REPORT 2
(1215/52/IM)

TRANSPORT SAFETY PROGRAMME

1. Purpose of Report

To provide the Committee with an overview of transport safety programmes and performance, and to present a proposal for a future programme that aligns with the government's Safer Journeys Road Safety Strategy to 2020.

2. Executive Summary

The last ten years have seen the Council introduce a number of new initiatives in transport safety, beginning in 2000, with criteria adopted to prioritise requests and expenditure for minor safety projects

In 2002, Wellington City was the first authority to adopt a comprehensive response to the then government's Road Safety Strategy to 2010. This project, called 'SaferRoads', was a leading edge initiative which, through engineering, enforcement and education was designed to reduce the city's road crashes by roughly one third when fully implemented.

SaferRoads aimed to reduce speeds in local streets by a combination of lower (40km/h) speed limits and traffic calming, and targeting crashes on main roads through black spot engineering measures. It came at a relatively high cost of $21m to be implemented over around seven years

A significant percentage of the overall project has now been implemented. Completed areas have been well received by the local community and show a reduction in crashes and operating speeds while improving walkability. As part of the SaferRoads programme, a blanket 40km/h speed limit was introduced in Newtown in early 2009. Surveys taken after the introduction of the 40km/h speed limit show a significant reduction in operating speeds and crashes.

Council adopted a 30km/h speed limit on Lambton Quay, lower Willis Street and some adjoining streets in 2005. Wellington was the first major urban authority to adopt a lower speed limit in their central business district. This has resulted in a reduction in severity of crashes involving vulnerable road users.

In 2008, Council approved walking and cycling policies. Both of these policies focus on improving road safety to facilitate increased active transport. The recent adoption of lower speed limits in Oriental Bay and on the Miramar Peninsula reflects Council's commitment to these policies.

Council adopted a programme in 2009 to reduce the speed limit to 30km/h in 21 of its suburban shopping areas. Nine of these have been approved for a lower speed limit. A recent survey of residents and retailers in five of these areas shows good community support. This is further reinforced by the results of the speed surveys taken before and after the change in speed limit.

In 2010 an extension of the 30km/h speed limit along the golden mile from Willis Street through to and including Courtenay Place, was approved, including new bus lanes through Manners Street. This incorporated a number of key intersections, including Taranaki Street, Courtenay Place and Manners Street, which has the highest crash rate in the central area.

The city-wide crash rate reduced through the 1990s and early 2000s then increased in line with national trends over the period of 2003 to 2007, and have decreased. Unfortunately, over the last decade, Wellington has remained one of the worst performing authorities for crashes involving pedestrians and cyclists.

Central Government has recently adopted the new road safety strategy for the period to 2020, Safer Journeys based on a safe systems approach. It contains a wide range of safety interventions relating to road and vehicle design, road user regulations, training and education. The main ways in which an urban road controlling authority like Wellington city can contribute to the achievement of the national strategy will be through action in the areas of high risk urban intersections and adoption of safer speed areas. These are therefore the focus of our proposed new strategy.

If Wellington City's transport safety programme is to continue to attract financial assistance from the New Zealand Transport Agency (NZTA) through the National Land Transport Programme we must show strategic alignment with the Safer Journeys Strategy.

Officers are therefore proposing to replace the SaferRoads programme with a two-pronged transport safety programme:

- Treat black spots on the main road network
- Adopt an urban speed limit of 40km/h on all roads in Wellington, with the exception of arterial or principal roads which would remain at their current posted speed limit.
- Continue to implement a safer speed limit of 30km/h in the twenty one suburban shopping areas and the golden mile (now 30km/h along its full length)

The proposal for bringing in the new safer speed areas is supported by best practice and international research and has been widely adopted overseas. Government agencies are strongly supportive of the adoption of this proposal.

Subject to SPC approval, officers propose to consult prior to Christmas this year, submissions heard in early 2012 and recommendations brought back to Committee in May 2012.

If approved, the safer speed areas will be rolled out from July 2012 to June 2015. In regard to funding, officers propose to achieve the introduction of the safer speed areas and the urban intersection black spot programme within the current allocated budget for CX445-SaferRoads.

3. Recommendations

Officers recommend that the Committee:

1. *Receive the information.*

2. *Agree in principle to the concept of safer speed areas of 40km/h on roads in Wellington City other than arterial and principal roads, 30km/h in suburban shopping areas, and 30km/h along the Golden Mile*

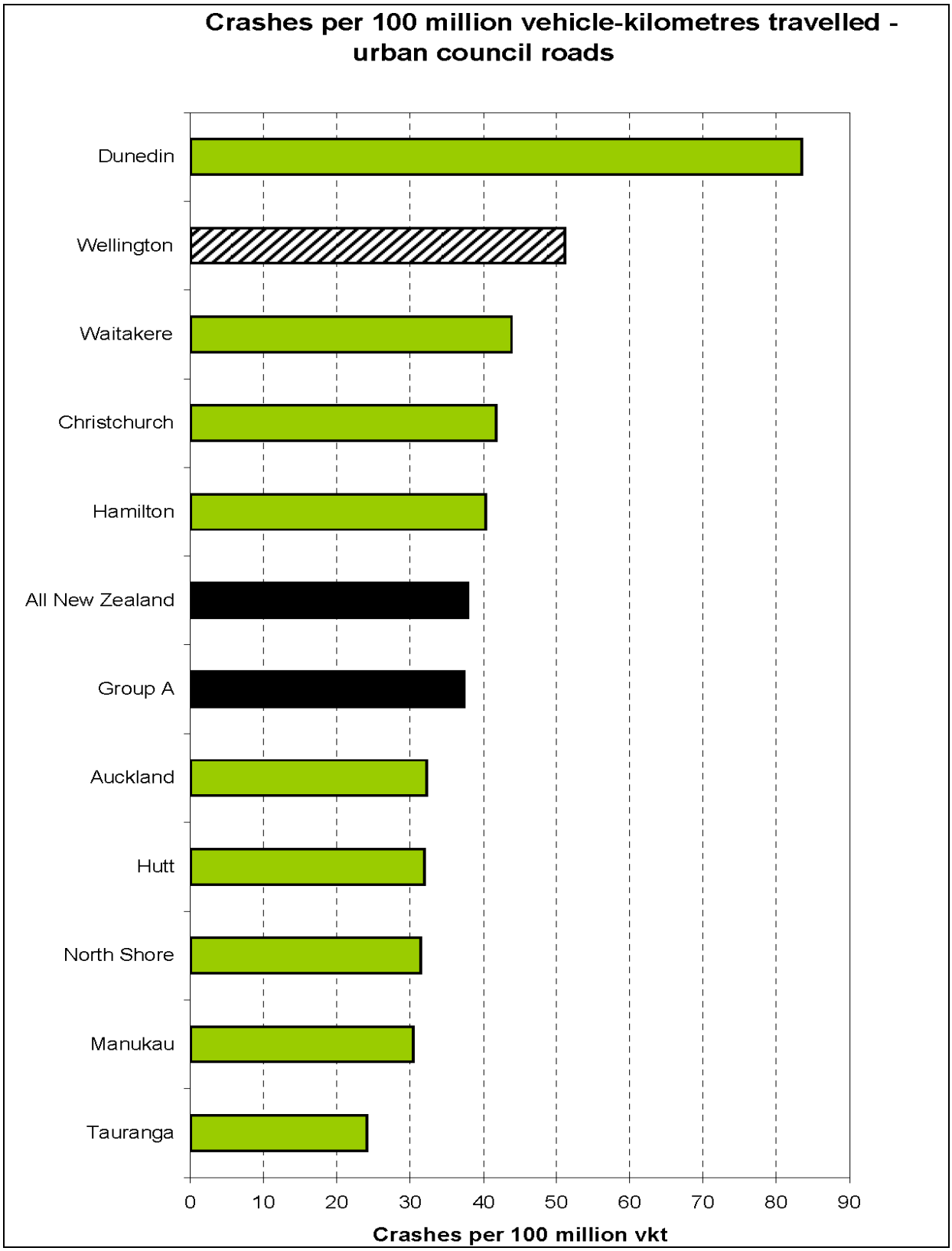
3. *Agree that officers undertake necessary consultation and engagement as required under the Speed Limits Bylaw and report back to enable Councillors to make an informed decision on whether to proceed with the proposed speed limit changes.*

4. *Note that this proposal can be funded from within existing budgets.*

4. Background

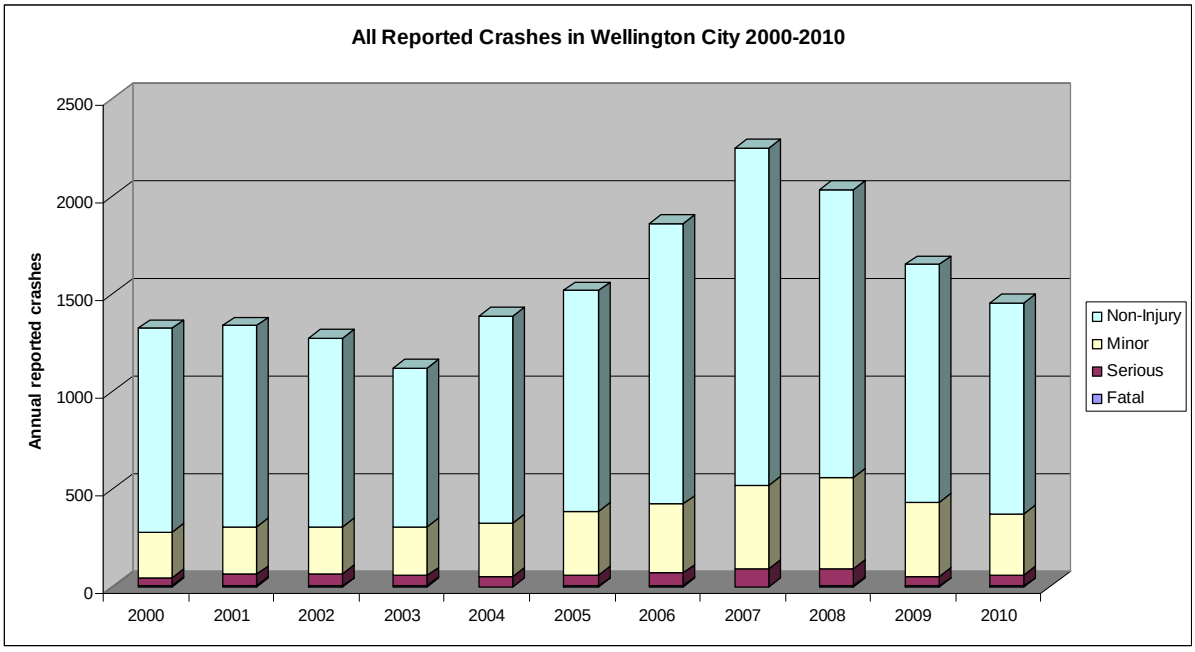
4.1 Performance of the network over the last 10 years

The graph below illustrates Wellington's poor safety performance compared to other urban authorities. This graph was taken from the 2005-2009 Wellington City road safety report prepared by the NZTA.

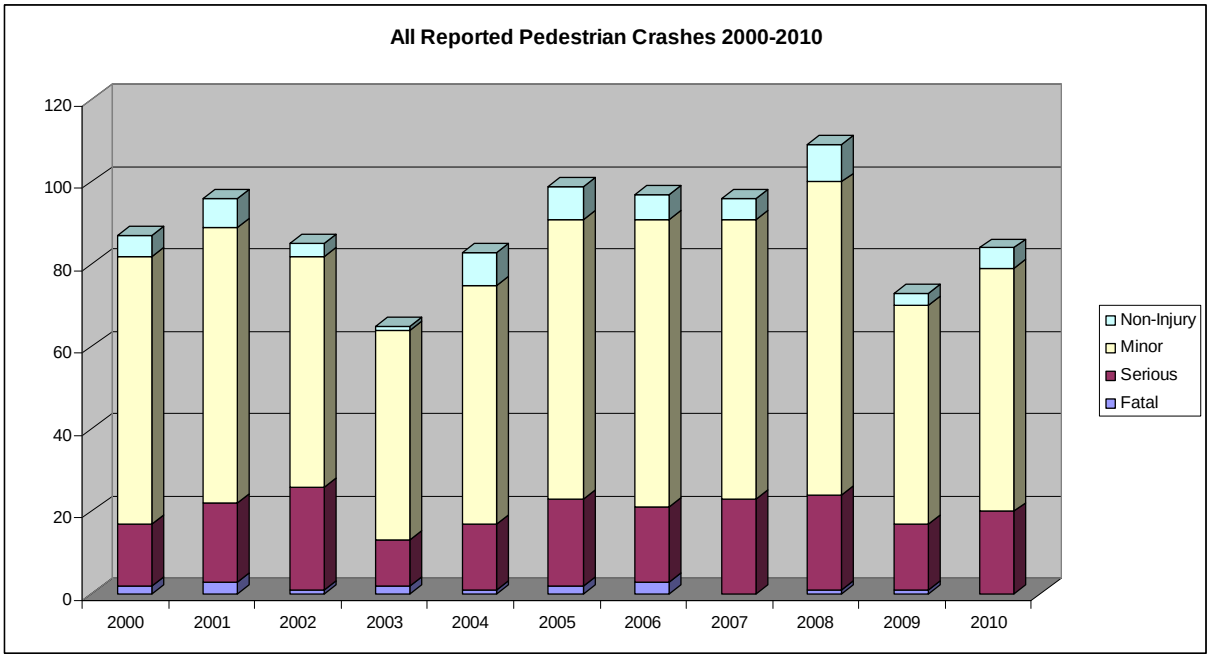


The tables and graphs below show the total number of reported crashes and social cost over the last 10 years and the breakdown of those involving pedestrians and cyclists.

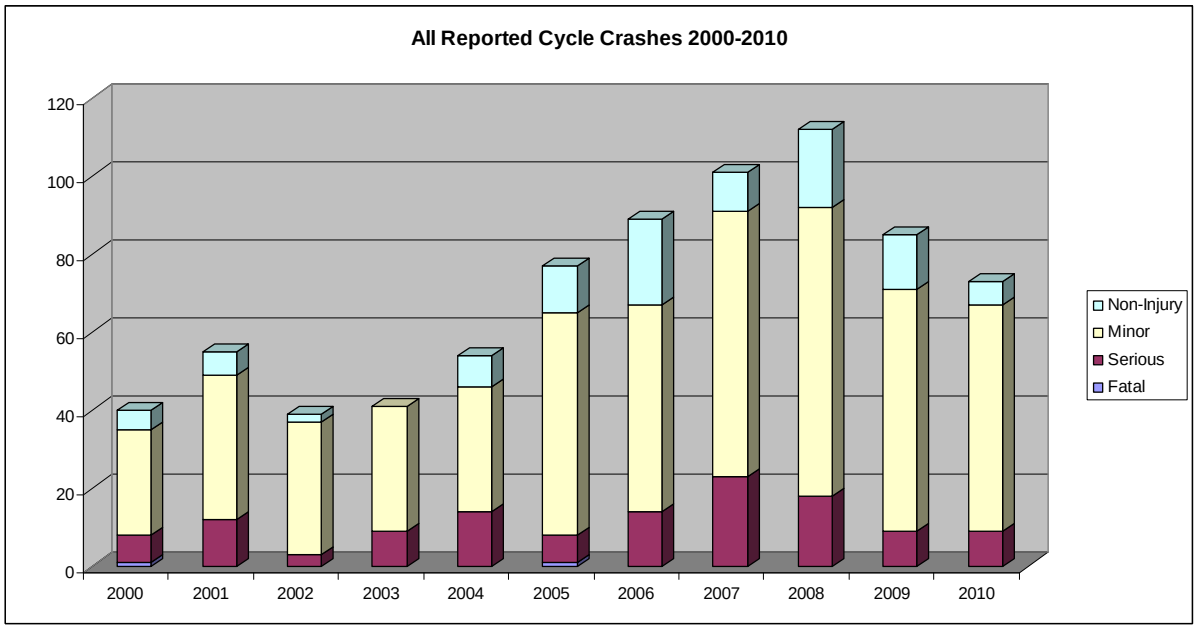
All Reported Wellington Crashes						
	Fatal	Serious	Minor	Non-Injury	Grand Total	Social Cost
2000	6	43	230	1,044	1,323	$105,852,702
2001	6	57	243	1,030	1,336	$108,260,705
2002	4	61	244	964	1,273	$102,728,509
2003	8	49	248	815	1,120	$108,341,232
2004	1	55	273	1,060	1,389	$90,936,552
2005	4	54	327	1,132	1,517	$111,406,752
2006	7	63	353	1,435	1,858	$141,577,620
2007	2	89	430	1,727	2,248	$153,649,460
2008	5	88	466	1,476	2,035	$158,592,142
2009	3	53	378	1,216	1,650	$109,810,662
2010	3	55	314	1,081	1,453	$104,561,462
Total	49	667	3,506	12,980	17,202	$1,295,717,798



All Reported Wellington Pedestrian Crashes						
	Fatal	Serious	Minor	Non-Injury	Grand Total	Social Cost
2000	2	15	65	5	87	$25,000,180
2001	3	19	67	7	96	$31,483,612
2002	1	25	56	3	85	$27,471,548
2003	2	11	51	1	65	$20,236,218
2004	1	16	58	8	83	$19,752,448
2005	2	21	68	8	99	$30,072,712
2006	3	18	70	6	97	$31,989,758
2007	0	23	68	5	96	$24,141,520
2008	1	23	76	9	109	$28,035,448
2009	1	16	53	3	73	$20,503,286
2010	0	20	59	5	84	$20,482,810
Total	16	207	691	60	974	$279,169,540



All Reported Wellington Cycle Crashes						
	Fatal	Serious	Minor	Non-Injury	Grand Total	Social Cost
2000	1	7	27	5	40	$12,471,180
2001	0	12	37	6	55	$12,007,096
2002	0	3	34	2	39	$4,994,032
2003	0	9	32	0	41	$8,912,000
2004	0	14	32	8	54	$12,676,448
2005	1	7	57	12	77	$13,975,568
2006	0	14	53	22	89	$16,541,446
2007	0	23	68	10	101	$24,371,040
2008	0	18	74	20	112	$20,548,420
2009	0	9	62	14	85	$12,238,668
2010	0	9	58	6	73	$11,690,572
Total	2	125	534	105	766	$150,426,470



4.2 Existing transport safety programmes

To meet our obligations to operate and maintain a safe transport system, a number of methods have been employed supporting traditional engineering, enforcement and education models.

Through our routine operation and maintenance of the network we take opportunities to make improvements that provide a higher level of safety. On top of the routine work a number of projects are provided specifically to address transport safety outcomes, these are:

- SaferRoads
- Suburban shopping area speed reduction programme

- Reactive safety programme
- Walking and cycling policy implementation
- Transport safety education

Further background information for these current programmes is provided below.

4.2.1 SaferRoads

In 2001 officers undertook a review of road safety delivery in Wellington. This was in response to the recently released national 'Road Safety Strategy to 2010', and the fact that road safety gains made in the previous two decades were diminishing.

Officers discovered that Wellington City's road safety/crash reduction position had matured less like similar authorities in New Zealand, and more aligned to areas of Europe and the UK. Unlike other NZ cities and districts, Wellington city was in a position where over half of reported crashes were happening away from the main roads. This was considered to be the result of two decades of intense black spot treatments and local area traffic management schemes, route action and mass action treatments ranging from better roadmarking, delineation, signage, road medians and street lighting to improved road surfaces.

A new approach for delivery of road safety was needed if we were to contribute to the government's target of a one-third reduction in all reported crashes by 2010. The approach selected for Wellington was an area-based approach targeting many of the one-off type crashes in the residential areas. This approach, based on successful international examples was accepted by Council, the government funding agency Transfund, Greater Wellington and the Land Transport Safety Authority.

In 2003, work began on a seven year, $21M programme called SaferRoads. This area-by-area, suburb-by-suburb approach included an area-wide reduction in the speed limit, from 50km/h to 40km/h.

The target for the project was to achieve a one third reduction in crashes in Wellington by 2010, supporting the national road safety targets. Three key areas were identified through which gains were predicted:

- Traditional traffic calming (10%)
- Area-wide lower speed limits (10%)
- A combination of education and enforcement (10%)

Combining these key factors with additional works in an area was considered to increase the success through having a "big hit".

As the SaferRoads programme progressed annual funding was reduced, slowing the programme and removing the "big hit" gain. The first area completed was Tawa, where the lengthy, complex process for reducing speed limits meant consultation to lower the speed limit occurred three years after the programme

commenced. By then we had lost momentum and the speed limit change proposal did not get the community support that was there at the beginning.

A review of the achievements of the SaferRoads programme shows that in all the areas where safety measures have been implemented there were noticeably fewer crashes when set against a national and citywide trend of increasing crash numbers over the period 2003-2010. In the areas of the city which have not received safety interventions, we have seen crash rates increasing more in line with national trends.

SaferRoads has been successfully delivered in the following areas:

- Tawa
- Ngaio / Khandallah
- Thorndon
- Northland / Wilton / Wadestown
- Karori
- Newtown
- Te Aro (under construction)

4.2.2 Suburban shopping area speed reduction programme

In June 2009 the Committee approved a programme of lower speed limits through 21 of its suburban shopping areas. For a number of years there have been requests from local communities, schools, businesses, police and residents' associations for speed limit reductions through suburban shopping centres. In line with Council's 2008 walking and cycling policies and the SaferRoads programme, officers developed a proposal using NZTA criteria, to lower the speed limits in a number of suburban shopping areas to 30km/h, with a four year implementation programme. It is expected that by lowering the speed limits in suburban shopping areas we will enhance safety for vulnerable road users, reduce the severity of crashes and reduce pollution which will create a more pleasant shopping and business environment.

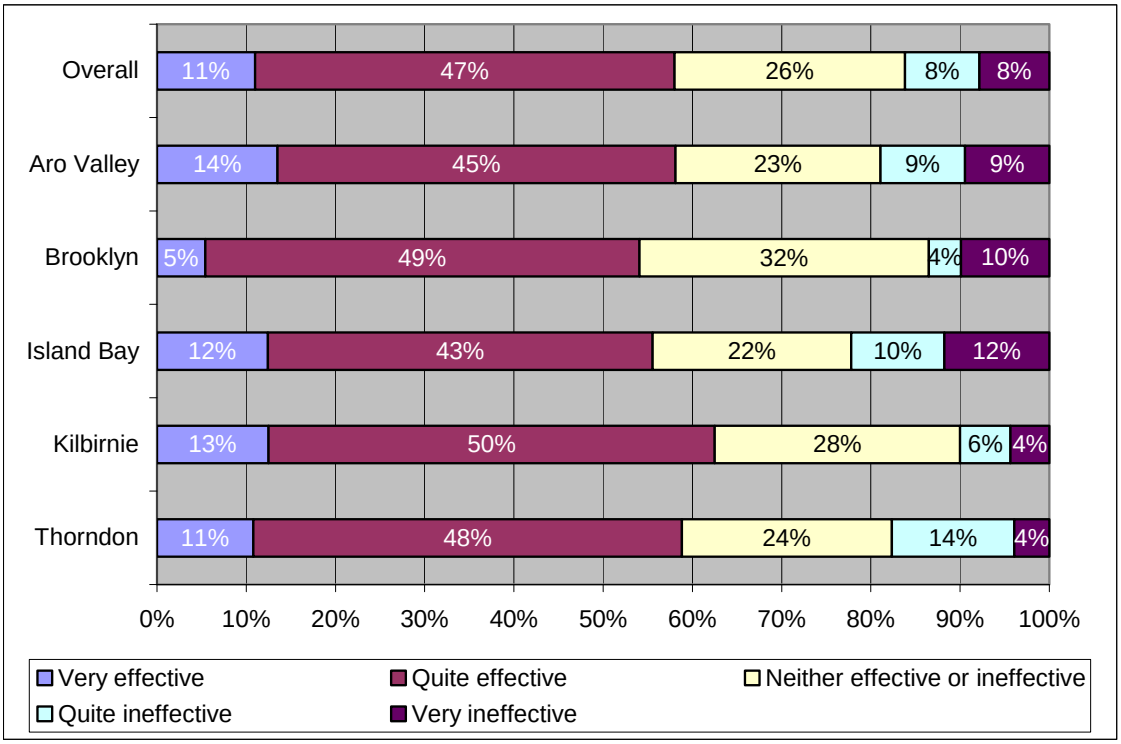
The first two suburban centres of Tinakori Road and Aro Valley proceeded through the Committee later that year. This was followed by approval to lower speed limits in the shopping centres in both Island Bay and Kilbirnie which came in to effect in September 2010 and then a lower limit for both Brooklyn and Kelburn. The most recent speed changes for the three suburban areas on the Miramar Peninsula will come into effect on 23 August 2011. The speed limit through the Newtown shopping area had previously been reduced through the SaferRoads programme.

More recently, SPC considered a report in August 2010 on a city-wide programme of speed reductions. In approving this report, Committee reconfirmed its commitment to lowering the speed limit to 30km/h in suburban shopping areas.

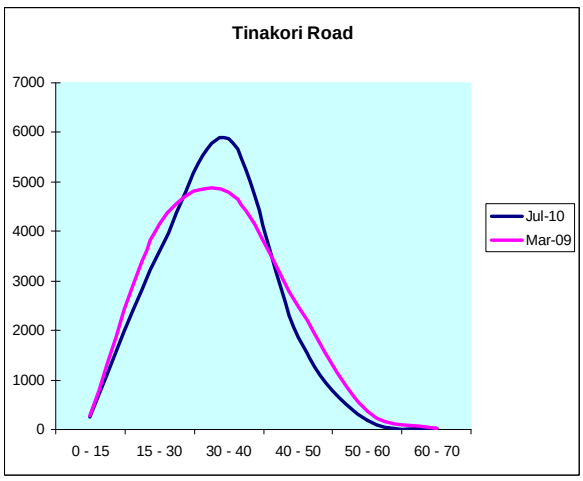
A recent preliminary survey of residents in the first five areas where 30km/h limits have been introduced has produced positive feedback. Considering that

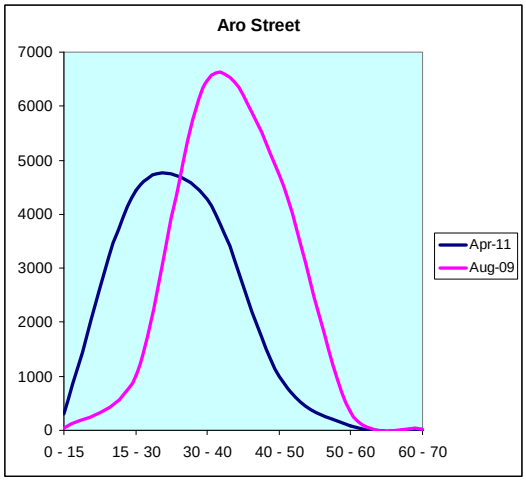
the schemes have only recently been introduced and that officers' expectations were for low key/subtle changes in road user behaviour, it was encouraging to note that a high number of residents took the time to reply and were generally supportive of the new speed limits. The residents' perception of actual safety benefits is surprisingly high.

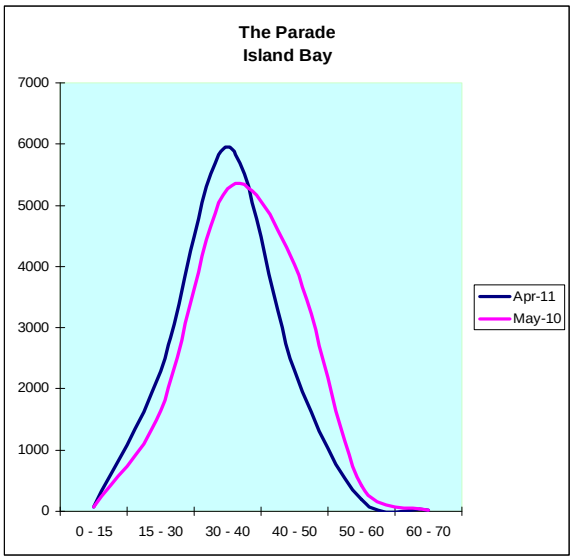
Across all areas, the majority of respondents (58%) consider the speed limit reductions to have been effective in promoting road safety.

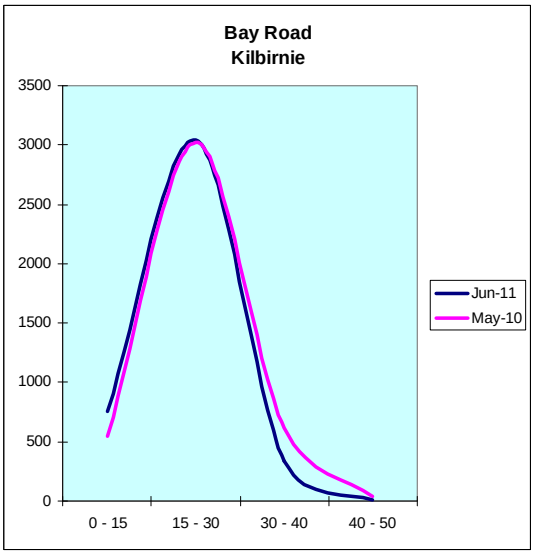


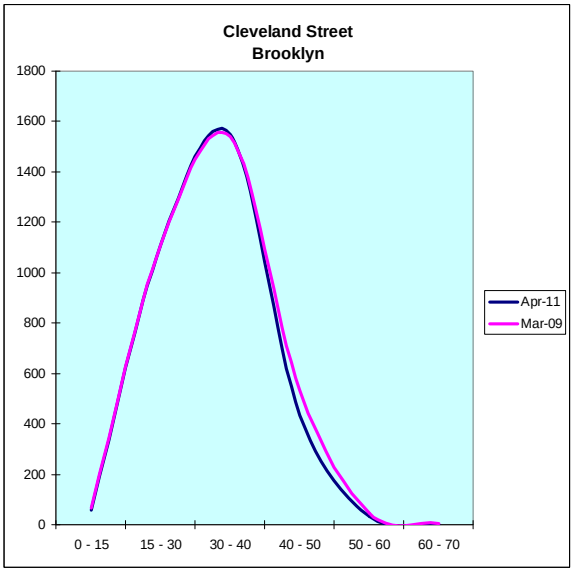
Pre and post speed surveys show positive results. While there was limited change in the mean speed through these areas, the 85th percentile speeds have reduced significantly; it is this reduction that will assist in delivering the greatest road safety gains.











In summary, at this early stage in the roll-out of the suburban centres speed limit reduction programme, early public opinion testing shows strong interest, support and surprisingly high levels of perceived safety benefits. Secondly, actual speed surveys are showing good results in reducing higher speeds through these areas. This is expected to translate directly into reduced crash risk and severity, and associated social costs.

4.2.3 Reactive safety programme

The transport safety team constantly receives requests from the community, Councillors and other parts of Council to provide infrastructural changes to the network to improve safety. From these, a list of potential projects is maintained with over 200 projects currently on the list. Current funding allows approximately 15 projects to be completed from this list annually.

Selection criteria approved by SPC in January 2000 enables officers to successfully prioritise projects, taking in account crash problems, user demands, best practice and the benefits and cost of the safety improvement proposal.

This selection criteria remains the platform for expenditure from the minor safety project.

4.2.4 Other speed limit changes

Prior to the 2003 speed setting rule, Wellington City Council had requested on several occasions for the then LTSA to lower the 100 km/h speed limit on the rural roads west of Karori and Johnsonville and to reduce the speed limit on the rural section of Middleton Road. The criteria for setting speed limits (including in the new rule) clearly requires that these roads should all be designated with a 100 km/h speed limit. In 2005 Land Transport New Zealand (now NZTA) developed a new methodology for setting speed limits in rural areas and invited Wellington City to participate in a trial of this methodology.

In July 2006 following consultation and bylaw approval we posted speed limits on the rural roads west of Karori and Johnsonville to 50 or 60 km/h and Middleton Road to 70 km/h. Land Transport NZ monitored speeds along these roads over the following 18 months and concluded that the reduction in speed limits has effectively reduced both mean and 85th percentile speeds. While this is encouraging, other sites in the trial from elsewhere in the country did not have the success we have had in Wellington and as a result, the trial methodology has not been approved for use in the national Speed Setting Rule which is disappointing.

In 2008 Council approved a package of speed limit changes on Ohiro Road, Hutt Road and Takapu Road. These changes reduced legal speeds on the Hutt Road from 100 and 70 km/h to 80 and 60 km/h, part of Takapu Road from 100 to 70km/h and reduced the length of Ohiro Road where the 70 km/h limit applies to better reflect frontage activity.

4.2.5 Walking and cycling policy implementation

A number of projects have been delivered under the action plan that came from the policies:

Hutt Road/ Thorndon Quay Commuter route

The commuter cycle route from Ngauranga Gorge to the railway station is one of the city's most used cycle routes. The most recent survey of commuter cyclists indicates that over 400 cyclists per hour travel along all or part of this route.

Along the Hutt Road between Centennial Highway and Onslow Road a shared path is provided on the eastern side of the road, which is generally satisfactory with little impediments for cyclists. The remainder of the Hutt Road also has a shared path. However, there are many points of conflict at the entrances to adjacent businesses. The shared footpath terminates at the intersection with Thorndon Quay, at which point cyclists share the road and cycle at the rear of angle parked cars.
The five years 2005-2009 resulted in 61 reported cycle crashes (6 serious, 45 minor injuries and 10 non-injury).

In order to cater for the increasing demand and to address the large number of reported crashes the following measures have been taken:

- Installation of a clearway and associated signage and roadmarking
- Highlighting conflict points at vehicle crossings using coloured paving
- Advanced stop boxes at traffic signals near the railway station.

Improvements to roads and roadsides around schools

The Council has adopted the school travel planning programme developed by NZTA and is rolling this out throughout Wellington in conjunction with Greater Wellington Regional Council.

The funding for the development and non-physical works implementation is provided for in the demand management and community programmes (DMCP) activity class of the National Land Transport Programme. A package of works will address safety concerns identified by each school community as affecting the ability to use active modes as a means of travel to and from school.

We are currently working with 18 schools on identifying and remedying unsafe areas around these schools

Examples of types of improvements are:

- Active school warning signs installed at all schools in Wellington
- Engineering measures to make improvements to areas of concern highlighted by the school community
- Provision of pedestrian crossings, with suitable kerb extensions and school patrol equipment.

Improvements to roads and roadsides within a short walk of Wellington CBD

Community street reviews have been undertaken to identify deficiencies in the footpath network in areas within a short walking distance from the CBD. This follows journey to work census data analysis that has identified catchments that could have significantly more walking trips. Route analysis has been undertaken on routes from Northland and Kelburn into the CBD. The community street review process identifies maintenance, upgrades and new works required to provide high quality walking routes into the CBD.

It is proposed to continue the community street review process in other inner city suburbs, such as Mt Cook, Mt Victoria, Brooklyn and Wadestown to identify deficiencies and remedial actions required to improve and enhance walking routes to and from these suburbs.

Examples of treatments required as identified in the first community street reviews include:

- Route signage and route markers, including walking times to and from key destinations
- Kerb extensions
- Refuge islands
- Footpath extensions

4.2.6 Transport safety education

The Council conducts ongoing road safety education initiatives. Current campaigns include:

- Checkpoints for child restraints
- Moped and motorcycle safety
- Intersection safety
- Cycle lights promotion
- Pedestrian safety
- Supporting the school patrols.

Work in this area is funded through the DMCP activity class at a rate of 75%. There is a strong emphasis on road controlling authorities working with their communities to deliver road safety information in these communities. We offer grants to community programmes and work closely with our partners on the Safe & Sustainable Transport Reference Group (SASTRG).

5. Discussion

While evidence suggests SaferRoads has had a positive effect on crash rates where it has been implemented, the programme has been relatively high cost involving significant levels of traffic calming in residential streets, and has fallen well behind its original seven year implementation period as a result of redirected funding.

Officers believe it is timely to review the programme and develop a new road safety plan for Wellington, closely aligned with the government's new Safer Journeys Road Safety Strategy 2010-2020. This new plan will draw from the latest best practice both in New Zealand and overseas and be strongly aligned with the NZTA's funding allocation priorities.

5.1 Safer Journeys

In 2009 the Ministry of Transport released Safer Journeys, New Zealand's Road Safety Strategy 2010-2020. The strategy focuses on the following areas of concern:
Areas of high concern:

- Reducing alcohol/drug impaired driving

- Increasing the safety of young drivers
- Safer roads and roadsides
- Safer speeds
- Increasing the safety of motorcycling

Areas of medium concern:

- Improving the safety of the light vehicle fleet
- Safer walking and cycling
- Improving the safety of heavy vehicles
- Reducing the impact of fatigue
- Addressing distraction

Areas for continued focus and emerging issues:

- Increasing the level of restraint use
- Reducing the impact of high-risk drivers
- Increasing the safety of older New Zealanders.

Through our transport safety education and awareness programme supported by NZTA, Wellington City Council is able to target most of these areas of concern.

However, as an urban road controlling authority there are limitations to what can be implemented under this funding to achieve significant gains. Officers recommend a focus on the following areas:

Areas of high concern:

- Safe roads and roadsides
- Safe speeds

Areas of medium concern:

- Safe walking and cycling

When looking at Wellington City and examining how it is proposed that these areas be addressed, it is suggested that for safe roads and roadsides the focus is on improvements at high risk urban intersections and a new approach to safety on urban mixed-use arterials. For safe speeds the one key action applicable to Wellington City is to increase the adoption of lower speed limits in urban areas.

In regard to the area of medium concern, safe walking and cycling, we propose to focus on improving safety of our roads and roadsides and realigning speed limits in residential areas. We propose that our safety reduction efforts will also align strongly with this new approach.

5.2 Proposal

Officers propose a two-pronged approach for Wellington, led by the Government's Safer Journeys project and tailored to Wellington. This will follow on logically from the work undertaken in the previous decade through the SaferRoads project.

The first approach is to focus on black spot engineering treatments on arterial and principal roads. This work will focus on crash reduction, including improvements for walking and cycling and the inclusion of bus priority where applicable.

The second approach is for the adoption of a safe speed area approach on all roads other than principal or arterial.
The remainder of this report covers each of these propositions in more depth and explores the interventions, benefits, costs and hurdles to implementation.

5.3 Black spots

Crash black spots are defined as locations having five or more reported injury crashes over a five year period.

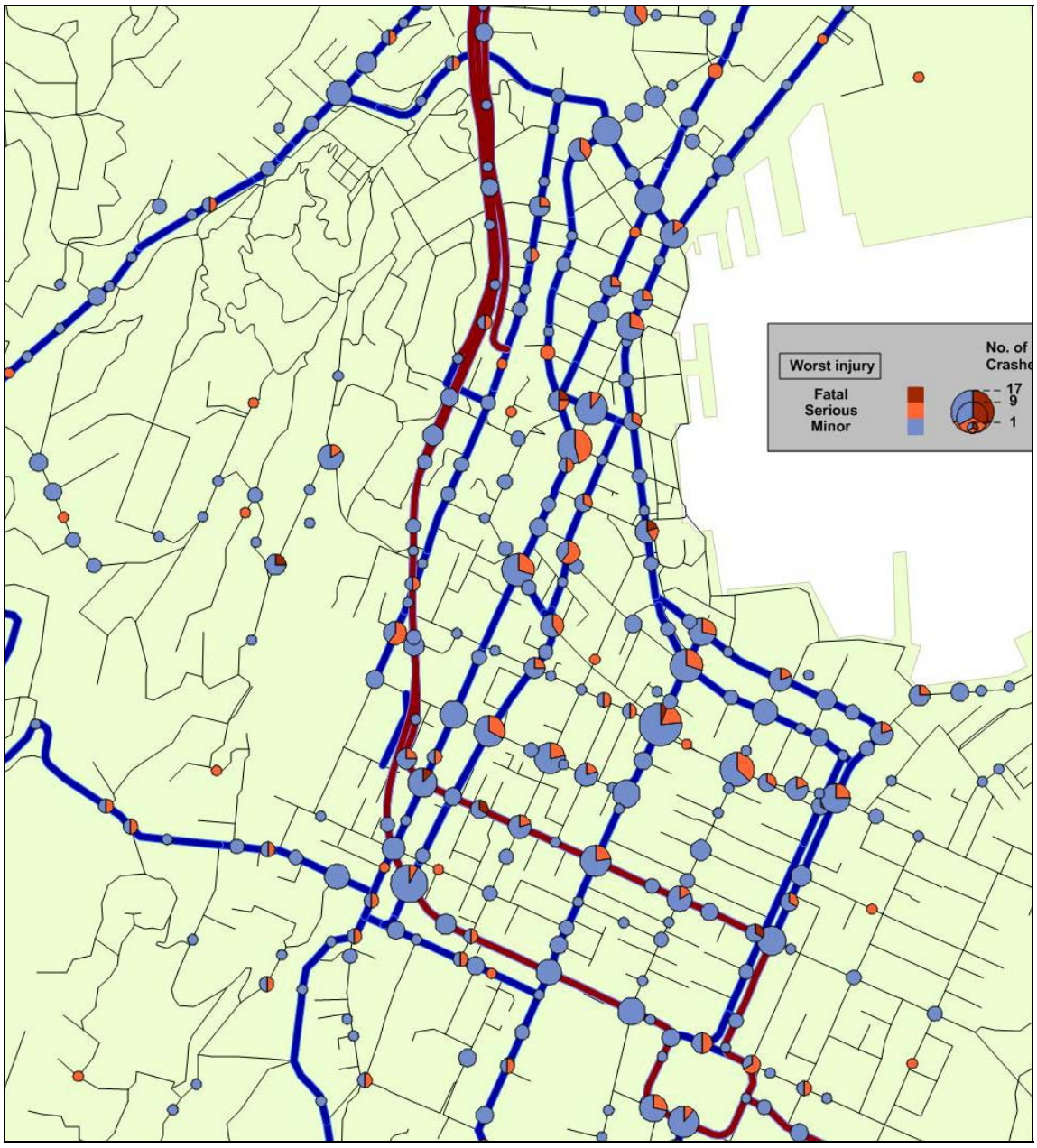
Traditionally black spot treatments are used to target crash reduction investment. Wellington City undertook comprehensive investigation and remedial works during the 80's and 90's. Many black spot sites were on their second or third iteration when the Council changed its road safety focus from black spots to the SaferRoads area-wide treatments.

The table below shows the top 25 Wellington black spots ranked by reported crash numbers for the period 2006-2010. Sites under control of NZTA as part of SH1 shaded in red. Sites shaded yellow are those where remedial works are planned as part of bus priority rollout and those shaded in green are where work has recently been undertaken.

This leaves eight of the 25 sites where it is possible to plan interventions to reduce the risk of further injury crashes. This is generally the case for most of our black spot sites no matter how we rank the crashes. Our worst sites are on our busiest roads, often on the principal network and have either recently had interventions or are proposed to in the near future.

CRASH ROAD		SIDE ROAD	2006	2007	2008	2009	2010	TOTAL	FATAL	SERIOUS	MINOR	Total Cost of Crashes
TARANAKI ST	I	COURTENAY PLACE	4	4	2	2	5	17	1	3	13	$6.25M
1N/1075/524	I	VICTORIA ST	0	3	1	5	4	13	0	1	12	$1.50M
COURTENAY PLACE	I	TORY ST	1	6	2	1	1	11	0	4	7	$3.34M
THORNDON QUAY	I	MOORE ST	2	3	3	1	2	11	0	0	11	$0.74M
WILLIS ST	I	WILLESTON ST	1	5	3	1	1	11	0	5	6	$3.97M
1N/1076/1835 RUAHINE	I	WELLINGTON ROAD	0	3	5	2	0	10	0	1	9	$1.30M
CUSTOMHOUSE QUAY	I	HUNTER ST	5	1	4	0	0	10	0	1	9	$1.35M
WAKEFIELD ST	I	TARANAKI ST	2	4	2	0	2	10	0	3	7	$2.59M
WILLIS ST	I	MANNERS ST	1	2	5	1	1	10	0	3	7	$2.60M
1N/1075/1569 RUGBY	I	ADELAIDE ROAD	4	2	1	2	0	9	0	1	8	$1.28M
1N/1076/2110	I	KILBIRNIE CRESCENT	0	2	2	1	4	9	0	0	9	$0.60M
ADELAIDE ROAD	I	JOHN ST	3	1	4	1	0	9	0	0	9	$0.61M
GHUZNEE ST	I	CUBA ST	0	3	3	3	0	9	0	2	7	$1.87M
GHUZNEE ST	I	VICTORIA ST	2	4	1	1	1	9	0	3	6	$2.53M
RIDDIFORD ST	I	HALL ST	3	0	5	1	0	9	0	2	7	$1.90M
TARANAKI ST	I	VIVIAN ST	3	1	4	0	1	9	0	2	7	$1.92M
1N/1060/7217	I	TYERS ROAD	1	3	1	3	0	8	0	1	7	$1.50M
1N/1075/1266	I	HOME ST	1	2	1	1	3	8	0	0	8	$.541M
1N/1075/300	I	WILLIS ST	1	4	0	2	1	8	1	0	7	$3.75M
FEATHERSTON ST	I	WHITMORE ST	3	1	4	0	0	8	0	0	8	$0.54M
LAMBTON QUAY	I	BOWEN ST	2	2	2	2	0	8	0	0	8	$0.54M
MAJORIBANKS ST	I	KENT TERRACE	3	2	1	1	1	8	0	2	6	$1.84M
PARK ROAD	I	MIRAMAR AVENUE	2	1	1	2	2	8	0	2	6	$1.82M
RIDDIFORD ST	I	REGINA TERRACE	1	1	0	2	4	8	0	2	6	$1.80M
1N/1075/1277 BUCKLE	I	TASMAN ST	1	1	3	1	1	7	0	0	7	$0.47M

The next diagram shows black spot locations in the central area for reported crashes between 2006 and 2010. Wellington's number one black spot is shown at the intersection of Taranaki Street, Courtenay Place and Manners Street which has had 17 reported injury crashes. Many of the other black spots have a large proportion of minor injury crashes and are difficult to gain sufficient crash reduction to secure financial assistance from the NZTA.



Officers are currently undertaking a study of all intersections across the city to determine which ones are reporting higher numbers of crashes when compared with typical intersections carrying a similar volume of traffic elsewhere in the country.

This approach was trialled successfully in Christchurch and was to form the basis of their crash reduction programme before their attention was diverted to responding to their earthquake.

We expect to conclude this investigation prior to finalising the programme to be included in NZTA funding applications in September this year which will also facilitate inclusion in the LTP process. This will help to prioritise intersection interventions.

For a project to gain subsidy from the NZTA each black spot will need to undergo a crash reduction study to identify the crash cause. A suitable design will then be prepared to address crash causes before an assessment can be made on the expected percentage reduction in crashes, calculating on any disbenefits (normally increased travel time) and the cost of implementing the project.

5.4 Safe Speed Areas

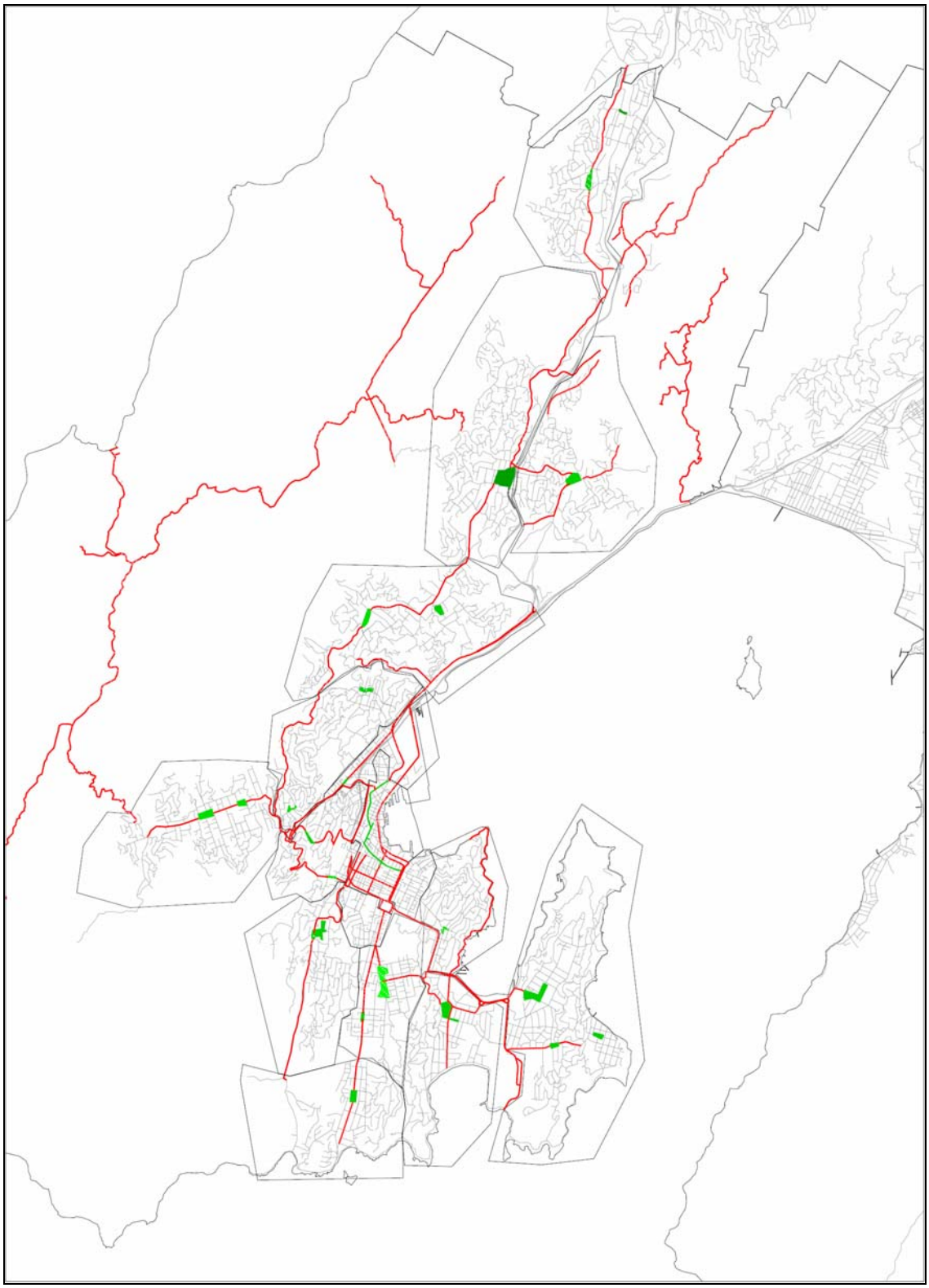
5.4.1 Proposal

When examining the current best practice approach, there are a number of cities worldwide that have successfully adopted a blanket 30km/h speed limit on local/residential streets. Other cities have adopted a 40km/h speed limit.

Officers believe the latter approach is more appropriate in Wellington; it will produce good crash savings and economic return on investment, be simpler to implement and have minimal effect on vehicle travel times. Therefore we propose that a blanket 40 km/h limit be placed over the entire city with the following exceptions:

Roads under jurisdiction of NZTA	Retain existing limit
Principal Roads	Retain existing limit
Roads through suburban shopping areas	30 km/h
Golden Mile	30 km/h

The following map shows roads retaining existing speed limits in red, roads proposed to have a 30 km/h speed limit in green. All remaining roads would have the blanket 40 km/h restriction applied.



Wellington currently has seven 30km/h speed limits in areas where there is significant conflict between vehicles, cyclists, pedestrians and parking. These include the whole of the Golden Mile plus a number of suburban shopping areas. The Newtown area is already subject to a 40km/h safe speed limit in the residential streets with the main roads (e.g Constable Street) remaining at 50km/h. After about 12 month's operation of this scheme, the results are encouraging with both traffic speeds and crashes reducing.

Many countries have introduced either 30 or 40km/h area-wide safe speed limits since the 1990's. Traditionally, schemes incorporated traffic calming measures to reinforce the speed limit (with an exception being in Scotland where most schemes relied mainly on signage and road markings to gain acceptance of the limit). More recently, due to the relatively high cost of physical traffic calming measures, an increasing number of safe road schemes have been introduced relying mainly on signage and road markings to achieve compliance with the speed limits.

Typically, area wide 'safe speed" reductions have reported the following common outcomes:

a) A reduction in injury crashes
b) Environmental benefits:
   - Reduced fuel consumption
   - Reduced air pollution
   - Reduced noise
c) High public approval particularly from cyclists and pedestrians
d) Reduction in average speeds with a greater reduction at the higher speeds
e) Insignificant increases to journey times
f) A low level of enforcement required

The following table illustrates international examples and provides a sample of the schemes that have been examined while researching for a possible 'safe roads' scheme for Wellington.

Location	Safe Speed	Comment
California	25mph (40km/h)	All residential streets
Vancouver	40km/h	Most residential streets
Adelaide	40km/h	19 precincts
Unley (South Australia)	40km/h	City wide since 1999
Graz (Austria)	30km/h	City wide since 1992
Berlin	30km/h	70% of roading network
Portsmouth (UK)	20mph (32km/h)	94% of network (410km)
Edinburgh	20mph (32km/h)	40 kilometres of network

The crash reduction achieved is directly related to the percentage reduction in speed. There is no doubt that introducing a 30km/h 'safe speed' environment in Wellington residential areas would achieve a larger percentage reduction in both speed and injury crashes.

There are major challenges however in introducing a generally self-enforcing 30km/h safe speed in Wellington. There would be a significant cost in providing physical measures to achieve a high degree of self-enforcement. For example the City of Hull (UK) has over 1500 speed humps in its 32km/h zones. Many of the London Boroughs have introduced 32km/h areas which are enforced with a large number of speed cameras. A separate body was established (London Safety Camera Partnership) to provide this enforcement.

Portsmouth (UK) has introduced a 32km/h safe speed scheme in 94% of its roading network using only signage and road markings. The average speed before implementation across the whole area was mostly equal to or less than 38.4km/h. Additional signage was used in those streets where the average speed exceeded this speed. The average speed across all of the monitoring sites before implementing the new limit was 31.7km/h reducing to 29.6km/h after. The after statistics reveal also that where the speeds averaged >38.4km/h before, the average speed dropped by 10km/h. This illustrates that the higher (and therefore less safe) the before speed, the more it reduces following implementation of the scheme.

In New Zealand there are guidelines for setting speed limits where physical measures have to be used to ensure that the average speed does not exceed 5km/h above the posted speed limit. However the Safer Journeys 2010-2020 strategy adopts a new and more liberal attitude to the setting of speed limits. An analysis of approximately 50 speed readings taken in Wellington suggests that the average speed is 39.7km/h with an 85th percentile speed of 44.8km/h, meaning for the most part a proposed 40km/h speed limit could be introduced even under the earlier national guidelines, without the need for expensive traffic calming measures.

In the case of Portsmouth the average speed before the lower speed limit was introduced was 0.3km/h less than the new limit and is generally self-enforcing without physical works.

If a 'safe speed' limit of 40km/h is introduced in Wellington based on the Wellington speed readings the average speed would coincidentally also be 0.3km/h less than a 40km/h limit and also be generally self-enforcing with an expected resulting speed reduction of 2-3km/h.

5.4.2 Journey times

Reducing speed limits will lead to insignificant increases in travel times. A March 2011 paper to the IPENZ Conference-*Implementing Lower Speeds in New Zealand*- commented:

"In practice most studies have found such differences to be negligible in comparison to intersection and traffic delays en route. Some studies have found

that travel times for side road traffic have improved because it has been easier to find a suitable gap in the main road traffic when it is travelling at lower speeds. Perhaps more importantly, a key philosophy in speed management is that we're trading a little mobility for vastly improved safety and sustainability".

The National Road Transport Commission (Australia) states that in an urban area with an assumed 5km/h reduction in average speed the increase in travel time per trip is less than 10 seconds.

A longer journey time is a disbenefit that is usually costed in a benefit/cost ratio calculation. Aggregating millions of trips each with a few seconds disbenefit will add up to a significant amount and have a noticeable impact on the benefit/cost ratio. This has sparked a world wide debate about the real value of such a small amount of time. This disbenefit is now largely ignored when evaluating 'safe speed' schemes. Some researchers are suggesting that in 'safe speed' evaluations increased journey times less than five minutes should be ignored.

Consider a typical trip in Wellington averages about 10 kilometres and assume that two kilometres at each end of the trip are within a 40km/h area. The remaining six kilometres will be within 50km/h or higher speed roads with no change to existing journey times. Of the four kilometres within the 40km/h areas about 50% of the road environment will be such that there will be no change from existing speeds with time through corners, stops, give ways, gradients, parked cars etc. If the average speed reduces by the predicted 2km/h from 40km/h to 38km/h the increased journey time will be just 15 seconds for a 10km journey.

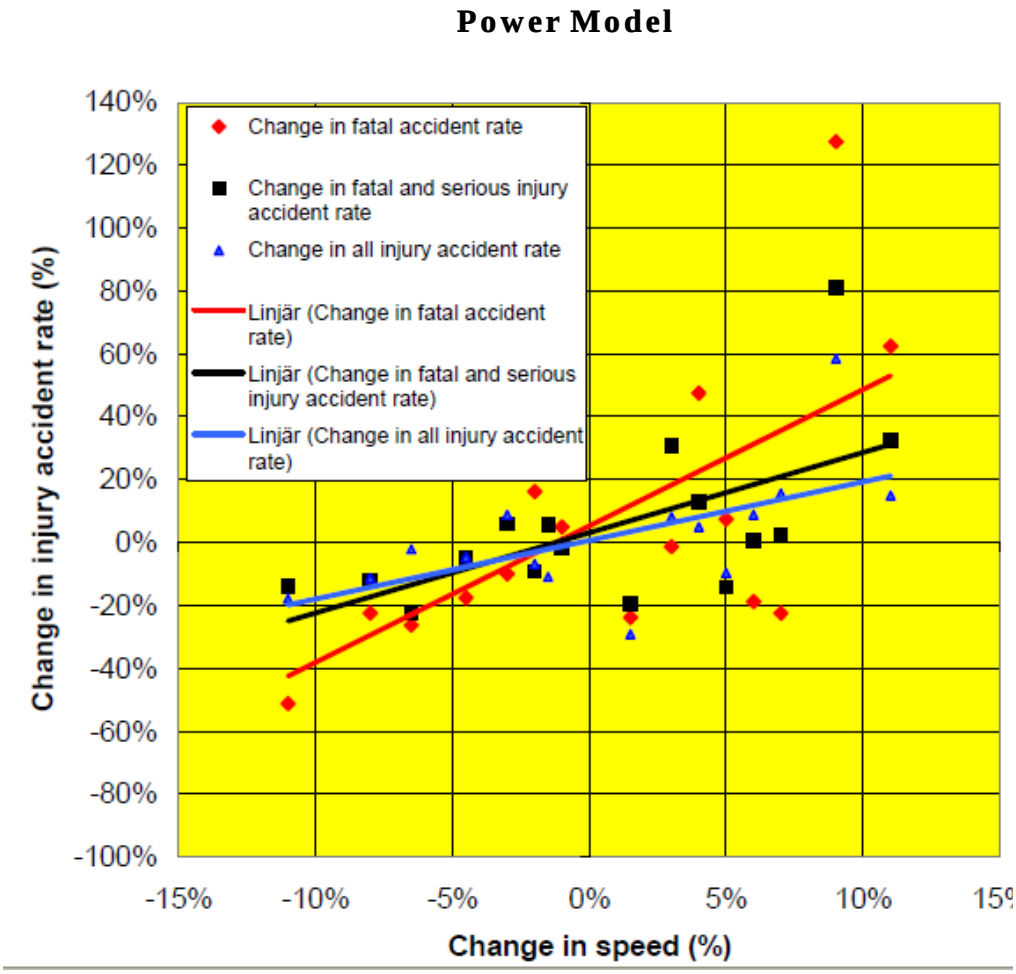
5.4.3 Crash reduction

Using the extensive amount of research and practical experience available a Swedish researcher, Lund, developed a model that estimates the change in risk following a percentage change in average speeds (slower or faster). This model, 'The Power Model', is now the standard that has been adopted world wide as being accurate and reliable.

In Portsmouth using signage alone, (i.e. minimal or no traffic calming), a reduction of 2km/h was achieved on average for all roads.

Using the Power Model a predicted decrease of 2km/h on Wellington roads would result in a 7.8% reduction in injury crashes. The decrease in predicted average speed could be nearer 3km/h due to the existing average speeds being some 10km/h faster than seen in Portsmouth.

In 2010 there were 100 or so injury crashes on roads that would be subject to a 40km/h safe speed limit. City wide there would therefore be a predicted reduction per year of between eight and 10 injury crashes.

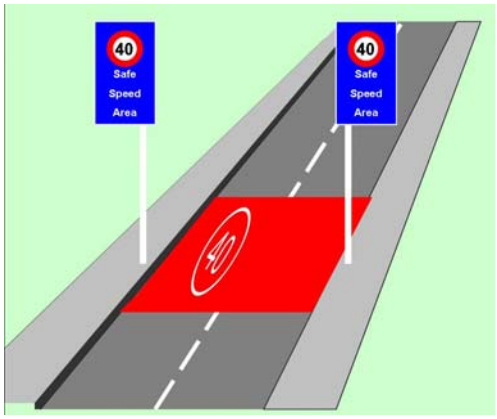


5.4.4 Costs

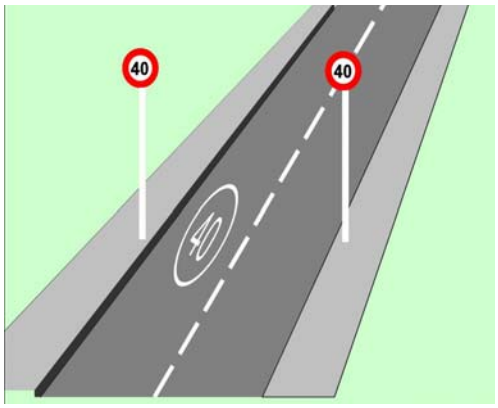
The costs involved in implementing a 'safe speeds' project are predominantly in design, public education, consultation and erection of signage and road markings.

This blanket safer speed regime is proposed to be implemented in stages to better manage costs and be able to spread across several financial years.

It is proposed to use two types of threshold signs. The major threshold arrangement would be used where the principal road meets a collector road and the standard threshold arrangement used where a principal road meets a local road.



Major Threshold



Standard Threshold

The signs and markings currently being used for the suburban shopping areas programme are similar to that proposed for the major threshold, these cost approximately $15,000. Officers are trialling slightly smaller signs in the most recent suburban shopping areas to be changed. It is thought that with a large order the cost will reduce to $10,000 per threshold. A standard threshold has been estimated to cost $600.

The table below sets out the number and cost of each of the threshold types. The major 50/30km/h thresholds are those scheduled to be installed as part of the ongoing suburban shopping areas programme.

Major 50/40	56	$ 560,000.00
Standard 50/40	270	$ 162,000.00
Major 50/30	39	$ 390,000.00
Standard 40/30	88	$ 52,800.00
Repeater 40/40	340	$ 204,000.00
Total		$1,368,800.00

There will be other costs associated with consultation and advertising and notification of the new speed limits. Officers believe that the overall cost will not exceed $1.5M.

5.4.5 Cost benefits

An analysis of the crash data for the five years from 2006-2010, excluding motorway and rural areas, shows Wellington City had a total of 7788 reported crashes, 4095 (53%) of these on roads proposed to have either a 30 or 40 km/h safe speed limit. Looking at the social costs over the five years of $537M, $269M (50%) of these costs were on the roads proposed to have a safe speed area.

Assuming that Council continues its current programme in suburban shopping areas, additional benefits arise from implementing a safe speed limit on the local roading network. Roads proposed to have a speed limit of 40km/h account for $189M (35%) of the total crash cost. Annually this averages about $38M.

The benefits have been calculated using the crash savings achieved as stated in the NZTA Crash Analysis System data base. The costs are set out in section

5.4.4. Disbenefits accruing from the very small increased journey times have been ignored.

Applying a simplified procedure from the NZTA Economic Evaluation Manual (EEM) an indicative benefit cost ratio in the range 5 to 10 is achieved.

5.4.6 Sustainable benefits

Numerous studies have been conducted into benefits other than crash reductions that arise from reduced speeds. All of these studies have identified reductions in fuel consumption, vehicle operating costs, air pollutant emissions and noise levels. The detailed findings of these studies are readily available on the internet.

Studies also report high rates of satisfaction from pedestrians (including school children), and cyclists with lower speeds. There are further studies that have reported that a safe speed limit has resulted in people changing mode of travel, for example from car travel to walking.

5.4.7 Common concerns with implementing lower speeds

The following frequently asked questions and answers have been abstracted from a March 2011 paper presented to the IPENZ conference in Auckland.

- *"Reduced speeds will mean longer travel times"* - In practice, most studies have found such differences to be negligible in comparison to intersection and traffic delays en route.

- *"The average speed is already well below the speed limit"* - This would seem even more reason to reinforce that with a true speed limit! If it is desired that people respect an increasing range of different speed limits then they must all be credible to them. Lower speed limits also send a clear message to those who wish to walk or cycle that the road environment is safer for them to do so, even in the absence of specific facilities for them.

- *"The public don't want reduced speeds"* - The answer to this tends to depend on who you are asking the question of: those driving through the area may not want reduced speeds; but those living, working and riding there invariably do. If the lower speeds are being applied to local streets, where the access function should override the mobility function, there is even less justification for this concern.

- *"What about the effects of calming devices on emergency services"* - Rather like the first concern above, this issue is often negligible in comparison with the other route and traffic delays encountered by these services. Any relative cost of such delays also has to be weighted against the considerable health and safety benefits that the lower speed environment presents to other users.

- *"Traffic will still travel faster than the proposed speed limit, especially during off-peak times"* –

If this is considered a concern, then it is always possible to add some additional traffic management features to get the speeds down a bit, even in the absence of other traffic. It is important to remember that most pedestrians and cyclists who stand to benefit from a lower speed limit are likely to be present during the key peak times to/from work and school).

(*Implementing Lower Speeds in New Zealand*, G.Koorey, Page 13, IPENZ Transportation Group Conference, Auckland, March 2011.)

5.4.8 Safer speed area conclusions

The 2008 Monash University report into "*The Impact of Lowered Speed Limits in Urban and Metropolitan Areas*" presents the following conclusions:

- Lowered average travel speeds brought about by a reduction in speed limits in urban and metropolitan areas will bring about considerable reductions in road trauma

- A relatively minor impact on average travel times (mobility) is likely to occur at the individual level; at the societal level there are likely to be overall benefits depending on how values are assigned to travel time increases

- Achieving community acceptance and support for speed limit reductions is critical as is the need to encourage better safety awareness by changing attitudes towards speeding and giving greater consideration to the needs of less prioritised road users

- Vulnerable road users (pedestrians and cyclists) are likely to benefit most from reductions in average travel speeds

- Lowered speed limits encourage better and safer forms of interaction between different types of road users which in turn should lead to a more attractive and liveable environment

- Lowered average travel speeds should bring about an increase in energy efficiency with a corresponding reduction fuel consumption and vehicle running costs, and a reduction in vehicle emissions (Greenhouse gases) and noise; for this to be achieved it is important to maintain road transport system efficiency, e.g. through the better use of coordinated or self-optimised signalling and other infrastructure and vehicle-based ITS

- Lowering speed limits, where circumstances permit, can prove to be a highly effective way of achieving and sustaining the long-term goals and intermediate targets proposed in traffic safety strategies and action plans.

These conclusions, coupled with the Government's adoption of safe speeds in their safe system approach should provide sufficient evidence and support for Wellington City to adopt a city-wide safe speed limit of 40km/h.

5.5 National Land Transport Programme subsidy

If Council is of a mind to proceed with these proposals, officers will then prepare an application to the NZTA that the proposal be considered for funding in the 2012-2015 NLTP.

To meet criteria, projects must demonstrate strategic fit, urgency and efficiency. Each category is weighted high, medium or low.

Officers believe that the safer speed project will have a HHH profile i.e. high strategic, high urgency and high efficiency fit and will be eligible for financial assistance at a rate of 53% ie the total cost of $1.5M will be $0.8M from NLTP and $0.7M from WCC.

Strategic fit
This project is in line with the government's road safety strategy, Safer Journeys. Safer speeds is one of the four pillars for their strategy. Officers have been working closely with NZTA officials in developing our proposal.

Urgency
We will argue that there is a high level of urgency in reducing road trauma and associated costs.

Efficiency
Using the simplified procedures for crash reduction projects the overall benefit/cost for this project has been calculated at 10. This assumes a conservative reduction of 8% and the benefits accrued over 20 years.

Projects to address black spots will also need to fit into the programme and must meet the same criteria.

5.6 Stakeholder input

In preparing this report officers have had initial discussions with a number of agencies including those represented at Council's Safe & Sustainable Transport Reference Group (SASTRG).

The NZTA is a key partner both in terms of funding and input into this proposal. The proposal for both high risk urban intersections and the proposed safer speed areas is supported by the Agency, given that Wellington City Council will be the first New Zealand city to introduce the concept of safer speed areas. The agency wishes to see that we introduce the scheme in a way that maintains community support and not jeopardise its ability to roll it out in other parts of the country.

The New Zealand Police are very supportive; they do however note that we must not expect to use enforcement as a means of compliance to the proposed limits. Indications are that the level of speed enforcement in these local areas will remain as it is currently.

The Ministry of Transport are very supportive of the combined approach as they see that this was envisaged for all of New Zealand when preparing the Safer Journeys Road Safety Strategy.

ACC are a key partner in the Safer Journeys Strategy. Of the four streams in the strategy, ACC have been tasked to take responsibility for developing the Safer Speeds stream. ACC also hold a position of the national Road Safety Committee. ACC have offered to support Wellington city in its introduction of a blanket urban safer speed limit proposal.

At a recent meeting of the SASTRG partners to discuss engineering concerns, the proposal for a 40km/h urban speed limit was discussed. Those present represented Cycle Aware Wellington, Living Streets Aotearoa, Automobile Association, Greater Wellington, BRONZ and NZ Police. While there was not too much time for attendees to digest the proposal the initial reaction was positive and there was a general feeling that Wellington's local roads were very much suited to a speed limit less than 40km/h but some collector roads feel and act more like a principal road and may not be suitable for a speed limit less than 50km/h.

5.7 Proposed actions

Subject to Committee approval in principle to the proposal, officers will proceed with a funding application to the NZTA and undertake necessary consultation to enable Council to make a resolution under the Speed Limit Bylaw for all roads, other than arterial/principal roads to have a speed limit of 40km/h, and the previously identified 21 suburban shopping areas and the Golden Mile to have a speed limit of 30km/h.

The recent pedestrian fatality in Willis Street has further raised awareness of pedestrian crashes in the central area. Calls have been made for Council to take further action in both the bus lanes and the wider CBD to address these crashes. Councillors may consider it is appropriate to present options for speed limits in the central area, with a potential option of a blanket 30km/h limit leaving the arterial/principle roads at 50km/h and an alternative as originally proposed of keeping the Golden Mile only at 30km/h with remaining streets being either 40 or 50km/h.

It is proposed to run city wide community engagement prior to Christmas. A draft consultation, communications and marketing plan has been prepared. Officers are currently exploring the ability for Committee to delegate sub-committees to hear oral submissions. We expect that these submissions will be heard in February/March 2012.

Subject to a positive outcome from the consultation process, a further report will be presented to Committee in April/May 2012 seeking approval to recommend to Council that agreed roads change from a 50km/h to a 40 km/h speed limit and that those streets in the remaining suburban shopping areas reduce to 30km/h.

Then, from July 2012 onwards, the new speed limits will progressively be rolled out. For practical and cost reasons, a ward by ward approach has merit, beginning with the Lambton ward as this is the area of greatest concern and has the biggest potential for crash reduction gains.

In parallel with the safer speed area approach, officers will also be applying to the NZTA for funding for a comprehensive black spot programme. These will be rolled out concurrently from July 2012.

5.8 Funding

Road safety CAPEX funding is provided specifically in two projects,CX445 - SaferRoads and CX171-Minor Safety Projects.

CX445 has approximately $1M and CX171 has $0.65M annual expenditure and assumes each attracts a 53% subsidy from NZTA.

It is proposed that CX445 be used to implement the safer speed area programme and the high cost black spot treatments, while CX171 be used to deliver the low cost black spot treatments and continue to be used to fund one off community requests for works that don't have a high strategic fit.

In the three year funding period 2012-15 the $3M for CX445 would have the $1.5M cost of implementing the safe speed programme and would distribute the remaining $1.5M over 5-10 black spots.

6. Conclusion

Over the last 30 years Wellington City has been at the forefront of crash reduction. Through the 80's and 90's black spot and local area traffic management schemes saw a significant reduction in crashes. By the end of the 90's it was getting more difficult to squeeze benefits out of our black spot programme as we were undertaking second and sometimes third generation interventions at some locations.

By 2001, Wellington City was in a unique position where the majority of our reported crashes were happening away from our main roads and generally not in clusters. Consequent to Government introducing their road safety strategy to 2001, Wellington City launched the area-wide, suburb-by-suburb SaferRoads programme in 2003.

The SaferRoads programme was underpinned by a proposition to reducing operating speeds to get crash reduction benefits. At that time mass traffic calming was used to manage operating speeds and lower speed limits were also proposed, however Newtown was the only suburb where we were able to achieve a posted lower speed limit.

The recent introduction of the government's road safety strategy, Safer Journeys has meant that the Council's SaferRoads programme, although similar to the new strategy, is unlikely to get any financial assistance for any physical works on local roads.

A new approach that builds on the SaferRoads programme but fits the new Safer Journeys model will enable Council to maximise the government's investment in the city.

Officers recommend a two-pronged approach, firstly investing in our arterial/principal network to maximise safety and efficiency and secondly using a low cost approach to managing speeds on our local roads.

The first approach will utilise traditional black spot crash reduction techniques coupled with investment in bus priority, walking and cycling.

The second approach, to lower the urban speed limit to 40km/h, would be the largest scheme of its type in New Zealand, but will bring us in line with other international jurisdictions that are considered world's best practice. Officers believe that the evidence is strong that this will provide significant benefits and should be pursued.

Officers believe that the current level of Council funding allocated to transport safety is sufficient to deliver this two-pronged response to the Safer Journeys Strategy.

Report author: Paul Barker, Safe & Sustainable Transport Manager

References

i. Safer Journeys- New Zealand's Road Safety Strategy 2010-2020- Ministry of Transport 2010
ii. Land Transport Rule: Setting of Speed Limits Rule 54001 and subsequent amendments NZ Government 2003 (2005, 2007, 2009)
iii. Implementing Lower Speeds in NZ – Dr Glen Koorey - March 2011
iv. Speed Management – A Road Safety Manual for Decision Makers and Practitioners -Global Road Safety Partnership 2008
v. Traffic safety dimensions and the Power Model- Lund (Sweden) Institute of Technology, G Nillson 2004
vi. Mixed Priority Routes: Practitioners' Guide – Department for Transport (UK) Local Transport Note 3/08 October 2008
vii. Interim Evaluation of the Implementation of 20 mph Speed Limits in Portsmouth Final report Department for Transport (UK) – September 2010
viii. The Impact of Lowered Speed Limits in Urban and Metropolitan Areas – Monash University – Transport Accident Commission (Australia) January 2008
ix. NZTA CAS crash data base
x. NZTA Economic Evaluation Manual (EEM)
xi. Safer Streets 'Zone 40 for Towns and Cities' Submission to NZ Parliament 2010
xii. 40 km/h on Local Side Streets Vancouver City Council 2010
xiii. Impact of 30km/h Zone Introduction on Vehicle Exhaust Emissions in Urban areas – Association for European Transport 2006
xiv. 20 mph Zones and Road Safety in London A report to the London Road Safety Unit – London School of Hygiene and Tropical Medicine 2010
xv. Impacts of Lower Speeds in South Australia JE Wooley et al 2002
xvi. Further Insights into an Urban area with lower speed limits: the Unley (South Australia) Case Study JE Wooley et al 2005
xvii. Effect of 20 mph Traffic speed zones on road injuries in London 1986-2006 – British Medical Journal – 2009
xviii. Extended 40km/h speed zones Canberra – Pedal Power ACT –August 2009

Note that many of the references included in the above documents were accessed and noted where relevant to this report.

Supporting Information

1) Strategic Fit / Strategic Outcome

The project supports the overall goal that Wellington will seek to improve the safety and security of its citizens as they move around the city and region.

2) LTCCP/Annual Plan reference and long term financial impact

The project is contained in the Council Plan # CX445.

3) Treaty of Waitangi considerations

There are no direct treaty considerations

4) Decision-Making

This is not a significant decision.

5) Consultation

a)General Consultation

Consultation will be consistent with that previously carried out in other areas where lower speed limits have been rolled out and will be in conformity with the Bylaws and Land Transport rules.

b) Consultation with Maori

No specific consultation with Maori is proposed

6) Legal Implications

There are legal requirements involved in setting new speed limits. These are detailed in the Bylaws and Speed Limit Rule

7) Consistency with existing policy

This report is consistent with existing WCC policy.