

Northern Gateway Toll Road



Network Utilisation Report for the
year ended 30 June 2011

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Overview

This report provides summary traffic data for the Northern Gateway, SH17 and the surrounding network to assess the utilisation of the Northern Gateway Toll Road (NGTR). Daily traffic flows have been provided for the identified screenlines in Figure 1. The data was sourced from traffic counts done by the Auckland Motorway Alliance and the local council. Another source of data was provided by the Transport Registry Centre (TRC) and the NZTA Traffic Management Systems (TMS).

Traffic data from TRC and NZTA TMS

The TRC collects daily traffic figures from the automatic number plate recognition (ANPR) system. AADT figures are collected for all types of vehicles. The TMS maintains state highway traffic volumes to include telemetry sites on NGTR (SH1 – Telemetry site 95) and at Hatfields beach on SH17.

Below are the total traffic flows and calculated AADT for the period 1 July 2010 to 31 May 2011. The TMS has a total of 333 days of traffic counts; while the TRC-ANPR has a total of 335 days

Period : July 1 2010 to May 31 2011	NZTA - TMS		CS - ANPR
	NGTR	SH17	NGTR
Total traffic volume	4,715,943	1,911,961	4,753,156
AADT	14,162	5,742	14,188

Summing the AADT figures from the TMS for both the NGTR and SH17 at Hatfields Beach gives a total of 19,904 vehicles per day on the corridor. This indicates that 71% of total corridor traffic are using NGTR and 29% are using SH17. However, this total corridor traffic will include local trips within and around Orewa, therefore this estimated proportion of use of the network does not represent the amount of traffic attracted to and diverted from the toll road.

In order to gain a better understanding of the number of daily users of the NGTR and of the diverted traffic flows, there is a need to look into the wider network to consider local trips that use SH17.

Therefore, traffic counts were obtained for the identified screenlines (Figure 1) to make an assessment of the traffic flows within the network.

Traffic data from Auckland Motorway Alliance and local authority

The screenline site at the northern end of SH17 is sourced from SCATS data provided by the Traffic Operations Centre in Auckland, wherein traffic volumes for the on and off ramps from/to SH17 were picked. Traffic data has a total of 333 days count recorded for 2010/2011 so far; therefore AADT figures are calculated from total volume divided by 333 days. The Grand Drive screenline was sourced from the local council; wherein traffic data has a total of 361 days count for July 2010 to June 2011.

	Total Traffic	AADT
SH17 (NB/SB Ramps)	1,605,249	4,821
Grand Drive	2,900,543	8,034

Daily flows were provided for the different sites that are identified in Figure 1. AADT for the identified screenlines in Figure 1 are sourced from TMS for the periods 2010 and 2011 (for some sites).

TMS Site ID	Description	2010 (Jan1-Dec31)	2011 (Jan1-June30)
01N00383	South of Puhoi Rd	17,953	18,448
01N00388	ALPURT: Telemetry Site 95	13,943	14,338
01700006	HATFIELDS BEACH: Telemetry Site 77	5,741	5,695
01N10391	SH1 Orewa On Ramp to Silverdale Off Ramp SB	10,294	
01N20391	SH1 Orewa Off Ramp to Silverdale On Ramp NB	10,252	
01N10400	SH1 Silverdale On Ramp to Oteha Valley Rd Off Ramp SB	22,310	
01N20400	SH1 Silverdale to Dairy Flat SC On Ramp NB	22,282	
01700010	Nth of Orewa Bridge	22,760	22,670
01700012	Nth of Wainui Rd (Sth of Whangaparoa Rd)	34,644	34,611

Based from the screenlines at SH17, it can be assessed that there are certainly a number of local trips that shouldn't be counted as diverted trips. Total volumes for NGTR (14,338) and the northern end of SH17 (4,821) are 19,159; therefore we can assume that 75% are NGTR users and 25% are SH17 users or diverted traffic. It should be noted that this total is higher than the volumes south of Puhoi (18,448), which indicates that the volumes at the northern end of SH17 may still reflect other local trips between Puhoi and Waiwera and therefore the proportion share on SH17 which equates to around 22% share on SH17 and 78% share on NGTR.

Figure 1: AADT Flows for 2010 and 2011



Comparison with NGTR Before and After Traffic Analysis Report (BECA) (as at March 2010)

Table 14 from the BECA report uses the telemetry sites at NGTR and at Hatfields Beach for the observed flows below. As the Hatfields Beach telemetry site was higher than the Sh17 SCATS data (AADT of 7,000 vs. 4,500 respectively), which suggested that there are significant number of local trips. Table 14 below suggest 74% and 26% proportional splits for NGTR and SH17.

**Table 14 modelled estimate vs observed volumes SH1 NGTR and SH17
(7-day average daily volumes, combined directions)**

	Both Directions				
	Volume			Proportional Split	
	SH1	SH17	Total	SH1	SH17
Modelled Estimate (without toll 2008)	21,000	500	21,500	98%	2%
Modelled Estimate (with toll 2008)	14,000	7,000	21,000	67%	33%
Observed 2009	13,100	4,500	17,600	74%	26%

In order to improve knowledge of diversion, the NZTA commissioned Origin-Destination (O-D) surveys using automatic number plate recognition (ANPR) cameras at Puhoi, Grand Drive, Red beach, SH17 Hibiscus Coast Highway, East Coast Road and Silverdale. The O-D surveys were setup as a cordon around the study area. Vehicles travelling on SH17 were matched as they left the SH17 study area. The proportion of vehicles matched by the O-D surveys provides an indication of the proportion of vehicles travelling on SH17 to avoid paying a toll. The proportion of vehicles matched is 67%. (BECA NGTR Report)

Table 20 diversion rate for toll eligible trips (no time filter)

	SH1	SH17	Total
Observed volumes Puhoi (2009)	13,100	4,500	17,600
Observed volume % split at Puhoi (2009)	74%	26%	100%
Toll Eligible trips (excludes local trips)	13,100	3,015	16,115
SH1 Retention vs. SH17 Diversion	Retention 81%	Diversion 19%	100%

Table 20 of the report only considers the proportion of matched vehicles from the SH17 traffic volumes, such as only 67% of 4,500 of Sh17 volumes; thus giving the new proportional split of 81% and 19%.

Please note that this form of detailed analysis has not been repeated for 2010/2011 since O-D surveys entail comprehensive work which is expensive. It is felt that doing O-D surveys may not achieve value for money if done on a yearly basis.

Conclusion

The Toll Proposal for NGTR forecast a proportion split of traffic between Auckland and Puhoi of 70% NGTR to 30% SH17. Current analysis of traffic volumes from 2010/11 are that the proportion split is approximately 78% NGTR to 22% SH17. It should be noted that the traffic choosing to use SH17 may not all be diverted due to the toll – there will still be traffic that choose to use SH17 under an untolled scenario due to preference, business or other reason.

This is verified by results from OD surveys and analysis undertaken in March 2010 which found the proportion split to be 81% to NGTR and 19% to SH17.

