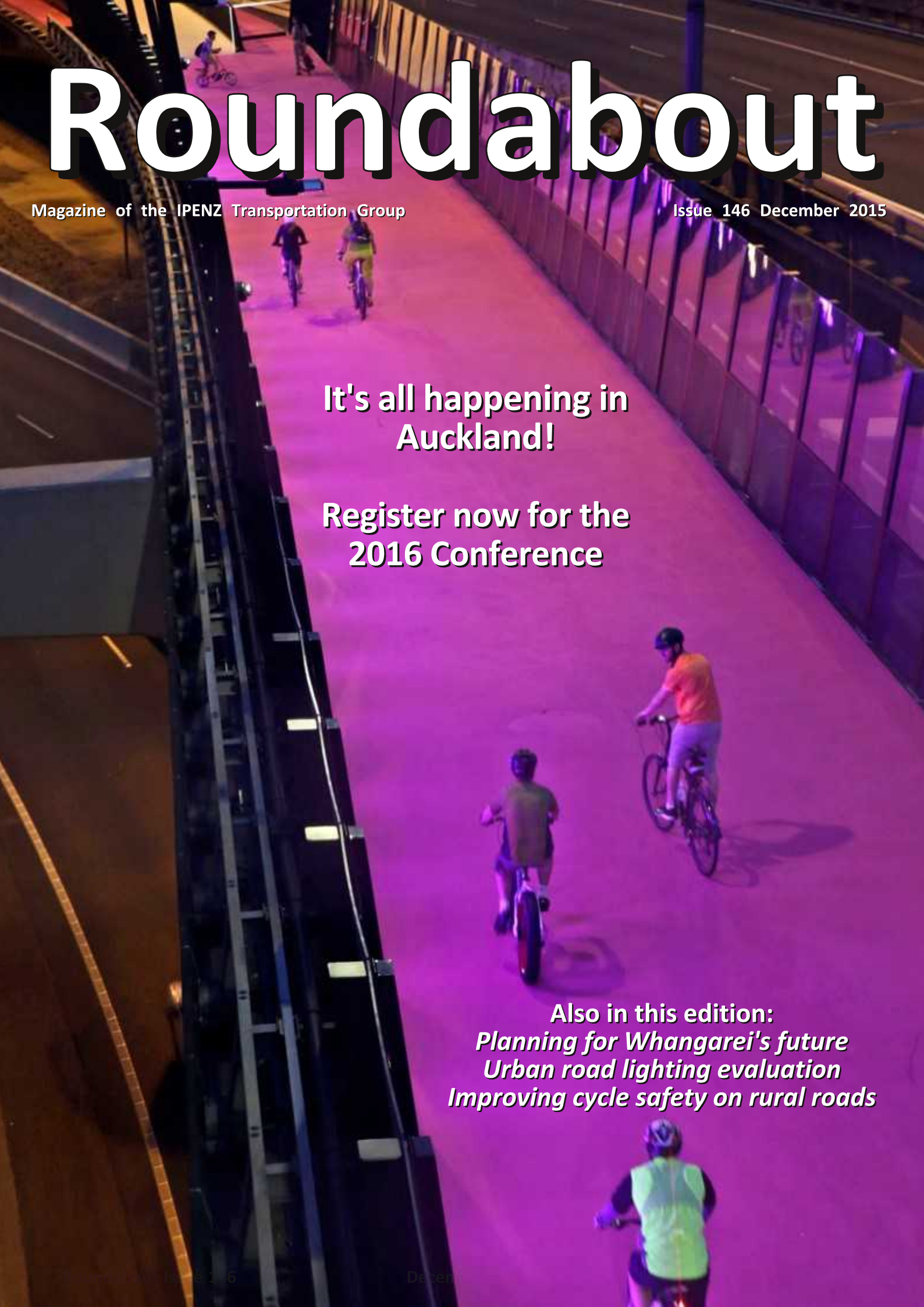
# Roundabout

Magazine of the IPENZ Transportation Group

Issue 146 December 2015



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*Planning for Whangarei's future*

*Urban road lighting evaluation*

*Improving cycle safety on rural roads*

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"Why is it impossible? Well, it would be unbearably irksome." p5

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"You're most in control of your bicycle if you have both hands on the handlebars" p23


Roundabout is the magazine of the IPENZ Transportation Group, published quarterly. It features topical articles and other relevant tidbits from the traffic engineering and transport planning world, as well as details on the latest happenings in the NZ transportation scene.

All contributions, including articles, letters to the editor, amusing traffic related images and anecdotes are welcome. Opinions expressed in Roundabout are not necessarily the opinion of the IPENZ Transportation Group or the editor, except the editorial of course.

Many thanks are due to Opus International Consultants, who sponsor the printing of Roundabout for those members who prefer to receive a hard copy.

Correspondence welcome, to Daniel Newcombe: daniel.newcombe@aucklandtransport.govt.nz or c/o Auckland Transport, Private Bag 92250, Auckland 1142

Roundabout is published around the 15th of March, June, September and December each year, and contributions are due by the 10th of each publication month.

A monthly Mini-Roundabout email update is circulated on the 15th of in-between months and contributions are due by the 12th of each month.

If somehow you have come to be reading Roundabout but aren't yet a member of the IPENZ Transportation Group, you are most welcome to join. Just fill in an application form, available from the Group website: http: //ipenz.org.nz/ipenztg/files/TGApp.pdf

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# Editorial

How's the conference organising going? Thanks for asking. It's going great.

We had a massive response to our call for abstracts and the team – mostly Bridget – is hard at work turning these into interesting, high quality conference papers.

We have also confirmed the overall programme, with a plethora (or should that be a 'plenary') of keynote speakers from across the transport spectrum.

Auckland Transport's CEO and Board Chair - David Warburton and Lester Levy, respectively – will be outlining AT's strategic direction to take Auckland into a challenging new future.

Lester may cover the 'Statement of Imagination'. You'll have to be there to find out what that is.

Similarly, Jim Quinn, formerly of KiwiRail, now Chief of Strategy at Auckland Council, will cover the council's planning for the future. I'm picking one of the trends he'll cover will be growth.

Auckland has growth pressures in a form and scale unique in the country, so many of the speakers and papers will cover the challenges and responses to this.

Skye is a Kiwi in an incredibly important role of creating a Global Street Design Guide and speaks at events around the world, so we are very lucky to have her with us (plus she's wrangled a visit to her relatives).

Given that one of the themes of the conference (Wednesday 9th) is Technology, we are also pleased to have Uber's Oscar Peppitt speaking about his company's role in changing our travelling habits.

***We have a plethora (or should that be a 'plenary'?) of keynote speakers from across the transport spectrum.***

Of course we'll also have the standard conference fare of road safety, design, engineering, planning, and learnings from transport projects across the country.

Our friends from NZMUGS will be running a session, and we hope to bring many other parallel sessions for delegates to pick and mix from.

We are aiming to provide a wide range of topics, from technical to provocative, aspirational to educational.

And make it an enjoyable experience while you are there.

I must thank Bridget, Lennart and Glenda for their hard work in pulling things together. There is a lot more to do but the conference is looking really sharp - you won't want to miss it.


Whilst the majority of speakers will be looking forwards, one speaker will definitely be looking to the past. Michael Frawley is the CEO of the Museum of Transport and Technology (MOTAT) and will talk on the lessons from the past.

Some past events are recurring, such as the current light rail planning along historic tram lines, and there are plenty of lessons to be learnt.

A big drawcard will be Skye Duncan, Global Designing Cities Director from NACTO. If you haven't heard of Skye, you may know her boss – Janette Sadik-Khan (who we are also hoping to get presenting to the conference via video link) – who was responsible for New York's transformation into a more people-focused city.

As a reminder, the conference will be in Auckland on March 7-9th and registrations are open now.

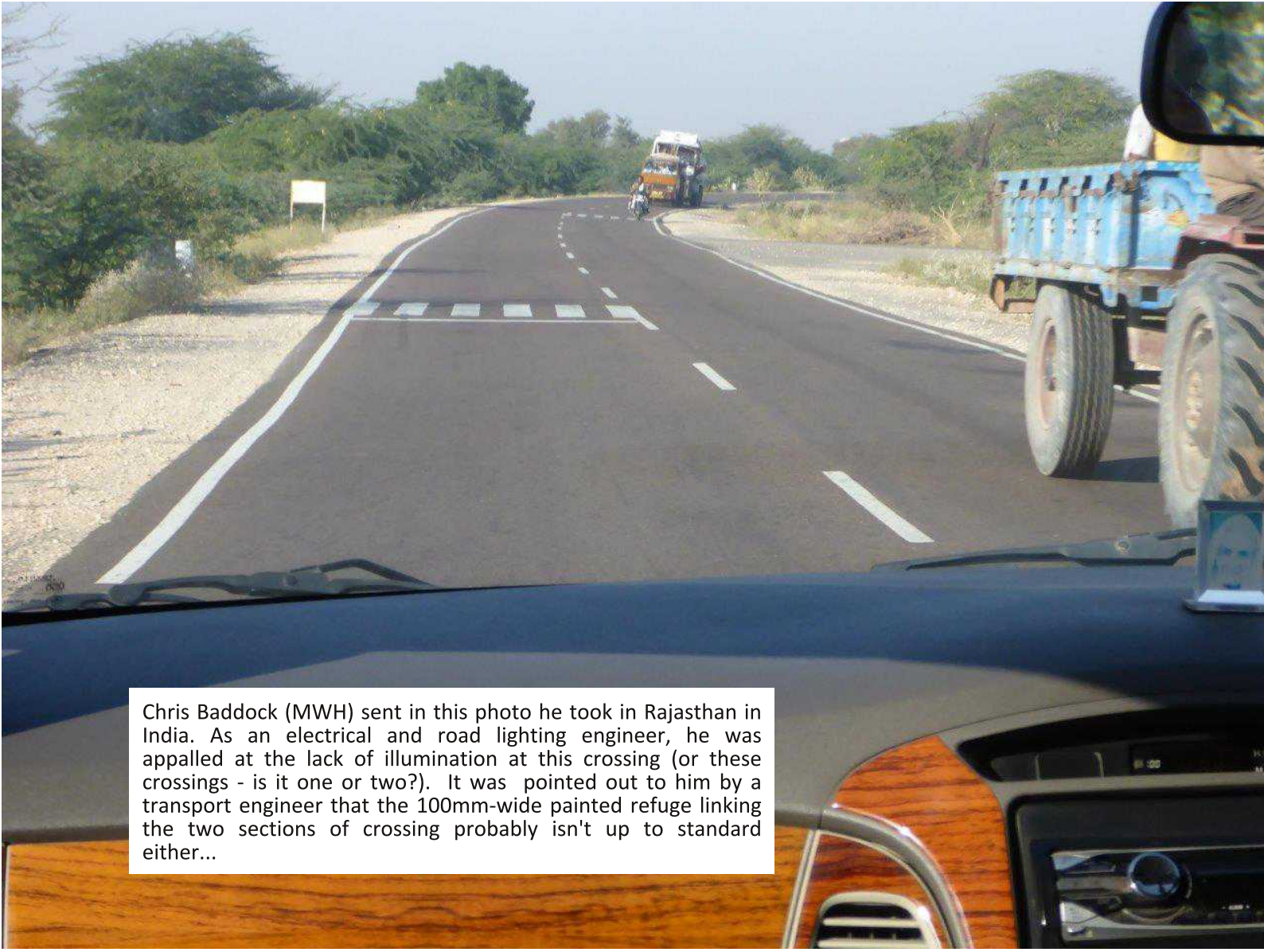
So, what are you waiting for? Register now and get the Early Bird discount!

**CLICK HERE TO GO TO THE CONFERENCE WEBSITE**

***Daniel Newcombe***
***Roundabout Editor***
***@newcombe_dan***

# Chairman's Message

Pravin didn't supply a Chairman's Message this edition (he obviously feels confident that all is well in our profession) so here is a motivational message instead.



Chris Baddock (MWH) sent in this photo he took in Rajasthan in India. As an electrical and road lighting engineer, he was appalled at the lack of illumination at this crossing (or these crossings - is it one or two?). It was pointed out to him by a transport engineer that the 100mm-wide painted refuge linking the two sections of crossing probably isn't up to standard either...

Prescient words written by George Orwell nearly 70 years ago.

*ONE interesting example of our unwillingness to face facts and our consequent readiness to make gestures which are known in advance to be useless, is the present campaign to Keep Death off the Roads...*

*Everyone knows that you can't solve the problem while our traffic system remains what it is...*

*If you really want to keep death off the roads, you would have to replan the whole road system in such a way as to make collisions impossible..*

*But the only palliative measure that would make a real difference is a drastic reduction in speed.*

*Cut down the speed limit to twelve miles an hour in all built-up areas, and you would cut out the vast majority of accidents. But this, everyone will assure you, is 'impossible'.*

*Why is it impossible? Well, it would be unbearably irksome...*

*In other words we value speed more highly than we value human life.*

*Then why not say so, instead of every few years having one of these hypocritical campaigns, in the full knowledge that while our roads remain as they are, and present speeds are kept up, the slaughter must continue?*
*http://tinyurl.com/precient*

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# Letters to the editor

Dear Editor,

I would like to raise with our members the idea that we should consider becoming an Incorporated Society.

The only interest groups associated with IPENZ larger than the IPENZ Transportation Group (which is a Technical Interest Group or TIG) are already Incorporated Societies and our own sub-group TDB, which comprises NZ and Australian local government and consultancies is also an Incorporated Society.

Already I understand that our National Committee is considering dropping IPENZ from our formal name, IPENZ has de facto done this already in their new website and are I think still considering changing E=Engineers to E=engineering in their title to better reflect the contribution of those who did not undertake a Washington Accord engineering degree, which is the case with a fair proportion of the Transportation Group membership.

There are pros and cons for our becoming an Incorporated Society and I am not pre-judging the situation other than to suggest that members give the matter some thought over the summer holidays, as I hope that at our next AGM there will be a motion tabled for our National Committee to in essence oversee investigation of the idea and to report back to members in due course.

Wishing you a wonderful editorial summer break.

David Wanty

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Dear Editor

**Forthcoming book – history of planning for cycling in New Zealand**

This is to let readers know that I am preparing a book on the history of planning for cycling in New Zealand (and overseas). I've already got a 150-page rough draft, and will report further progress in due course. I'll be revising the manuscript and undertaking supplementary research early in the New Year 2016.

I've lived through a lot, having worked in this area since the early 1980s, with a high point being my 2000 Transportation Group Study Award funded Into the Mainstream report ('Cycling Strategy Foundation Project'), most of the recommendations of which have been taken up by government and professionals in some form or other.

This will not, however, be the reminiscences of an old man. I'm focusing on planning – being a planner – and am quite happy to leave the engineering design to others already working in this field. It is the planning, however, which I'm concerned gets missed.

For example, a major learning of the mid-1990s was what has been called The Five Point Hierarchy of Measures – that reducing and slowing general traffic does more to help cyclists than does any amount of "cycling facilities".

We have plenty of work and training going on related to the latter, but what about the former? Very little – because it can only be tackled through broader urban and transport planning, not by "cycleway programmes". That's why I called my earlier report Into The Mainstream.

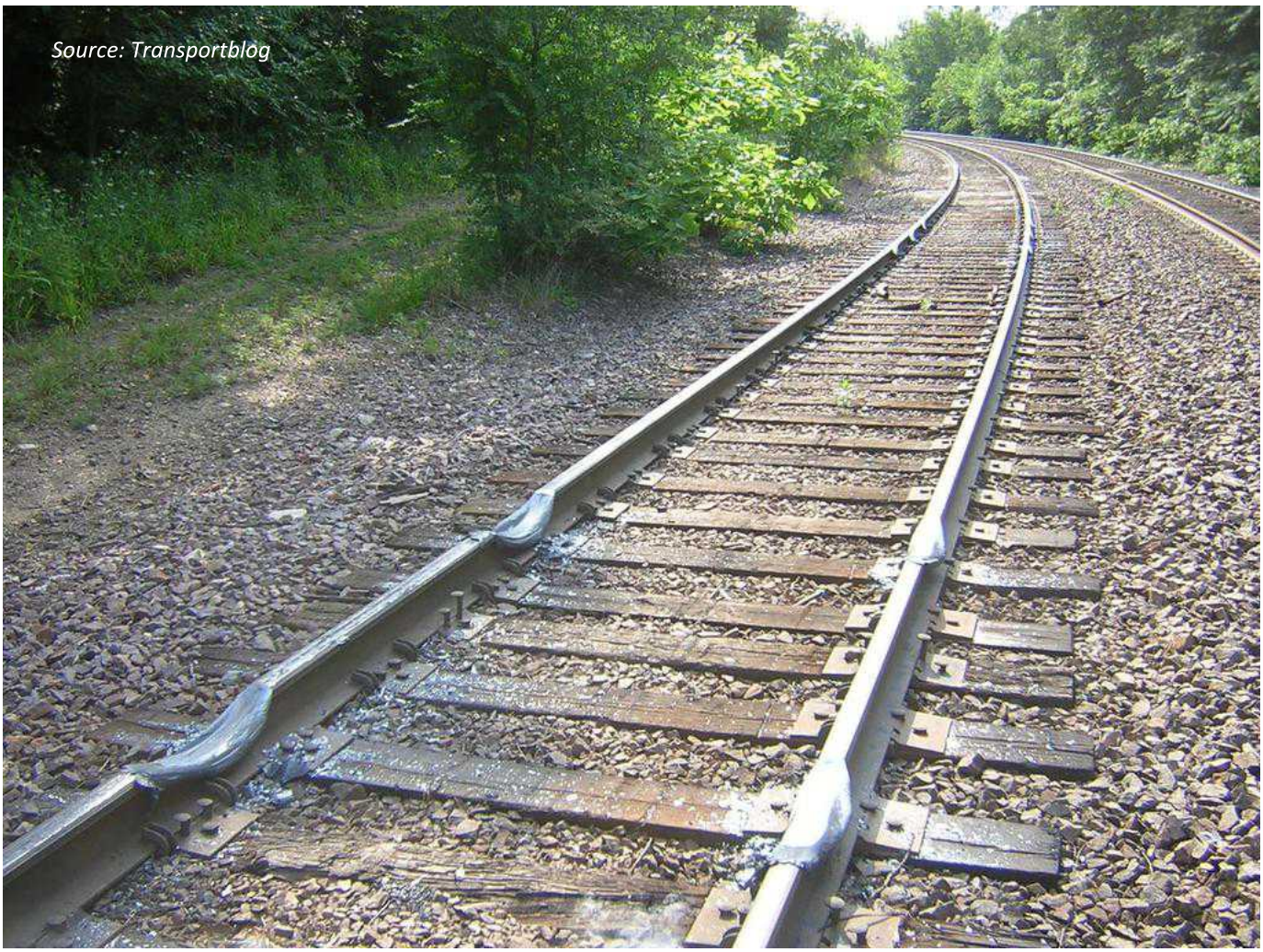
So watch this space, and I hope my book will do a bit more than just remind us of "Ah, those were the days. Do you remember when . . . ?". I'm hoping it will give the intelligent thinking readers of this august publication something to ponder.

If anyone is interested in this work I am doing – or, better still, would like a copy when the book comes out – please contact me on roger@boulter.co.nz, tel 06 379 8909 or mob 021 872 654.

Cheers

Roger Boulter

## What happens when a train gets wheelspin




## An oldie but a goodie

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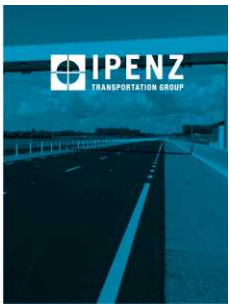


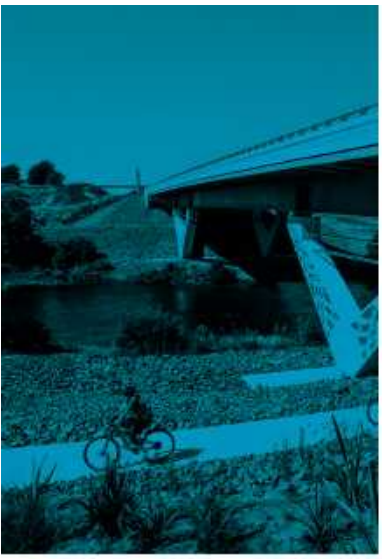


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To enquire about sponsorship click here

*Te Matau A Pohe, Completed 2014.*

# What will the heart of Whangarei be like in 20 years?

WHANGAREI 20/20 MOMENTUM

What will the heart of Whangarei be like in 20 years? This is the question currently being asked by Whangarei District Council.

Whangarei is New Zealand's 8th largest district, with a population of approximately 85,000 and it is growing by over 1000 people per year. This may not seem much by Auckland standards, but it is presenting a challenge and opportunities for a Council with limited spending ability.

During a period of growth, it is important that Whangarei has a clear vision for the future. Failure to do so can result in inadequate infrastructure provision, poorly planned development and more importantly a community that does not subscribe to what will happen to their city.

So to start the conversation on the future of Whangarei, the Council is asking the community and key stakeholders how they would like to see the city grow. But this is not being asked through the usual myriad of planning documents, strategic frameworks or growth strategies. This time the Council has put together a new website showing a list of key projects.
www.whangareimomentum.co.nz

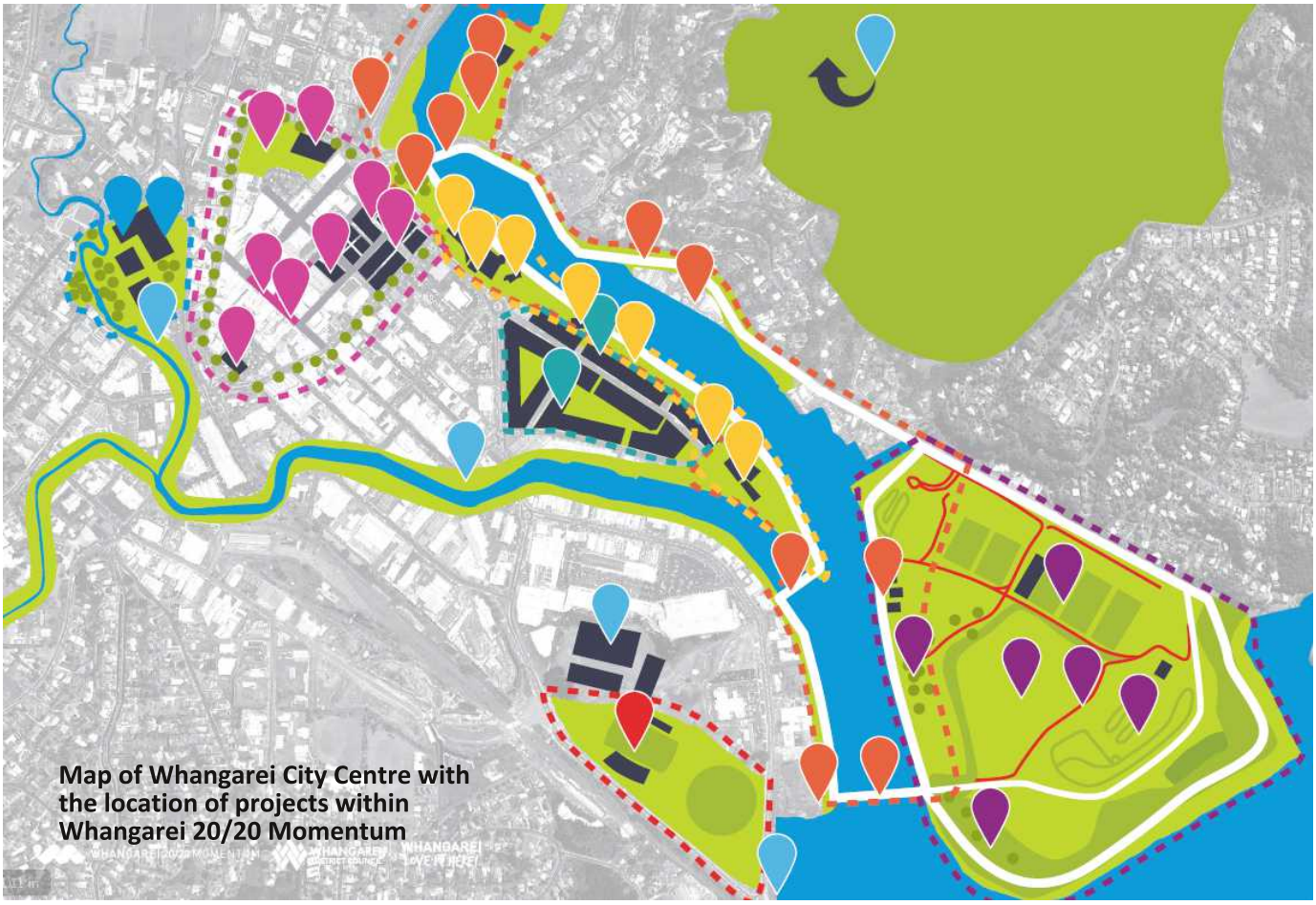
The idea is that these projects are a more tangible way to talk to the community about the future of their city rather than using alien planning language and RMA speak.

*Canopy Pedestrian Bridge, Completed 2012.*

In total there are about 30 projects. Some have been completed, others are in the planning phase with funding secured and the remaining are ideas for the future.

Whangarei Council can deliver some of these projects. Other projects like new hotels will be delivered by private developers and other projects will be in partnership with developers and community groups.

It is also an opportunity to celebrate some of the great projects that have been completed over the last few years which have had a focus on connectivity for pedestrians and cyclists.



**Map of Whangarei City Centre with the location of projects within Whangarei 20/20 Momentum**

Te Matau A Pohe , Huarahi O Te Whai cycleway/ walkway and the Canopy Pedestrian Bridge are world class projects that have had a meaningful impact on Whangarei. They have opened up the waterfront for pedestrians and cyclists.

Since opening the use of the cycleway around the Whangarei waterfront has increased by over 130%. It is being used by both commuters and recreational users, it is being used by the young and old, by residents and visitors.

The challenge for Whangarei now is how best to build on these successes with limited capital expenditure. One answer has been to see the Councils role as creating the canvas on which the community then paints a picture.


*Fitness equipment on the Hatea Loop, Completed 2015.*

*Art work on the Hatea Loop walkway/cycleway, Completed 2014.*

A good example of this is since delivering the basic infrastructure of the Hatea loop cycleway/walkway at a cost of $1.2m, community groups and charities have contributed park benches, art works and fitness equipment and commercial enterprises are looking providing cafes, cycle hire and food outlets. This helps create community cohesion and sense of ownership.

So moving to the future, there are number of projects and ideas which could be catalyst for further quality developments and economic growth. There are a number of key themes that run through these projects:

## Public Focus

- Range of spaces, civic, sports & informal
- Range of seasonal activities, events & facilities
- Opportunities to connect with the water
- Attractive streets

## Well Connected

- Connecting to surrounding green space
- Integrated public transport
- Second harbour crossing
- Pedestrian and cycle network

## Environment

- Provide flood protection
- Improve water quality
- Restore ecological edges
- Protect surrounding green network & landscape features

## Sustainable Futures 30/50

- Educational facilities
- Economic development and tourism
- Regional facilities
- Marine and fishing

## Liveable Community

- Residential intensification
- Community facilities
- High quality urban design and architecture
- Safe and inviting spaces
- Recreation & wellbeing

## Culture & Heritage

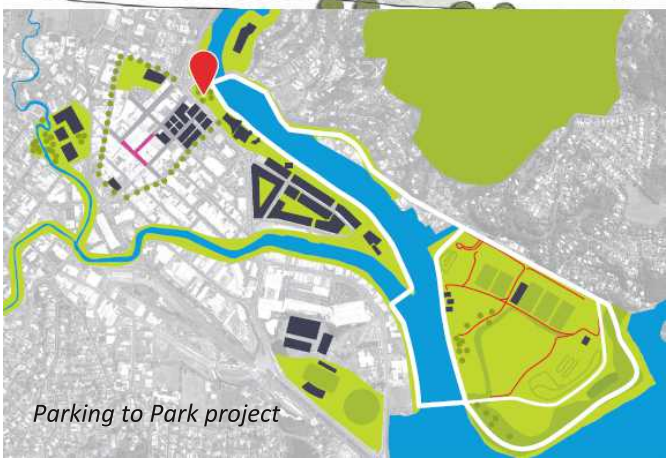
- Protect heritage buildings
- Work with Mana Whenua
- Protect historic uses
- Provide interpretation of heritage & culture
- Celebrate local identity and unique history

To stimulate interest in inner city living, Whangarei Momentum proposes that waterfront land on Reyburn House Lane, currently used for light industrial activities could be come a mix use development, comprising of commercial and restaurant activities on the ground floor and residential above.

Once complete the area behind Reyburn House Lane could be the site for a more comprehensive residential development. Whangarei faces a number of challenges relating to connectivity. The inner city feels disconnected from the waterfront, despite the close proximity and flat topography.


*Reyburn House Lane, future CBD living along the waterfront.*


*Future Inner city living.*


The current bus station is poor condition and is isolated from the core of the city. Car parking is sporadic and is in the wrong location. The Parking to Park project will transform a waterfront car park into a park with play area, water feature and passive recreational space. This will also involve improved connectivity with the CBD and complete the Hunterdwasser Art Centre.

The proposed cycleway running along the Raumanga Stream will connect the waterfront to the popular Whangarei Growers Market. It is also the first part of a wider network of cycle and walking infrastructure along streams and rivers in the city that aim to increase connectivity, improve water quality and provide flood protection.

The existing theatre is too small and in need of upgrading. Existing conference facilities are also under pressure and cannot accommodate large event. An option is to develop a theatre and conference facility next to the existing new Library.

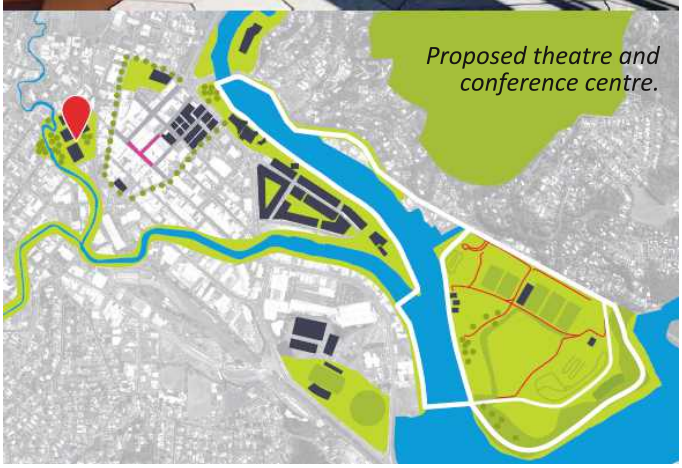
So the Council is seeking feedback on these ideas, from residents and visitors to Whangarei, but also from the developers, architects, planners, engineers, business associations and community organisations. We want to hear from people from all walks of life.

We are using the new website in conjunction with Facebook (www.facebook.com/WhangareiDC) and Twitter (www.twitter.com/WhangareiDC) to get the community talking with each other about their ideas for the city, to get a better understanding of the each others issues and identify opportunities.

So tell us what you like about each of these projects and what you would change? What do you think is missing? And what should be a priority?


*Proposed cycleway along the Raumanga Stream.*

The website gives an overview for each project, including those that have been completed, those in the planning and finally those which are still just ideas or future concepts. It then allows you to make a comment or just simply click that you like the idea.
www.whangareimomentum.co.nz

*Proposed theatre and conference centre.*

# Way paved for easier cycleways consenting

NZTA's application for requiring authority status under the Resource Management Act (RMA) has been approved by Environment Minister Dr Nick Smith.

"This approval will give NZTA requiring authority status under the RMA, so that it can apply to local authorities to set aside land specifically for cycleways and shared paths in the same way as it is already able to do for roads and motorways.

It also enables NZTA to designate cycleway routes. The decision will better enable the Government to deliver on its ambitious plans of both safer and more convenient urban and rural cycleways," Dr Smith says.

*http://www.scoop.co.nz/stories/PA1511/S00205/way-paved-for-easier-consenting-of-cycleways.htm*

# Feedback sought on NZ Transport Research Strategy 2016-20

The Ministry of Transport has released a draft Transport Research Strategy for discussion. A copy of the draft can be found at http://tinyurl.com/hqgrpbb

The Ministry of Transport has invited submissions and the Research Advisory Sub-Committee (RASCals), plus several other Transportation Group members who have indicated an interest in the transport research strategy, is planning to make a submission on behalf of the Transportation Group.

The deadline for the submission is Friday 12 February 2016.

If any other member of the group is interested in participating in the preparation of the group's submission, please download and read a copy of the draft and also the stakeholder engagement form, which poses six questions and which can be found at http://tinyurl.com/zrt8cx7

If you have any suggestions on how we should answer the six questions, please forward them to Alan.Nicholson@canterbury.ac.nz by 5pm on Friday 22 January, so RASCals can take account of your views when preparing the submission.

# Update on 2015 IPENZ TG Study Award winner


I'm currently in Gothenburg, Sweden, on the return leg of my 2015 IPENZ Transportation Group Study trip.

I have had some good meetings in Portland, Manchester and London so far and think I will be able to put together some interesting thoughts on road pricing/tolling for future Roundabout articles and conference papers.

This is a selfie of me (from when I was at Manchester Airport) to prove I'm travelling around for the transportation group

Don't forget that applications for the 2016 Study Award are open until December 18th. See page 38 for entry details.

# Transportation Engineering Postgraduate Courses 2016

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Department of Civil & Environmental Engineering University of Auckland
For Master of Engineering Studies (MEngSt) in Transportation and Postgraduate Certificate in Engineering (PGCertEng), or for one-off Certificate of Proficiency (COP).

## Semester 1 (March-June 2016)

| | |
|---|---|
| **CIVIL758 – Traffic Systems Design (Mon 4-6pm & Tues 5-6pm, for 12 weeks)** | Traffic signal timing analysis, gap acceptance parameters, intersection analysis of performance (priority, roundabouts, signals), introduction to transportation planning and modelling techniques, Resource Management Act and other requirements, computer modelling and simulation. |
| **CIVIL763 – Transportation and Networks Analysis (10, 11 & 12 March and 22, 23 & 24 March)** | Introduction to logistics and scheduling; Definitions of graph and network theory; Max-Flow problems; Minimal spanning trees and shortest path; Minimal-cost networks; Location problems. |
| **CIVIL764 - Highway Safety & Operations (16, 17 & March and 27, 28 & 29 April)** | A range of topics on the operation of two lane highways and their safety including highway capacity, LOS, passing/climbing lanes, and economic evaluation methods. Safer Journeys and Safe Systems, Skid resistance, materials and roadside safety. |
| **Civil 767 – Pavement Analysis and Design (22, 23 & 24 March and 3, 4 & 5 May)** | Pavement design philosophy; stresses, strains and deflections in pavements; pavement material properties and characterisation; traffic loading; pavement failure mechanisms; assessment of pavements; empirical and mechanistic pavement design methods; pavement overlay design; asphalt mix design. |
| **CIVIL770 - Transport Systems Economics (14 & 15 Mar, 11 & 12 Apr, 23 & 24 May)** | Fundamentals of transport economics incl. supply, demand, pricing, congestion and other externalities; principles of economic evaluation in transport planning. |

## Semester 2 (Jul-Oct 2016)

| | |
|---|---|
| **CIVIL759 – Highway & Transportation Design (Mon 11-12 and Wed 12-2 for 12 weeks)** | Economic and environmental assessment of transport projects, land transport funding, road safety engineering, crash reduction & prevention, design of at grade intersections, pavement asset management and rehabilitation techniques, heavy-duty pavements, highway drainage. |
| **CIVIL761 – Planning & Design of Transport Facilities (3, 4 & 5 Aug and 21, 22 & 23 Sep)** | A range of topics on planning and design of transport facilities including fundamentals of traffic flow, modelling and simulation of transport facilities, macroscopic traffic models and traffic signal safety and operations. |
| **CIVIL765 – Infrastructure Asset Management (17, 18 & 19 Aug and 5, 6 & 7 May)** | Integration of planning and infrastructure asset management, resource management, institutional issues and legal requirements. The process of undertaking asset management plans and specific asset management techniques across all infrastructural assets. |
| **CIVIL 771 – Planning & Managing Transport (1 & 2 Aug, 12 & 13 Sept 17 & 18 Oct)** | Integrated planning of transport and land use, Outline of transport planning modelling, LTMA and the GPS, District Plans and RMA, Travel, trips and parking. Transport assessments and multi-modal transport, Travel demand management, 'Smart roads', Intelligent transport systems. |
| **Civil 772 – Public Transport – Planning & Operation (28, 29 & 30 July and 11, 12 & 13 August)** | PT Data Collection; Frequency and Headway Determination; Alternative Timetables; Vehicle and Crew Scheduling; Short-turn Design; PT Network Design; Reliability; Design of Shuttle and Feeder lines; Bus priority and BRT |

*NOTE: Other relevant courses at Auckland (e.g. in Civil / Construction Management) or at Canterbury (e.g. Civil / Transportation) or elsewhere are suitable for credit.*

For Admission / Enrolment inquiries contact: **Assoc. Prof. Roger Dunn**, Director of Transportation Engineering
Phone: (09) 373-7599 x87714 or (09) 923 7714 DDI Email: rcm.dunn@auckland.ac.nz

**Further details, including the course outlines, can be found at:**
*http://www.cee.auckland.ac.nz/uoa/home/about/ourprogrammesandcourses*
*http://www.engineering.auckland.ac.nz/uoa/home/about/our-staff*

# Lightpath opens

Thousands of Aucklanders have been trying out the new Nelson Street cycleway, named Te Ara I Whiti, which translates as the Lightpath. The newly revamped and magenta-coloured Nelson Street off-ramp includes a string of interactive lights along one side and these are proving to be a big attraction during the evenings.

The walkway and cycleway starts by Upper Queen Street, crosses the motorway via a stunning new bridge and continues on the old Nelson Street motorway off-ramp, which has been unused for a decade.

It boasts interactive lights, a dynamic magenta surface and Māori designs, including a 140 square metre koru pattern at the northern end. The surface painting has been turning heads in recent weeks, with social media buzzing as people clamoured to be among the first to cross it.

# Google self-driving car pulled over for going too slow

Self-driving cars will someday be the norm on our roads. But until that happens, there are going to be a lot of awkward run-ins with people who don't quite understand the concept of a car that drives itself.

Case in point: this photo, captured by Zandr Milewski and posted to Facebook, that shows what appears to be one of Google's self-driving cars getting pulled over by a police officer.

In a comment on his post, Milewski said that he had "talked to the driver" of the self-driving car. (Presumably, he meant the human sitting in the front seat.)

He said that "apparently MVPD [Mountain View Police Department] doesn't get NEVs [Neighborhood Electric Vehicles, a classification of vehicle that is limited to slower-moving roads] and pulled them over to ask why they were all going so slow."

Google's self-driving cars are still being tested, and their speeds are being capped at 25mph for safety reasons. They have also been programmed to be extra-careful on the roads.

According to Google, the cars drive conservatively. For example, they pause 1.5 seconds after the light turns green at an intersection because many accidents happen during this time.

So the next time you're tempted to honk at a tiny car driving at grandmotherly speeds ahead of you, just remember: it might be a robot doing the driving.

Update: Google's self-driving car project team responded to the traffic stop, saying:

"We want [self-driving cars] to feel friendly and approachable, rather than zooming scarily through neighbourhood streets.

Like this officer, people sometimes flag us down when they want to know more about our project.

After 1.2 million miles of autonomous driving (that's the human equivalent of 90 years of driving experience), we're proud to say we've never been ticketed!"

*http://fusion.net/story/232280/self-driving-car-pulled-over/*


***From Bridget Burdett - TDG, PhD-in-progress***

Anyone with a mind knows that thoughts come and go all the time, across all manner of topics.

When performing some mundane task such as washing the dishes, the biggest hazard that results from poor concentration is getting the pointy end of a knife to the palm.

It hurts but nobody's life is in danger.

However, when driving a car, it's easy to see that the consequences of drifting attention might be more serious, and that risk affects anyone else on or around the road at the time.

I have been interested in the science of mind ever since a visit to Auckland University's psychology department as a high school student.

There, I saw a human brain in the flesh, so to speak, and I remember wondering how on earth this lump of pink sponge could contain such un-concrete components as thoughts, ideas and emotion.

In 2006, at the five day Road Safety Workshop in Wellington, I met Samuel Charlton from the University of Waikato's School of Pscyhology.

I've basically been his student ever since, and in 2013 began my PhD in cognitive psychology under his supervision, along with my second supervisor Nicola Starkey.

My research topic is the nature and influence of mind wandering during everyday driving, where mind wandering is defined as 'task-unrelated thought'. I won't be finished until 2019 at the earliest - here is an update of where I'm up to and what I've learned so far.

My main research questions are:

1) How often does mind wandering happen during everyday driving?

2) How does mind wandering relate to safe and unsafe driving outcomes?


*Advertising installed in December 2012 on SH29, part of the NZ Transport Agency's 'Just the Facts' campaign to improve road safety.*

*Hitchcock's Marion Crane, from the film Psycho. Marion is not thinking about driving right now.*

**Mind wandering variation among different drivers**

For my first study, I looked into self-reported mind wandeirng rates, and how these might vary according to different personality characteristics, temporary states (such as feeling tired), and road environment factors.

The purpose of this study was to find out who is most likely to report mind wandering, and under what conditions.

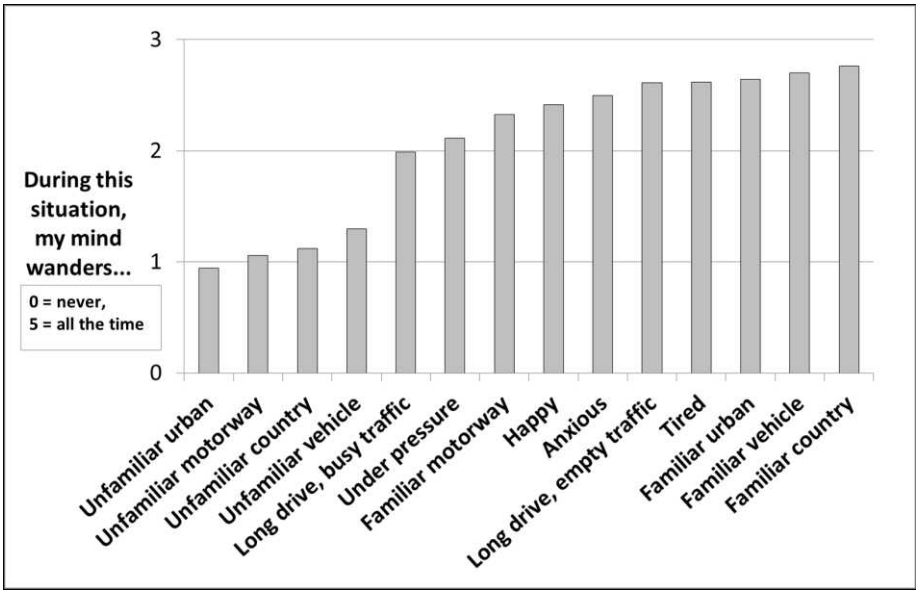
I had 502 participants complete an online survey. The main findings were that older people reported less mind wandering than younger people, and there was no difference between males and females in reported frequency of mind wandering.

People most likely to report mind wandering also reported more general cognitive failure in daily life (e.g. they are more likely to say that they forget where they put their keys), and they are less likely to be 'mindful', generally.

Drivers reported more mind wandering on familiar roads, and in their own car.

This replicated other research that suggests mind wandering is a more likely during well-practiced tasks, where demands on attention are low.

So from this study I concluded that mind wandering is most likely to be reported on a drive such as the daily commute; it is typically driven the same way each day, under similar traffic conditions on the same roads, in peoples' own car.




*Results from questionnaire study: mind wandering variation by personal state, and type of road or vehicle*

So for my next study I decided to look into the nature of mind wandering and how it varies across different drivers as they travel to work and back.

**Mind wandering during the daily commute**

I'm halfway through data collection for this study of female drivers (aged 25-50) who drive on their own to work and home again, in Hamilton. The purpose of this study is to find out, firstly, whether it's any use asking people about their thoughts in person.

Mind wandering is a very difficult topic to study with any objectivity. We rely on peoples' reports of what they are thinking about - but the moment I ask them what they are thinking about, inevitably I'm making them think about the fact that a stranger is asking about their thoughts... so in this study, I'm driving to work and back with ten women, for ten trips each.

So far, they report that they very quickly get used to me being there, and every few minutes I simply say 'what are you thinking now?' and write down their response.

The next step is to code these thought samples as either driving-related, or not. This in itself is not a trivial task. For example, if someone tells me that they are thinking about 'that man walking his dog, he hasn't got an umbrella, he's going to get wet'.

From one perspective, the driver has noticed something in the road environment: a pedestrian. However, the fact that the pedestrian might get wet is only tenuously related (if at all) to the driving task itself.

Across ten drives per participant and ten participants, I will at least be able to look into patterns, and explore the types of responses people give. I can make comparisons between the drive to work in the morning, and then home again in the afternoon.

I'm also asking drivers each day how tired they are, and whether they had an easy day at work or not - because fatigue and stress are also known to affect the amount of energy people have to perform any type of demanding task. Whether or

not the daily commute is 'demanding' is itself subjective, but at least this is a start.

**So what? Links with crash risk on familiar roads**

The main purpose of my PhD as a whole is to use driving as a tool to study attention and learn more about how it works, generally. But with my background in traffic engineering, I am naturally also interested in the practical implications of this research. Do wandering minds cause crashes?

If we don't know how often drivers' minds wander in the first place, we can't be sure whether or not they are 'risky'. It's like saying 'Don't buy a white car, they are in crashes ALL THE TIME!', or 'Watch out, 40% of all crashes involve Auckland drivers!'.. baseline prevalence in the driving population is fundamental to understanding risk.

*"Civilization advances by extending the number of important operations which we can perform without thinking."*
*Alfred North*

So given that we can't measure mind wandering like we can count white cars, we need to use other methods to infer whether or not mind wandering is a problem.

Drivers say that their mind is most likely to wander in their own car, on familiar routes.

So I did a desktop study of crash risk 'close to home'. I compared crash distances from drivers' home addresses for injury crashes, to the overall distribution of trip distances from home (using household travel survey data).

I found that the mean crash distance from home was much further than mean trip distance from home.

So, if there is inherent risk related to mind wandering, it seems that it's not a very big risk.

It's trumped by other factors such as how many intersections you drive through, or what type of roads you drive on; it seems that injury crashes are more likely on longer trips, so fatigue may be a much more important factor than the casual daydreams of driving around the streets where you live.

*Associate Professors John Perrone, Samuel Charlton, Nicola Starkey and Robert Isler, Traffic & Road Safety Research Group, University of Waikato*

This study is currently under review with the journal Accident Analysis & Prevention, so if you're interested let me know and I'll tell you more if/when it's published.

**What are you thinking about now?**

When I've finished the commuting study, my plan is to extend its methods by accompanying drivers on longer trips.

I'm interested in whether or not the patterns of attention are different in urban and rural environments, and how thoughts change on drivers lasting longer than an hour.

I am also planning to do more with crash data, perhaps looking into trip purpose or time of day, to find out whether driving on familiar roads is particularly more risky in different circumstances.

I might also run an experiment using the University of Waikato's fancy new driving simulator.

The main advantage of simulation is that you can push participants into situations that would be too risky to try on the road.

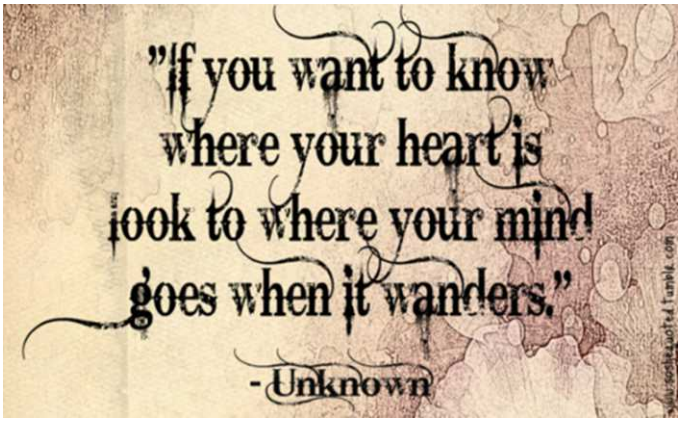
My studies with real driving on real roads are purely observational, whereas in the simulator I can manipulate aspects of the road environment to test hypoetheses in a more controlled way.

So far I have presented findings of the first questionnaire study at the New Zealand Applied Pscyhology conference; I have two journal manuscripts under review, and an abstract being considered for the 2016 International Conference of Traffic and Transport Pscyhology, to be held in Brisbane in August.

I will continue to look to publish my work in a variety of forums, and will of course keep the New Zealand transportation industry updated in different ways.

Please feel free to contact me if you are interested in hearing more about my study, or the work of the Traffic and Road Safety research group (TARS) at the University of Waikato.

**bridget.burdett@tdg.co.nz**



If you are ever having a bad day, just think yourself lucky to not be stuck in this recent traffic jam at a Beijing toll booth.

# Transportation Engineering Postgraduate Courses 2016

*supported by:* NZ TRANSPORT AGENCY WAKA KOTAHI

**Dept of Civil & Natural Resources Engineering**
**University of Canterbury**

The courses below are available for full-time or part-time students studying for the following postgraduate transportation qualifications at Canterbury:
• Certificate of Proficiency (COP) ~ for individual one-off courses (great for CPD!)
• Postgraduate Certificate in Engineering (PGCertEng) ~ typically four courses
• Master of Engineering Studies (MEngSt) ~ typically eight courses
• Master of Engineering in Transportation (MET) ~ up to six courses plus research project/thesis
Domestic student fee per course in 2016 is **$1018 (except ENTR401 to be $900) incl. GST**, + Student Services levy (up to $372/semester).

All courses run in "block mode" to enable **part-time and distance students** to easily take part. Block course dates would be announced in due course. In 2016, the contact time will be reduced from **6 to 5** days (i.e. a 3-day block followed by a 2-day block), and students taking the courses will be expected to do more reading and learning in their own time. All prospective students must Apply To Enrol in courses no later than one week prior to the course starting (preferably earlier) – otherwise late fees may apply.

Candidates with a Bachelor of Engineering OR other relevant degrees (e.g. planning, geography, psychology, maths) OR non-degree with suitable work experience will be considered for entry.

| COURSE | DESCRIPTION *(more detailed Flyers available on website)* |
|---|---|
| **ENTR401: Fundamentals of Transport Engineering** *(Anytime - contact Department: Self-study at home with 1-day tutorial at UC)* | Transportation planning; Road link theory and design; Intersection analysis and design; Traffic studies; Accident reduction; Sustainable transport planning and design; Pavement design; Road asset management. *{bridging course for non-transportation students}* |
| **Semester 1 (Feb-Jun 2016)** | |
| **ENTR611:** Planning and Managing for Transport (Block dates: 29 Feb-2 Mar, 2-3 May) | Road/transport administration in NZ; Transport legislation in NZ; Communication/presentation skills; Public consultation; Transport assessment; Traffic surveys; Demand management & tolling; Project economics; Construction planning & contract management. |
| **ENTR612:** Transport Policy & Demand Management (Block dates: 7-9 Mar, 9-10 May) | Transport economics; Travel demand and supply management; Congestion pricing; Transport policy objectives and instruments; Traffic management modelling. |
| **ENTR602:** Accident Reduction & Prevention (Block dates: 14-16 Mar, 16-17 May) | Impact on society; Data analysis and interpretation; Hazardous location identification; Problem diagnosis; Treatment options; Treatment selection; Economic appraisal; Evaluation. |
| **Semester 2 (Jul-Oct 2016)** | |
| **ENTR614:** Planning & Design of Sustainable Transport (Block dates: 18-20 Jul, 12-13 Sep) | Pedestrian planning and design; Planning and design for cycling; Audits/reviews of walking and cycling; Public transport operations, scheduling and network design; Travel behaviour change and travel plans. |
| **ENTR615:** Transport Network Modeling (Block dates: 1-3 Aug, 26-27 Sep) | Principles of transport modelling; Road network modelling (SATURN); Macro-simulation and micro-simulation (Paramics); Traffic intersection modelling (SIDRA); Transport network analysis and reliability. |

*Note: Other relevant courses at Canterbury (e.g. Risk Management and Construction Management courses), Univ. of Auckland or elsewhere may also be suitable for credit to a PGCertEng, MEngSt or MET.*
*For more details contact:*
***Dr Mofreh Saleh*** *Phone: (03) 364-2987 Email: mofreh.saleh@canterbury.ac.nz*
*Or visit the website: www.met.canterbury.ac.nz*

# Crack Down on Distracted Bicycling

US bicycle advocates say cyclists should not use hand-held electronic devices at all when riding. But there's no evidence that such use has resulted in deaths or serious injuries, raising questions about whether creating laws or slapping fines on cyclers makes sense.

Worried that bicyclists who chat, send messages or listen to music on smartphones are creating a danger, a number of cities have banned cyclists from using hand-held cellphones or texting while riding. And several states prohibit bicyclists from using headphones or earplugs.

The efforts to reduce the risk to cyclists, pedestrians and motorists come as cities are trying to become more bike-friendly, and people increasingly turn to electronic devices to communicate and navigate.

"If they want to share the road, they have to share the responsibility as well," said Massachusetts state Rep. Steven Howitt, who has introduced a bill that would prohibit bicyclists from wearing headphones.

Bicycle advocates say cyclists should use common sense and not use hand-held electronic devices at all when riding. Nor should bikers use headphones if they are distracting.

But advocates also say there's no evidence that such use has resulted in deaths or serious injuries, and question whether creating laws or slapping fines on cyclers makes sense.

"There's a huge difference between distracted driving that kills someone and distracted biking that doesn't," said Peter Wilborn, founder of Bike Law, a network of personal injury lawyers that focuses on cycling issues. "I don't think we need laws specifically for this."

## "There's a huge difference between distracted driving that kills someone and distracted biking that doesn't"

Most state laws don't directly deal with cyclists using cellphones or texting. But at least seven states—California, Delaware, Florida, Maryland, New York, Rhode Island and Virginia—specifically include bicyclists in their laws restricting or banning the use of headsets or earplugs.

An eighth state, Pennsylvania, prohibits people driving vehicles from using headsets, a prohibition that likely applies to bicycles, which are defined as vehicles in that state.

Delaware bars cyclists from wearing earplugs or headsets covering both ears. Maryland does the same, except when cyclists are riding on bike paths.

In Rhode Island, bikers or drivers who wear earphones, headsets or other listening devices are subject to increasingly severe fines for subsequent offenses.


The state does allow the use of cellphone headsets that provide sound through just one ear.

And in Massachusetts, Howitt's bill is pending in the Joint Transportation Committee. Drivers can't wear headphones in the state, and it should be the same for bicyclists, he said.

"In this age of electronics and constantly being entertained, I see bicyclists with headphones on, particularly in the city [Boston]," Howitt said.

"A biker could be cutting across an intersection, and an ambulance is coming through and he's not hearing it if he's playing music very loud."

Ken McLeod, with the League of American Bicyclists, said his cycling advocacy group supports allowing bikers to choose whether to wear headphones.

He said he is unaware of any research on the impact of using headphones on cyclist safety so his group is unlikely to support laws that ban their use.

When it comes to cellphones and texting, McLeod said his group promotes hands-free biking, and if cyclists are getting distracted, "it's an appropriate area to be regulated."

"You're most in control of your bicycle if you have both hands on the handlebars," he said. "Anything that detracts from that is probably going to make you less safe."

# Modeller's Perspective on the 2015 AITPM Conference

**by Julie Ballantyne, TDG**


I was fortunate to attend the Australian Institute of Traffic Planning and Management (AITPM) annual conference held in Brisbane in July 2015, with my trip partly funded by IPENZ Transportation Group.

The conference had three workstreams running in parallel on Wednesday and Thursday, followed by forums on Friday.

The three workstreams in the main conference covered:
- Traffic Engineering and Management;
- Transport Planning; and
- Transport and Land Use Modelling.

For those that know me, you won't be surprised to know that I attended the modelling sessions!

There were around 400 delegates in total, with a small smattering of kiwis flying the flag (whatever it turns out to be).

The modelling sessions, following a quick and very unofficial poll, were dominated by consultants with a small number of local or state representatives.

Nevertheless, as a fellow consultant, it was good to find out what projects people were working on, software used, issues faced and how these were resolved.

The Friday forums ran from 8:30 to just after 2pm, and covered:
- Transport and Land Use Modelling;
- Reshaping the Future of Road Networks (smarter system management and technology application); and
- Customer Tools, Big Data and Analytics.

The Friday modelling session was slightly more informal than the prior two days. It was run by the AITPM "Transport Modelling Network" (TMN), the equivalent of the NZ Modelling User Group (NZMUGS).

It included a "speed networking" session over morning tea, where we were encouraged to talk to five new people. It also featured a plenary session with three modellers including myself answering questions on "national" modelling issues.

The dominant theme throughout the modelling sessions, and perhaps the elephant in the room, was the law suits over traffic forecasts for toll roads with various large, international multi-disciplinary companies embroiled in significant and costly "investigations".

The key note speaker for the modelling workstream was Rob Bain (http://www.robbain.com), a London-based consultant, whose "primary focus is commercial and technical due diligence of investment prospects in transportation [projects]".

Rob's name often appears in reports, articles, and blogs reviewing traffic forecasts produced for significant transport projects, whether road or public transport.

Rob, who is an entertaining speaker and seems to enjoy pushing the boundaries, kicked off one of his presentations with a slideshow cycling through the front covers of reports he had reviewed.

Most of the large transportation planning companies were featured – and Rob's message was, did you know that he would be reading your report when you wrote it?

The message was even though we write our reports for a particular client and audience, sometime the material will attract wider attention than we realise.

Rob re-enforced the need to clearly document any assumptions made, ensuring these were transparent and reported concisely.

Rob than ran through five recent law suits in Australia associated with traffic forecasts for toll roads. He named the companies being sued and the grounds (which I won't do here!).

What surprised me the most – nobody was being suited for producing dodgy forecasts. The grounds of the law suits were about "misleading and deceptive conduct", forecasts made without reasonable grounds, and omissions or misleading statements.

Rob's advice was to make our assumptions transparent in our documentation, act in accordance with competent professional practice, and ensure we have reasonable grounds for the assumptions we have to make.

Ian Clark, chairman of the committee for the NZ Modelling User Group (NZMUGS) presented the new NZTA "Transport Model Development Guidelines" (https://www.nzta.govt.nz/assets/resources/transport-model-development-guidelines/docs/tmd.pdf).

These guidelines are software-agnostic and focus on the types of project to be assessed and the appropriate tools to be applied, providing criteria and targets for model validation.

It will be interesting to see whether our new kiwi guidelines are referenced by Aussie modellers in the same way that the NZTA Economic Evaluation Manual (EEM) was.

Although, there are various guidelines on model validation evolving in Australia, they often have a software-focus.

Other presentations of interest included the state of the recalibration of the new strategic model of Brisbane (ongoing), reflecting parking in strategic models, how park-and-ride has been represented in the Melbourne model, pedestrian modelling. Basically, this workstream was all about modelling!

Overall, it was a thoroughly enjoyable conference which was well attended.

One of the main benefits for me personally was talking to the speakers and fellow consultants outside of the formal sessions.

This provided an insight into the challenges they faced, evolved into discussions about where our industry is heading and what we can do to improve the forecasts we make to produce more robust transport solutions.

# The benefits and costs associated with urban road lighting in New Zealand[1]

**From Bill Frith, Opus Research, Mike Jackett, Jackett Consulting, and Julian Chisnall, NZ Transport Agency**

## 1 Introduction

A previous article[2] reported that the safety of urban roads at night varies with the amount of lighting and that adaptive LED lighting can allow lighting levels which optimise safety while achieving large energy savings.

To quantify this, we need to relate the social cost savings from crash reductions associated with lighting to the practical on-road costs of the LED lighting.

The yardstick used was the 40 year Present Value methodology recommended by NZTA with the (2014) cost inputs coming from relevant experts in the field. The modelling was spreadsheet based to allow for changing inputs and sensitivity testing.

## 2 Costs and Benefits of lighting

To light a 14m wide urban arterial to V3 level using LED luminaires may cost $85,000 per kilometre but as shown in figure 1 that capital cost is only about 65% of the "whole of life" cost of lighting. There is a further 35% from electricity usage and operating costs.

The highest benefit cost ratios for a given cross section occur at the highest traffic volumes. This is because installation costs do not increase with traffic volume but potential crash savings do.

The highest benefit cost ratios also occur when higher rather than lower lighting levels are used. For any given traffic volume or road cross section lighting subcategory V1 invariably gave a higher B/C ratio than subcategory V4.

This suggests that with LED lighting the extra cost of providing more light is usually outweighed by the extra crash savings achieved.

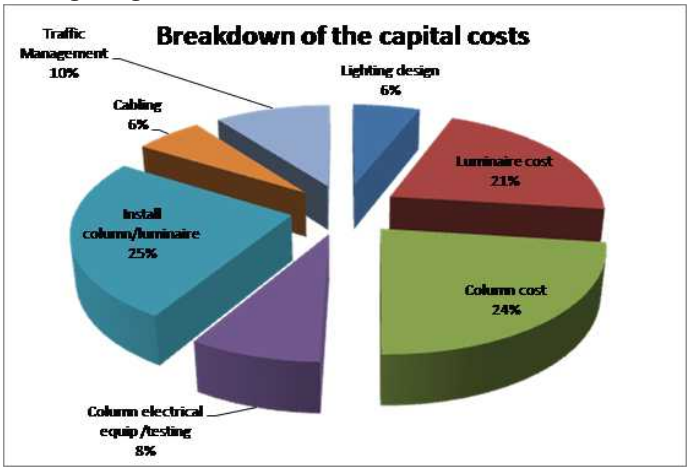



*Figure 1: Cost components in lighting schemes*

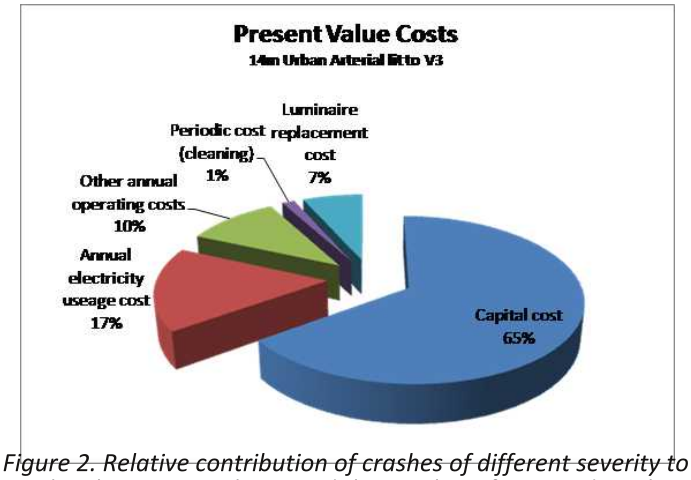



*Figure 2. Relative contribution of crashes of different severity to total night time social cost and the number of reported crashes*

It was found that on a whole of life basis most category V lighting designs were more economic if LED rather than HPS light sources were used.

**Changes to lighting standards**

Recent research[3] found that New Zealand pavements were not as bright or specular as our design rules suggest and a proposal is before the standards committee to rectify this.

The proposed change to the NZ road reflectance tables effectively increases the minimum luminance for compliance with any subcategory V lighting by 28%.

Analyses show that the proposed change would have only a minor impact on costs. The proposed change in reflectance table specularity would allow luminaire spacing to increase slightly so reducing the capital cost.

The need to increase the lumen output by 28% would increase the operating costs. LED luminaires require less energy to achieve the required increase in light so that the extra energy costs are generally balanced by saving in capital costs.

Due to the brighter pavements the proposed changes could result in a 20- 35% increase in the B/C.

**The economics of adaptive lighting**

Raising the lighting level at times with high crash numbers and lowering the level when crashes are few could increase overall safety performance without increasing energy use (see figure 3).

To assess the costs related to the changes in figure 3, LED designs for a major arterial route with 14m carriageway were modelled.

An increase in lighting from V3 to V2 would reduce crashes by 26%, whereas an adaptive V2/V4 combination would reduce crashes by 14%.

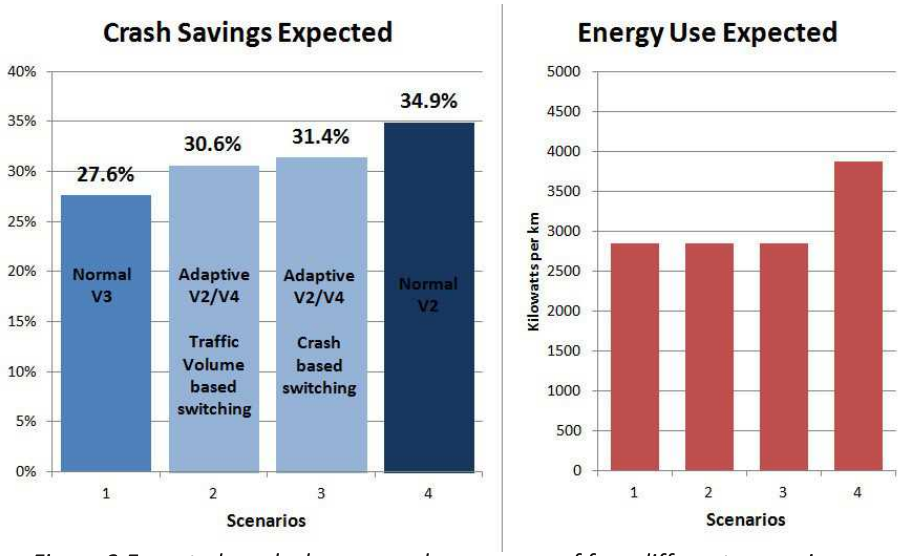



*Figure 3 Expected crash changes and energy use of four different scenarios*

Table 2 shows how the economics of using adaptive hardware improves with increasing electricity cost. At 16c/kWh adaptive hardware would need to cost less than $10,700 per kilometre to break even.

However if the electricity cost rises to 40c/kWh, hardware costing as much as $26,600 can be justified.

LED luminaires offer much greater choice in lumen output than the limited lamp choices (150w, 250w or 400w) available with HPS lighting.

An important result from this is to allow designs to be optimised on spacing which is independent of the subcategory of lighting provided.

An RCA can then chose at some later date to increase or reduce the level of lighting perhaps using a different luminaire but without needing to relocate lighting columns.

Figure 4 illustrates how little the cost of provision of lighting changes (brown bars) compared to the cost of crashes saved (blue bars) as the lighting subcategory increases.

| Per kWh charges | Present value of electricity V3 design | Present value of electricity V2 design | Present value difference (V2-V3) |
|---|---|---|---|
| 4c | $9,200 | $11,800 | $2,600 |
| 8c | $18,300 | $23,600 | $5,300 |
| Current > **16c** | **$36,600** | **$47,300** | **$10,700** |
| 24c | $55,000 | $70,900 | $16,000 |
| 32c | $73,300 | $94,600 | $21,300 |
| 40c | $91,600 | $118,200 | $26,600 |
| 48c | $109,900 | $141,900 | $32,000 |

Table 2. The present value of electricity for V3 and V2 designs on a 14m carriageway

## 3 Conclusions

• For the urban arterial routes modelled the road safety benefits from road lighting substantially exceeded the costs of providing road lighting. Further the safety benefits tended to be an order of magnitude higher than the current electricity charges.

• Where road lighting is provided for road safety reasons higher levels of lighting are likely to provide a better return on the investment and improved safety outcomes.

• Adaptive lighting offers flexibility to vary lighting to maximise crash benefits and minimise electricity consumption. Hardware costs are key to the economics of this option.

• The proposed revision of the NZ R-Tables within the AS/NZS1158 standard does not markedly change road lighting costs- if anything whole of life costs may reduce.

• A comparison of HPS and LED designs suggest that LED designs will generally have lower whole of life costs and technology improvements are likely to drive LED costs still lower.

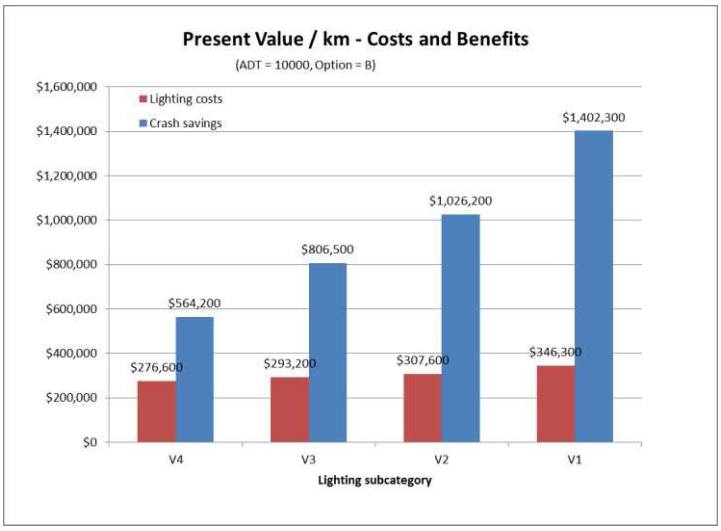



*Figure 4. Lighting scheme present value costs and benefits per km for a major arterial road (14m) with a traffic flow of 10,000 vpd.*

*1 A more detailed paper on this subject was presented by the authors at the IPENZ Transportation Conference, 2015 http://conf.hardingconsultants.co.nz/workspace/uploads/paper-frith-bill-the-benef-54f39321d5c63.pdf*
*2 The impact of adaptive road lighting on road safety-issue 140 June 2014*
*3 Jackett, MJ. & Frith, WJ. (2009). Measurement of the reflection properties of road surfaces to improve the safety and sustainability of road lighting. NZTA Research Report number 383*

***Auckland's Newmarket Viaduct circa 1960s***

# 3M Traffic Safety Innovation Award

Have you or a colleague recently developed a road safety treatment or initiative that stands out beyond traditional activities and delivered improved road safety?

You could be the winner of the newly improved 3M Traffic Safety Innovation Award! Go to the IPENZ Transportation Group 2016 Conference website for details of how to enter. Click **HERE**

The individual Team Leader from the winning project will receive a trip to the USA to attend the ATSSA Annual Convention & Traffic Expo. You will also visit the 3M head office.

You will present on your winning entry and international trip at the following IPENZ Transportation Group conference.

## And new this year -
## 3M Traffic Safety Young Professionals Award!

3M Science. Applied to Life.™

# ITE Study Tour – Recap on New Zealand Leg

In September, following a week in Australia (and after a memorable AFL experience at the “G”) is was New Zealand's turn to host an important ITE delegation.

The touring party consisted of:
John Kennedy – ITE International President
Hibbett Neel – Past ITE International President
Tom Brahms – ITE Executive Director & CEO
Michelle Birdsall – ITE Journal Senior Editor
Becky Malenke – Senior Project Manager, Neel-Schaffer Inc
Jonathan Kiser – Professional Engineer, Neel-Schaffer Inc
Milton Carrasco – President & CEO, Transoft Solutions Inc …
and some of their family members.

Starting out in Auckland there were many local experiences to take in ranging from an inspection of the Waterview Tunnel (and meeting Alice the tunnel boring machine), to hearing about the SkyPath shared walking and cycling path across the Harbour Bridge, to walking through the waterfront urban renewal project at Wynyard Quarter.

We were fortunate to have time volunteered by numerous organisations and individuals which made (not only the Auckland leg) an enjoyable and memorable event. Three technical seminars were held with local ITE members as well as the local branches of the IPENZ Transportation Group where some valuable conversations and debates took place.

In Wellington a roundtable format of discussion raised issues from international collaboration to sustainability and resilience in transport systems. While in Wellington International President John Kennedy, Past President Hibbett Neel, CEO Tom Brahms and International District Director Don McKenzie were honoured to share time with NZ’s Associate Transport Minister Craig Foss.

With ITE’s increasing visibility in terms of technical advocacy it was an excellent opportunity for these senior members of ITE’s governing Board to meet with an elected official.

Travelling down country to Christchurch, the group then took in some southern hospitality involving a walking tour through the Christchurch CBD to witness first-hand some of the innovations being applied to the rebuild process, ranging from the Container Mall to the Space Filler project of activating bare plots of land with all sorts of community activities.

As with the time spent in Australia, during the NZ leg our North American colleagues were appreciative of being able to see first-hand the range of both innovations and advances in transport from walking and cycling, to big data, transport funding and the continued application of technology to transport.

It was a resounding success and a big thank you to all ITE members who took part and especially those who assisted with arrangements and hosting of our ITE friends.

**Don McKenzie**
don.mckenzie@tdg.co.nz

# Who is responsible for a driverless car accident?


Who is responsible for a driverless car accident?

Volvo says it will accept full liability for accidents involving its driverless cars, making it "one of the first" car companies to do so. It joins Google, which has made similar claims.

Volvo says it is trying to expedite regulation in the US, where "a patchwork" of rules is holding back the industry. Uncertainty over liability for a driverless car crash is seen as one of the biggest barriers to adoption.

In a speech in Washington DC recently, the president of Volvo Cars, Hakan Samuelsson, said that the US is currently "the most progressive country in the world in autonomous driving".

However, he believes it "risks losing its leading position" because of the lack of Federal guidelines for the "testing and certification" of autonomous vehicles.

Instead, car makers face inconsistent rules from state to state, which makes it harder to roll out their technology.

For instance, only a handful of US states such as California and Nevada allow the testing of autonomous vehicles on public roads - and even then rules around certification vary.

Regulation is also slowed by unanswered ethical and legal concerns, particularly when it comes to liability for driverless car accidents.

And the situation is "even worse" in Europe, according to Volvo's chief technical officer, Erik Coelingh.

As with any new form of technology, it is important to get the regulation governing its implementation right.

Mr Coelingh says "Everybody is aware of the fact that driverless technology will never be perfect - one day there will be an accident.

"So the question becomes who is responsible and we think it's unrealistic to put that responsibility on our customers."

But Ben Gardener, a solicitor at Pinsent Masons, believes Volvo's guarantee is aimed at reducing uncertainty in the minds of governments and regulators.

"Volvo wants to remove the uncertainty of who would be responsible in the event of a crash. At the moment it could be the manufacturer of the technology, the driver, a maker of a component in a car."

Volvo also says it would only accept liability for an accident if it was the result of a flaw in the car's design.

"If the customer used the technology in an inappropriate way then the user is still liable," said Mr Coelingh. "Likewise if a third party vehicle causes the crash, then it would be liable."

Prof Sandor Veres, director of autonomous systems at Sheffield University: "This bold move by Volvo can pave the way for global legislation, as if other manufacturers take similar undertakings then legislation can be made simple."

But Mr Gardener said the move would not get around underlying safety concerns about driverless cars.

While manufacturers claim autonomous vehicles could eventually improve road safety, a number have been involved in accidents involving such cars during tests.

"There's not much value in a manufacturer saying we'll

be responsible for thousands of accidents but then there being thousands of accidents each year," said Mr Gardener.

He said it was also unclear whether automatically holding manufacturers liable would stand up in court - at least in the UK.

"In this country, the party causing an accident is responsible once all of the circumstances of the particular case have been examined," he said.

"But moving to a strict manufacturer liability approach would remove the need to consider who is responsible for the collision. This is something not currently recognised in the UK approach to liability."

In truth, we are only likely to see widespread use of driverless technology when such grey areas are resolved.

But according to some, that could be sooner than previously expected.

At the Frankfurt Auto show in October, US secretary of transportation Anthony Foxx said he expects driverless cars to be in use all over the world in 10 years.

Tesla founder Elon Musk has predicted his firm will have approval for its automated vehicles as early as 2019.

And many other manufacturers plan to launch driverless cars in the near future, including Toyota which recently said it expected to be selling such vehicles by 2020.

*http://www.bbc.co.uk/news/technology-34475031*

# Professional development opportunities

| **Planning and Design for Walking and Cycling** | NZ TRANSPORT AGENCY WAKA KOTAHI | VIASTRADA |
|---|---|---|

| **Auckland, 22-25 February 2016** | Planning and design for walking and cycling |
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ViaStrada is offering four days of training covering Planning and Design for Walking and for Cycling, hosted by Auckland Transport at the Auckland Council Manukau offices.

**Walking courses.** Guidance and tools published by the NZTA enable better practice in meeting user needs. This course aims to ensure participants are inspired, understand the key principles behind the guidance, and are equipped with the basic skills needed to apply them.

**Cycling courses** start with the principles of planning and design for cycling and move on to planning and funding, mid-block and path design, and intersection design. They can be taken individually or as a block, and are aimed at anybody planning, designing or reviewing roads or other facilities used by cyclists.

| **Information and registration:** | To find out more or register for these courses: |
|---|---|

- contact Helen at ViaStrada: T: 03 366 7605 E: helen@viastrada.nz
- visit the ViaStrada website for registration forms and more information on course content. www.viastrada.nz/training

# RFID Tags Allow Danish Cyclists To Turn Traffic Lights Green

It really must be heaven to be a cyclist in Denmark.

You get lovely, dedicated infrastructure. You get cities that run analyses showing how bikes are good for people, and cars aren't. And now, if you live in Aarhus, you can get a special tag to help beat the traffic lights.

Aarhus, Denmark's second largest city, is currently running a trial where cyclists are given RFID tags that they attach to their wheels (see photos).

As they approach a junction, the tag sends a signal to a nearby reader, which in turn switches the light to green.

Cyclists never even have to stop, even as car drivers on the other side of the junction are brought to a standstill.

"In Aarhus, we have a vision of helping the cyclists more and more to get the cars out of the inner city.

So it's a good idea to make the way round the city better for the cyclists and maybe not that good for the cars," says Louise Overgaard, who works on the project for the city.

The tag-and-reader combo is the biking equivalent of the electromagnetic road coils that change traffic lights when cars go over them. But it's unusual for such a system to be in place for cyclists.

In most places, cyclists have to break the law, technically speaking, if they want to pass through the city at a reasonable speed.

The readers (see above) are in place at only one medium-sized junction and only 200 cyclists have the tags. But Overgaard says there's a good chance the project could be extended to other parts of the city.

"I don't think it's going to go city-wide. But in the inner city there are a lot of cyclists, and we want to have fewer cars and more cyclists."

Rita Westergaard, from ID-Advice, the company behind the system, says it costs about 40% less than magnetic coils in the road, mainly because you don't have to dig up the surface to put them in. So, it shouldn't be too hard to put in the technology other places.

Should we start feeling sorry for Danish car drivers?

*http://www.fastcoexist.com/3053969/these-rfid-tags-allow-danish-cyclists-to-turn-traffic-lights-green*

# Improving cycle safety on rural roads

**By Gerry Dance Principal Advisor, Cycling, NZ Transport Agency and Peter Kortegast, Transportation Engineer, Opus International Consultants Ltd**

Five years ago, five cyclists died within five days in New Zealand. In 2013, following Coroner Matenga's review, the NZ Transport Agency established the New Zealand Cycling Safety Panel to develop practical and innovative recommendations for how central and local government can work together to make cycling a safer transport option.

The panel's recommendations cover new and innovative solutions for infrastructure, education, network user behaviour, regulation and enforcement.

The report "Safer Journeys for people who cycle" identified the lack of shoulder width, as a significant factor in rural cyclist crashes. This lack of 'space' results in a greater risk to cyclists when motorists pass.

This led to the NZ Transport Agency as part of the national research programme engaging Opus International Consultants to research and trial cost effective ways to improve safety for people who cycle on low volume roads.

The Waipa District is a region experiencing a growing popularity in recreational and sport cycling, and improving cycle safety for those people cycling is a priority for the NZ Transport Agency and the Waipa District Council.

Roto-o-Rangi Road near Cambridge was chosen to trial the research elements as it's a very popular local cycling route and the road characteristics initially fitted within the research parameters.

As part of the research we wanted to get a better understanding of how road design and layout, and speed management can play a part in improving safety for people who cycle in our rural areas.

The first phase took place on 24 July 2015, and in partnership with Waipa District Council, Opus and the NZ Transport Agency rolled out the first trial elements.

The first trial saw new road markings, a speed reduction and signage put in place on a 4km long stretch of Roto-o-Rangi Road. The trial road markings, called 2-1, are where a two-lane rural road is reduced to a single lane with wide shared shoulders.

The layout is commonly used in Europe, however the July trial was the first time it has been used in Australasia.

Safety for all road users during the trial was paramount and after a day of on-site monitoring it became clear that some road users were confused by the new layout and uncertain on how to position themselves on the road.

Additionally vehicle speeds particularly at night did not adhere to the 60km/h temporary speed limit. The original road markings were immediately reinstated.

In late August the NZ Transport Agency and Opus Project Manager met with Waipa District Councillors to talk through the trial and next steps.

It was decided to proceed with some elements of the trial – but not the 2-1 road markings – and to take a simpler approach that will reduce uncertainty and confusion for road users.

The road markings and speed limits are back to normal, but other aspects of the trial including signage and 'sharrow' (cyclist/arrow) markings on the road surface, which alert drivers to the presence of cyclists, remain in place to enable us to better understand how vehicle driver and cyclists' behaviour changes due to these road safety features.

The second phase involved 10 volunteers cycling Roto-o-Rangi Road with high-tech units attached to their

*This picture shows the 2-1 layout on 24 July 2015. Both the new and old 'ghost' markings are visible.*

bikes for about 4 hours. Along with a camera, the units were able to measure the speed, distance and location of vehicles that pass the cyclists.

The main purpose of these elements was to gain an understanding of how much space and the speed motorists give cyclists when they pass on rural roads.

The NZ Transport Agency is moving into new territory in the cycling space and there will be challenges and setbacks but we are determined to be innovative to get the best results for both motorists and cyclists.

A key learning on this project is the importance of upfront engagement and education with our communities, particularly when we're implementing initiatives that are a change from the 'norm'.

Not every new measure that we test will work, or be popular with everyone, but we need to try new things to find out what's most effective. We are committed to bringing everyone along on the journey as we continue to investigate ways to improve cycle safety.

*This picture shows the unit fitted to one of the trial bikes*

The NZ Transport Agency is keen in hearing from and working with councils around the country that are interested in trialling the 2-1 layout in a low volume, lower speed environment, local rural road.

The results of this research project, including community feedback, will be reported to the NZ Transport Agency early in 2016, with the final report published and available around March 2016.

For more information on the NZ Transport Agency's cycling priority visit:
www.nzta.govt.nz/cycling

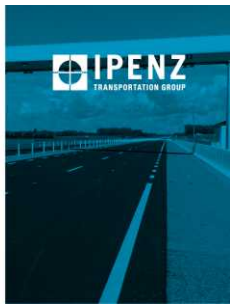
NZ TRANSPORT AGENCY
WAKA KOTAHI

OPUS

Design.
Innovation.
Technology.

IPENZ Transportation Group
Conference 2016
**Auckland 7–9 March**

Pullman Hotel, Auckland



To register - click here

To enquire about sponsorship click here

# Photo Competition

Glen Koorey, previously of the University of Canterbury, imminently of ViaStrada, has sent in these photos of dubious pedestrian crossings.

The first is Issaquah Highlands, a planned New Urbanist development on the outskirts of Seattle. They managed to plan a nice accessible cut-down kerb – unfortunately they didn't plan where it was going to… Bottom is an image from Beijing. It seems that a zebra crossing is code for "you can park here"…

Seen a worse example? Send it to:
daniel.newcombe@aucklandtransport.govt.nz

# Got a good idea?

# IPENZ Transportation Group Study Award 2016

The IPENZ Transportation Group aims to advance the knowledge base and practice of the transportation profession in New Zealand. Each year the Group provides a Study Award worth up to **$8,000** for a Group member(s) to undertake study in New Zealand or overseas, to learn about issues that are important and topical in the transportation area, and then to spread that useful and usable knowledge to peers.

If you believe you can help the profession learn more about important transportation issues, apply now for the IPENZ Transportation Group Study Award. The essential requirements are that the study area is relevant to the interests of the Group, and that you document and disseminate your newfound knowledge to your Group peers.

The deadline for applications is **Friday 18th December 2015**.
See below for details.

IPENZ TRANSPORTATION GROUP

# IPENZ Transportation Group Study Award

**Purpose**

To provide an opportunity for a member of the IPENZ Transportation Group to study, collect information or exchange ideas which will advance the knowledge base and practice of transportation engineering in New Zealand.

The topic may be any of relevance to the New Zealand transportation engineering profession. Uses for the funding could include, amongst other possibilities:

- Onsite work experience
- A research project, including incurred costs (travel related to a study tour, etc.)
- A staff exchange within New Zealand or overseas

The award cannot be used for professional fees or for tertiary course costs (there is separate scholarship available for this). An applicant must supply a peer reviewer/mentor/supervisor to monitor and review the study, and the application is to include a statement from that person supporting the research and including a comment on the relevance and practical application of the outcomes.

Bi-monthly updates must be provided on progress. Upon completion of the study, a requirement of the award is the production of a paper to the IPENZ Transportation Group conference, an article suitable for inclusion in the Roundabout magazine and presentations to local IPENZ Transportation Group branches.

Applications must supply supporting rationale for the funding sought. Where funding requirements are for less than the total amount available, the remainder may be offered to the next highest ranking applicant. Note that this award is not intended to support tertiary study. The Transportation Group is developing a separate tertiary study scholarship. Details of this award will be published soon.

**Assessment Criteria**

Applications should describe the proposal in detail, with estimated costs and timing, and should also address the following selection criteria:

- Relevance of the proposed topic to the New Zealand transportation engineering profession [30% weighting]
- Ability to provide useful and useable outputs (e.g. best practice guidelines that can be distributed nationally) [25% weighting]
- Methods proposed to document, peer review and share the results of the study (in addition to the above requirements) [30% weighting]
- Evidence of relevant track record (i.e. experience in undertaking study or relevant work) [5% weighting]
- Support from relevant third parties highlighting that the new knowledge or information will be useful to them (e.g. NZTA, councils, academics) [10% weighting]
- Commitment of the individual and their current employer (if relevant) to the project
- Timetable of proposed activity (i.e. results able to be realised within reasonable timeframe, desirably within 12 months of the award)

**Assessment Process**

1. The assessment panel will comprise of at least three people, being members of the IPENZ Transportation Group Research Subcommittee or other suitable members determined by the National Committee
2. The value of the award will be up to $8,000, subject to an adequate application being received. Where the successful applicant requires less than $8,000 the assessment panel reserves the right to offer the remaining amount to the next highest ranked applicant.
3. The award is to be taken up within 12 months of it being offered
4. Payment of the award is to be made 60% in advance and 40% on receipt of an adequate report, following the completion of the study or project (or other arrangement as negotiated).
5. An award in part may be made to one or more persons or groups.
6. The assessment panel's decision is final and no correspondence shall be entered into.

The deadline for applications is **Friday 18th December 2015**. The winner of the award will be announced at the 2016 Group conference in Auckland.

Enquiries or applications should be sent electronically to:
*IPENZ Transportation Group Awards Co-ordinator*
*Daniel Newcombe*
*Email: daniel.newcombe@aucklandtransport.govt.nz*

IPENZ TRANSPORTATION GROUP

# Branch updates

**Auckland/Northland Branch**
**Wrap-Up of Recent Events**

The Branch has had a great year with many highlights including a transport careers evening co-hosted with the University of Auckland careers team. The aim of the event was to encourage University students from a range of degree backgrounds to consider transport as a future career path.

We would like to thank all the companies again who sponsored the event, in particular the NZTA. With over 200 students attending the evening was a great success with a mix of transport professionals speaking about their experiences and then networking between the students and professionals over light refreshments. The University was very happy with the outcomes and we are looking at making this an annual event.

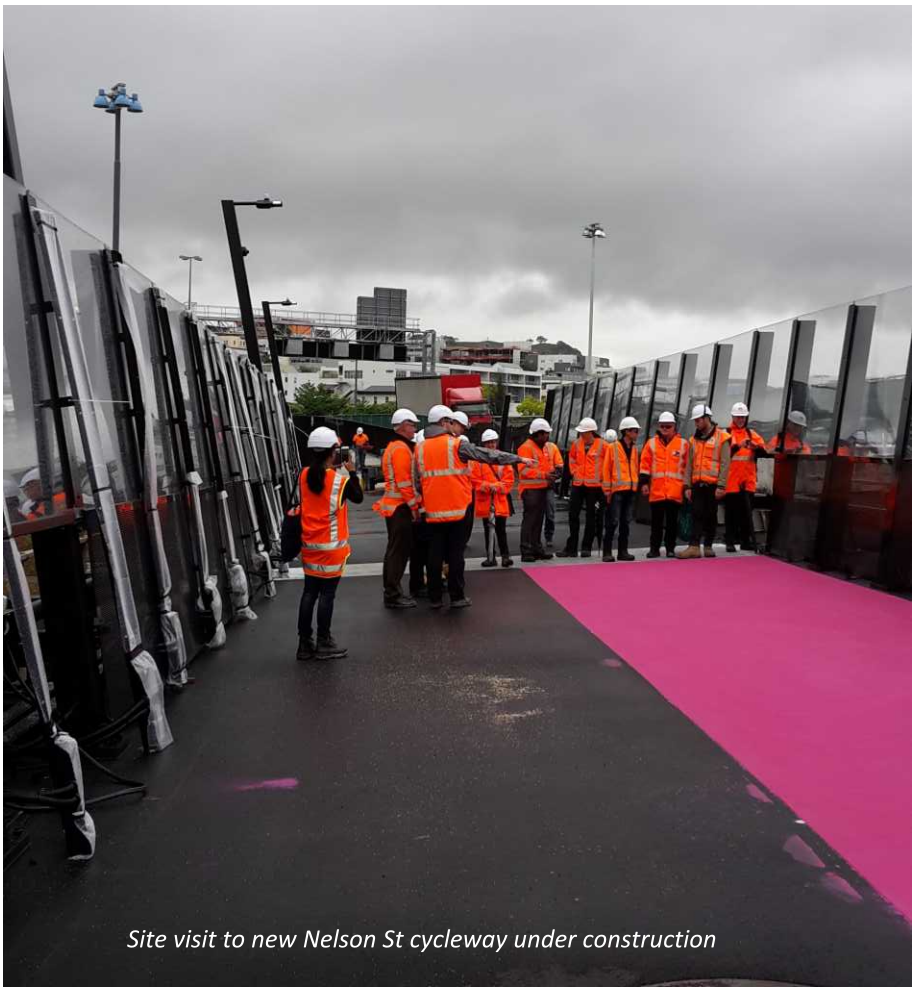
In November we had two great events. First we had a site visit to the Nelson Street Cycleway before it opened to the public.

Thank you very much to GHD who hosted the event with a delicious breakfast put on by NZTA and then a site visit of the construction site. We were fortunate enough to go out just after the first pink, sorry magenta, colouring was put down and it didn't actually rain during the visit, despite what the pictures imply.

At the end of November we had our Branch Christmas Party. We were lucky to find a venue last minute after issues with our original choice. Thank you very much to our Treasurer Lennart Nout who found Tom Tom in the Victoria Park Market precinct. This was a great venue with good food and with over 50 people attending a fun night was had by all.

**Branch Committee Nominations**

Are you interested in getting more involved? We are looking for new people to join the Auckland/Northland Branch Committee in 2016. The form asking for nominations will be circulated before Christmas and the closing for nominations will be 22 January 2016.



*Site visit to new Nelson St cycleway under construction*

**Upcoming Events**

We are currently lining up our events for early 2016. If you have any ideas please contact Pippa at pippa@t2engineers.co.nz

The first meeting of 2016 will be in late January. This will be a technical presentation and also our AGM. Then in late February we will be hosting a RTS 14 Universal Design Workshop. More details to come in the new year.

From the Auckland/Northland Branch we hope you have a relaxing and safe Christmas Break and look forward to seeing you in 2016.

**Waikato/Bay of Plenty Branch**
Alan is surely working on something.

**Central branch**
**Upcoming Evening Session:**

**New Year Debate – late Feb 2016 – Venue TBA**
Due to a lack of debater availability this month, the Central Branch will

*Site visit to new Nelson St cycleway under construction*

# Branch updates


*Site visit to newly opened Bus Interchange*

be postponing this debate to the new year as a kick-off evening event. The debate will bring to light a diverse set of views from the transport industry as well as the architecture/planning industries. Keep an eye on this space for details.

**Upcoming Tour:**
**Transportation Group Cycle Tour**
The Central Branch is excited to be organising social/semi-informative cycle tour around the Hawkes Bay Region for our members. Earlier EoI for this trip has gathered interest from TG members beyond the Central Branch, and we are looking to extend the invitation to others who are interested.

This trip provides an opportunity to explore the cycling network around the Hawkes Bay region by bike whilst liaising with local TG members in the Napier/Hastings area. The region has a vast network of off-road cycle paths which connect suburbs, rural areas, and draw tourists from across the globe.

This tour could involve renting bikes and witnessing first-hand the effectiveness of off and on-road cycling provision in the Hawkes Bay, the connectivity between Hastings and Napier, and/or a talk about the Hastings Model Communities project.


*End of year drinks at Stranges Lane Loft Bar*

We are targeting a mid-March 2016 date, with shared accommodation. If you have not already done so, please indicate your interest in this trip by contacting lead organiser Eliza Sutton at Eliza.Sutton@opus.co.nz

**Recent News Article:**
**A Letter to Santa**
http://www.stuff.co.nz/dominion-post/news/wellington/74738635/a-letter-to-santa-from-wellington-district-police

**Canterbury-Westcoast Branch**
In September we were lucky enough to have the 'ITE Presidents Visit' crew share an evening with us. It was well attended and we heard about the Katrina recovery project - we can relate!

In November we held our AGM with two presentations; Julie Ballantyne gave an overview of the AITPM Conference which she attended with sponsorship from the TG and Mel Muirson and Micheal Blyleven presented on the Canterbury Freight Masterplan. We invited CILT members to the presentations.

On Thursday 3 December we held a joint IPENZ Transportation Group and Urban Design Forum event which included a visit to the recently opened Christchurch Bus Interchange Tour where part of the project team told us about the building, including the cultural elements.

People were certainly very impressed at how the project was designed and constructed so quickly while achieving a facility that is a landmark in the city. The visit was followed by end of year drinks at Stranges Lane Loft Bar, over 40 people attended.

**Southern branch**
Life has been detected down south, so watch this space.

# Roundabout of the month

This month's roundabout is from Swindon in the United Kingdom. The appeal of this one is the curious interplay between large and small roundabouts, traffic islands and line-markings. If anyone has driven it, it would great to hear a user experience, as it seems challenging.
Seen a better one? Email daniel.newcombe@aucklandtransport.govt.nz

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# Kenyan's stuck in 50km traffic jam

Kenyan police have been deployed to ease a traffic jam reportedly stretching for 50km on the highway between Mombasa and Nairobi.

The road is crucial for East Africa's economy as it links the port of Mombasa to landlocked countries, such as Uganda, South Sudan and Rwanda. The worst-affected area is around Taru, about 80km from Mombasa.

Correspondents say the jam has been caused by repairs to the road following heavy rains. Traffic jams are common in Kenya and are often caused by its badly maintained road network but this is said to be the worst for several years.

More than 1,500 trucks have been stuck, Willingtone Kiberenge, acting chief executive of the Kenya Transporters Association, told Reuters news agency.

The BBC's Mohammud Ali Mohamed in Nairobi says there is a railway between Mombasa and Nairobi but it is old, unreliable and it takes several days to make the 500km journey.

Those who can afford it - and do not have heavy loads - tend to fly between the cities as there are hourly flights, he adds.

*http://www.bbc.com/news/world-africa-34867935*

# Caption competition


This edition's photo comes from Ian Appleton, Wellington:

*"Roundabout contains many photographs of humorous road signs – ones that got lost in translation and others that are just mistakes. So, for a change, here is a photograph from Taipei in Taiwan that is not a transport sign at all.*

*I was visiting my son there. He is learning Mandarin. Just down the road from his apartment is this clinic. Readers might like to submit to you their ideas what services you might receive at a "Reshining Clinic" or a "Run Horn Clinic".*

*Perhaps we'll exclude Mandarin speakers who have an unfair advantage. Also I wondered if you got a discount if you got your waterworks and your eyes fixed at the same time at the Shu-Tien Clinic."*

If you have seen an amusing sign, send it to:
daniel.newcombe@aucklandtransport.govt.nz

Bridget Burdett sent in this photo, pondering the translation of this European road sign. Perhaps it is:
"Hold hands with young people between 6-10am"

# SH20 Waterview update

The Hendon Footbridge (above, and under construction below) had its spectacular main arch installed recently. Drivers will see the footbridge when entering or exiting the SH20 Waterview tunnels once they open in early 2017.

The Hendon Footbridge will take people to and from Owairaka and New Windsor, making it easier for the local community to move around the area on foot and by bike.

Alice (the enormous tunnel boring machine or TBM, in case you forgot) is underway in her final chapter, as her crew work 24 hours a day 7 days a week to dismantle her.

The cutterhead, tailskin and screw conveyor were removed recently to prepare for the main components to be shipped back to Herrenknecht, the Germany company that designed and built it.

Quick explanation: The rotating cutterhead weighs 332 tonnes and cuts through rocks and other ground material. The tunnel's concrete rings segments were

constructed within the tailskin. The front shield of the TBM is filled with debris extracted by a screw conveyor.

This screw compensates the pressure difference between the bulkhead chamber and the atmospheric pressure. The next parts of the TBM to be taken apart and lifted out of the sump for transportation will be the main drive – its top and bottom segments – and then gantries one, two and three.

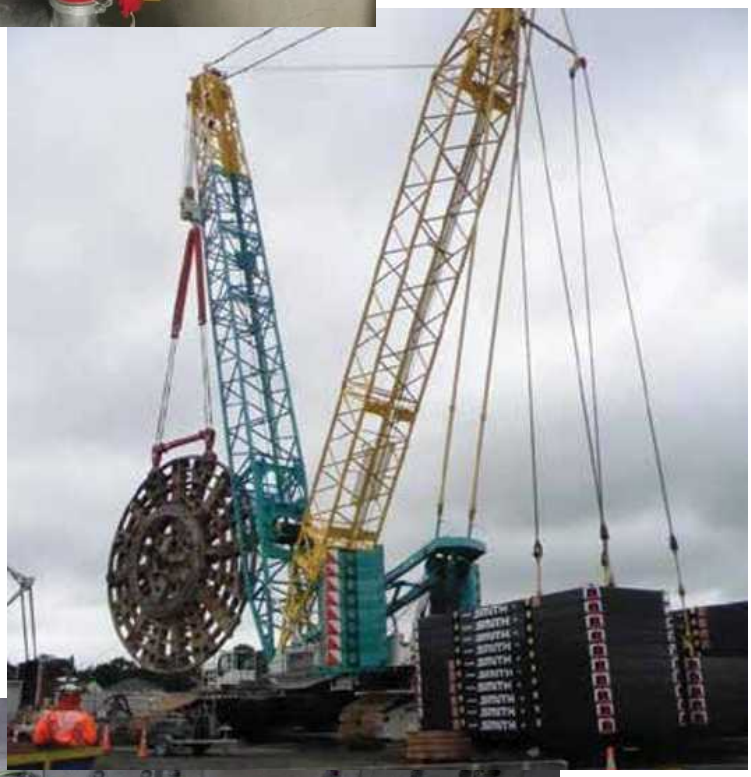
In further progress, several cross passages are sporting a new look this month after their interiors had masonry block walls established and a new deluge piping system installed.

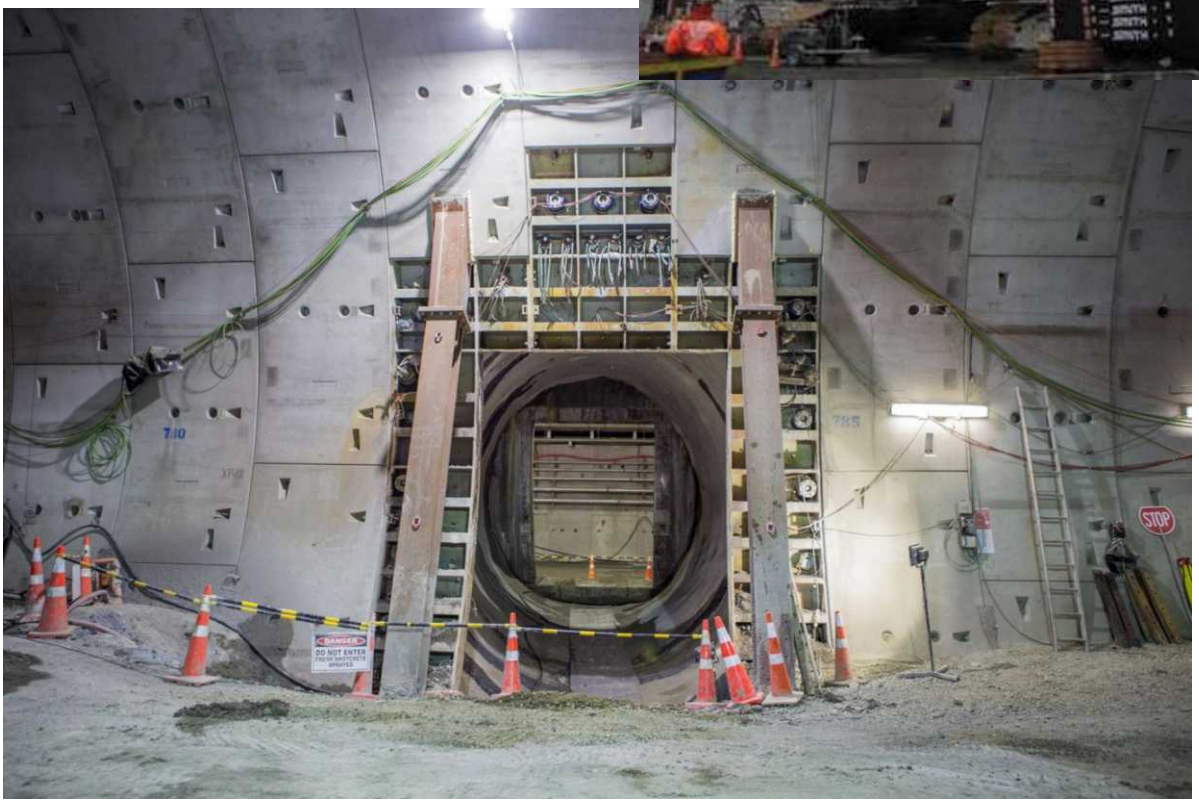
Next up, masonry work takes place inside each cross passage with a two-metre wide pedestrian access way running through the middle. On one side are two electrical rooms for tunnel services, while the other side deluge piping system is installed.

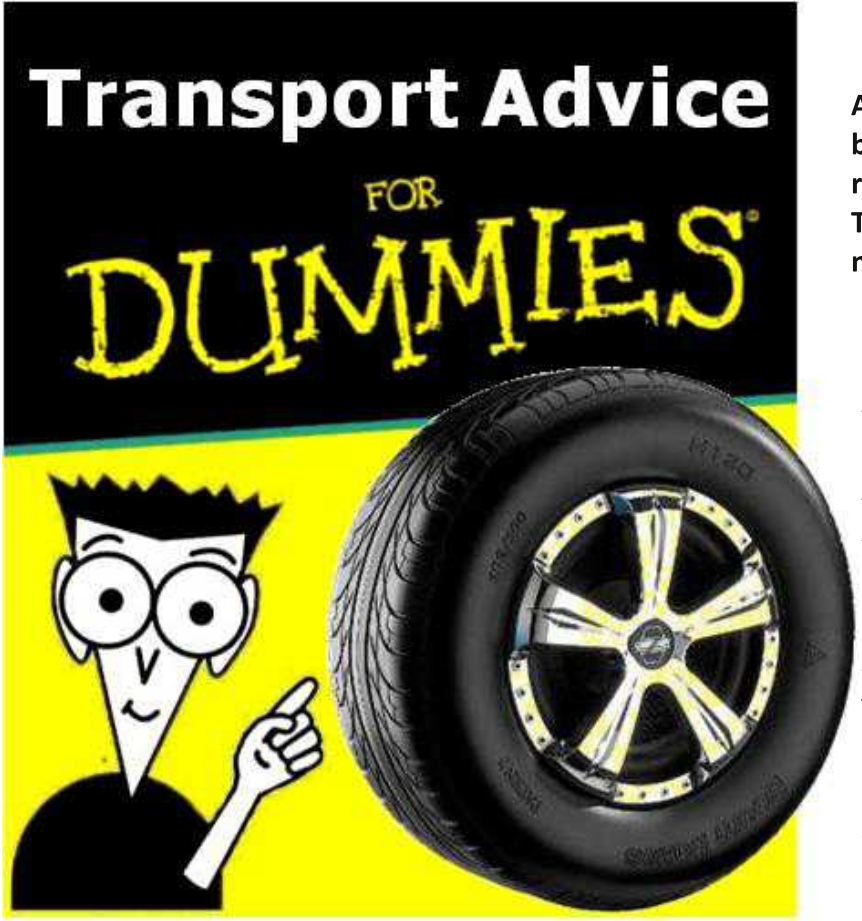
A whopping 35km of piping will be installed progressively, from now until mid-2016, inside all 16 cross passages for the tunnels' deluge system.

If you want to find out a bit more information on the project, visit:
www.nzta.govt.nz/projects/waterviewconnection

or for regular updates and some great vidoes
www.facebook.com/AliceTBM








**A tongue-in-cheek column on transport matters by The Transport Guy. The contents do not represent the views of the IPENZ Transportation Group, or anyone else for that matter. Follow the advice at your own risk.**

**Dear Transport Guy**
I see that a new cycleway has been opened in Auckland - and it's pink! Who came up with that stupid idea? It now stands out from the sea of grey concrete and asphalt as some kind of beacon of difference for Auckland and cycling. Who wants that?

And what's the point of re-using an old motorway ramp? Now people will just think it's OK to reallocate roadspace to cyclists and pedestrians! And expect that they should have a high quality facility! It's madness!
**Simon, Whanganui**

**Dear Psychopath**
You are absolutely correct except for one thing. It's magenta, not pink.
**~Transport Guy**

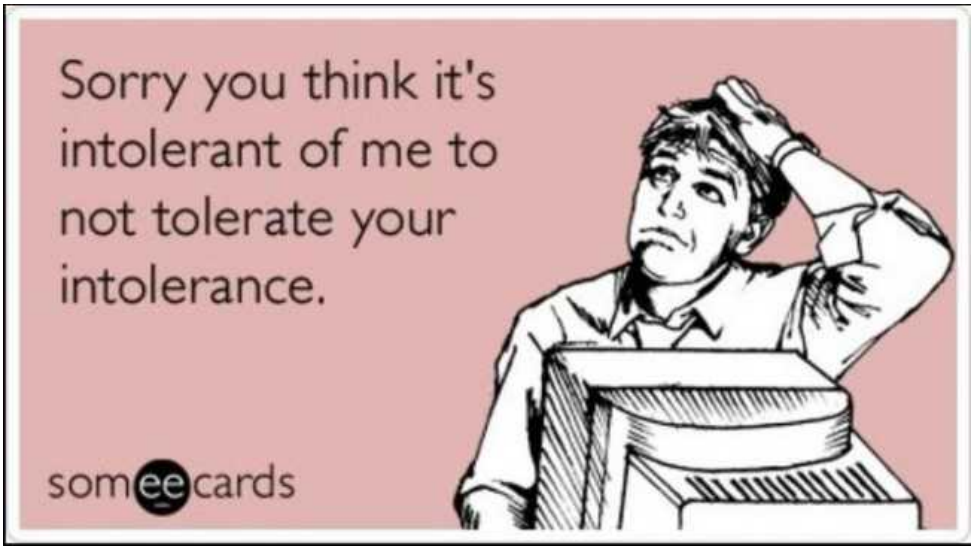
**Dear Transport Guy**
It's nearly Christmas and the media always start focusing on the road toll and ways to drive more safely over the holiday break. Ridiculously they always go on about lower speed limits and reduced tolerance for slightly exceeding the speed limit. Aren't there better ways than slowing perfectly safe drivers such as myself?
**Leighton, Auckland**

**Dear Leotard**
You are quite right, as I am sure you always are. The media repeatedly focus on the road toll, as if saving the lives of hundreds of innocent New Zealanders was a noble thing. What they don't realise is that if we all drove a bit faster then we'd get to our destinations quicker and spend less time out on the roads risking death.

As for the reduced tolerance for speeding, I am sure you're already aware that tolerance in any form is troublesome. Religion. Gender. Sexuality. Political affiliation. The need to tolerate those other people is just getting ridiculous.

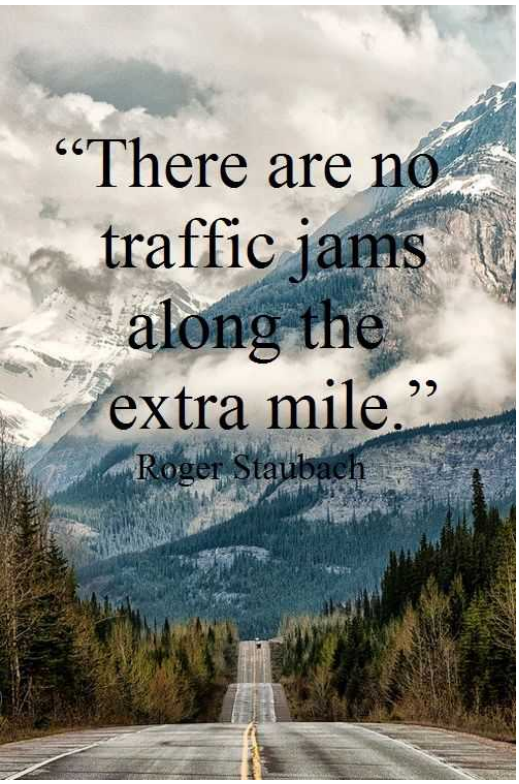
Anyway, tolerance works both ways. When you receive an infringement notice in the mail - as I am sure you must quite frequently - just pass on a certain number of them to your neighbours. It's called 'letterbox number tolerance', and you can pass on speeding fines to houses within four street numbers on either side of you. You can also choose to pay the speeding fines within a certain tolerance of the specified amount. Plus or minus $10 should do it. $4 over the Christmas period.

See how it goes. Let me know if the NZ police have a tolerance for that.
**~Transport Guy**




Do you have a dumb question for Transport Guy? Email it to: transportfordummies@gmail.com and he'll do his best to answer...

# Group Contact Details

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**Southern:** Lisa Clifford lcliffor@dcc.govt.nz

[redacted]
26 SEP 15 [redacted]
ABUSE OF PUBLIC ANIMAL, DRUNKEN OR RECKLESS DRIVING [redacted]
CAMP PENDLETON, SAN DIEGO, CALIFORNIA

[redacted] SEP 15: "MALE NAVY ENLISTED FIRST CLASS PETTY OFFICER EXITED A BAR INTOXICATED IN AN ATTEMPT TO DRIVE A POV EQUIPPED WITH A BREATHALYZER INTERLOCK SYSTEM. SUSPECT WAS TOO INTOXICATED TO SUCCESSFULLY START THE VEHICLE, SO HE WENT INTO THE PARK WHERE HE CAPTURED A RACCOON RUMMAGING IN A TRASH RECEPTACLE. INDIVIDUAL UTILIZED THE RACOON TO BLOW INTO THE INTERLOCK SYSTEM SUCCESSFULLY, BUT THE RACOON BECAME UNCONSCIOUS FROM BEING SQUEEZED AND WAS DISCARDED ON THE FLOORBOARD OF THE VEHICLE UNTIL A SHORT TIME LATER WHEN THE RACOON REGAINED CONSCIOUSNESS AND BEGAN TO ATTACK THE SUSPECT WHILE DRIVING, CAUSING THE VEHICLE TO CRASH INTO A RESIDENTIAL FENCE. THE VEHICLE CAME TO A COMPLETE STOP IN AN INGROUND SWIMMING POOL. THE SUSPECT SUSTAINED NUMEROUS SCRATCHES AND BITE MARKS TO THE HANDS, FACE, STOMACH, AND ARMS.

**Roundabout Editorial Team**
**Editor:** Daniel Newcombe daniel.newcombe@aucklandtransport.govt.nz
**Immediate past editor and dogsbody:** Bridget Burdett bridget.burdett@tdg.co.nz

# Kids explain traffic engineering


**“It's important to follow the signs.
They are there to help tell you what to do
and what to not do.
Don't do what they tell you not to do.
Even if you want to.”**