading projects will reduce Intersection congestion.

Road	Location	Actual NZTA & AT Data		NZTA projections given as evidence for the P2Wk in 2014		NZTA Revised projections in 2017	
		2009 base model	2016 base model	2026 Base (without P2Wk~)	2026 Project (with P2Wk)	2026 Project Including P2Wk, Western Collector Stage 1 and MLR^	2026 Project including TFUG* infrastructure (full Western Collector)
Hibiscus Coast Hwy	East of SH1	6,000	4,900	12,100	9,800	7,600	7,700
RONs	South of Puhoi Rd				19,300	27,600	27,700
Puhoi Rd	West of SH1	1,400	7,400	2,400	2,400	8,200	8,200
SH1	North of Puhoi Rd	14,500	22,200	25,300	14,400	16,300	15,800
SH1	South of Moirs Hill Rd	14,600	21,400	25,400	14,500	16,200	15,600
RONs	South of Moirs Hill Rd				13,700	17,100	17,800
Woodcocks Rd	West of SH1	5,700	13,100	12,800	5,700	19,900	19,500
Mansel Dr	North of Woodcocks Rd			10,900	4,700	7,000	7,500
SH1	North of Woodcocks Rd	17,900	29,600	27,400	19,200	22,700	22,300
Whitaker Rd	East of SH1	12,800	14,900	20,400	19,200	17,600	18,000
SH1 (Brown Rd)	North of Whitaker Rd	21,800	24,100	22,700	17,700	20,000	18,600
Hill St	West of SH1	1,900	6,300	10,500	13,700	7,300	8,900
Elizabeth St	Between Sandspit Rd & Falls St	8,800	9,500	9,700	10,300	12,600	13,600
Sandspit Rd	East of Matakana Rd	10,300	9,000	15,400	15,600	18,000	18,200
Matakana Rd	North of Melwood Dr	10,400	8,200	10,900	11,100	14,000	13,000
SH1(Great North Rd)	North of Hill St	11,900	14,700	15,600	14,700	17,200	12,400
Traffic entering SH1/Hill St/Sandspit Rd Intersection		32,550	35,900	42,400	41,550	44,550	42,350
Hudson Rd	South of SH1	900	1,300	7,900	14,000	8,400	1,600
SH1	North of Hudson Rd	12,800	14,100	19,200	23,900	31,500	23,700
RONs	South of SH1				13,700	17,100	17,800
RONs / SH1	interchange to / from North				10,500	6,900	6,900
RONs / SH1	interchange to / from South				12,100	10,200	10,900
SH1	South of Kaipara Flats Rd	12,800	14,100	17,300	20,100	19,000	19,100
Kaipara Flats Rd	West of SH1	400	1,800	900	800	2,800	2,800
SH1	North of Kaipara Flats Rd	12,400	11,800	16,300	19,200	15,300	15,500

All traffic figures are actual or projected Annual Average Daily Traffic (AADT). Figures provided by NZ Transport Agency.

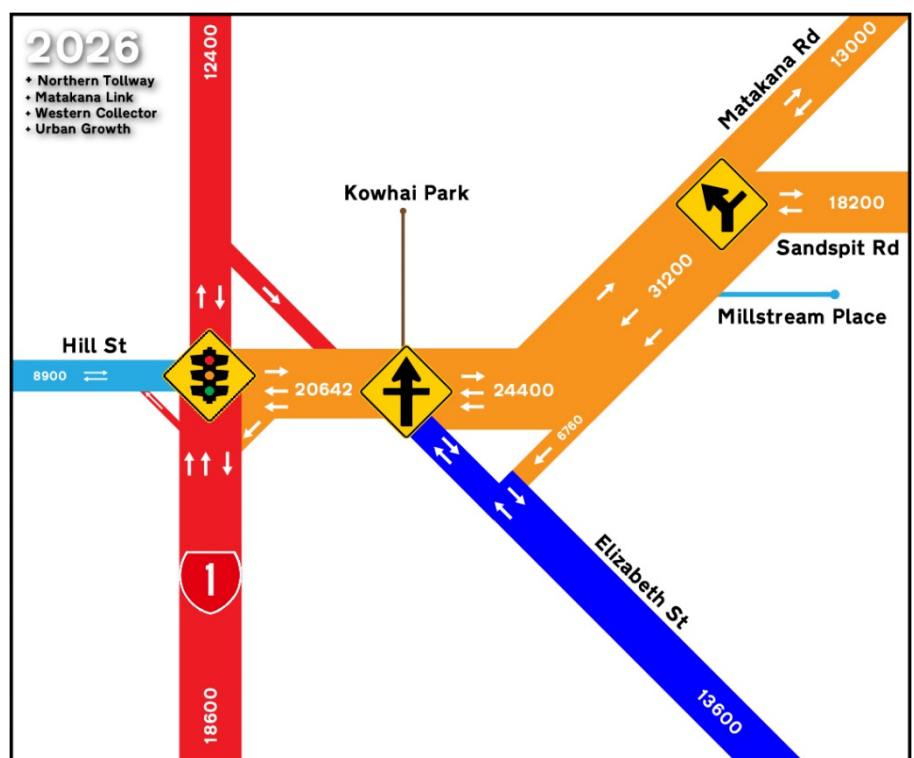
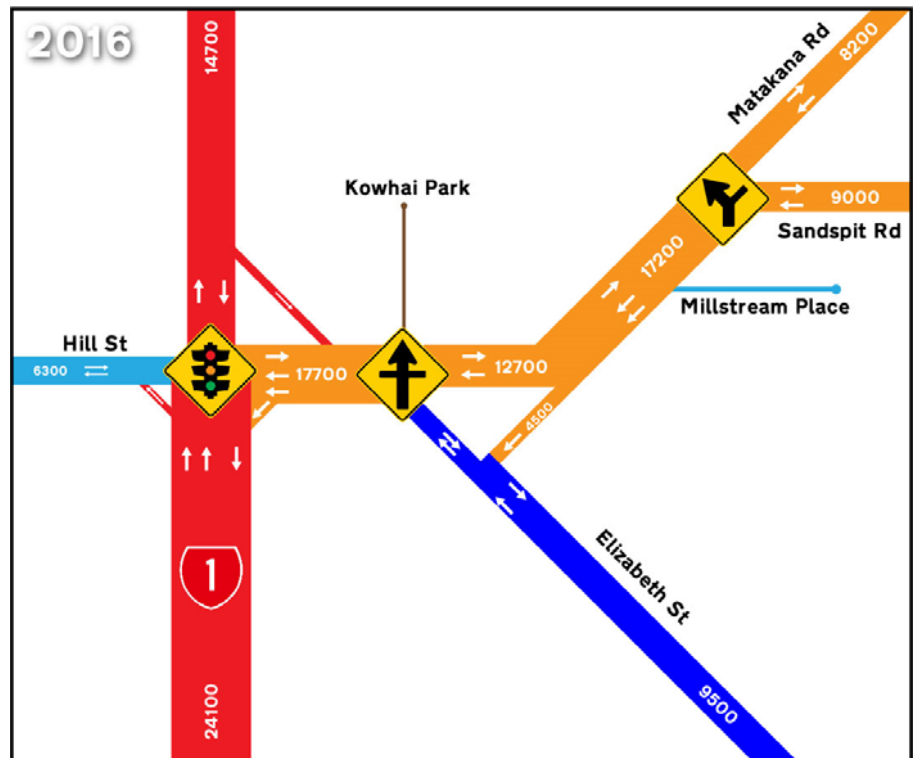
~ P2Wk is an abbreviation for 'Puhoi to Warkworth Motorway Road of National Significance'.

^ MLR is an abbreviation for 'Matakana Link Road' between State Highway 1 and Matakana Road.

* TFUG is Auckland Council's 'Transport for Future Urban Growth' programme, which increases Warkworth from 1,600 (2016) to 4,000 dwellings (2026).

Translating NZTA's revised actual and projected traffic figure into traffic patterns at Hill Street, the following two diagrams show traffic flow by stripe width.

It can be seen here that the growth around the critical Elizabeth Street part of the Intersection is rapidly increasing. The local traffic growth compounds as a result of urban expansion.



7. Construction traffic generated by motorway

The growth in the area is going to bring a huge increase in construction traffic, earlier than predicted. Construction of the motorway is of particular concern given that concrete and aggregates are likely to come through the Intersection.

The Board of Inquiry into the Motorway recognised the potential effect of Motorway construction traffic on the Intersection and applied strict conditions as to when and how the Intersection could be used. The Contractor will be required to provide a Site Specific Traffic Management Plan. This has not yet been produced.

As Auckland Council consider the Intersection to be 'operating to capacity all of the time', it is expected to be very difficult to satisfy the conditions of consent.



Congestion is not just a State Highway 1 through traffic problem. More traffic (especially construction traffic) consistently uses the Sandspit and Matakana Roads. Image taken on 25 October 2016.

8. Action to date on the design of a new Intersection

On 13 April 2017, the NZTA and Auckland Transport announced:

“Up to \$2million has been set aside to investigate and design changes to the Intersection.”

“When the new motorway is finished in 2021, along with other upgrades such as the Matakana Link Road and Western Collector, much of the current traffic will be able to bypass Warkworth, easing a significant amount of the existing pressure on Hill Street.”

NZTA say that these new roads will provide alternative routes. Most of the traffic, however, will still need to go to the hub of the Warkworth transport network, i.e., the Hill Street Intersection. NZTA also says that the disruption caused by construction at the Intersection would not be acceptable before these other works are complete.

Over the past decade, the NZTA has proposed major upgrades, cancelled them, trialled restrictions to the Intersection, phased in those restrictions, and then completed minor upgrades. Further trialled restrictions received significant local opposition.

The NZTA's current position is that Auckland Transport will manage the design process, acquire land if necessary, and commence works after 2021.

The screenshot shows the NZTA website page for 'SH1 Warkworth intersection improvements'. The page layout includes a header with the NZTA logo and a search bar. Below the header is a large image of a road intersection with the title 'SH1 Warkworth intersection improvements'. A navigation bar below the image contains links for 'Project overview', 'News & Media', and 'Hill Street improvements'. The main content area is divided into two columns. The left column has a 'Project overview' section with a map of the Warkworth area and a 'Project introduction' section. The right column has a 'Project updates' section with three items: 'Motorists urged to take extra care at Warkworth intersection', 'Hill Street upgrade ready for holiday weekend traffic', and 'Work gets underway to improve Warkworth's SH1/Hill Street'. A table below the map provides project details.

Estimated project cost	Project type	Project status
\$20 million–\$100 million	Road improvements	Investigation

Project introduction

We are working with Auckland Transport to improve safety and traffic flow by upgrading five key intersections along SH1 in Warkworth.

Project updates

- Motorists urged to take extra care at Warkworth intersection**
Media release, 26 November 2014
- Hill Street upgrade ready for holiday weekend traffic**
Media release, 22 October 2014
- Work gets underway to improve Warkworth's SH1/Hill Street**
Media release, 07 October 2014

The Intersection featured prominently on NZTA's 'SH1 Warkworth Intersection improvements' website until January 2017. Now, there is no mention of the Intersection or the budget.

9. Options

We understand that Auckland Transport is currently looking at options for the Intersection.

Recently, it was announced by NZTA and Auckland Transport that \$2m has been allocated to 'investigate and design' the Intersection.

The Intersection is surrounded on three sides by public space. There shouldn't be an issue with money or space to design a long-term solution.

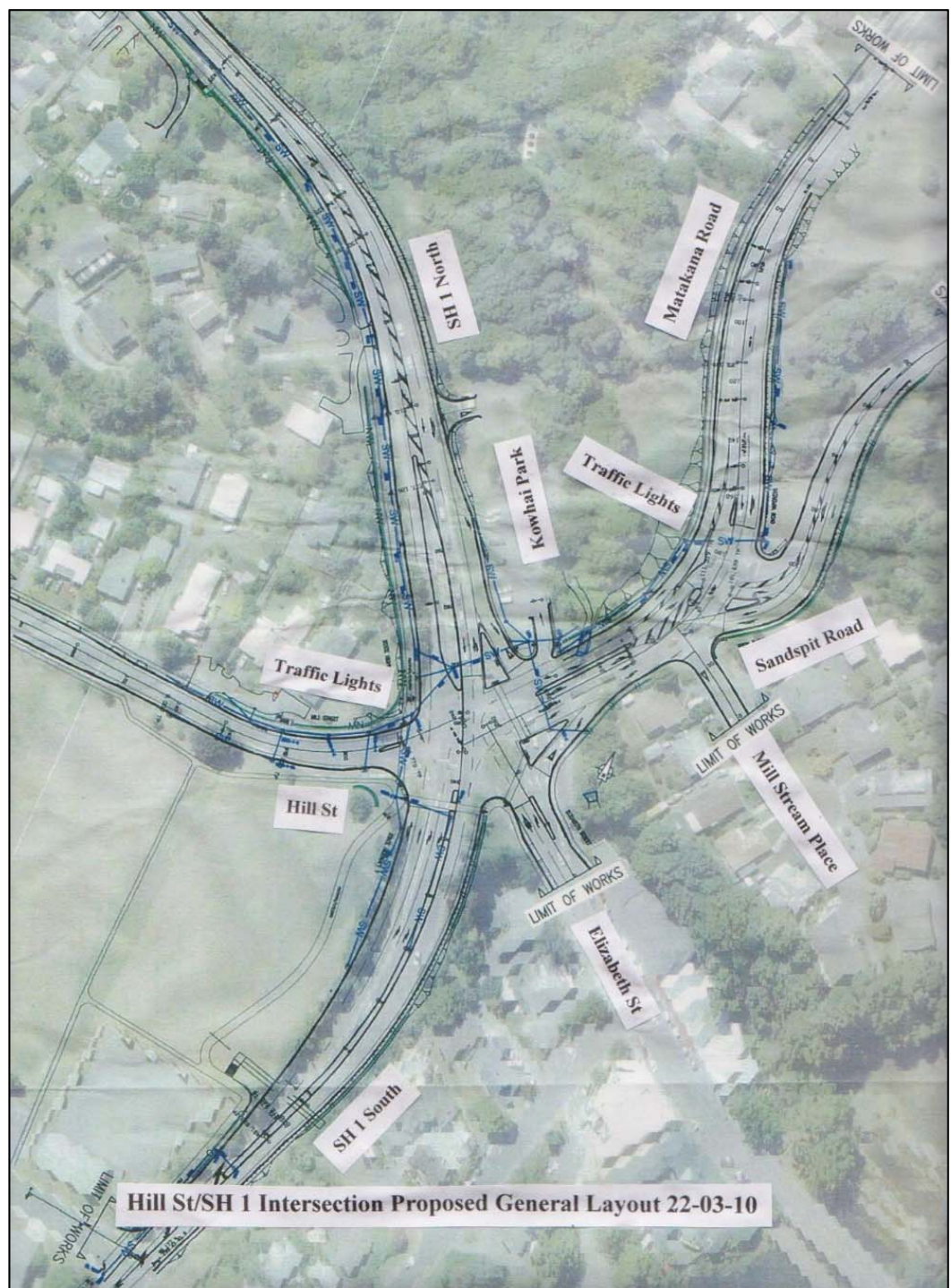
In the next section, we float several ideas to promote discussion about what can be achieved at the Intersection. A solution is best achieved by Auckland Transport and the NZTA working together.

9.1. NZTA 2010

This is the NZTA 2010 'Do Minimum' option aimed to 'Increase capacity and upgrade to five leg signal controlled Intersection.' This means that the traffic cycle time is longer to cope with 5 approaches instead of 4 and an increased clearance time for the traffic to clear. This would result in increased queuing and thus many more lanes will be required to hold them.

Unfortunately, there are a lot of services under the road and, as there are no alternative routes, all the work has to be carried out while the traffic is using the Intersection.

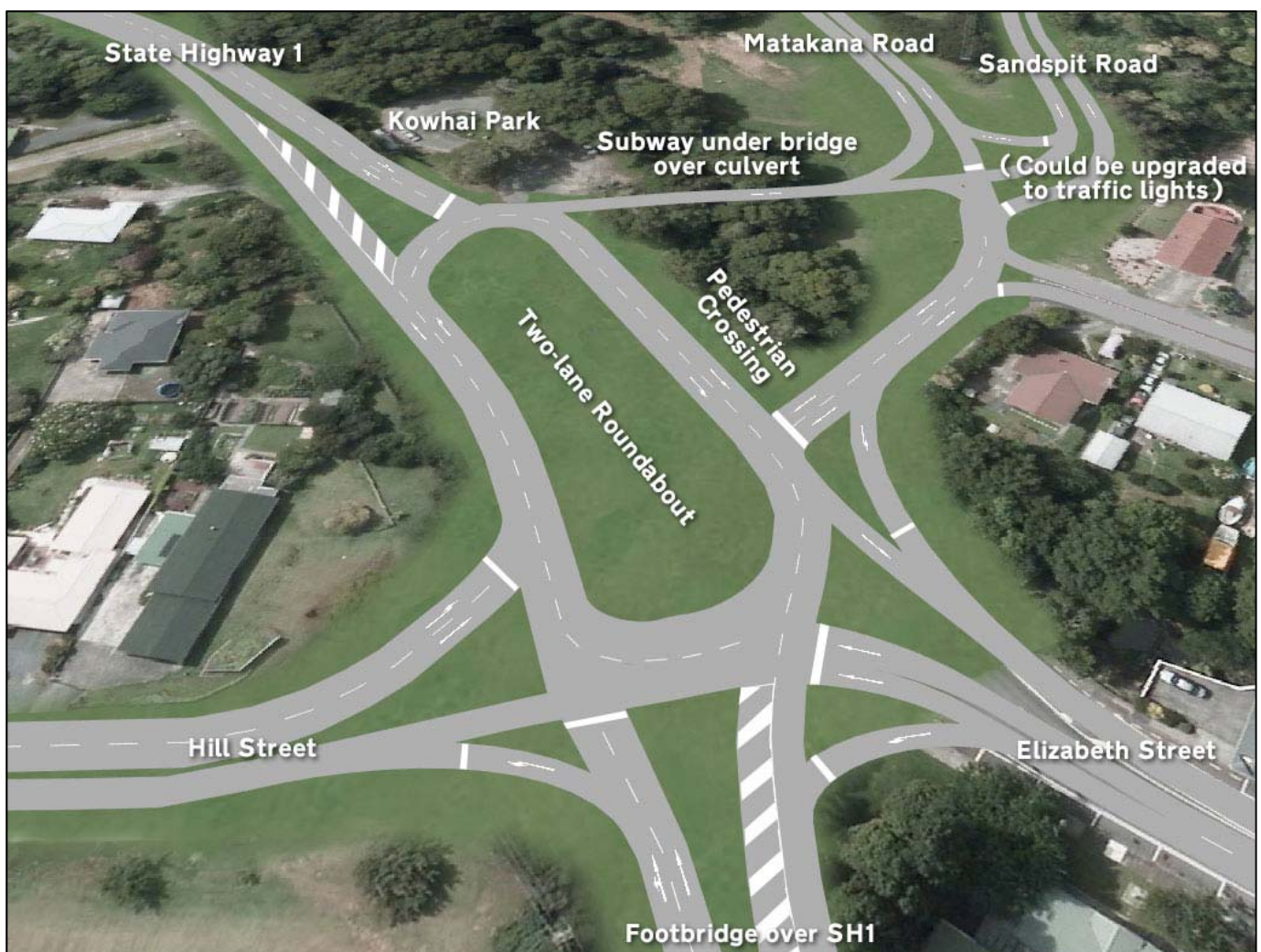
It is understandable that NZTA have not pursued this option.



9.2. Pill Roundabout Option

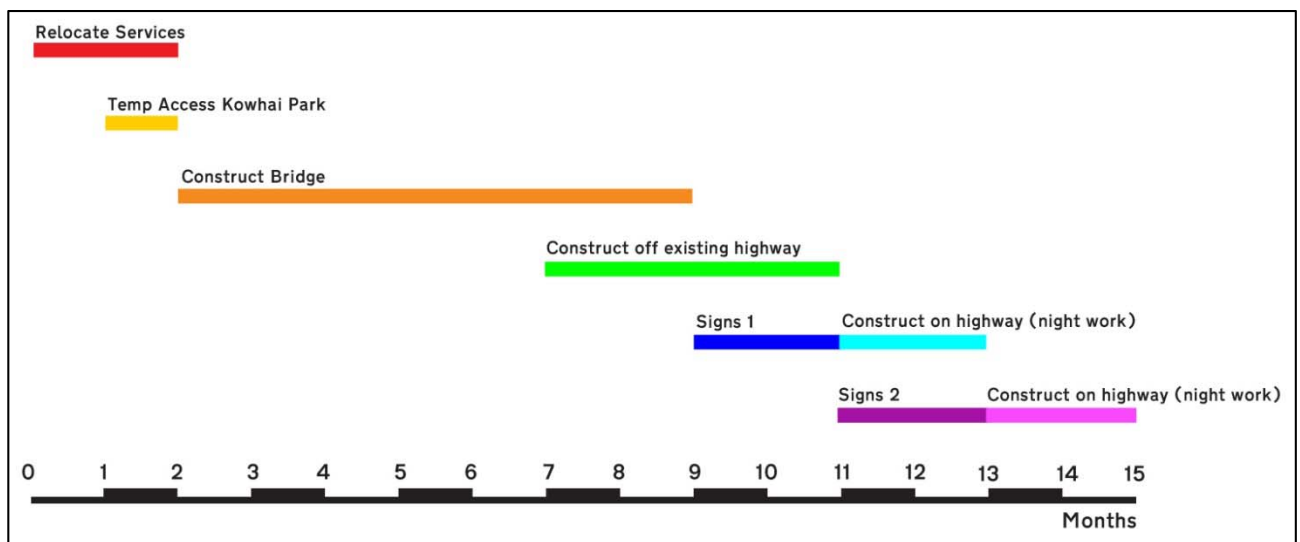
This option uses a roundabout as a traffic distributor. Once the Motorway is in place, the north-south flow is less dominant but other legs will increase dramatically (Refer 6.1).

- The roundabout is reasonably large, allowing for good visibility to the right (the direction that the traffic gives way too), which allows the traffic to keep moving.
- The roundabout provides two lanes to increase capacity and straight sections to allow lane changes.
- The Sandspit/Matakana Road entrance to the roundabout is now one way. This allows this entrance to be two lanes plus a slip lane (previously one lane plus a slip lane).
- Pedestrian access is improved with an underpass to the north and a full pedestrian crossing to the south.
- Access to Kowhai Park is improved.
- Construction is straightforward, with the majority of it being off road. The on-road work is within the existing sealed area (see below). This means that the construction can be completed within 15 months. During this period, only 2 months are on-road and, as this work is minor, so can be done at night.

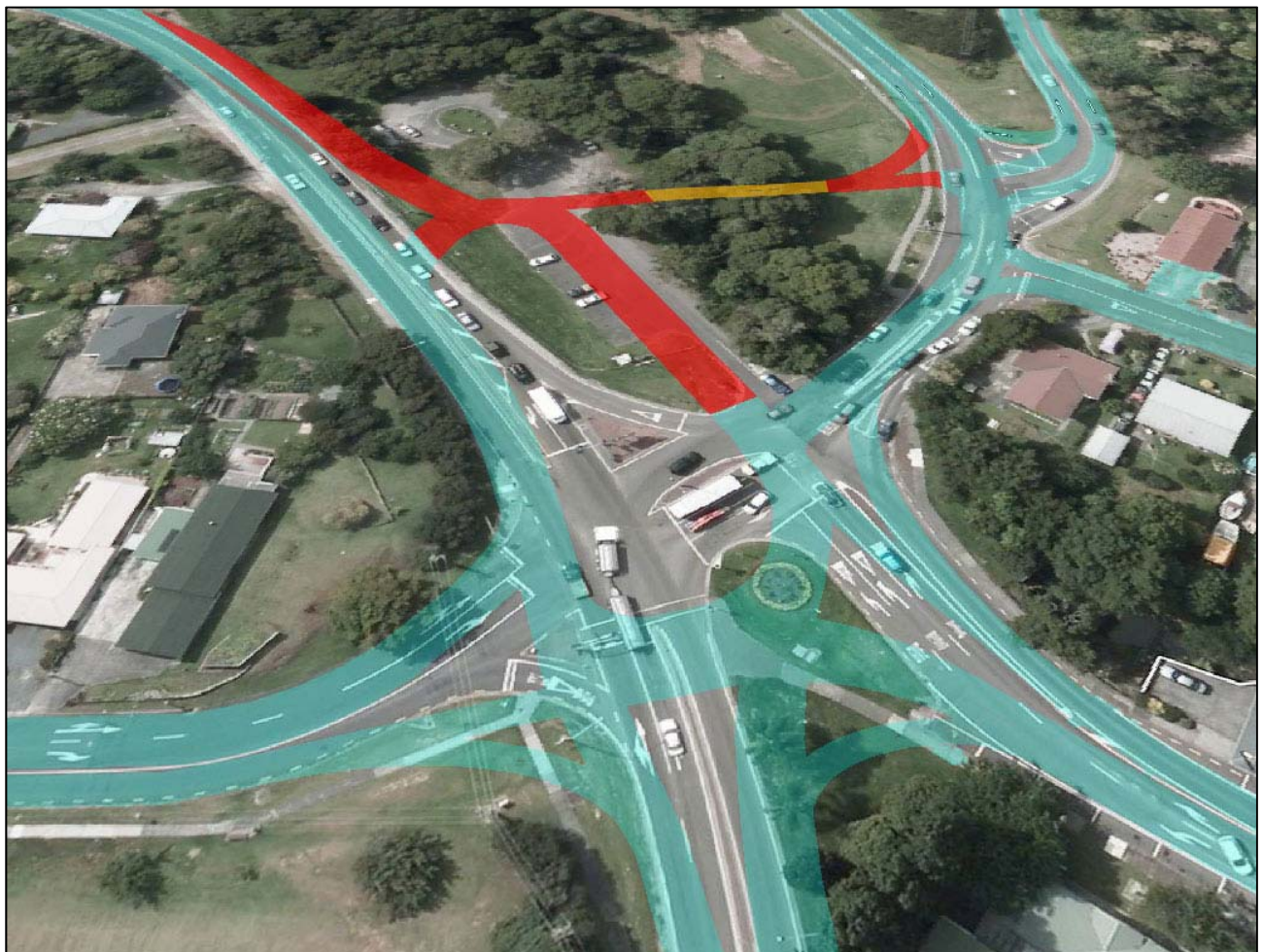


9.2.1 Construction Programme

The community has real fears over the disruption of traffic during construction. The following diagram and programme illustrates that most of the roundabout can be constructed off road in 12 months and that the balance is adjustment of the existing seal, which can be achieved by night time construction within three months. Disruption is not an excuse.



Construction Programme – The Pill



Much of the new Intersection can be built outside the current footprint, allowing a seamless phasing in.

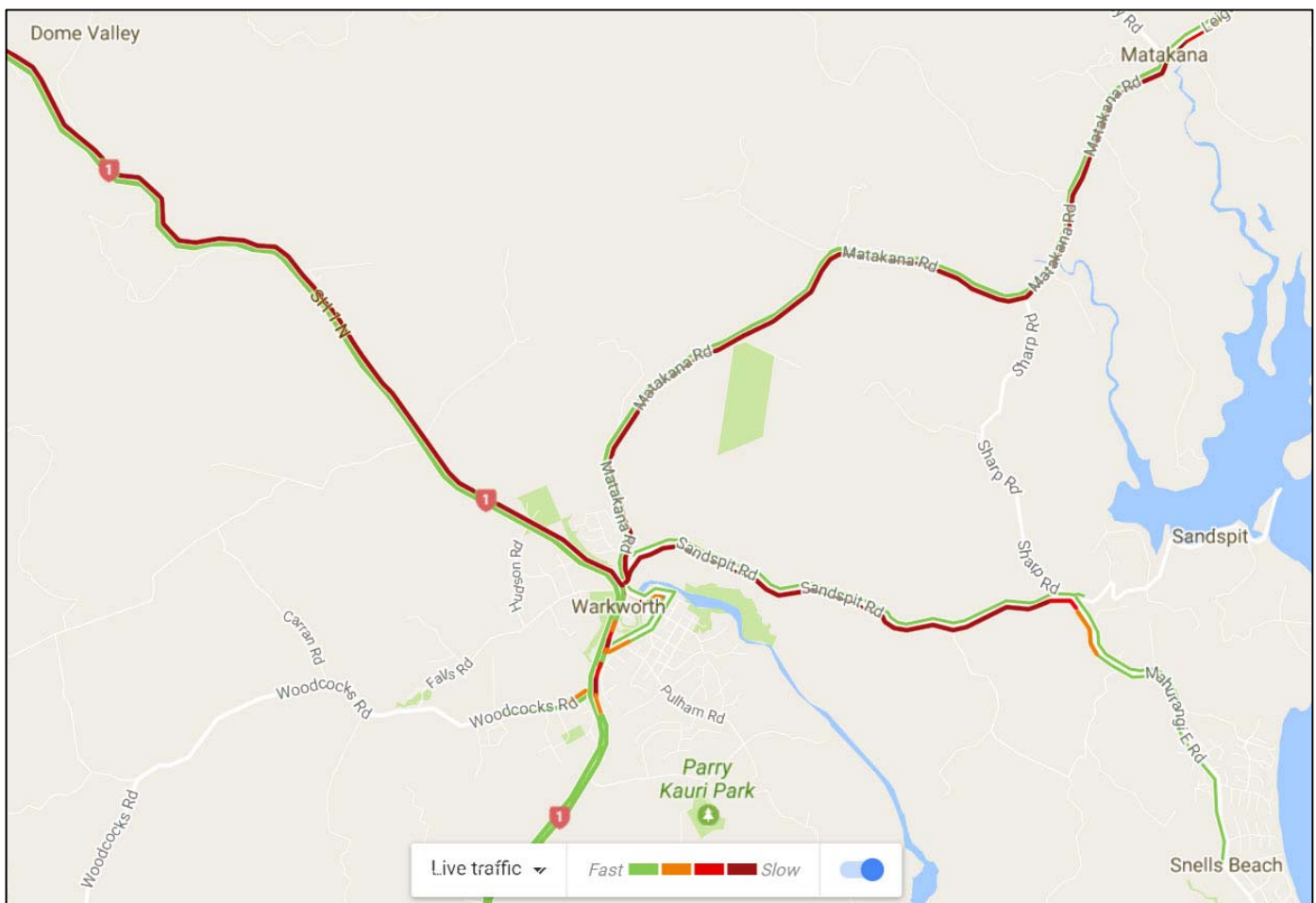
10. Conclusion

The traffic congestion at the Hill Street Intersection is increasing daily and will rise dramatically with predicted urban growth. The Motorway, Matakana Link, and Western Collector will not fix the problem.

NZTA's reasons for delaying construction of the Intersection are unsubstantiated and unacceptable.

It is a matter of extreme urgency to alleviate a situation, which is getting worse by the day. It is seriously affecting the State Highway 1 route to Northland, the whole of North Rodney, and the viability of Warkworth as a satellite town.

We ask for urgent action to fund and construct a new Intersection at Hill Street now.



The Intersection is regularly the only place in the region with congestion. This Google Traffic graphic, taken at 7:30pm on 6 February 2017 was during a 13-hour traffic jam. Waiting times were more than an hour.