

Route Optimisation 2011-2012

Glossary

Auckland Council	(AC)
Auckland Transport	(AT)
Benefit Cost Ratio	(BCR)
Geographical Information System	(GIS)
New Zealand Transport Agency	(NZTA)
Public Transport	(PT)

Executive Summary

Route optimisation progress was reported to the AT Board in April and May. This report summarises the results for 2011-2012 and provides an update on the routes for the 2012-2013 programme.

Recommendations

It is recommended that the Board:

- i). Receive the report

Strategic Context

Route optimisation is an established programme to provide network efficiency through traffic signal route optimisation in conjunction with corridor operational assessment and minor improvements. The Integrated Transport Programme highlights this as a key mechanism to directly improve the efficiency and flow of vehicles, public transport, pedestrians and cyclists on the arterial roads of the Auckland region. The region-wide signal optimisation programme will provide a coordinated approach and regular review of the signal performance and operation on strategic routes throughout the wider region on a four year cycle.

Background

The April 2012 report to the AT Board provided an update on the Regional Route Optimisation Programme and results achieved to April 2012 and outlined the proposed four year programme.

The May 2012 report provided an overview of how the traffic signals are managed, monitored, adjusted, improved and what further measures are being implemented to gain efficiencies from the traffic lights.

The economic efficiencies of achieving optimisation are measured through the regional optimisation programme. The regional route optimisation programme is a key link between planning, infrastructure development and operational management to achieve network efficiency.

The 2011-2012 programme was the first year of a four year programme and achieved route optimisation on 10% of the arterial road network.

The combined estimated savings (first year) for 2011-2012 are:

- Time savings of 818,689 travel time hours
- CO₂ reduction of 1844 tonnes
- Fuel savings of 761 thousand litres

The complete results are presented in Attachment 1. The routes in the programme have been prioritised based on improvements starting with the most inefficient routes.

The route optimisation programme has a primary focus on traffic signal efficiency but the importance of corridor integration was identified and the investigations identify complementary works that can include changes to road markings, signage improvements, bus facilities, traffic restrictions at key times, pedestrian and cycle amenity improvements and complementary capital works that range from minor improvement works (e.g. kerb widening) to identifying work for major projects (e.g. Widening of a road to achieve a consistent number of lanes through a critical section). A summary of work identified for each route is shown in Attachment 2. The traffic systems component of the work has been completed and work is in progress on the some of the minor works identified.

The cost on which the BCR is based is for the full works completed to date. This includes core works for the investigations and traffic signals improvements (\$1.04m) and the cost of the complementary safety and PT improvement work estimated at \$0.2m. Further identified physical improvements for some of the routes is in progress. Total cost of the project for 2011-2012 was \$1.24m which was close to the budget allocation of \$1.28m. First year benefits are estimated at \$14.08m and the first year BCR for the project overall is 11.3. This will reduce slightly as the additional identified minor physical works are completed. The 2012-2013 budget for this project is approximately \$3m and the target is to achieve a further 30% of the arterial roads optimised.

The 2012-2013 programme commenced in late June and nine routes are in progress in the first quarter. The provisional programme developed in April 2012 has been revised to reflect an achievable programme of routes. The programme has been amended by removing routes where disruption is expected due to major works from either transport or utility projects. Some routes have been deferred till later in the programme and some works have been brought forward. The complete revised programme is shown in Attachment 3.

Next Steps

Progress the programme of work and provide a progress report in April 2013

Confirm the programme for 2013-2014 by April 2013 and commence work by 1 July 2013

Complete the programme of work for 2012-2013 and report in September 2013





Attachments

Attachment 1 Table of results for 2011-2012

Attachment 2 Table of complementary Capital Works for 2011-2012

Attachment 3 GIS map of 2012-2013 Programme

Agenda Item 11(i)

WRITTEN BY	Ken Lee-Jones Traffic Systems Manager Andrew Allen Road Corridor Operations Manager	 
RECOMMENDED by	Greg Edmonds Chief Operations Officer	
APPROVED FOR SUBMISSION by	David Warburton Chief Executive	

Route optimisation results (efficiency) July 2011 to June 2012

Route	Travel time savings (hours)	CO ₂ emission reduction (tonnes)	Fuel savings (litres)	First year benefits (\$m)
St Lukes	81,034	266	106,098	1.46
Symonds Street	234,052	1,005	402,429	4.41
Dominion Road	105,000	117	51,000	1.72
Reported April 2012	420,086	1388	559,527	7.59
Broadway	89,083	108.1	43,093	1.45
Great South Road (GSR) Broadway to Central Park	26,991	51	22,580	0.46
Great South Road– EP Highway to Princes St	105,966	63	29,313	1.67
Great South Road Mangere to Nicholson Ave	33,177	88	38,126	0.59
Greenlane East	8,978	32	14,271	0.17
Greenlane West	85,153	55	22,970	1.24
Kyber Pass	49,255	167	74,539	0.91
Additional results end June 2012	398,603	456	201,799	6.49
Total for 2011-2012	818,689	1,844	761,326	14.08



Route optimisation results Complementary Capital Works

July 2011 to June 2012

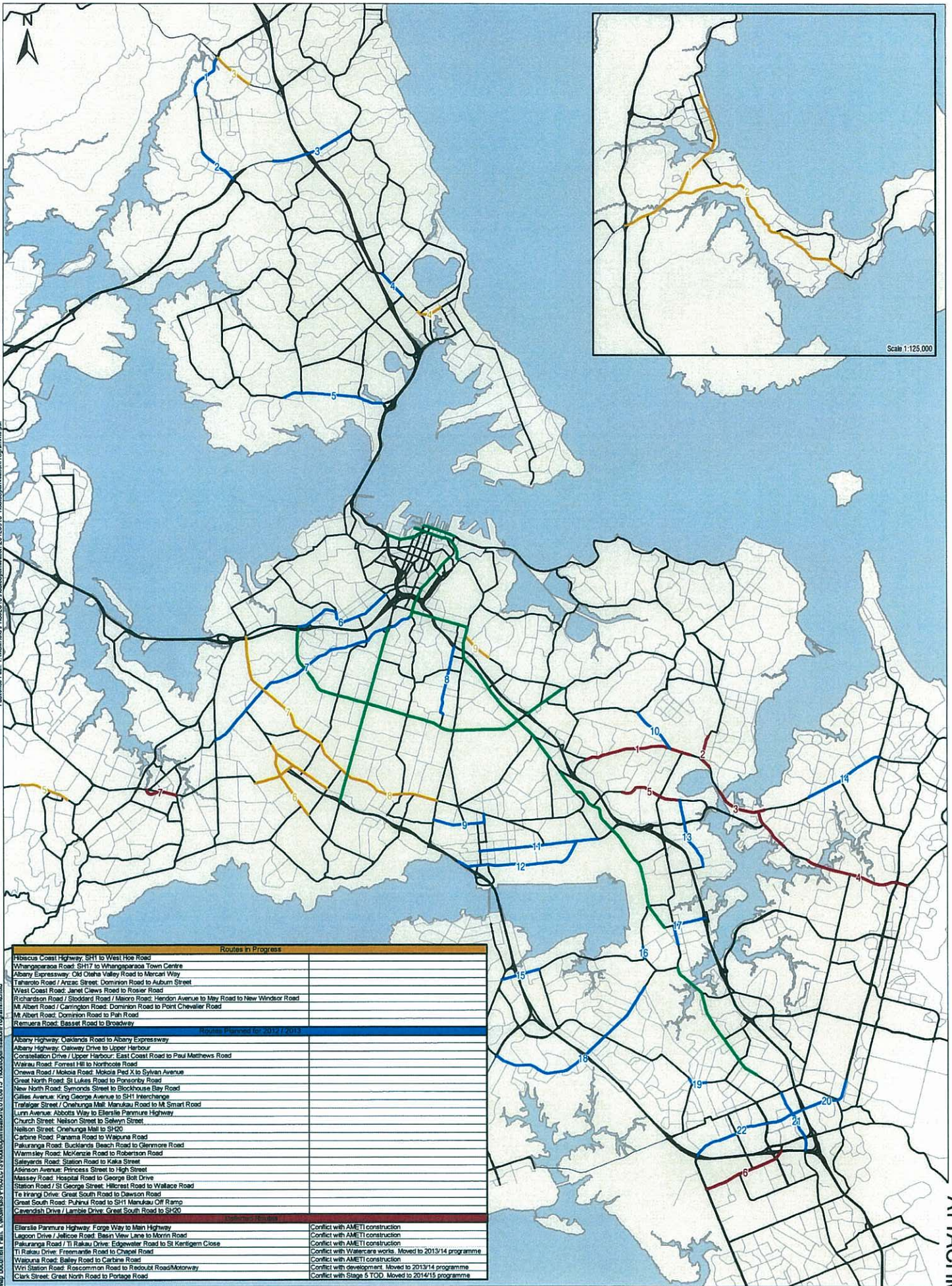
		Efficiency improvements				Public Transport improvements			Safety Improvements		
Traffic signals		Roadway improvements				Clearway	Bus stop improvements	Ped	Cycle	Lighting	
Timing changes & software upgrades	Intersection and traffic control	Mid block upgrades	Carriageway upgrades								
St Lukes	done	done									
Symonds Street	done	done									
Dominion Road	done	done									
Broadway	done	lane merge improve control loops improve	Yes - Rialto median upgrade lane improvements	Linemarking kerbing manholes catchpits	yes - loading bay AM & PM peak	Improved kerb alignment	pram crossings, tactile, push buttons, signage.	cycle boxes control loops	Improved		
Great South Road (GSR)Broadway to Central Park	done	control loops improve signage	Yes - Erin St and Cornwall Pk Ave pram crossings marking	Linemarking median upgrade			island improve mts, pram crossings, tactile, service covers	cycle lanes control loops cycle boxes			
Great South Road- EP Highway to Princes St	done	control loops improve signage		Widening drainage kerbing			pram crossings, tactile, sign age island improve mts		Improved		



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Efficiency improvements					Public Transport improvements			Safety Improvements		
Traffic signals		Roadway improvements			Clearway	Bus stop improvements	Ped	Cycle	Lighting	
Timing changes & software upgrades	Intersection and traffic control	Mid block upgrades	Carriageway upgrades							
Great South Road Mangere to Nicholson Ave	done	done		Linemarking signage catchpits			pram crossings, tactile, sign age			
Greenlane East	done	signal poles relocate		Linemarking			pram crossings, tactile, sign age		Improved	
Greenlane West	done	control loops improve signal poles relocate signage		Widening drainage kerbing		relocated bus stop	pram crossings, tactile, sign age, road marking	cycle lane cycle boxes control loops	Improved	
Khyber Pass	done	Yes lane merge improve control loops improve		drainage kerbing linemarking			pram crossings, tactile, push buttons, signage.	cycle boxes control loops	Improved	





Routes in Progress	
Hibiscus Coast Highway: SH17 to West Hoe Road	
Whangaparaoa Road: SH17 to Whangaparaoa Town Centre	
Albany Expressway: Old Otahua Valley Road to Mercat Way	
Taharoto Road / Anzac Street: Dominion Road to Auburn Street	
West Coast Road: Janet Cluys Road to Rover Road	
Richardson Road / Sibley Road / Milner Road: Hendon Avenue to May Road to New Windsor Road	
Mt Albert Road / Carrington Road: Dominion Road to Point Chevalier Road	
Mt Albert Road: Dominion Road to Pah Road	
Remuera Road: Bassett Road to Broadway	
Routes Planned 2012 / 2013	
Albany Highway: Oklands Road to Albany Expressway	
Albany Highway: Oakway Drive to Upper Harbour	
Constellation Drive / Upper Harbour: East Coast Road to Paul Mathews Road	
Wairau Road: Forrest Hill to Northcote Road	
Crowne Road / Mokone Road: Mokone Pk to Sylvan Avenue	
Great North Road: St Lukes Road to Ponsonby Road	
New North Road: Symonds Street to Blockhouse Bay Road	
Gilbert Avenue: King George Avenue to SH1 Interchange	
Trafalgar Street / Onahunga Hill: Manukau Road to Mt Smart Road	
Lynn Avenue: Abbots Way to Ellerslie Panmure Highway	
Church Street: Nelson Street to Selwyn Street	
Nelson Street: Onahunga Hill to SH20	
Carbine Road: Panama Road to Whangape Road	
Pakuranga Road: Bucklands Beach Road to Glenmore Road	
Warmsley Road: McKenzie Road to Robertson Road	
Sateyerts Road: Station Road to Kaka Street	
Adelson Avenue: Princess Street to High Street	
Massey Road: Hospital Road to George Bolt Drive	
Station Road / St George Street: Hillcrest Road to Wallace Road	
Te Hanga Drive: Great South Road to Dawson Road	
Great South Road: Puhuhu Road to SH1 Manukau Off Ramp	
Cavanish Drive / Lambie Drive: Great South Road to SH20	
Routes Deferred	
Ellerslie Panmure Highway: Forge Way to Main Highway	Conflict with AMETI construction
Lagoon Drive / Jellicoe Road: Bass View Lane to Morrin Road	Conflict with AMETI construction
Pakuranga Road / Ti Rakau Drive: Edgewater Road to St Kentsgem Close	Conflict with AMETI construction
Ti Rakau Drive: Fremantle Road to Chapel Road	Conflict with Watercare works. Moved to 2013/14 programme.
Waipuna Road: Bailey Road to Carbine Road	Conflict with AMETI construction
Wiri Station Road: Roscommon Road to Redoubt Road/Motorway	Conflict with development. Moved to 2013/14 programme
Clark Street: Great North Road to Portage Road	Conflict with Stage 5 TOD. Moved to 2014/15 programme

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Legend	
—	Complete Routes
—	Routes in Progress
—	Planned Routes
—	Deferred Routes

Route Optimisation Programme

2012 / 2013 / 2014

0 0.5 1 2 Kilometres			
Scale 1:92,872 @ A3			
Date: 15-08-2012			
Drawn By:	Draft	Rev1	Rev2
	CW		

Auckland Transport

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