The Campaign for Better Transport

Submission to the Board of Inquiry

Puhoi - Warkworth

Issues in Contention

1. Whether projected traffic volumes for the Project route and existing SH1 are realistic
2. Whether a supporting economic analysis consistent with the NZTA's Economic Evaluation Manual should be supplied
3. Whether alternatives have been adequately considered
4. Whether unsafe sections of the existing SH1 require mitigation

Issue 1

- Whether projected traffic volumes for the Project route and existing SH1 are realistic

Importance of Realistic Forecasts

- Project Route Traffic Volumes
- Existing SH1 Traffic Volumes
  - Objective to alleviate congestion at Warkworth
- Safety
  - Accident rates within corridor
- Environmental effects
  - Project Route
  - Existing SH1
- Economic benefits and costs
  - Travel time savings

Base Case

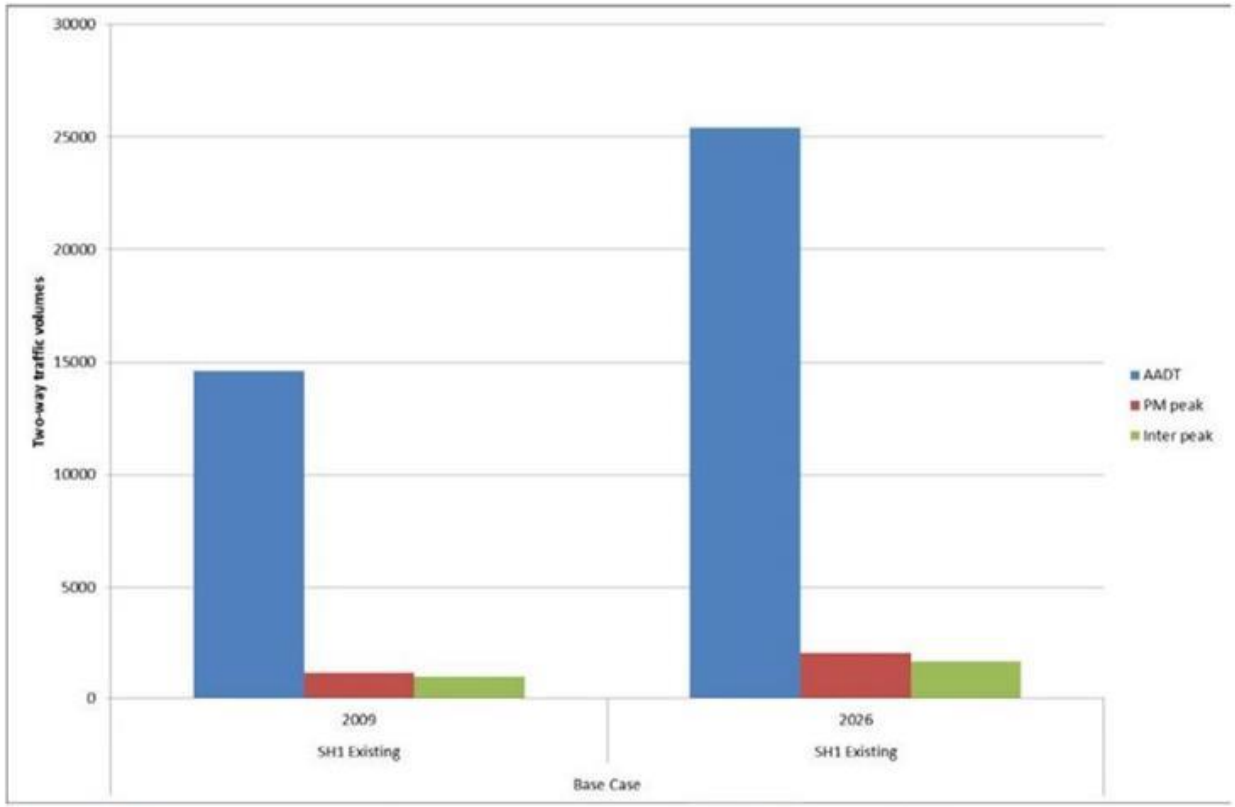
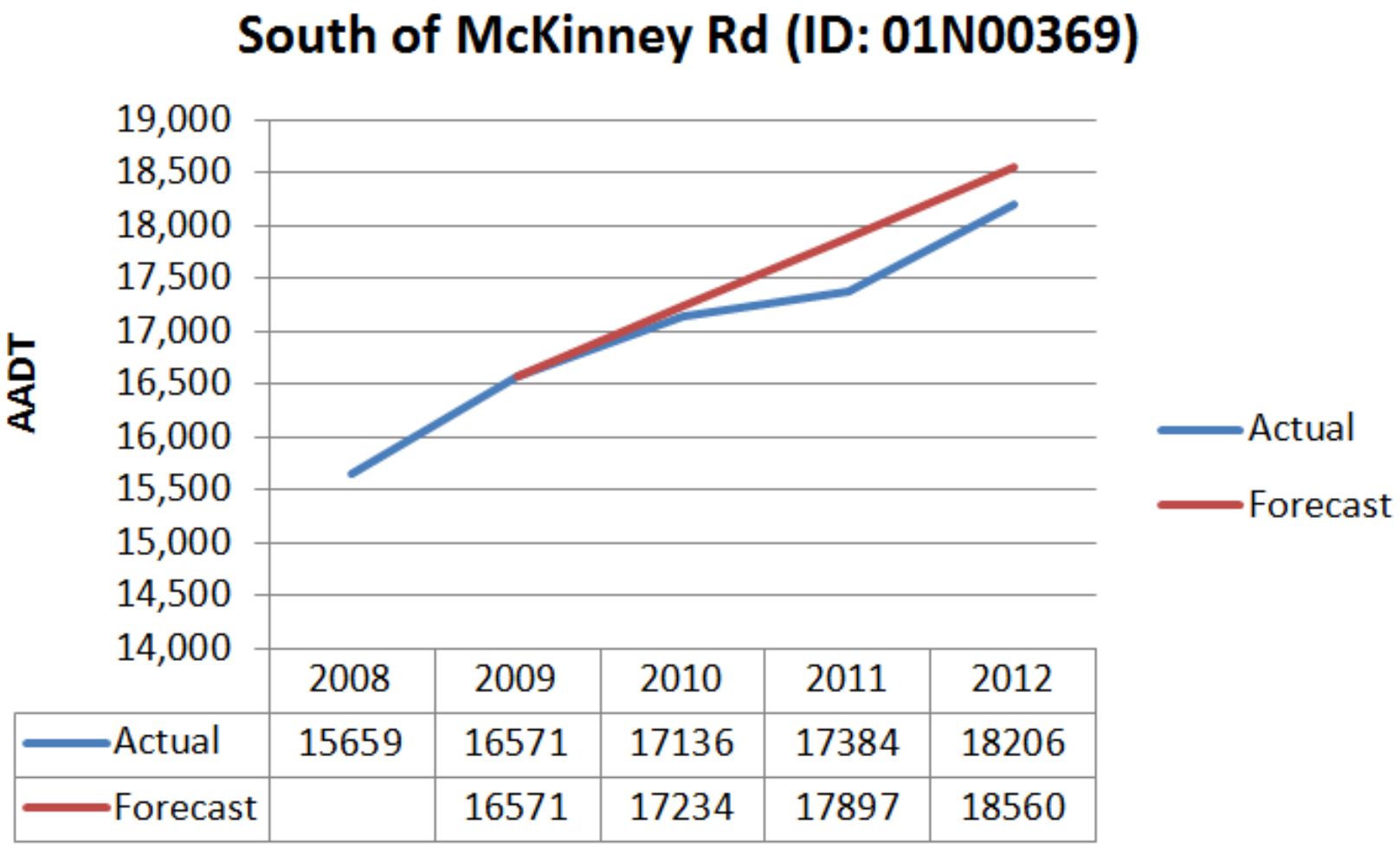


Figure 9: Base Case traffic volumes on SH1 between Pūhoi and Warkworth

As can be seen in the above figure, traffic volumes on the existing SH1 are expected to grow at a rate of approximately 4.4%[20] per annum between 2009 and 2026 without the Project in place. This means that daily traffic volumes on SH1 between Pūhoi and Warkworth are expected to be in the order of 25,000 vpd in 2026. This forecast growth rate is consistent with the growth rate observed over the last five years which has averaged 4.1%.[21]

Actual Traffic Counts

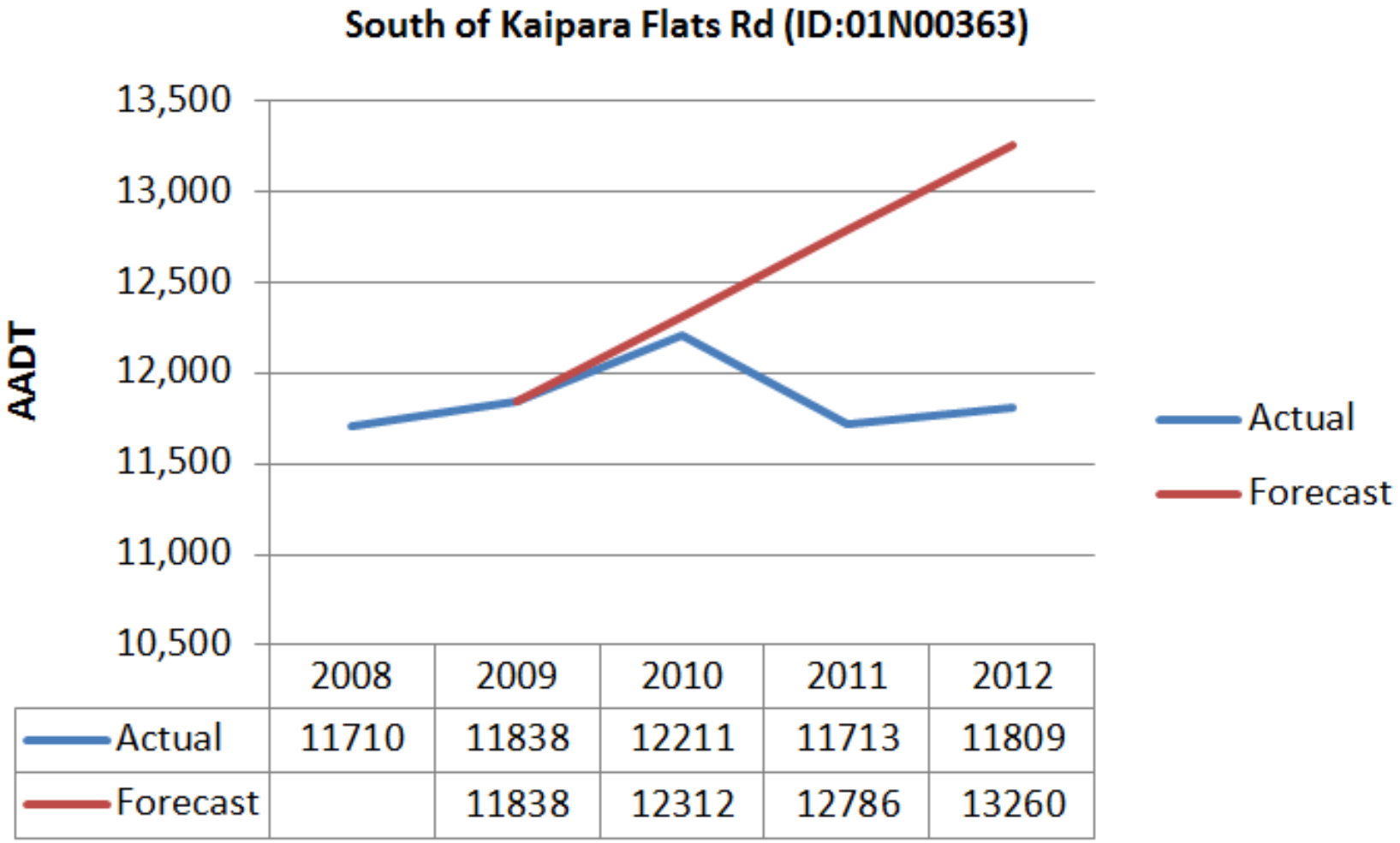


	2008	2009	2010	2011	2012
Actual	15659	16571	17136	17384	18206
Forecast		16571	17234	17897	18560

Base Case Traffic Counts

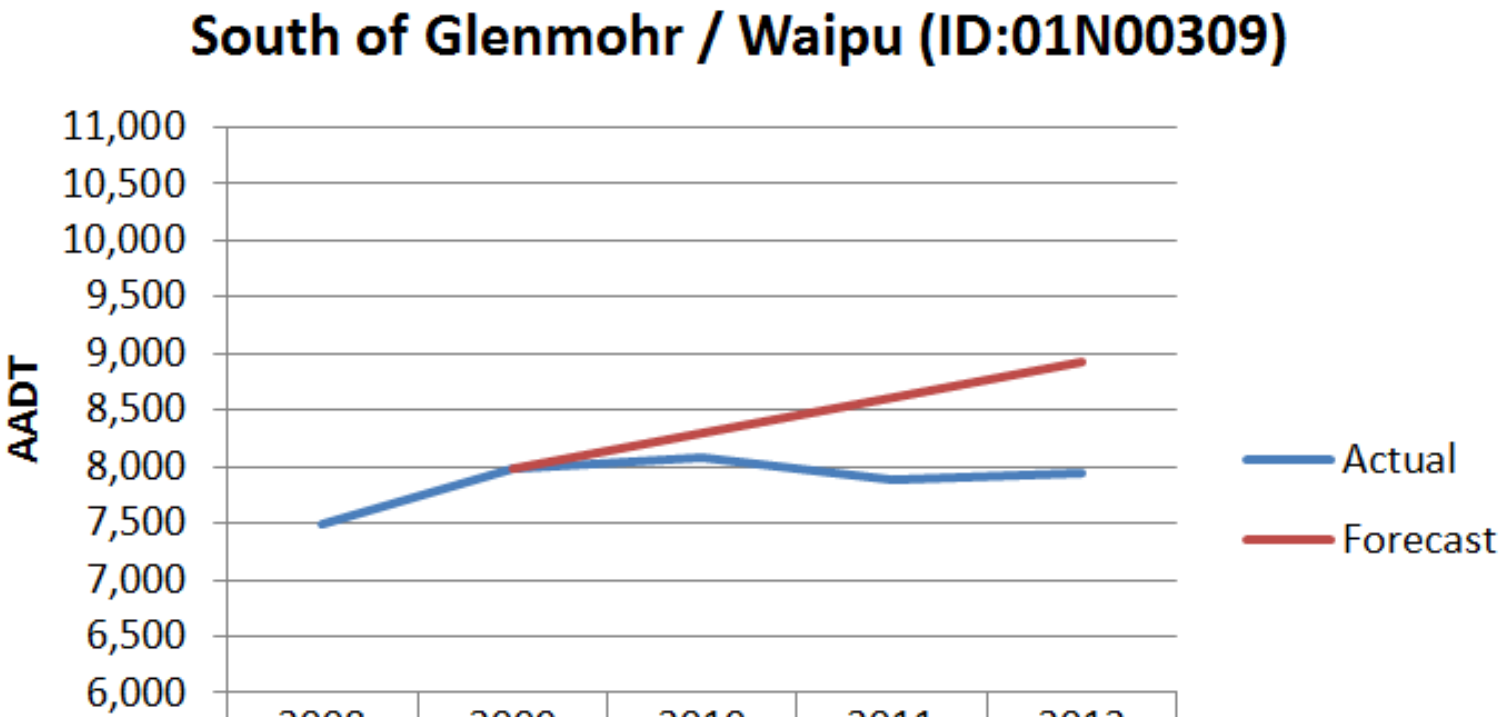
- Growth at McKinney Road not representative of all traffic in the corridor
- Growth caused by localised transport patterns
- Proposed project not a viable alternative for these trips
- Not all traffic volumes in the corridor will grow by 4%

Actual Traffic Count North of Project



	2008	2009	2010	2011	2012
Actual	11710	11838	12211	11713	11809
Forecast		11838	12312	12786	13260

Actual Traffic Count North of Project



	2008	2009	2010	2011	2012
Actual	7500	7973	8074	7890	7944
Forecast		7973	8291	8610	8929

Actual Growth Rates

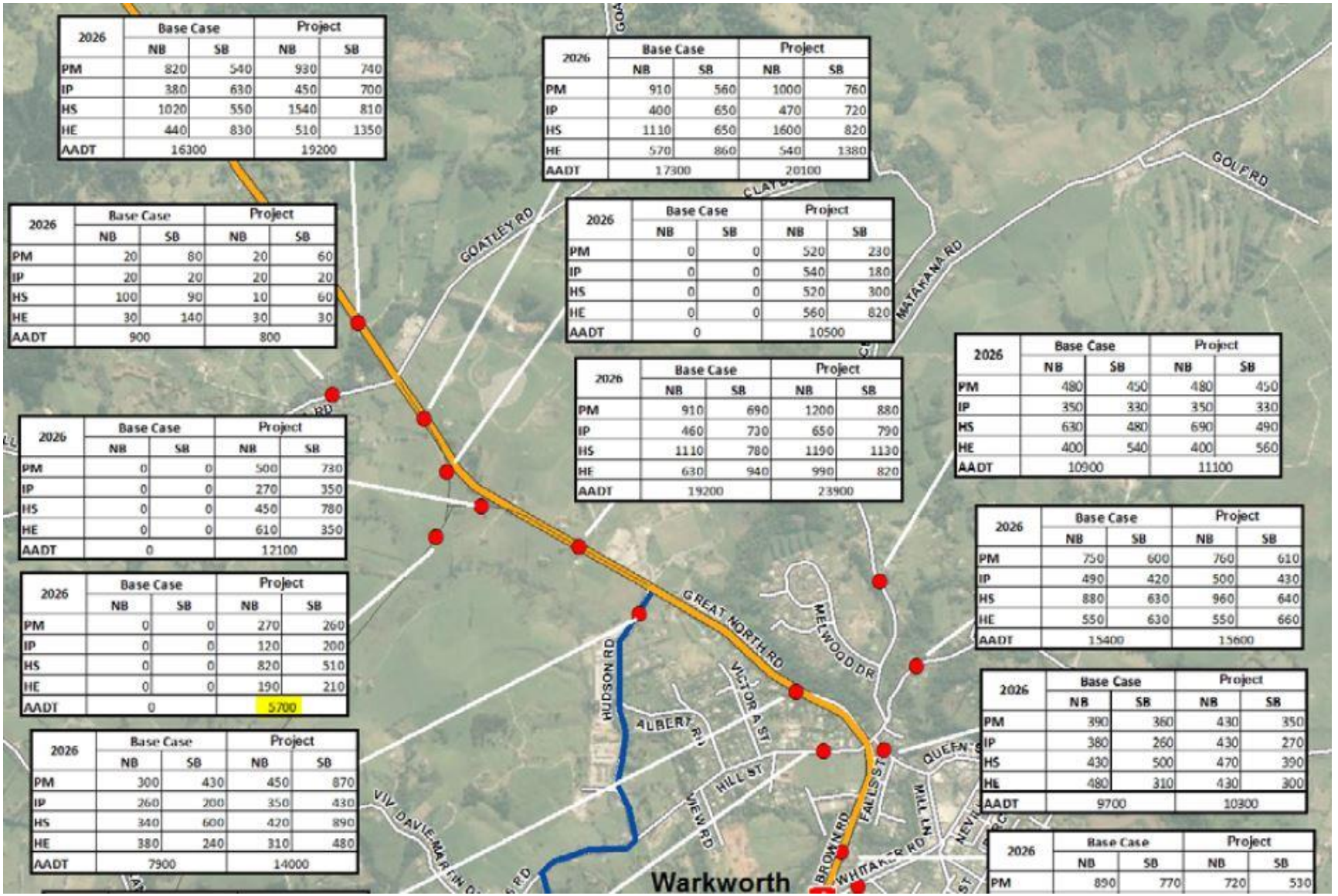
Table 1: Traffic growth on SH1 from 2008 - 2012

Location	Avg Annual Growth (2008 - 2012)
Sth of Centennial Park Rd (Sth of Wellsford) (ID:01N00347)	1.9%
Sth of Wayby Valley Rd (ID:01N00352)	1.9%
Sth of Kaipara Flats Rd (ID:01N00363)	0.2%
South of Mckinney Rd (Sth of Warkworth) (ID:01N00369)	4.1%
Pohuehue Viaduct (ID: 01N00372)	3.0%
North of Hungry Creek Rd (ID: 01N00380)	3.1%
South of Puhoi Rd (ID:01N00383)	4.0%

Question: Trips Further North?

- Traffic travelling between a point south of Puhoi and a point north of Warkworth
- 2009 Base Case Model: 4,460
  - 36% of traffic Nth of Kaipara Flats RD
- 2026 Project Model: 5,930
  - Only 23% of traffic Nth of Kaipara Flats
- 1.9% straight line annual growth
  - Vs 3.2% growth of traffic Nth of Kaipara Flats Rd

Northern Junction (Original)



2026	Base Case		Project	
	NB	SB	NB	SB
PM	820	540	930	740
IP	380	630	450	700
HS	1020	550	1540	810
HE	440	830	510	1350
AADT	16300		19200	

2026	Base Case		Project	
	NB	SB	NB	SB
PM	910	560	1000	760
IP	400	650	470	720
HS	1110	650	1600	820
HE	570	860	540	1380
AADT	17300		20100	

2026	Base Case		Project	
	NB	SB	NB	SB
PM	20	80	20	60
IP	20	20	20	20
HS	100	90	10	60
HE	30	140	30	30
AADT	900		800	

2026	Base Case		Project	
	NB	SB	NB	SB
PM	0	0	520	230
IP	0	0	540	180
HS	0	0	520	300
HE	0	0	560	820
AADT	0		10500	

2026	Base Case		Project	
	NB	SB	NB	SB
PM	910	690	1200	880
IP	460	730	650	790
HS	1110	780	1190	1130
HE	630	940	990	820
AADT	19200		23900	

2026	Base Case		Project	
	NB	SB	NB	SB
PM	480	450	480	450
IP	350	330	350	330
HS	630	480	690	490
HE	400	540	400	560
AADT	10900		11100	

2026	Base Case		Project	
	NB	SB	NB	SB
PM	0	0	500	730
IP	0	0	270	350
HS	0	0	450	780
HE	0	0	610	350
AADT	0		12100	

2026	Base Case		Project	
	NB	SB	NB	SB
PM	750	600	760	610
IP	490	420	500	430
HS	880	630	960	640
HE	550	630	550	660
AADT	15400		15600	

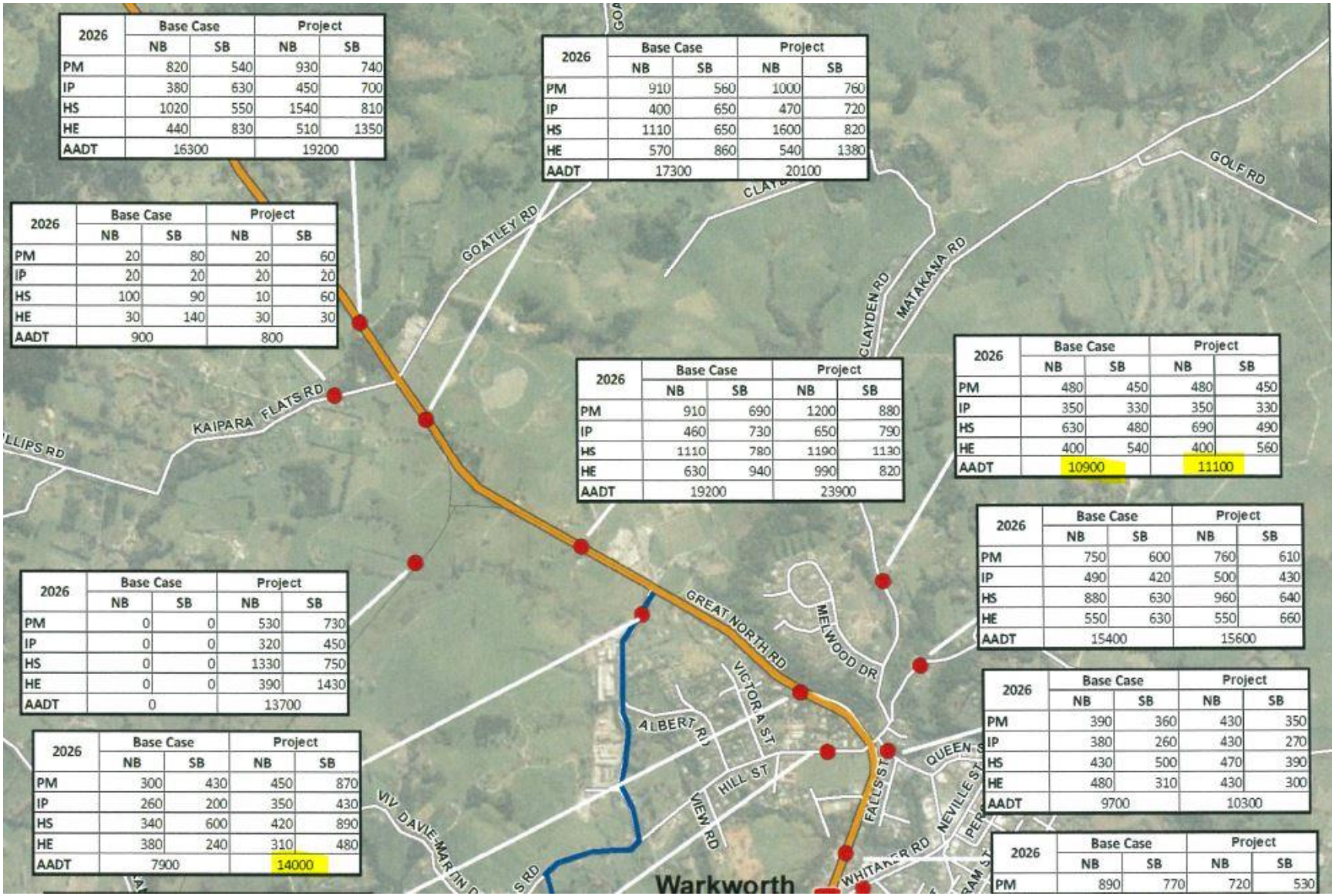
2026	Base Case		Project	
	NB	SB	NB	SB
PM	0	0	270	260
IP	0	0	120	200
HS	0	0	820	510
HE	0	0	190	210
AADT	0		5700	

2026	Base Case		Project	
	NB	SB	NB	SB
PM	390	360	430	350
IP	380	260	430	270
HS	430	500	470	390
HE	480	310	430	300
AADT	9700		10300	

2026	Base Case		Project	
	NB	SB	NB	SB
PM	300	430	450	870
IP	260	200	350	430
HS	340	600	420	890
HE	380	240	310	480
AADT	7900		14000	

2026	Base Case		Project	
	NB	SB	NB	SB
PM	890	770	720	530

Northern Junction (Revised)



2026	Base Case		Project	
	NB	SB	NB	SB
PM	820	540	930	740
IP	380	630	450	700
HS	1020	550	1540	810
HE	440	830	510	1350
AADT	16300		19200	

2026	Base Case		Project	
	NB	SB	NB	SB
PM	910	560	1000	760
IP	400	650	470	720
HS	1110	650	1600	820
HE	570	860	540	1380
AADT	17300		20100	

2026	Base Case		Project	
	NB	SB	NB	SB
PM	20	80	20	60
IP	20	20	20	20
HS	100	90	10	60
HE	30	140	30	30
AADT	900		800	

2026	Base Case		Project	
	NB	SB	NB	SB
PM	910	690	1200	880
IP	460	730	650	790
HS	1110	780	1190	1130
HE	630	940	990	820
AADT	19200		23900	

2026	Base Case		Project	
	NB	SB	NB	SB
PM	480	450	480	450
IP	350	330	350	330
HS	630	480	690	490
HE	400	540	400	560
AADT	10900		11100	

2026	Base Case		Project	
	NB	SB	NB	SB
PM	0	0	530	730
IP	0	0	320	450
HS	0	0	1330	750
HE	0	0	390	1430
AADT	0		13700	

2026	Base Case		Project	
	NB	SB	NB	SB
PM	750	600	760	610
IP	490	420	500	430
HS	880	630	960	640
HE	550	630	550	660
AADT	15400		15600	

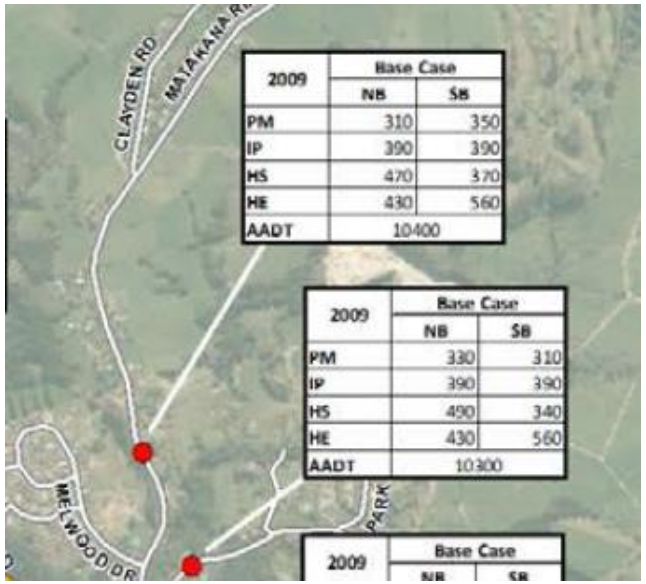
2026	Base Case		Project	
	NB	SB	NB	SB
PM	300	430	450	870
IP	260	200	350	430
HS	340	600	420	890
HE	380	240	310	480
AADT	7900		14000	

2026	Base Case		Project	
	NB	SB	NB	SB
PM	390	360	430	350
IP	380	260	430	270
HS	430	500	470	390
HE	480	310	430	300
AADT	9700		10300	

2026	Base Case		Project	
	NB	SB	NB	SB
PM	890	770	720	530

Matakana Road

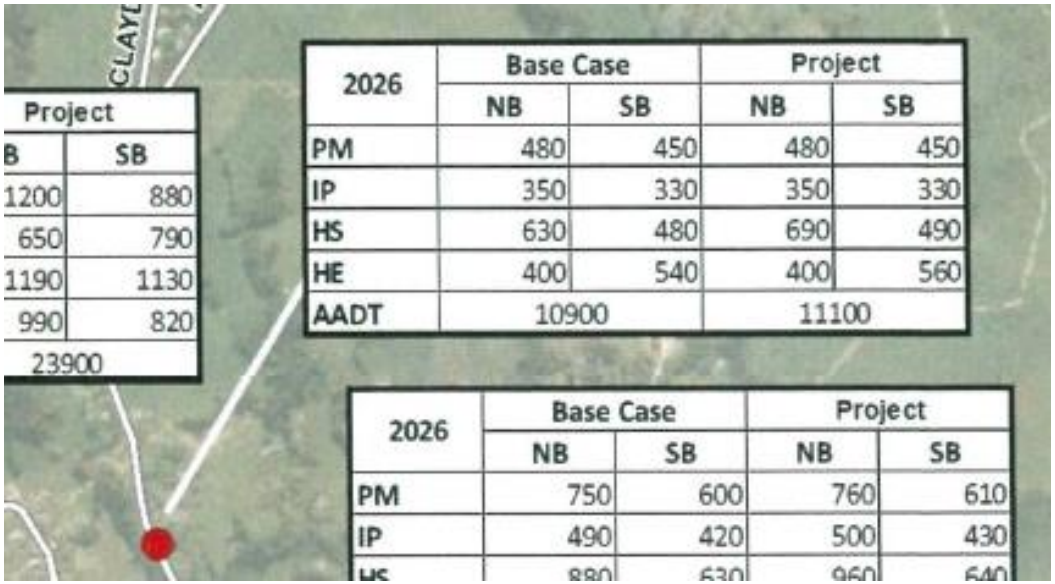
- 2009 Base Case: 10,400
- 2026 Base Case: 10,900
- Only 0.3% pa growth anticipated
- Base Case Holiday End volumes lower in 2026?



2009	Base Case	
	NB	SB
PM	310	350
IP	390	390
HS	470	370
HE	430	560
AADT	10400	

2009	Base Case	
	NB	SB
PM	330	310
IP	390	390
HS	490	340
HE	430	560
AADT	10300	

2009	Base Case	
	NB	SB

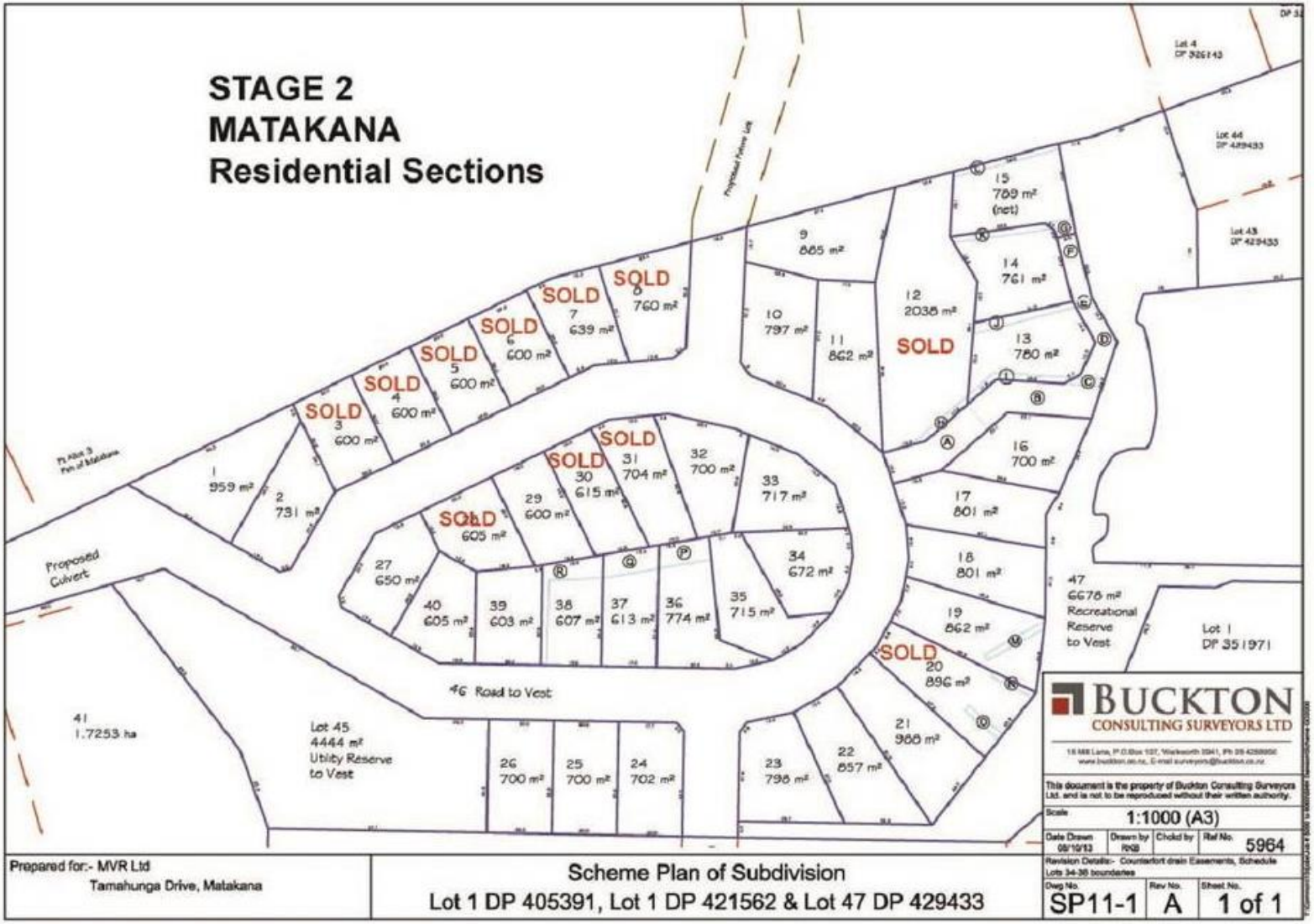


Project	
B	SB
1200	880
650	790
1190	1130
990	820
23900	

2026	Base Case		Project	
	NB	SB	NB	SB
PM	480	450	480	450
IP	350	330	350	330
HS	630	480	690	490
HE	400	540	400	560
AADT	10900		11100	

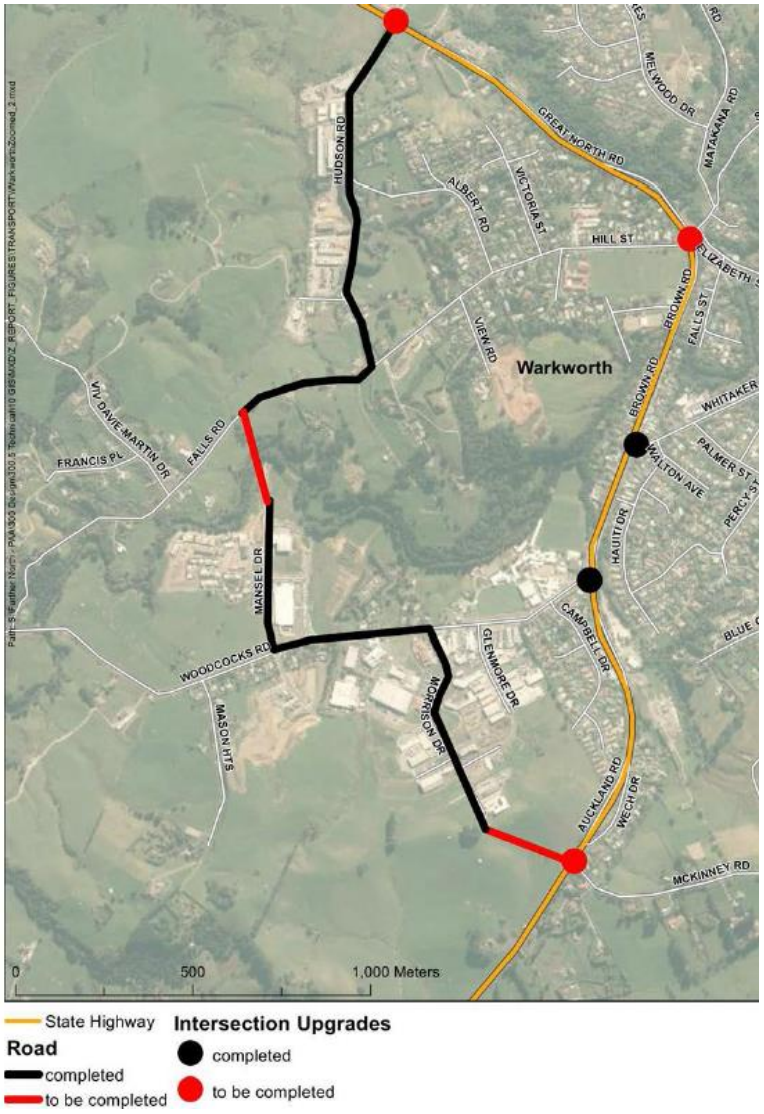
2026	Base Case		Project	
	NB	SB	NB	SB
PM	750	600	760	610
IP	490	420	500	430
HS	880	630	960	640

Matakana Sections



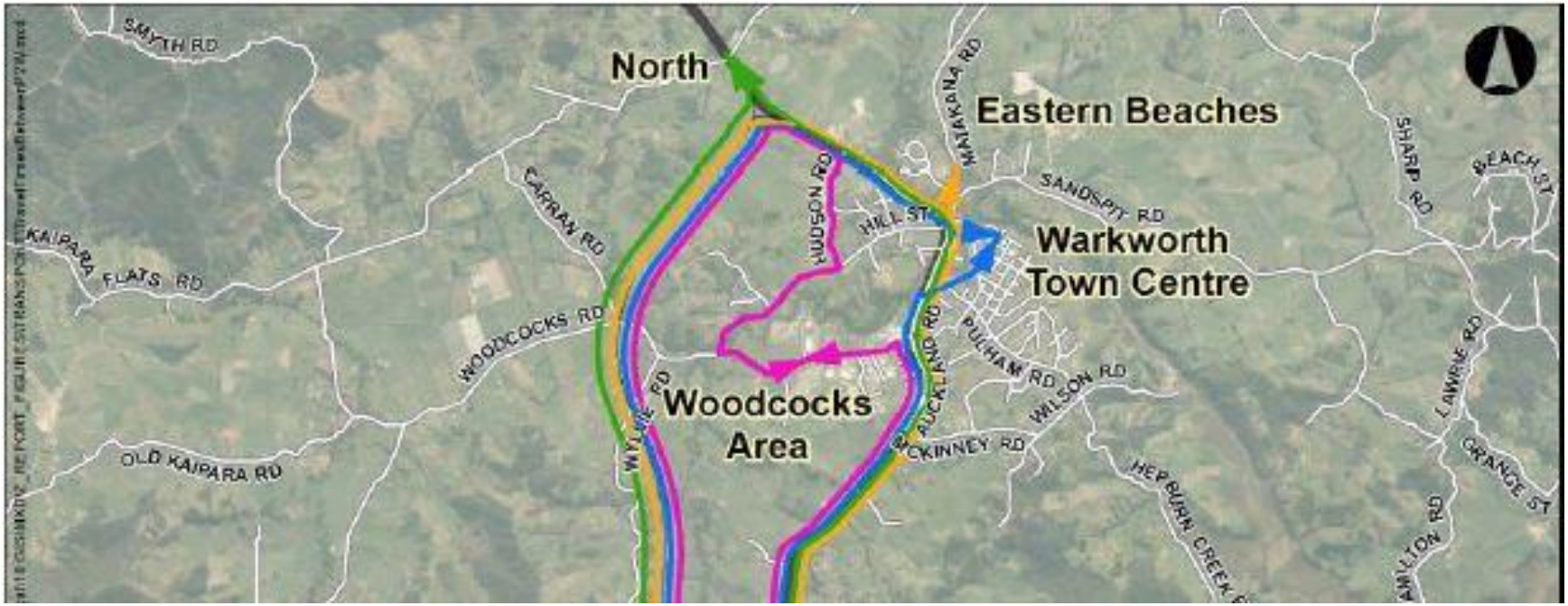
Western Collector

- Base Case includes:
  - Upgrade of the SH1 / Woodcocks Road intersection:
  - Upgrade of the SH1 / Whittaker Road intersection;
  - Upgrade to the SH1 / Hill Street intersection;
  - Upgrade to the SH1 / Hudson Street intersection;
  - Upgrade to the SH1 / McKinney Road intersection;
  - Addition of the Warkworth Western Collector Road (two lane, sub-arterial road) from McKinney Road to Hudson Road;



Travel Time Routes

- Western Collector not used for Base Case travel time modelling



Base Case Travel Times Overstated

Table 1: Northbound travel times (minutes) on key routes from south

Northbound from South to:		2009	2026 Base Case		
			2026 Base Case	Absolute change from 2009	% Change from 2009
North	PM	14.3	17.4	3.1	22%
	IP	14.1	16.7	2.6	18%
	HS	19	26.3	7.3	38%
	HE	14.3	17.9	3.6	25%
Warkworth Town Centre	PM	13	15.9	2.9	22%
	IP	13	15.3	2.3	18%
	HS	17.9	30	12.1	68%
	HE	13.2	16.7	3.5	27%
Woodcocks Area	PM	13.1	15.8	2.7	21%
	IP	12.6	14.7	2.1	17%
	HS	17.1	21.4	4.3	25%
	HE	12.7	15.2	2.5	20%
Eastern Beaches	PM	13.9	16.5	2.6	19%
	IP	13.9	15.8	1.9	14%
	HS	18.8	30.6	11.8	63%
	HE	14.1	17	2.9	21%

2026 Project Scenario

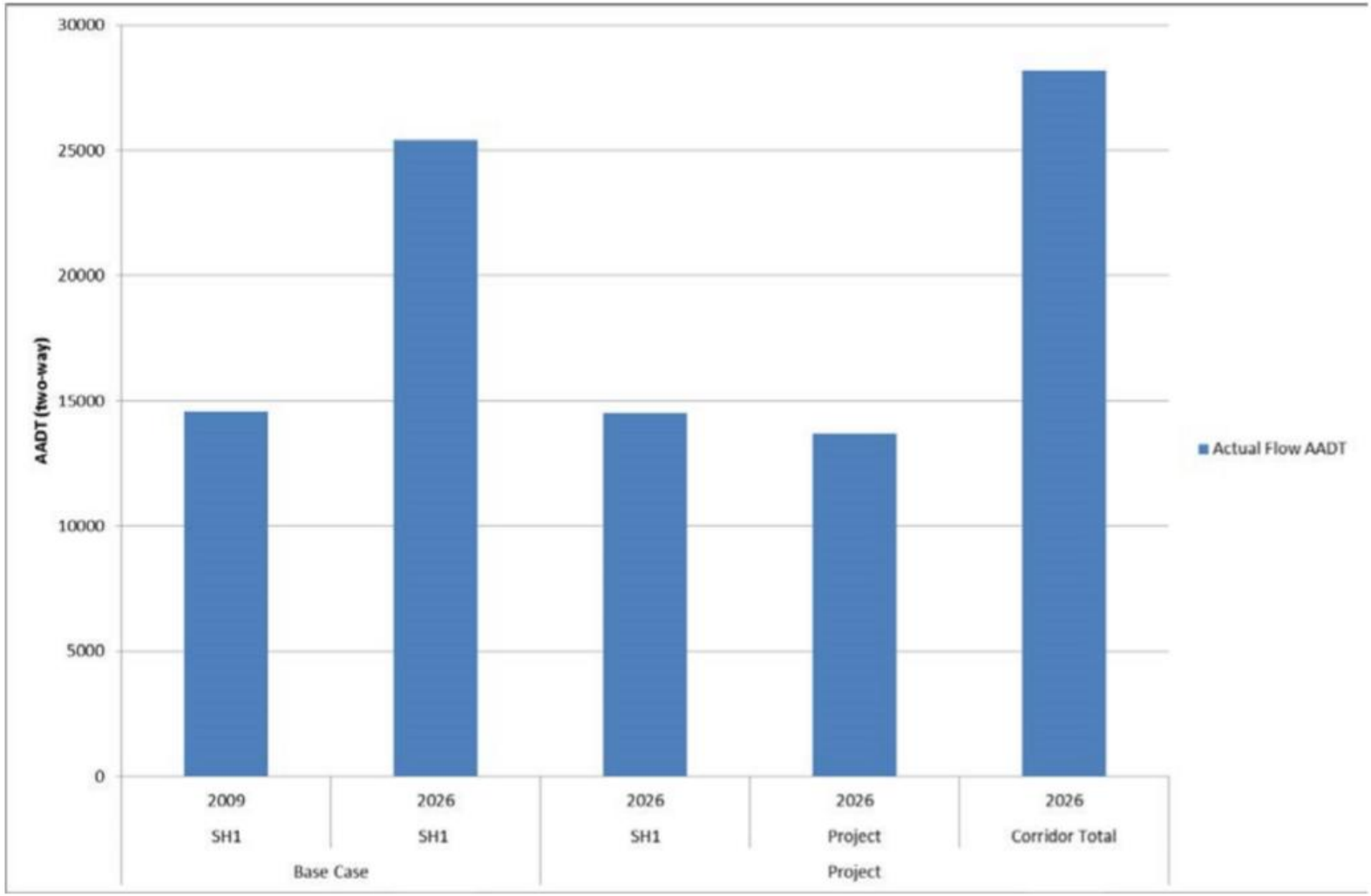


Figure 22: Traffic volumes between Pūhoi and Warkworth

Tolling

- Toll tariff of zero assumed for Project route
- In reality, road will be classified as a toll road
- No decision on the quantum of the toll has been made
- If a toll was applied to the Project, depending on the level of that toll there would likely be a reduction in traffic on the new project route and a corresponding increase in traffic on the existing state highway
- Significantly less benefits from Project, same environmental cost

NZTA Economic Evaluation Manual

- “If a proposal relies on traffic growth for a positive evaluation we will require sensitivity testing to determine the level of reliance on growth, and evidence to demonstrate any assumed growth rate is realistic and feasible.”
- Sensitivity testing done only on the 1% assumption, not the 4% assumption

Overseas Experience

- Brisbane Clem 7 Toll Road (2012)
  - BrisConnections forecast: 160,000 on opening
  - Independent forecast: 120,000 on opening
  - Actual: 77,000 on opening
  - Actual (tolled): 53,000 vpd
- US freeway projects
  - New Jersey Turnpike
  - Pennsylvania Turnpike
  - Delaware River Toll Bridge

Issue 1: Traffic Forecast Summary

- Northern Junction Issues
  - North / South split unknown
  - Hudson Road volumes of 14,000 inconceivable
- Matakana growth assumption is unrealistic
- Western Collector not used for travel time calculations
  - Base case travel time impacts overstated
- “No toll” assumption is unrealistic
  - Potentially a huge impact on Project route and SH1 / Hill St
  - An empty motorway is not a good environmental outcome
- Sensitivity Testing Insufficient
  - Only 1% variation tested
  - Goes against NZTA EEM guidelines

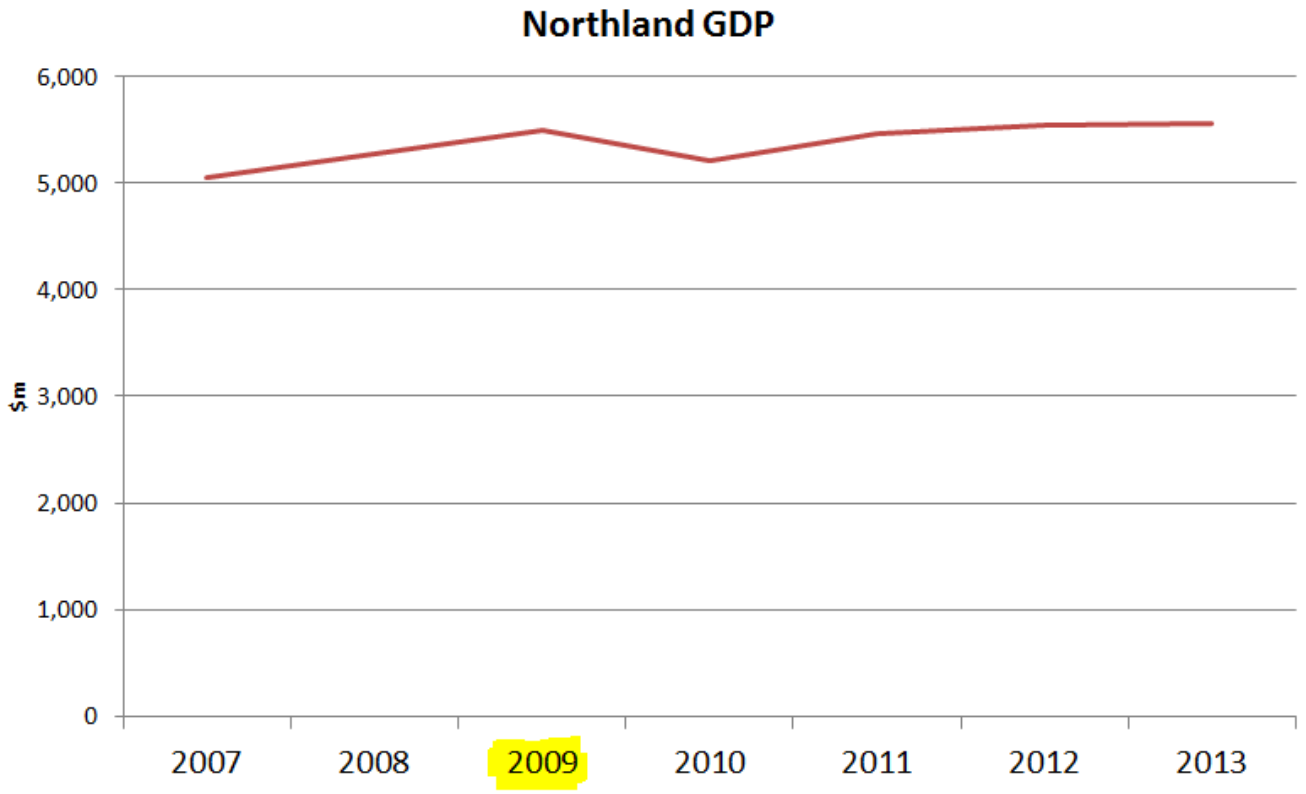
Issue 2: Economic Evidence

- Whether a supporting economic analysis consistent with the NZTA's Economic Evaluation Manual should be supplied

Claimed Economic Effects

	Significance	Positive Effects	Adverse effects	Potential for mitigation	Duration	Scale
High / Long Term / Regional	■	■	■	■	■	■
Moderate / Medium Term	■	■	■	■	■	■
Minor / Short Term / Local	■	■	■	■	■	■
ECONOMIC						
Increase in economic activity in Auckland and Northland during construction	■	■			■	■
Reductions in vehicle operating costs	■	■			■	■
Opportunities for commercial and residential development and economic growth in northern Auckland and Northland Regions	■	■			■	■
Effects of the Project on businesses on the existing SH1	■	■	■		■	■

“Economic Growth in Northland”



- Source: Statistics NZ
- NGTR opened 25 January 2009 – travel time saving of up to 9 minutes
- No subsequent growth in Northland’s economy

Travel Time Projections

Table 7: Northbound travel times (minutes) on key routes from south

Northbound from South to:		2009	2026 Base Case	Project 2026		
				2026 Project using fastest route	Absolute change from 2026 Base Case	% Change from 2026 Base Case
North	PM	14.3	17.4	10.2	-7.2	-41%
	IP	14.1	16.7	10.1	-6.6	-40%
	HS	19	26.3	10.7	-15.6	-59%
	HE	14.3	17.9	10.1	-7.8	-44%
Warkworth Town Centre	PM	13	15.9	14.7	-1.2	-8%
	IP	13	15.3	14.1	-1.2	-8%
	HS	17.9	30	15.4	-14.6	-49%
	HE	13.2	16.7	14.5	-2.2	-13%
Woodcocks Area	PM	13.1	15.8	14	-1.8	-11%
	IP	12.6	14.7	13.9	-0.8	-5%
	HS	17.1	21.4	14.3	-7.1	-33%
	HE	12.7	15.2	13.9	-1.3	-9%
Eastern Beaches	PM	13.9	16.5	14.3	-2.2	-13%
	IP	13.9	15.8	14.1	-1.7	-11%
	HS	18.8	30.6	14.8	-15.8	-52%
	HE	14.1	17	14	-3	-18%

Example: Basin Reserve Evidence In Chief

Economics and the Resource Management Act

3.9 The economic wellbeing of people and communities and the efficient use of resources are relevant considerations under the RMA. The Project will enable people and communities to provide for their economic wellbeing and represents an efficient use of resources.

Project Cost Benefit Analysis

3.10 The Transport Agency project evaluation procedures and database have been used to assess the efficiency of the Project. These procedures and database are based on international best practice and have been refined over many years on the basis of local and international research and investigation.

3.11 Using the Transport Agency Economic Evaluation Manual (**EEM**) procedures and database at the time Technical Report 17 was finalised (June, 2013), the Project achieved a BCR of 1.2.[1] In addition:

Issue 2: Economic Evidence Summary

- No proof of economic benefit
- No link to economic growth in Northland
- Economic evaluation is relevant for RMA and should be required
- NZTA should not be able to pick and choose when to supply an economic evaluation

Issue 3: Consideration of Alternatives

- Whether alternatives have been adequately considered

Context: RMA

- 171 (1) (b) - whether adequate consideration has been given to alternative sites, routes, or methods of undertaking the work
- 171 (1) (c) - whether the **work and designation** are reasonably necessary for achieving the **objectives** of the requiring authority for which the designation is sought

NZTA Objectives

- Increase long-term corridor capacity, improve route quality and safety (eg gradient, alignment, overtaking), improve freight movement and provide resilience in the wider State highway network **through the addition of a 4 lane route;**
- Increase travel time consistency and decrease travel times to and from the north end of the Johnstone's Hill tunnels and the north end of Warkworth;
- Alleviate congestion at Warkworth by providing a Warkworth bypass for through traffic; and
- Ensure the Warkworth to Wellsford section of the Pūhoi to Wellsford Project is not compromised.

Objective vs Work

- Separate true objectives from “work and designation”
- Ensure adequate consideration of alternatives
  - Project has a high environmental cost
  - Non motorway standard of road improvements should be considered
- Is a four lane route reasonably necessary?

Hill St Delays

- P 14 traffic assessment report

In addition to the Project, we made some changes to the assumed form of the Hill Street intersection. While the basic footprint of the intersection is assumed to generally remain the same as that assumed in the Base Case, the lane arrangements have been modified. The changes to the intersection as compared to the Base Case are summarised below:

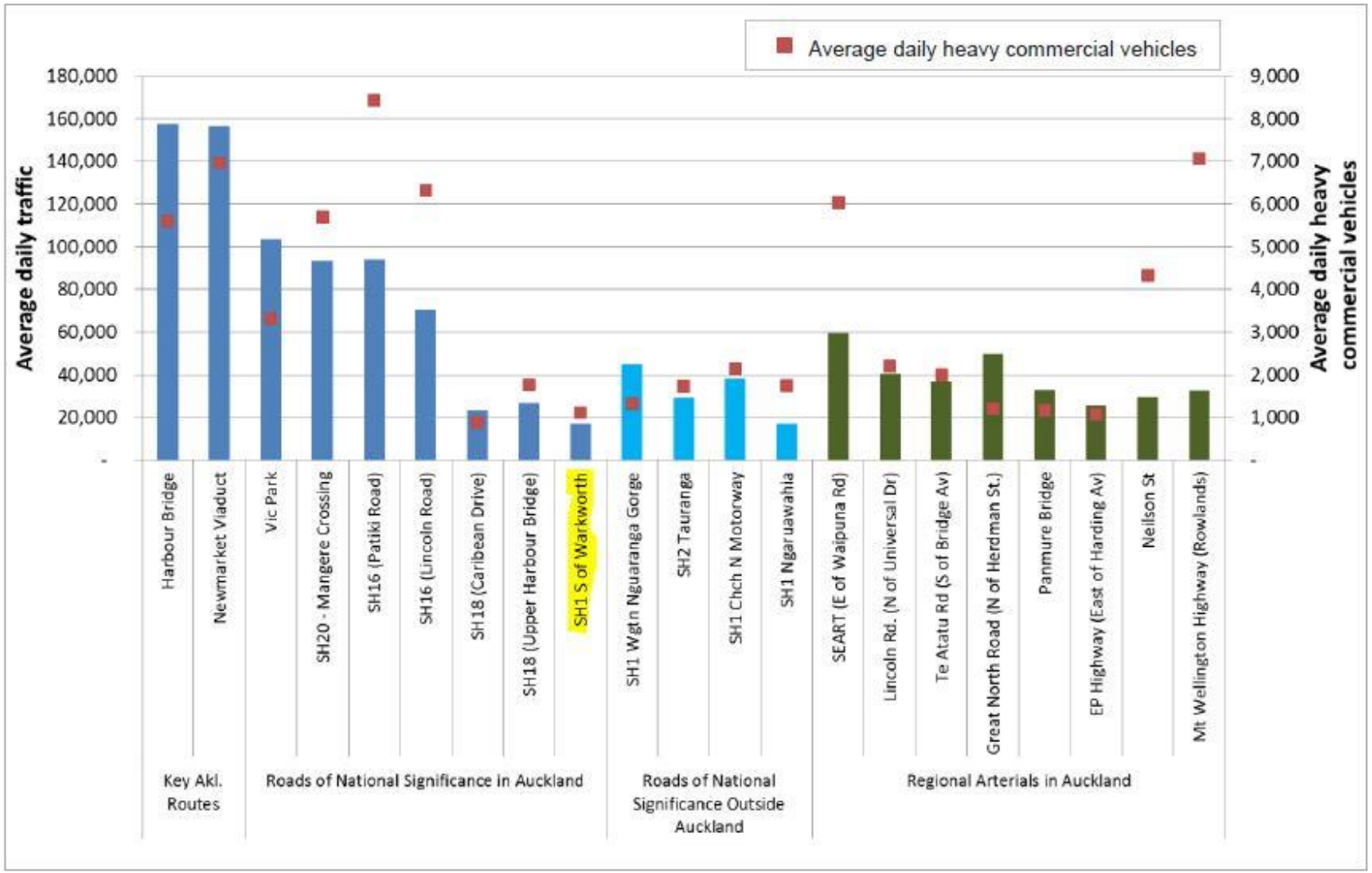
- The SH1 southbound approach is widened with an additional left turn lane to Sandspit Road is provided to cope with the increased demand. This movement from the north also becomes signalised rather than a free left turn;
- The lane allocation from the Sandspit Road approach changes to cater for the greater demand for the right turn movement by providing two right turning lanes (lanes 3 and 4) onto SH1 northbound. Lane 2 is remarked to provide for through movement to Hill Street and the left turn to SH1 Southbound. Lane 1 remains unchanged and provides the free left turn into Elizabeth Street; and
- The SH1 northbound, Hill Street and Elizabeth Street approaches remain the same as the Base Case.

We took this approach because of the change in travel patterns at the Hill Street intersection that we expect will occur following construction of the Project. Without these changes, delays at the Hill Street intersection were forecast to increase significantly. We therefore consider it feasible that some low cost changes would be made to this intersection to make it operate more efficiently in the future.

NZTA Proposal

- Capacity for 7,200 vehicles *per hour*
- Only 5,930 trips *per day* further north
- Scale is not warranted
- Huge environmental impacts

Relative Traffic Volumes



“Operation Lifesaver”

- 2010 study presented to the ARC
- Focused on Puhoi to Wellsford Corridor

NZTA Rebuttal Evidence

- Analysed in six paragraphs
- Design and construction “Not adequately scoped” by CBT
- Practical difficulties of construction not considered
- Easily take 6 – 7 years to complete
- Would remain the only through route between Puhoi and Warkworth
- “Ill conceived” and actual costs to be “many multiples” of CBT estimates
- Significantly inferior overall performance compared to Project

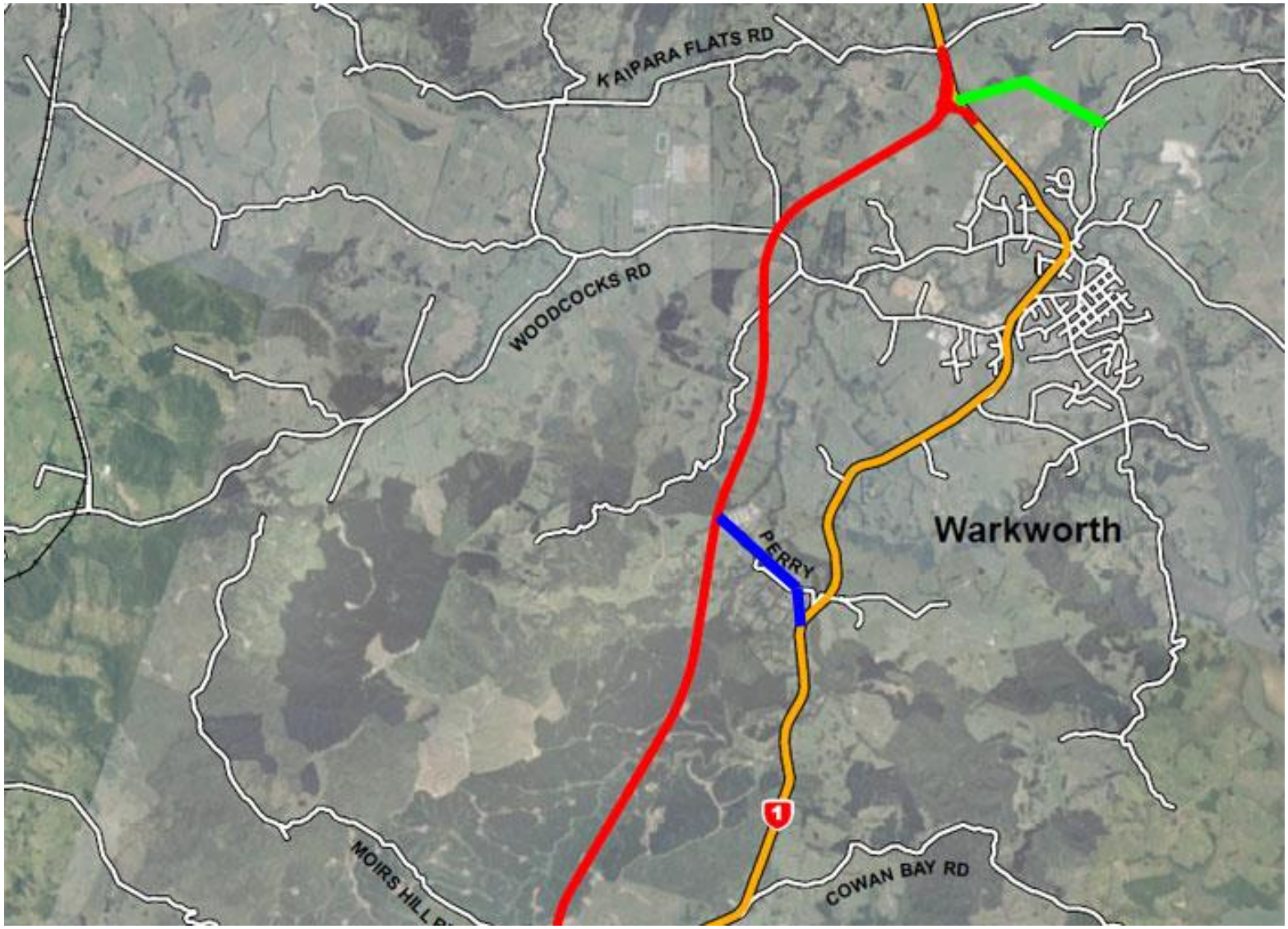
Better Transport Alternative

- Key Improvements
  - Warkworth Bypass
  - Pohuehue widening
  - Schedewys Hill
  - Safety upgrades
- Significantly less environmental impact
- Potentially superior BCR
- At least $500m cheaper

Warkworth Bypass / Matakana Link

- Approx 8 km bypass of Warkworth
- Matakana Link
- SH2 Mangatawhiri bypass
  - 2,000m of culverts
  - 7km
  - $46m (NZTA, 2008)
- Largely within existing designation
- Doesn’t preclude Puhoi section later

Warkworth Bypass



Pohuehue Widening

- Widen existing viaduct to provide three lanes
  - two south bound and one northbound
  - Upgrade edge protection barrier
- Cost $4.2m (NZTA, 2006)
- Benefit Cost Ratio 3.2

Schedewys Hill

- Shorten route and improve the geometry
- NZTA determined 3 options in 2002
  - $25.8m / BCR 1.3
  - $57m / BCR 1.4
  - 70m / BCR 1.3

Safety Upgrades

- Assessment Report has identified the following black spots
  - McKinney Road To Valerie Close South
  - Perry Road to Conwan Bay Road
  - Schedewys Hill
  - Mahurangi West Road to Hungry Creek Road

Better Transport Alternative Advantages

- Environmental impact minimal
- Cheaper to build
  - $240m (conservatively doubling previous estimates)
- Directly advantages all users SH1
  - Southern Link / Mataka Link
  - Warkworth
  - Woodcocks
  - Eastern Beaches
- Address Warkworth congestion to a greater degree than project
- Faster to implement
- Can be staged

Issue 3 (Alternatives) Summary

- Work and designation is not the objective
- Objective to alleviate Warkworth congestion will not be met
- Scale of Project not warranted
- Alternatives other than four lane expressway inadequately considered
- Better transport alternative

Issue 4: Safety

- Whether unsafe sections of the existing SH1 require mitigation

SH1 Relatively Unsafe

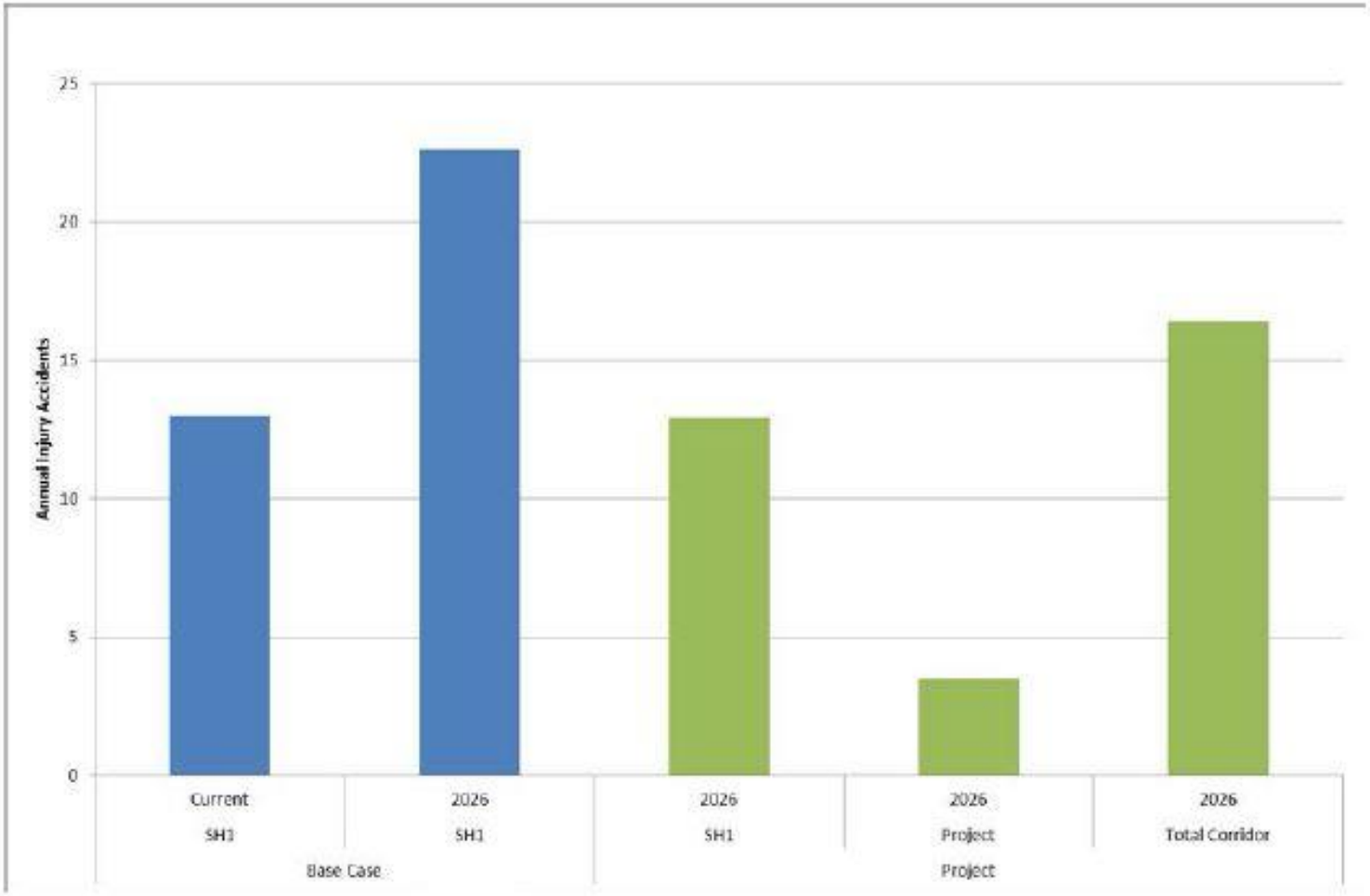


Figure 26: Forecast annual injury crashes - Pūhoi to Warkworth in 2026

Safety

- SH1 traffic volumes will not reduce from current
- Likely toll will force more on to relatively unsafe SH1
- Higher number of crashes than forecast
- Social equity – safety only for those that can afford the toll
- Unacceptably high crash rate
- 4 safety black spots on the existing road

Preferred Board Decision

- Recommend cancellation of the requirement
  - Project objectives not met
    - Warkworth congestion
    - Safety
- Significant adverse environment effects of construction without identified benefits

Alternative Board Decision

- Approval contingent on supporting evidence from:
  - Peer review of traffic assessment report, in particular a scenario analysis of tolling
  - EEM Economic assessment
  - Evaluation of alternatives, include inline upgrades
- Project amendments
  - Safety upgrades for existing SH1
  - Matakana link road / Hill Street