

# Roundabout

Magazine of the IPENZ Transportation Group

Issue 150! December 2016

Creating a  
sustainable  
transport future  
for Auckland

AMP129

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Auckland  
Transport  
An Auckland Council Organisation

MIND THE GAP

*Also in this edition:*

- Level crossing seminar
- Self-driving cars
- New rules for cycling
- How cities are eliminating parking
- SH20 Waterview commissioning

# Contents

- 3 Editorial
- 4 Chairman's Message
- 5 Christchurch to host NZ's first self-drive trial
- 7 New rules for cycling
- 9 The great NZ level crossing seminar
- 11 Berlin is bringing back subway trains from the 1950s
- 12 Cone catchers strike pay dirt
- 16 Le Voila! Provocative opinion piece by Dave Wanty
- 18 Creating a more sustainable transport future for Ak
- 22 Plane talking: pilot writes 'Hello' in the sky
- 24 Lots to lose: how cities are eliminating parking
- 26 Oh those Germans: "Either do or do not, there is no try"
- 28 Crash: how computers are setting us up for disaster
- 32 World's worst traffic jam?
- 37 Photo competition
- 38 Branch updates
- 39 New charging stations for electric cars
- 40 Roundabout of the Month
- 41 Caption Competition
- 42 SH20 Waterview Update
- 46 Transport Advice for Dummies
- 47 Group Contact Details
- 48 Kids Explain Traffic Engineering

*"Spectacular panels of concrete art depicting a Maori legend will welcome drivers."*  
p42

*"Not even earthquakes in the lead up to the event were enough to put off the 70 people who attended this event."*  
p9

*"With space for roughly 20,000 cars, the parking lot at West Edmonton Mall in Alberta, Canada, is the largest car park in the world."*  
p42

*"The Opus team 'Make Kaikoura Great Again' won the annual Wellington branch IPENZ TG quiz night recently."*  
p38

*"NZ's love-affair with the quarter-acre section dream must change if we are to grow as a nation."*  
p4



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. There is no charge for publishing vacancies for transportation professionals, as this is considered an industry-supporting initiative.

Correspondence welcome, to Daniel Newcombe:  
[daniel.newcombe@at.govt.nz](mailto:daniel.newcombe@at.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



Welcome to Roundabout edition #150.

That feels like a significant number, one we should be proud of. That's 150 occasions that the IPENZ Transportation Group has shared information back and forth with its members. 150 times the Chair has had to scrape together some thoughts. 150 times the latest tidbits of transport news have been gathered.

From the days of physically glueing together pieces of paper and sending out photocopies, to the current online version with embedded links - we've come a long way.

Or not very far at all. Roundabout is still a composite of all that the members throw at me as editor. Articles, photos, ideas, jokes - it's random and it's all welcome.

Sometimes we get feedback on an article or edition, complaining of bias or inaccuracy. I always say 'Well, send me something that puts forward your view and I'll publish it'. That offer is the bedrock of Roundabout - this magazine is created by the members (I just polish it).

I clearly recall reading Roundabout when starting out in my career nearly two decades ago, and absorbing the nuggets of information it contained. Remember 'Snoopy', the gossip column of sorts recording the movements of members between jobs and countries? I remember thinking 'These are the people who make up the industry, I'd better keep an eye on them'.

The Snoopy column has passed into history now - it would be hard to keep up, given the scale and churn of the industry these days - but I still try to record notable achievements of our members.

***I taught my dog to play the trumpet on the Underground.  
He went from barking to tooting in an hour***

Unfortunately some of these are obituaries, but I also enjoy recording more positive events. I am hoping someone can supply me with material from Alan Nicholson's retirement function [embarrassing stories are good, but if all you have are his accomplishments, I'll take that].

I hope that the material I put together - even though it comes from disparate sources - forms an interesting and useful read. And that it keeps the wider membership informed.



Piccadilly Circus Underground station. Sectional drawing, 1928

If you don't think it does, send me something else to put in.

It's a bit indulgent but I'm going to finish with a couple of jokes I heard recently. The first is an oldie but a goodie from a British colleague.

"I taught my dog to play the trumpet on the Underground. He went from barking to tooting in an hour." Which was followed up with "Our dog Minton ate a shuttlecock. Bad Minton!"

Terrible I know. But the reference to the Tube gives it the slightest transport relevance, and therefore my justification for inclusion in Roundabout.

Have a great break over the holidays. I hope your Christmas cracker jokes are better than mine!

**Daniel Newcombe**  
**Roundabout Editor**  
**@newcombe\_dan**

# Chairman's Message



I seem to be making a habit of writing this message while on a flight. This time however, it is a domestic flight on a weekend break. Probably a reflection of how busy we all are.

It is time to say goodbye – from this aspect of the National Committee anyway. This my last message (ruminating/cogitating/reflection) as Chair of the Transportation Group. So I shall keep this mercifully short.

It has been an interesting journey – high expectation, anticipation, exciting, frustrating but ultimately satisfying. Some of these emotions relate to the workings and effectiveness of the committee and others relating to the lethargy of the membership at large.

Suffice to state that the most stressful part of this role has been what to cover in this forum!

Over the past number of years (from well before my time at the helm) the committee has developed and fine-tuned great ideas to move the Group forward. Unfortunately, all of the members of the committee are volunteers. They have selflessly offered their time (during work and after hours) to putting something back to our profession. Consequently it has been difficult to make progress. This is by no means due to a lack of trying, just a lack of time in our busy working lives.

I take this opportunity to thank the respective employers who have allowed their employees to dedicate some of their valuable time to the Group and its activities.

The committee hopes to present the Group's new strategy, brand, etc. at the Hamilton Conference. I have included this comment to put



**The original 'extreme cycling'**

some pressure on us to at least make some progress on this issue (as we have been threatening to do over the past year or so)!

We are living in exciting times. Technology is changing at an ever-increasing pace, growth issues abound and the successive generations are wanting, and have, different priorities than their predecessors. With regard to the latter, things that immediately spring to mind are work/life balance, climate change, our fragile environment and our communities. In my view, there is hope for our future.

In New Zealand the love-affair with the quarter-acre section dream/aspiration must change if we are to grow as a nation and create attractive and interactive communities and cities in which to live. In my humble opinion, the

maxim 'it takes a village to raise a child' has never been so relevant and important. I believe this is the critical issue we need to address if we are to achieve above our weight in the world.

I take this opportunity to thank the members of the committee for their support and assistance over the past couple of years. I wish Alan Gregory well in his role as Chair for the next two years. The Vice-Chair will be announced at the beginning of the New Year.

I look forward to making a meaningful contribution to the committee over the next two years in my role as Past Chair.

Take care and wish you relaxing and restful summer break.

**Pravin Dayaram**  
National Committee Chair

# Christchurch to host NZ's first self-drive vehicle trial

New Zealand's first trial of a fully autonomous (self-drive) electric vehicle will take place in Christchurch next year.

HMI Technologies and Christchurch International Airport have agreed on the New Zealand based and funded trial, which is focussed on finding answers to key questions about how these vehicles could operate in this country.

HMI Technologies has bought a French Navya 15-person shuttle for the trial. The vehicle is fully autonomous, has no steering wheel and is electric powered. The vehicle is expected to arrive in Christchurch before Christmas, with the trial scheduled to begin early in 2017. The trial will largely be conducted on the Christchurch Airport campus, starting on private roads with no public present, with the long-term aim of moving to public roads once the safety case has been made and all regulatory approvals are in place.



Christchurch Airport General Manager Corporate Affairs, Michael Singleton, said the airport's interest in the trial centred on future plans for linking key areas around the airport campus.

"We hope to eventually see autonomous vehicles operating in and around the airport. Before that could happen, we want to understand the infrastructure and operating requirements for these vehicles, to understand the human/technology interface and to build the safety case for autonomous vehicles on our campus. The trial vehicle being electric also fits well

with the airport's sustainability objectives," Mr Singleton said.

Managing Director of HMI Technologies, Mohammed Hikmet, said his company and the airport shared an interest in New Zealand being an early adopter of these vehicles.

"Both companies are keen to exploit the opportunities autonomous vehicles present New Zealand. I am proud our New Zealand company is taking a lead in initiating the first trials of this vehicle in this country. We see huge possibilities for companies like ours to develop solutions and applications for use with autonomous vehicles."

Former Secretary for Transport Martin Matthews will be overseeing the trial, which will be designed and run with the help of researchers and developers from the University of Canterbury.

"Autonomous vehicles are coming, whether we are ready or not, so we are taking the initiative to be ready. Many people believe we are years away from seeing these vehicles on our roads, but I disagree. I believe they will be with us very soon, so it's important we understand what is required for them to operate safely here," Mr Matthews said.

Christchurch City Council plans to use the trials to raise awareness of how autonomous vehicles and other technological developments may alter the way cities work in the future.

Deputy Mayor Vicki Buck said the trial had been months in the planning and it was great Christchurch was being used as a test-bed for new technologies.

"This trial involves a number of Christchurch organisations and is incredibly exciting and may help change the face of transport in a much shorter time frame than we currently think. I expect autonomous vehicles to be on the road here within five years and if so they will have a huge impact, in many ways," Deputy Mayor Buck said.

"We are delighted to have HMI involved and delighted that the Airport has stepped up to this." *Source: Christchurch City Council*



Keep up to date with IPENZ Transportation Group happenings:

[www.ipenz.org.nz/ipenztg](http://www.ipenz.org.nz/ipenztg)

[www.twitter.com/ipenztg](https://www.twitter.com/ipenztg)

[www.facebook.com/ipenztg](https://www.facebook.com/ipenztg)



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TRANSPORTATION GROUP



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# New Rules for Cycling

The 2016 Land Transport Rules Omnibus came into force on 1 December and features a strong focus on cycling related rules following recommendations from the Cycling Safety Panel report of 2014.

The Ministry of Transport and the Transport Agency prioritised an initial package of rule changes that will help to provide a safer environment for cyclists. This first package has changes that are minor and/or technical in nature, reflect best practice design or are informed by the results of current trials. Some of the changes help to remove inconsistencies in road rules or provide more certainty for the mutual benefit of both cyclists and road users.

Changes to the Land Transport Rules, which came into force 1 December, include the following.

- Allow drivers to use flush medians when passing cyclists.

NZTA Research Report 389, 'Cycle Safety: Reducing the Crash Risk', found that the presence of a flush median was associated with a significant reduction in cycle crash risk. Drivers commonly use flush medians to give cyclists a safe overtaking gap, and this rule change legitimises that behaviour.

Note: Drivers often cross a no-passing line when overtaking a cyclist, which is not illegal so long as the passing movement is made with safety (as per the requirements of Road User Rule 2.6). Crossing a no-passing line is illegal when overtaking a 'motor vehicle or an animal-drawn vehicle'.

- Increase the minimum distance that cycle lights must be visible from 100m to 200m and extend the period of time when they must be used (to sunset to sunrise).

Bicycle lighting technology has improved dramatically over the last decade. It is now reasonable to expect all bicycle lights to be visible from 200m. This just requires that they be well maintained and pointing in the right direction.

- Extend give-way and stop sign rules to places where cycle paths or shared paths cross roads.

Road User Rule 4.1 has been amended to support Traffic Control Device rule 11.4(5), so that penalties can now be given to those who do not obey the requirements of a Give-way or Stop sign when these are used to give cycleway or shared path users priority over roadway traffic. This is intended for use in mid-block situations.

- Formally recognise shared lane — 'Sharrow' — road markings, used to indicate where drivers should expect to share the lane with cyclists.

It may be used to help

position cyclists clear of hazards such as parked cars, or occupy the lane at approaches to squeeze points and roundabouts. A Sharrows best practice guidance note can be found in the Transport Agency's cycling network guidance at [www.nzta.govt.nz/cng](http://www.nzta.govt.nz/cng)

- Clarify that drivers mustn't block a cycle lane when queuing at an intersection

Changes to Road User Rule 4.5 make it clearer that a driver must not enter a cycle lane if their intended exit from that lane is blocked. This can be a particular problem where cycle lanes are positioned between a left-turn and straight-through lane, when there is insufficient space for the left-turn queue.



- Allow bicycles to be up to 1.1 metres wide

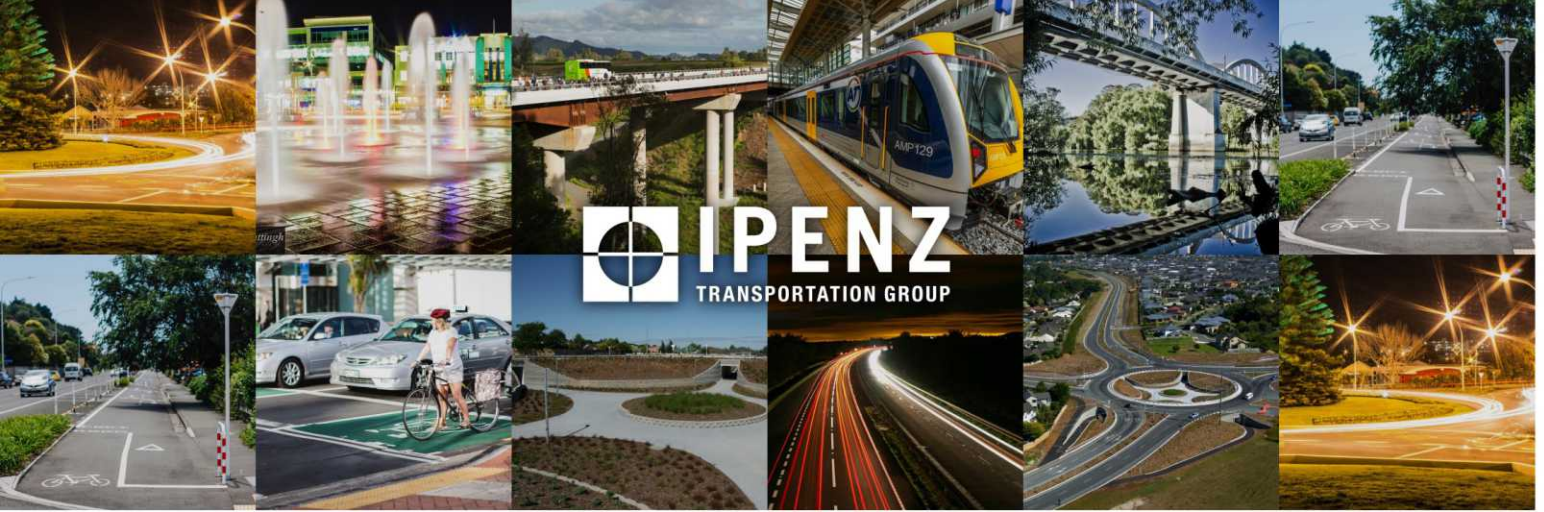
The maximum allowable width of bicycles has increased from 1.0 to 1.1 metres wide, which may allow for slightly larger cargo bikes (and necessitate a slightly wider gap between barriers along some cycleways).

- Allow a bus to use a bus stop in a cycle lane

A bus may now stop (briefly, to pick up and or drop off passengers) at a bus stop in a cycle lane. There is no need to stop and start the cycle lane at the ends of the bus stop. It is expected that this provision would only be taken advantage of where cycle lanes coincide with low-frequency bus routes.

The Cycling Network Guidance will be updated in accordance with these changes. See [www.nzta.govt.nz/cng](http://www.nzta.govt.nz/cng)





# Safe Sustainable Future

IPENZ Transportation Group Conference 2017

29 - 31 March 2017  
Distinction Hotel, Hamilton

Mark your calendars now for the next IPENZ TG conference!

### Special dates of interest 2017

- Early bird registrations close 13 February
- Applications for Young Professionals & Students registrations close 13 February
- Close of 3M Award entries 17 February

### 3M Award

New Zealand's premier road safety award recognising projects that exhibit exemplary innovation and effectiveness to save lives and injuries on roads – the 3M Traffic Safety Innovation Award.

Get your entries in now before 17 February.



3M Traffic Safety Innovation Award

### Networking events

As usual there will be a welcome function on the Wednesday evening giving opportunities for delegates to network and create future opportunities for collaboration.

We hope you can also join us at the conference dinner, on Thursday evening at "real Middle-Earth" Hobbiton movie set, Matamata. This is an opportunity rarely afforded to many.

### Programme

We welcome plenary speaker Fraser Whineray, Mercury, to the programme. He will discuss the role industry has to play in the future of sustainable transport.



### Early bird registration fees 2017 (including GST)

Full	\$975
Single day	\$550
Life member	\$0
Student full	\$345
Student day	\$115
Young prof full	\$690
Young prof day	\$230
Exhibitor	\$575

### Sponsorship opportunities



We wish to acknowledge the contribution of our sponsors, past and present, whose contributions are instrumental in helping us run what we hope are stimulating, rewarding and enjoyable conferences.

We have added some new packages and these are available on the conference website.

We look forward to seeing you there!



# The Great New Zealand Level Crossing Seminar

The 30th November 2016, saw the RTSA, IRSE and the IPENZ Transportation Group join forces and run a seminar focused wholly on Level Crossings and the safety challenges they present to all users.

Not even earthquakes in the lead up to the event were enough to put off the 70 people who attended this event in Wellington. Attendees travelled from all around New Zealand and even from Australia for it.



It just goes to show what an important topic it is and how timely it was given that safety for pedestrians and vehicles using level crossings had only been added to TAIC's watch list in October 2016. Further details on this watch list can be obtained [here](#)

We were privileged to kick off the event with a thought provoking keynote address from Kiwi Rail's Group General Manager Asset Management and Investment. His challenge to the audience was "Level Crossings – Still failing to launch" and some reasons around it.



It was then over to speakers from KiwiRail, the NZ Transport Agency and the Transport Accident Investigation Commission who each provided a very informative view from an industry perspective. This was

then complemented by the Australasian Centre for Rail Innovation / CQ University who gave an insightful look into Human factors in pedestrian and road-user violations at level crossings.

TrackSafe and KiwiRail then provided updated on level crossing initiatives and technology that is being developed to improve the safety of users.

Then it was Auckland Transport's turn to highlight the challenges of Urban Level Crossings and how they are managing the significant changes which are taking place in the Auckland rail network. We were then given



a presentation by WSP Parsons Brinckerhoff on the Melbourne Grade Separation Programme of works.

A panel session then debated Level Crossing risks, responsibilities and future issues.

In closing the seminar, we reflected on the collaboration required by industry that is required to implement change, where to best spend money in order to get the greatest benefits, that there needs to be a culture change to users of level crossings and that everyone has a responsibility to ensure safety.

Attendees went away from the seminar with some new knowledge and the challenge being - "how can they make a difference to Level Crossing Safety in New Zealand?".

With 2017 fast approaching, we would love to run another topical seminar next year that can help to inform, discuss and develop the industry. If you have any suggested topics, then please email them through to [steve.boshier@irse.org.au](mailto:steve.boshier@irse.org.au) along with your contact details.



Please note the 'earlybird' registration ends on 21 December.  
There are some scholarships available for Maori and Pacific Island registrants  
– see [www.otago.ac.nz/uowsummerschool](http://www.otago.ac.nz/uowsummerschool)



## Green space in the resilient city

Thursday 16 February 2017

What roles can urban green space play in sustainable and resilient urban form? How can we advance an agenda for green space values in New Zealand cities? This course will provide a "talk and walk" examination of this important component of urban form and function.

Topics covered include:

- Introduction to NZ green spaces and their values
- Green space and health in the city
- Urban green space and the development of community
- City-focused guest presentations and case studies from NZ and Australia
- Planning for and designing optimised urban green space networks.

For more information contact: [paul.blaschke@otago.ac.nz](mailto:paul.blaschke@otago.ac.nz) or visit [otago.ac.nz/greenspace](http://otago.ac.nz/greenspace)

## Signposting the routes to active transport

Friday 17 February 2017

If your work involves cycling or walking advocacy, transport infrastructure, health promotion, children's health, community development or urban design, this course is for you.

Catch up with the most recent research and debates about active travel:

- the intersection of transport and health
- the state of cycling and walking in our cities
- what works to increase cycling and walking
- children's travel to school
- the built environment and active travel
- what design can and can't do
- a unique case report on walking to work
- a panel on conflicts and solutions in shared spaces.

For more information contact: [marie.russell@otago.ac.nz](mailto:marie.russell@otago.ac.nz) or visit [otago.ac.nz/activetransport](http://otago.ac.nz/activetransport)

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University of Otago, Wellington | Mein St | Newtown | Wellington  
Early bird registration closes 21 December 2016



The 21st Public Health Summer School  
7-24 February 2017 | [otago.ac.nz/uowsummerschool](http://otago.ac.nz/uowsummerschool)



# Berlin Is Bringing Back Subway Trains From the 1950s

For senior Berliners, there may be something strangely familiar about the latest batch of trains destined for the Berlin subway system.

They actually first served the city back in the 1950s. In an unlikely decision-making twist, the system has decided to delve into its history, renovating trains constructed to run on its tracks before the city was cut in two in 1961.

So old are the D and DL series trains — affectionately known as “Doras” — that there’s only one city where they are still in daily use. That’s the North Korean capital, Pyongyang, to which Berlin sold 105 trains at the end of the 1990s.

The idea of recommissioning 60-year-old carriages will no doubt get train-spotters drooling, but there’s a pragmatic reason why the trains are coming back. Berlin has a desperate shortage of rolling stock.

City transit body BVG (Berliner Verkehrsbetriebe) wants to avoid the costs of buying more engines and reckons it can renovate and re-kit three of the old trains for just €1.9 million — a snip compared to what three entirely new trains would cost.

Three trains won’t make a whole lot of difference across an entire city, of course, which is why the refitted wagons will be confined to a single line. This is arguably the smartest part of the plan.

By running on Berlin’s Line U55 from spring 2017, the 1950s trains should attract tourists to what could be Berlin’s biggest transit white elephant.

Line U55, you see, is arguably the transit equivalent of nail varnish. It looks pretty good, but beyond that it doesn’t serve much of a practical function.

With just three stops, the mini-line links Berlin’s main railway station with Germany’s parliament and the Brandenburg Gate, a journey that can be managed in 10 to 15 minutes of brisk walking.

If that seems a little pointless, bear in mind the circumstances of the U55’s approval. It was begun in 1995 at the height of reunification fever, when the general official feeling was that Berlin needed a grand transit revamp to match the grandeur of the public servants who were at that time (often reluctantly) relocating there from Bonn.

The original plan would have seen the line extend both to the northwest and to Alexanderplatz, where it would join up with an existing line stretching far into the city’s east. Then the money ran out.

That left Berlin with a stumpy little shuttle track. When it came to streamlining Berlin’s transit system, it was about as useful as a chocolate teapot. This is the line for which the older trains are revamped.

When you think about it, the plan actually makes sense. There are already plenty of tourists in this area, and more may use the line if now they know it’s becoming a mobile 1950s theme park.

And if you’re a fan of old school transit, you might be taken with the carriages’ green pleather upholstery and milky-glassed light fittings. And even if the electrics will all be reworked, the BVG plans to keep a few old signs in place, such as those warning fare-dodgers of a possible fine of 60 now defunct Deutschmarks.

There’s also a poetic justice to the plan. When these trains were constructed in the 1950s, they ran across both Berlin’s eastern and western sectors despite the strife between the city’s superpower overlords.

When the Berlin wall went up, two strange truncated subway systems were created for each half of the city, with lines abruptly ending or passing through enemy territory without stopping.

Now that these trains are returning, they’ll be coming to what was the first East-West line newly built after reunification, travelling under what 40 odd years ago was one of the most heavily militarized spots in the world. It’s almost as if they’ve been waiting for Berlin to reunify, then call on them again.

In 2020, the U55 should finally be extended as promised to Alexanderplatz, after which new trains will probably be introduced. Between next spring and then, the U55 and its sexagenarian trains will offer an intriguing glimpse of transit past.  
*Source: CityLab*



*A Series D train on special service in 2004*



# Cone catchers strike pay dirt



From the rivers and the roof tops to the student suburb of Riccarton, nearly 4000 of Christchurch's wayward road cones have found their way home.

It was the Cone-Mobile's month-long mission: to track down the cones lost as part of the Christchurch Rebuild.



The Stronger Christchurch Infrastructure Rebuild Team, or SCIRT, said it's used 100,000 of the small orange beacons in almost six years.

However, executive general manager Ian Campbell said, "They haven't always made it back to the yard when a site was packed up."

The Cone-Mobile, with its distinctive mohawk, was dispatched to follow up on 800 tip-offs. It soon struck pay dirt. The biggest haul was 500 from Riccarton, home to many student flats.

"We suspect many thought they'd try their hand at the student life, but decided it wasn't for them." Mr Campbell said.

Other suburbs averaged 50-100 cones each.

Councillor Vicki Buck told RNZ's Checkpoint at the start of the campaign that such was the ubiquity of the cones in Christchurch, that they had been adopted and turned

into a running joke among locals.

Ms Buck said comment threads about the road cones were popular on Facebook.

"Cones have become part of the personality of Christchurch in the last five, six years, because there are so many. They have literally taken over the city."

The road cone became something of a symbol of the Christchurch rebuild and its community's solidarity after the Canterbury earthquakes.

Locals placed flowers in road cones each year to make the anniversary of February 2011's fatal earthquake. They also became a popular choice of costume for parties and festivals like October's Kaikoura Seafest.



SCIRT said about half of the recovered cones can be reused. Some had already been sent to Kaikōura to use in the earthquake response.

Mr Campbell said others looked like they had been "sleeping rough" and would be recycled or disposed of.

"From cones in gardens, rivers and on top of roofs - you name it - we found the foot soldiers of the rebuild often in the strangest of places."



Those that were still fit for use, along with 70 road signs, would be reunited with the 125 different companies they belonged to.

The orange symbol of a city's recovery will continue to be a feature of the Christchurch landscape for some time to come.

The Christchurch City Council was spending \$100 million on resealing the bumpiest roads, SCIRT said.

Source: RadioNZ

# Transportation Engineering Postgraduate Courses 2017 (Provisional)



The University of Auckland  
NEW ZEALAND



Department of Civil & Environmental Engineering University of Auckland  
For Master of Engineering Studies [MEngSt] and Post Graduate Certificate [PGCert], with  
/ without Transportation specialisation, or for a one-off Certificate of Proficiency, COP

## 2017 PG Transportation COURSE OFFERINGS

### Semester 1 (Mar-Jun 2017)

CIVIL758 – Traffic Systems Design (also part BEHons degree, Mon 3-5pm, Wed 5pm, 12 weeks)

CIVIL762 – Transportation Planning (2 x 3-day blocks > 22 – 24 March, 3 - 5 May)

CIVIL766 – Road Asset Management (2 x 3-day blocks) > 29 - 31 March, 17 – 19 May

CIVIL769 – Highway Geometric Design (2 x 3-day blocks) > 5 -7 April, 10 – 12 May

CIVIL770 - Transport Systems Economics (3 x 2-day blocks) > 20 - 21 March, 10 - 11 April, 22 - 23 May)

### Semester 2 (Jul-Oct 2017)

CIVIL759 – Highway & Transportation Design (also part BEHons degree, Mon 11, Tues 11-1pm, 12 weeks)

CIVIL765 – Infrastructure Asset Management (2 x 3-day blocks) > 23 - 25 August, 4 - 6 October

CIVIL 771 – Planning & Managing Transport (3 x 2-day blocks) > 7 - 8 August, 18 - 19 September, 16 - 17 October

CIVIL 773 - Sustainable Transport: Planning and Design - new course (3 x 2-day blocks) 17-18 August, 21 - 22 September, 12 - 13 October

NOTE: Other relevant courses at the University of Canterbury (e.g. Civil / Transportation) or at Auckland (e.g. in Civil / Construction Management) or elsewhere can be suitable for credit – prior approval is required.

For Admission / Enrolment inquiries contact: **Assoc. Prof. Roger Dunn**, Director of Transportation Engineering  
Phone: (09) 923 7714 DDI, Mob 021 309 600 Email: [rcm.dunn@auckland.ac.nz](mailto: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>

Our Masters degree Brochure [https://cdn.auckland.ac.nz/assets/engineering/for/future-postgraduates/documents/Transportation\\_final\\_print.pdf](https://cdn.auckland.ac.nz/assets/engineering/for/future-postgraduates/documents/Transportation_final_print.pdf)

Our Transportation Research Centre [www.trc.net.nz](http://www.trc.net.nz)



## **CALL FOR PAPERS**

**23 and 24 February 2017**

On behalf of the SNUG group, the Committee and Chair Sean Lewis are pleased to announce a Call for Papers for presentation at the SNUG annual workshop in Tauranga on the 23rd and 24th February 2017.

The Committee welcomes papers on any topic related to traffic signals and the wider ITS field from practitioners around New Zealand and beyond. Authors will be expected to attend and present at the workshop. A prize will be available for the best presenter and best technical paper, as judged by two randomly chosen committee members.

When submitting your presentation please bear in mind the following:

- Presentations/ papers should be no longer than 20 minutes (if longer is required please contact Haydn Wardley to discuss requirements); and
- Presentations/ papers should be relevant to recent work and/or experiences within the field of traffic signals/ ITS.

The Committee looks forward to receiving submissions in response to this call, and is happy to respond to any queries from interested parties.

Please contact Haydn Wardley ([Haydn.Wardley@tauranga.govt.nz](mailto:Haydn.Wardley@tauranga.govt.nz)) for further details and to register your interest and intent to present at the workshop. Spaces are limited so be quick! Call for Papers closes on 3rd February 2017 to allow the programme to be finalised.

**SNUG Workshop 2017 - Tauranga 23 & 24 February**



PHOTOGRAPH BY MIKE KELLEY, FROM PHOTOWR, COPYRIGHT GESTALTEN 2013

"Wake Turbulence" by Mike Kelley – This composite shows a selection of the planes that departed from Los Angeles International Airport in a single day. (There were nearly 400 images to choose from.)



Brilliant protest in Vila Real, Portugal. Wheelchairs parked with notes on them "be right back" or "just getting something"

# LE VOILA!!

## Provocative opinion piece by outgoing immediate past Chair David Wanty

Was 2016 a successful year for you? I hope it was and if not, that you will fare better success in 2017.

How do you measure success? At a recent Level Crossing forum organised by RTSA and supported by IRSE and IPENZ-TG, this question was mentioned in passing by the sole employee of trackSAFE, but got me thinking about how we, Transportation Group, should/would/could measure success and what steps we need to be taking to become more successful.

Quantity vs Quality, Passive vs Active, Opaque Influence vs Provocation, Inward vs Outward focus are many different aspects related to success. But put simply success for us as a body of professionals should foremost be measured in relation to our stated purpose and vision, and mission statement.

Within the IPENZ goals and ethics, the purpose and membership of the group are:

- *To advance technical knowledge, integrated planning, safety, traffic and asset management of existing and proposed transportation facilities, networks and systems for the movement of people and goods by all modes of travel.*

The vision of the Group is:

- *"The Transportation Group is recognised as the foremost impartial and credible voice on transportation issues in New Zealand. Its perspectives are invariably sought when new policies and legislation are being developed. It makes a significant contribution to the major transportation debates of the day, often taking the lead in raising issues for consideration."*

According to the latest Engineering Insight Volume 17/6 our official mission statement (which I could not locate on either our or the IPENZ websites) is "to advance the art and science of road traffic and transportation engineering practice and to provide a focal point for those working in the profession".

In principle these are expanded on in strategies and goals. Our posted 2013-2016 Strategic Plan for the Group includes various actions (one role<sup>1</sup> of the Chair is to in effect report on progress):

### **ACTIONS FOR 2015/16:**

- *Develop key policy direction and views on transport topics, some of which are already advanced or developed in partnership with IPENZ. Partner with IPENZ and others to centralise this guidance on the website*
- *Position the Group alongside NZ organisations who have national / international roles and functions on transport standards development and contribute to sound industry advice in these areas*
- *Develop a forward plan to position the Group as one of the principal advisory Groups, and an independent advisor to be consulted on matters of Government transport policy and direction*

### **My opinionated yardstick (analytic metric)**

In terms of advancing technical knowledge, we have continued our traditional approach albeit lacking support most recently of an international specialist addressing our members in key centres, often in conjunction with other partners.

We have increased the number of awards to individuals aiming to fill knowledge gaps and our RAScal research sub-committee has been active responding to MoT led initiatives in partnership with the NZTA (who I suspect many believe are still dragging the chain).

On the other hand, our sub-groups have been actively advancing knowledge by working with the NZTA nationally to produce one or more key guiding documents, without I note funding assistance from the parent Group.

In terms of our vision the advertising phrase "should have gone to Spec Savers" comes to mind! We have little or no influence with the NZTA National Office and some of the cause lies with us (and me by implication). There appears to be no watchdog (honest broker) of NZTA who evidently are able to stall or progress technical advancement (and elements of consultation) as they see fit without realising the impact on our members acting for our employers and clients (including NZTA offices).

Sadly I have heard members describe NZTA as forgetting their day jobs and being bullies (reminds me of Wilson Parking comments) and in a Chairs Chat I have previously reported what my MP has said about them locally.

But a major hindrance to my mind is that we are wholly voluntary based as an organisation, whereas other entities such as TrafInz, REAAA NZ Chapter and trackSAFE have a permanent part or full time person employed and more political clout/savvy.

Our Strategic Plan is linked to our vision and National Committee has been formulating a new strategic direction and plan and is also tasked with investigating whether to become an Incorporated Society, influenced by changes within our parent IPENZ body.

I have endeavoured to find from IPENZ what these changes are in detail but without success. However I infer that IPENZ is expecting its Interest Groups to undertake more of the submissions role themselves rather than in partnership as we have done in the past (prior to Tim Davin retiring).

To my mind also the IPENZ change in the membership structure is focussed on engineers and seemingly ignores the non-engineering professional Affiliate members.

I note recent adverse feedback to their proposal relating to Graduates for example, plus many adverse comments about the IPENZ website changes (I could

<sup>1</sup> - Portfolio Holder Roles and Responsibilities website document - [click here](#)



elaborate on the latter but have decided to spare you the details).

### My Suggestions

In a nutshell I would urge that we seriously consider becoming an Incorporated Society, making better use of ourselves of the service fee (administration) element of our (IPENZ Affiliate) members to engage, via contract, a permanent employee.

We could consider at the same time streamlining our branches while making better use of technology to reach more distant members (including our "international branch" and "no branch" members – refer IPENZ Become a Member > Join an Interest Group).

I like the idea of the agenda of National Committee meetings following the (new) Strategic Plan items, like our TDB sub-group does, to keep our 3 year Strategic Plan foremost to mind. Pleasingly, in a recent positive development the NZTA has expressed interest in attending our bi-annual strategy meetings and in joining with the MoT in liaising with us (as occurred in the past).

Perhaps a formal NZTA representative could be invited to regularly attend our National Committee meetings (I just had this novel idea as I typed and note that the NZTA CEO is a former transport modeller and economist?).

I also wonder whether the Group should set up its own Traffic Control Devices (TCD) sub-committee to fill the vacuum left by the NZTA and to reach agreement on

whether signs and marking practices adopted by some Councils in theoretical breach of MOTSAM / TCD should be approved or whether action should be taken to ensure national consistency.

I am reminded of how Group Members were surveyed in the past about replacing belisha beacons with orange disks at daytime pedestrian crossings and our members endorsed the idea as can be evident today. Surely this process could be repeated for such things as "should a right turn bay be formally allowed in a flush median less than the legal lane width?" or even "should the indication rule at roundabouts, especially smaller single lane roundabouts, be reviewed?".

### ADEIU and BON CHANCE!

Lastly after six years I look forward to relinquishing being on the National Committee.

Coincidentally I'm travelling down to Christchurch to attend my former supervisor and former IPENZ-TG Chair Alan Nicholson's retirement farewell function at Canterbury University on 12 December and I wish him all the best for retirement and thanks for his continuing input to our Group and advancement of our transportation profession.

I wish another Alan all the best as he becomes our Chair for 2017 and 2018, and to Pravin to continue as an active past chair (I do not yet know who is the new Deputy Chair?).

*David Wanty, MIPENZ, CPEng*





## Cover Story: Creating a more sustainable transport future for Auckland

Auckland Transport (AT) is a council controlled organisation (CCO) and the lead agency responsible for the planning, development and management of Auckland's transport system (excluding the State highways and railway corridors).

This includes roads and footpaths, cycling and walking infrastructure, parking facilities and public transport. Having a sustainable approach in our stewardship is therefore a key part of developing and managing over \$16 billion worth of transport assets.

Transport and how it is managed is a key ingredient in balancing economic growth, safeguarding resources, improving quality of life and reducing pollution. It can have both significant positive and adverse impacts on cities through the use of the existing transport system and the construction of new transport infrastructure.

Transport has contributed significantly to the development of the region in the past and will continue to play a key role in shaping the region's future.

Embedding a sustainability strategy and culture across AT will allow us to compete on the international stage as a world-class city that attracts and retains employers, talent, commerce, industry and events.

### Defining sustainability

Most people hold a generalist view on sustainability loosely based around the environment. However, this is just one component of a complex and highly integrated topic that potentially shapes and gives competitive advantage to every individual and organisation.

The notion of 'sustainability' should be synonymous with best practice in delivering social, economic, cultural and environmental outcomes.

There is a broad spectrum of sustainability issues across AT and inevitably one has to tackle the nexus between individual and group perspectives.

Managing these complex and opposing views requires a clear understanding of what you can achieve and an ability to compromise and adapt to what is a dynamic problem.

Successfully delivering sustainability outcomes is mostly about people as you need individual values to align with internal teams and external stakeholders.

To get this alignment you need much broader buy-in and to get that buy-in you need a framework. A framework captures the hearts of individuals but provides the discipline and structure to focus the effort.

AT has developed a Sustainability Framework. This is outlined below and provides a brief description of what we are trying to achieve with it. The framework enables AT to take the goals, objectives and targets coming out of the Auckland Plan and other Council policies and plans, such as the Low Carbon Action plan, and convert them into meaningful and achievable actions for transport.

### AT's Sustainability Framework

The framework sets out the sustainability vision for AT, the goals (covering environmental, economic, social and

cultural well-beings), objectives, focus areas and top 13 actions for the year ahead. The vision, goals, focus areas and top actions are discussed below.

The vision reflects the current Auckland Plan but is sufficiently broad to respond to a number of different interpretations of Auckland as a world class city and transport's contribution to it. The vision for transport is that Auckland is a connected and high quality city - a place where the transport network enhances the quality of lives of Aucklanders.

The vision is supported by four goals which encompass the four pillars of sustainability which are commonly recognised (in one form or another) worldwide. These include:

- Conserve and enhance the natural environment
- Meet the social and health needs of Aucklanders
- Foster jobs, growth and economic productivity
- Celebrate Auckland's unique cultural identity

We have also developed focus areas which are founded on AT's main areas of control and influence that I mentioned earlier. These are summarised below:

• **Land use and Transport** - Integrated land-use and transport planning is the key to ensuring that living, working, social and recreational spaces are developed closely together. This integration provides multiple transport options between places where we work, live and play to improve accessibility and reduce reliance on individual car travel. We need to work closely with Auckland Council and developers on proposals to respond to future growth, particularly the Special Housing Areas and private sector proposals.

• **Financial Stewardship** - AT will continue to strive to ensure our projects offer good value for money and consider whole of life costs. Careful planning and management will ensure assets are functional and will continue to benefit future generations.

• **The existing network** – AT will implement actions to optimise the existing transport network whilst recognising the importance of place will contribute to sustainability outcomes and optimise investment.

• **Low emission transport choices** - Providing people with lower emission travel choices and improving the connectivity between transport modes which will contribute towards better sustainable mobility in the future

• **Design, construction and maintenance** - Sustainable designs add environmental, social, economic and cultural value to the lifespan of an infrastructure project and aims to minimise impacts during construction, operation and maintenance. Current infrastructure projects are envisaged to last between 50 to 100 years. These structures therefore must be resilient and adaptable to the changing environment and needs of society over this time.

• **Innovation and technology** - AT will use innovation, technology and data to achieve improved sustainability outcomes. Utilising available data to improve the operation of our transport system, and develop intelligent and shared mobility approaches to improve transport choices and make Auckland's transport

system more efficient and resilient.

Our own organisation - AT will lead by example by striving for best practice for AT's people, buildings, fleet and practices. AT will share these learnings to help others.



**Users on the Beach Rd cycleway**

<https://at.govt.nz/cycling-walking/cycling-and-walking-programme/>

We recognise that we can't achieve everything at once, so we have identified a limited number of top actions to achieve in the short term. The top 13 actions will be delivered from 2016-17, and in no particular order are:

1. Embed sustainable strategic outcomes within AT Procurement Framework
2. Develop an emissions roadmap to support the uptake of low emission buses
3. Develop an emissions roadmap for AT's own fleet.
4. Increase the proportion of renewals that coordinate or add value to other delivery programmes/objectives
5. Develop best practicable options for AT to contribute to improved outcomes for water
6. Embed sustainability principles in the Transport Design Manual through requirements, standards and service levels
7. Develop a technology strategy for AT
8. Develop a programme for continued level of investment in cycling networks across Auckland
9. Develop a 'Make Walking Count' programme
10. Appoint an Energy Manager and develop an energy plan to save 2.85 GWh by January 2019 in addition to savings already being achieved with LED streetlights
11. Develop and deliver a Sustainability Champions programme trial
12. Develop AT's Māori Responsiveness Plan
13. Embed sustainability within major projects including the City Rail Link

Some examples of what AT is already achieving in terms of our sustainability actions are highlighted below:

#### **Rise in rapid transit**

Growth in Rapid transit – Rail and Northern Busway patronage growth rates have increased by 20% each year for last 10 years providing congestion free alternatives to car travel. Patronage is forecast to continue to grow.

Electrification of the rail network is saving up to 9 million litres of diesel each year and is reducing the associated harmful effects particularly of air and noise pollution from diesel trains.

## Urban Cycleways Programme

Enhanced expenditure on urban cycleways in partnership with the NZ Transport Agency (NZTA) and Auckland Council, AT is making cycling a more attractive and realistic commuter option, lessening environmental impacts and encouraging more active lifestyles.

The openings of the separated Beach Rd and Nelson St cycleways have increased the numbers of people cycling to the City Centre.



**AT chairman Dr Lester Levy and street lights team leader David Dick in Mount Roskill's Nirvana Way.**

<https://at.govt.nz/about-us/news-events/white-light-upgrade-for-auckland-streets/>

## LED lights

Energy efficiency savings - AT are replacing 45,000 of its existing streetlights with LEDs. Stage 1 will involve replacement of the existing 70W High Pressure Sodium (HPS) lamps with LED luminaires which will be connected to a central management system.

The project is expected to save \$32 million over the 20-year design life of the LEDs. Funding was brought forward by the government to enable an enhanced programme. We have signed an agreement with the Energy Efficiency & Conservation Authority (EECA) to help drive further energy savings throughout our organisation, including in the construction of CRL.

## CRL Sustainability Award

Design and construction of the City Rail Link (CRL) project - On 13th September 2016, CRL received a 'Leading' Infrastructure Sustainability (IS) Design rating



**Antony Sprigg ISCA (left) and Chris Meale Project Director CRL**

<https://at.govt.nz/about-us/news-events/city-rail-link-receives-sustainability-rating/>

from the Infrastructure Sustainability Council of Australia for the Albert Street tunnels and stormwater diversion.

This recognises achievements across the six themes of the rating tool, including significantly reducing projected resource use and impacts on the environment. Work with Mana Whenua to adapt the rating tool for a New Zealand context was identified as a world first.

## Looking forward

We are focused on embedding sustainability across AT. This process is being championed by myself, our senior leadership team and across our business.

In time we expect to see an expanded commitment to the development and delivery of sustainable outcomes from our partners and internally through departmental and organisational groups within AT. As highlighted above, becoming sustainable at AT is not a switch you simply flick on, it is journey with continual learning and adaptation.

*Tony McCartney is the group manager, assets and maintenance, for AT, a council-controlled organisation and the lead agency for the planning, development and management of Auckland's transport system.*

*This article has been reproduced from the Logistics & Transport NZ magazine December issue.*



**3M** Science.  
Applied to Life.™



## 3M™ Traffic Safety Innovation Award Submit your Road Safety Program For a chance to win a trip to the USA



3M™ Traffic Safety Innovation Award

### ENTER & GET RECOGNISED!

Have you or a colleague recently developed a road safety treatment/initiative that has improved road safety? You could be the winner! We are looking for entries from any road safety practitioner who works within the New Zealand private or public sector. Don't miss out on your chance to win and be recognised! **The individual team leader from the winning project will receive a trip to the USA to attend the 48th ATSSA Annual convention. You will also visit 3M head office.**

### WHO WILL JUDGE ENTRIES?

All entries will be judged by an independent committee of industry representatives, established by the IPENZ Transportation Group.

### TO ENTER & MORE INFORMATION, VISIT

**[www.3MNZaward.co.nz](http://www.3MNZaward.co.nz) or [www.ipenztgconference.co.nz](http://www.ipenztgconference.co.nz)**

Entries open 1st October 2016 and close 5pm, 17th February 2017

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# Plane talking: pilot uses aircraft to write 'Hello' on radar tracking map

A pilot who used his plane to write “hello” in its flight path reportedly has a track record of “inventive flight art”.

Flightradar24 recorded the 37-minute flight beginning near Agathenburg, in the Niedersachsen region of Germany, on Monday afternoon.

The Robin DR400/180 Régent aircraft is registered D-EFHN and is privately owned, though the identity of its pilot is not known.

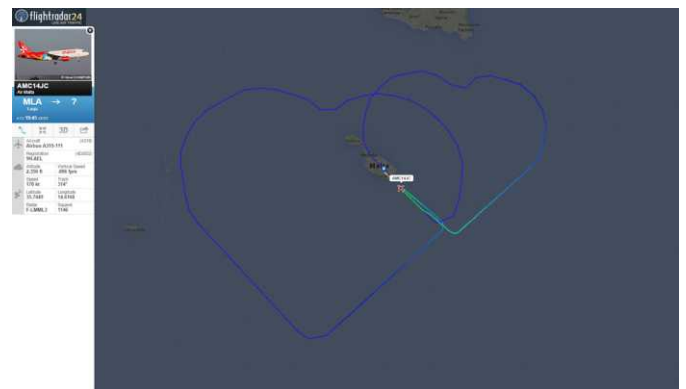
Flightradar 24 confirmed to the Guardian that the simulation showed a real flight, adding: “This aircraft has a history of inventive flight art.”

Earlier this year, it drew a portrait of an airplane, signing off with what appeared to be a signature; and, on a separate flight over northwest Germany, a heart.

Flightradar24 is a global flight tracker that provides real-time information about air traffic around the world from data from a variety of sources, including satellite and radar.

It has previously reported on “Flower Guy”, who practises patterns “that end up looking like flowers” in a private plane over Santa Clara.

In April last year, an Air Malta plane drew two hearts in the sky to mark the marriage of two of its employees.  
Source: Guardian



Find out more about

2016

# BIKE TO THE FUTURE AWARDS



Award-winning cycling projects from around New Zealand



New Zealand Government

The 2016 Bike to the Future Awards brought together the very best of the best. Innovative projects offering new and enhanced cycling environments were celebrated, together with so many of the amazing people committed to making cycling a greater part of their community.

A booklet has been released this month in the hope that shining light on all of the inspiring initiatives will help to grow each of the projects, highlight the passionate leaders in cycling, and inspire more communities to take the next step forward in achieving a safer, bike friendly country. You can view the booklet [here](#)



## Lots to lose: how cities around the world are eliminating car parks

With space for roughly 20,000 cars, the parking lot that surrounds the West Edmonton Mall in Alberta, Canada, is recognised as the largest car park in the world.

Spread across vast expanses of asphalt and multi-storey concrete structures, these parking spots take up about half the mall's 5.2m sq ft, on what was once the edge of the city of Edmonton. A few blocks away, a similar amount of space is taken up by a neighbourhood of nearly 500 homes.

Despite its huge scale, the West Edmonton Mall's parking lot is not all that different from most car parks around the world. Requiring roughly 200 sq ft per car plus room to manoeuvre, they tend to be big, flat and not fully occupied. Often their size eclipses the buildings they serve.

Even when they're hidden in underground structures or built into skyscrapers, car parks are big and often empty: parking at homes tends to be vacant during the workday, parking at work vacant at night. A 2010 study of Tippecanoe County, Indiana found there was an average of 2.2 parking spaces for each registered car.

The US has long been the world leader in building parking spaces. During the mid 20th century, city zoning codes began to include requirements and quotas for most developments to include parking spaces. The supply skyrocketed. A 2011 study by the University of California, estimated there are upwards of 800m parking spaces in the US, covering about 25,000 square miles of land.

"As parking regulations were put into zoning codes, most of the downtowns in many cities were just completely decimated," says Michael Kodransky, global research manager for the Institute of Transportation and Development Policy. "What the cities got, in effect, was great parking. But nobody goes to a city because it has great parking."

Increasingly, cities are rethinking this approach. As cities across the world begin to prioritise walkable urban development and the type of city living that does

not require a car for every trip, city officials are beginning to move away from blanket policies of providing abundant parking.

Many are adjusting zoning rules that require certain minimum amounts of parking for specific types of development. Others are tweaking prices to discourage driving as a default when other options are available. Some are even actively preventing new parking spaces from being built.

To better understand how much parking they have and how much they can afford to lose, transportation officials in San Francisco in 2010 released the results of what's believed to be the first citywide census of parking spaces.

They counted every publicly accessible parking space in the city, including lots, garages, and free and metered street parking. They found that the city had 441,541 spaces, and more than half of them are free, on-street spaces.

"The hope was that it would show that there's actually a lot of parking here. We're devoting a lot of space in San Francisco to parking cars," says Hank Willson, principal analyst at the San Francisco Municipal Transportation Agency. "And though the perception is always that there's never enough parking, the reality is different."

Knowing the parking inventory has made it easier for the city to pursue public space improvements such as adding bike lanes or parklets, using the data to quell inevitable neighbourhood concerns about parking loss. "We can show that removing 20 spaces can just equate to removing 0.1% of the parking spaces within walking distance of a location," says Steph Nelson of the SFMTA.

The data helps planners to understand when new developments actually need to provide parking spaces and when the available inventory is sufficient. More often, the data shows that the city can't build its way out of a parking shortage – whether it's perceived or



real – and that the answers lie in alternative transportation options.

With this in mind, the city has implemented the type of dynamic pricing system proposed by Donald Shoup, a distinguished research professor of urban planning at the University of California, Los Angeles. In his book *The High Cost of Free Parking*, Shoup explains that free or very cheap on-street parking contributes to traffic congestion in a major way.



A study of the neighbourhood near UCLA's campus showed that drivers cruised the area looking for parking for an average of 3.3 minutes. Based on the number of parking spaces there, that adds up to about 950,000 extra miles travelled over the course of a year, burning 47,000 gallons of gasoline and emitting 730 tons of CO<sub>2</sub>.

After San Francisco implemented a pilot project with real-time data on parking availability and dynamic pricing for spaces, an evaluation found that the amount of time people spent looking for parking fell by 43%. And though there's no data available on whether that's meant more people deciding not to drive to San Francisco, various researchers have shown that a 10% increase in the price of parking can reduce demand between 3-10%.

Sometimes, the supply of parking goes down because nobody needs it. Since 1990, the city of Philadelphia has conducted an inventory of parking every five years in the downtown Center City neighbourhood, counting publicly accessible parking spaces and analysing occupancy rates in facilities with 30 or more spaces.

Because of plentiful transit options, a walkable environment and a high downtown residential population, Philadelphia is finding that it needs less parking. Between 2010 and 2015, the amount of off-street parking around downtown shrank by about 3,000 spaces, a 7% reduction.

Most of that is tied to the replacement of surface lots with new development, according to Mason Austin, a planner at the Philadelphia City Planning Commission and co-author of the most recent parking inventory.

"At the same time, we're seeing occupancy go down by a very small amount. So what that's telling us is the demand for this public parking is going down slightly," Austin says. "And that could be alarming if we were also seeing some decline of economic activity, but actually that's happening at the same time as we're seeing employment go up and retail vibrancy go up."

And though many cities in the US are changing zoning and parking requirements to reduce or even eliminate parking minimums, cities in Europe are taking a more forceful approach. Zurich, has been among the most aggressive.

In 1996, the city decreed that there would be no more parking: officials placed a cap on the amount of parking spaces that would exist there, putting in place a trading system by which any developer proposing new parking spaces would be required to remove that many parking spaces from the city's streets. The result has been that the city's streets have become even more amenable to walking, cycling and transit use.

Copenhagen has also been reducing the amount of parking in the central city. Pedestrianising shopping streets raising prices of parking and licences and developing underground facilities on the city's outskirts has seen city-centre parking spaces shrink and the proportion of people driving to work fall from 22% to 16%.

Paris has been even more aggressive. Starting in 2003, the city began eliminating on-street parking and replacing it with underground facilities. Roughly 15,000 surface parking spaces have been eliminated since.

But progress is not limited to Europe. Kodransky says cities all over the world are rethinking their parking policies. São Paulo, for instance, got rid of its minimum parking requirements and implemented a maximum that could be built into specific projects. Beijing, Shenzhen and Guangzhou are hoping to emulate San Francisco's dynamic pricing approach.

And as cities begin to think more carefully about how parking relates to their urban development, their density and their transit accessibility, it's likely that parking spaces will continue to decline around the world.

"Ultimately parking needs to be tackled as part of a package of issues," Kodransky says. "It's been viewed in this super-narrow way, it's been an afterthought. But increasingly cities are waking up to the fact that they have this sleeping giant, these land uses that are not being used in the most optimal way."

Source: *Guardian*



## Oh, those Germans: “Either do or do not, there is no try”

I'm glad it was Axel who (Roundabout, September 2016) alluded to Germans and efficiency. I never know how racial stereotype jokes go down, especially from someone like me who, despite over 20 years in New Zealand, will always be saddled with a middle-class English accent.

Axel Wilke was referring to a German guide on roundabout design, saying that there is actually no difference in German between “roundabout” and “cycle-friendly roundabout”.

I've known that for longer than I've been in New Zealand. In my own article in September's Roundabout, I referred to the late 1980s/ early 1990s UK Cycle Routes Demonstration Project.

Besides cycle route planning, the UK Government at this time also engaged in a significant amount of research into roundabout design. A wide range of trials were held around the country into various permutations of cycle lanes on roundabouts, cycle paths off roundabouts, stop lines on roundabouts, etc.

They all failed miserably except for “Continental Design Geometry” which – guess what – bears a striking resemblance to what Axel was talking about. The UK Government proceeded to endorse this type of design as a Jolly Good Thing, and the rest is history.

The engineer who had led the research explained to me at the time that all the failed trials had required cyclists to modify their behaviour to fit in with the motor traffic. The “Continental Design Geometry” (which I gather in New Zealand tends to be called European design) in contrast required motor traffic behaviour to be modified to take account of the presence of cyclists.

Cycle lanes on roundabouts mostly failed because motorists ignored them, but with European design they were forced to slow down and take more care (through increased deflection, bringing other traffic more centrally into the field of vision, and so on).

This does beg some questions. Firstly, if the right way to design roundabouts has been known for so long, why is it that someone reading Axel's article might think the design is something new? Or in other words – why do we fail to act on findings which are manifestly common sense?

I said the UK Government endorsed this design as a Jolly Good Thing. I did not say that they redesigned or modified their roundabouts. They didn't (much). Why not?

Axel pointed out that the German roundabout design guide was quite short, in contrast to an Austroads guide on the subject that was much longer. That German efficiency again; why waste paper and ink?

And the German efficiency comes through again in the fact that – shock, horror – they seem to have actually taken their own advice in how their roundabouts are actually built.

This reminds me of a scene in Star Wars where Jedi Master Yoda tells Luke Skywalker to extract his crashed spacecraft from a swamp by using the power of “The Force”. “I'll try” says Luke. “No!” replies Yoda, “Either do, or do not – there is no 'try'”.

(Which begs a further question: was Yoda German? Well, I know enough German to know that in subordinate clauses, the verb goes to the end of the sentence. Thus, for example, if we had a German word order, “I know that Axel knows German” would become



*How not to do it!*

*Imagine cycling this: it is indirect, requires you to frequently give way, and since you are on the edge of the field of vision of motorists (whose main attention will be traffic on the roundabout itself), you are possibly no safer, and may even be exposed to greater danger, than if you'd cycled around the roundabout. Always look for this type of reason when you see an under-used cycling facility. This was one of those failed UK early 1990s cycling facility trials, surviving today near Bristol Airport. One good feature is the tactile paving, to indicate cyclist segregation to people with sight-impairments; the RNIB (Royal National Institution for the Blind) was fully involved in these trials, but (like 'Continental Design Geometry' roundabouts) somehow they didn't catch on.*

"I know that Axel German knows". So is Yoda German? I my case rest – hmm?, hmm?).

So do we non-Germans (or non-Yoda's) beat about the bush producing long documents rather than just doing what needs to be done? Regrettably, I have to say that I think we do.

So why? One reason I think is an issue which, to my mind, gets to the heart of what good transport planning is all about. We tend to treat each transport mode as distinct from each other not only in our planning, but in our implementation programming too.

Not only do we think in discrete silos, we allocate our implementation budgets that way too. So, for example, the question "how do we best help cyclists?" too often gets a kind-of automatic answer "build cycling facilities!".

Here's the twist: European roundabout design has nothing to do with cycling facilities. It is mainstream road design, implemented on a 'just do it' basis through mainstream roading programmes.

So when you next see some gushingly enthusiastic statement or press release about the latest pink cycleway or whatever, ask how the roundabouts, other intersections, mid-blocks, etc, on the rest of the nearby road system are designed (regardless of whether they

are on so-called 'cycle routes').

And whether cyclists need to wait for allocation of funding through a 'cycleways programme' before what should be routine cycle-friendly aspects of road design are 'just done'.

I don't need to wait for Axel to translate what I'm sure is a lovely German roundabout design guide. This type of advice has been around for a long time. The bigger issue is not the absence of knowledge, but whether we act on it or not.

Rather than multiply yet more paper, I'd suggest that the need is to just build the bally things. As routine, matter of course. All over the place, not just along 'cycleways'. And don't raise questions of cost, or traffic efficiency.

Those Germans, who seem more pre-occupied with efficiency than most of us, would have surely thought of those questions, too.

Roger Boulter  
Boulter Consulting  
[roger@boulter.co.nz](mailto:roger@boulter.co.nz)





## Crash: how computers are setting us up for disaster

Earl Wiener, a cult figure in aviation safety, coined what is known as Wiener's Laws of aviation and human error. One of them was: "Digital devices tune out small errors while creating opportunities for large errors." We might rephrase it as: "Automation will routinely tidy up ordinary messes, but occasionally create an extraordinary mess." It is an insight that applies far beyond aviation.

Victor Hankins, a British citizen, received an unwelcome gift for Christmas: a parking fine. The first Hankins knew of the penalty was when a letter from the local council dropped on to his doormat. At 14 seconds after 8.08pm on 20 December 2013, his car had been blocking a bus stop in Bradford, Yorkshire, and had been photographed by a camera mounted in a passing traffic enforcement van. A computer had identified the number plate, looked it up in a database and found Mr Hankins's address. An "evidence pack" was automatically generated, including video of the scene, a time stamp and location. The letter from Bradford city council demanding that Hankins pay a fine or face court action was composed, printed and mailed by an automatic process.

There was just one problem: Hankins had not been illegally parked at all. He had been stuck in traffic.

In principle, such technology should not fall victim to the paradox of automation. It should free up humans to do more interesting and varied work – checking the anomalous cases, such as the complaint Hankins immediately registered, which are likely to be more intriguing than simply writing down yet another licence plate and issuing yet another ticket.

But the tendency to assume that the technology knows what it is doing applies just as much to bureaucracy as it does to pilots. Bradford city council initially dismissed Hankins's complaint, admitting its error only when he

threatened them with the inconvenience of a court case.

For all the power and the genuine usefulness of data, perhaps we have not yet acknowledged how imperfectly a tidy database maps on to a messy world. We fail to see that a computer that is a hundred times more accurate than a human, and a million times faster, will make 10,000 times as many mistakes. This is not to say that we should call for death to the databases and algorithms. There is at least some legitimate role for computerised attempts to investigate criminal suspects, and keep traffic flowing. But the database and the algorithm, like the autopilot, should be there to support human decision-making. If we rely on computers completely, disaster awaits.

Gary Klein, a psychologist who specialises in the study of expert and intuitive decision-making, summarises the problem: "When the algorithms are making the decisions, people often stop working to get better. The algorithms can make it hard to diagnose reasons for failures. As people become more dependent on algorithms, their judgment may erode, making them depend even more on the algorithms. That process sets up a vicious cycle. People get passive and less vigilant when algorithms make the decisions."

Decision experts such as Klein complain that many software engineers make the problem worse by deliberately designing systems to supplant human expertise by default; if we wish instead to use them to support human expertise, we need to wrestle with the system. GPS devices, for example, could provide all sorts of decision support, allowing a human driver to explore options, view maps and alter a route. But these functions tend to be buried deeper in the app. They take effort, whereas it is very easy to hit "Start navigation" and trust the computer to do the rest.

It is possible to resist the siren call of the algorithms. Rebecca Pliske, a psychologist, found that veteran meteorologists would make weather forecasts first by looking at the data and forming an expert judgment; only then would they look at the computerised forecast to see if the computer had spotted anything that they had missed. (Typically, the answer was no.) By making their manual forecast first, these veterans kept their skills sharp. However, the younger generation of meteorologists are happier to trust the computers. Once the veterans retire, the human expertise to intuit when the computer has screwed up could be lost.

Many of us have experienced problems with GPS systems, and we have seen the trouble with autopilot. Put the two ideas together and you get the self-driving car. Chris Urmson, who runs Google's self-driving car programme, hopes that the cars will soon be so widely available that his sons will never need to have a driving licence. There is a revealing implication in the target: that unlike a plane's autopilot, a self-driving car will never need to cede control to a human being.

Raj Rajkumar, an autonomous driving expert at Carnegie Mellon University, thinks completely autonomous vehicles are 10 to 20 years away. Until then, we can look forward to a more gradual process of letting the car drive itself in easier conditions, while humans take over at more challenging moments.

"The number of scenarios that are automatable will increase over time, and one fine day, the vehicle is able to control itself completely, but that last step will be a minor, incremental step and one will barely notice this actually happened," says Rajkumar. Even then, he says, "There will always be some edge cases where things do go beyond anybody's control."

### ***Once the veterans retire, the human expertise to intuit when the computer has screwed up could be lost.***

If this sounds ominous, perhaps it should. At first glance, it sounds reasonable that the car will hand over to the human driver when things are difficult. But that raises two immediate problems. If we expect the car to know when to cede control, then we are expecting the car to know the limits of its own competence – to understand when it is capable and when it is not. That is a hard thing to ask even of a human, let alone a computer.

Also, if we expect the human to leap in and take over, how will the human know how to react appropriately? Given what we know about the difficulty that highly trained pilots can have figuring out an unusual situation when the autopilot switches off, surely we should be sceptical about the capacity of humans to notice when the computer is about to make a mistake.

"Human beings are not used to driving automated vehicles, so we really don't know how drivers are going to react when the driving is taken over by the car," says Anuj K Pradhan of the University of Michigan. It seems likely that we'll react by playing a computer game or

chatting on a video phone, rather than watching like a hawk how the computer is driving – maybe not on our first trip in an autonomous car, but certainly on our hundredth.

And when the computer gives control back to the driver, it may well do so in the most extreme and challenging situations. What chance would you or I have when the computer in our car says, "Automatic mode disengaged" and we look up from our smartphone screen to see a bus careening towards us?

Anuj Pradhan has floated the idea that humans should have to acquire several years of manual experience before they are allowed to supervise an autonomous car. But it is hard to see how this solves the problem. No matter how many years of experience a driver has, his or her skills will slowly erode if he or she lets the computer take over. Pradhan's proposal gives us the worst of both worlds: we let teenage drivers loose in manual cars, when they are most likely to have accidents. And even when they have learned some road craft, it will not take long being a passenger in a usually reliable autonomous car before their skills begin to fade.

It is precisely because the digital devices tidily tune out small errors that they create the opportunities for large ones. Deprived of any awkward feedback, any modest challenges that might allow us to maintain our skills, when the crisis arrives we find ourselves lamentably



unprepared.

In the mid-1980s, a Dutch traffic engineer named Hans Monderman was sent to the village of Oudehaske. Two children had been killed by cars, and Monderman's radar gun showed right away that drivers were going too fast through the village. He pondered the traditional solutions – traffic lights, speed bumps, additional signs pestering drivers to slow down. They were expensive and often ineffective. Control measures such as traffic lights and speed bumps frustrated drivers, who would often speed dangerously between one measure and another.

And so Monderman tried something revolutionary. He suggested that the road through Oudehaske be made to look more like what it was: a road through a village. First, the existing traffic signs were removed. The signs might ostensibly be asking drivers to slow down. However, argued Monderman, because signs are the universal language of roads everywhere, on a deeper



level the effect of their presence is simply to reassure drivers that they were on a road – a road like any other road, where cars rule. Monderman wanted to remind them that they were also in a village, where children might play.

So, next, he replaced the asphalt with red brick paving, and the raised kerb with a flush pavement and gently curved guttering. Where once drivers had, figuratively speaking, sped through the village on autopilot – not really attending to what they were doing – now they were faced with a messy situation and had to engage their brains. It was hard to know quite what to do or where to drive – or which space belonged to the cars and which to the village children. As Tom Vanderbilt describes Monderman’s strategy in his book *Traffic*, “Rather than clarity and segregation, he had created confusion and ambiguity.”

Perplexed, drivers took the cautious way forward: they drove so slowly through Oudehaske that Monderman could no longer capture their speed on his radar gun. By forcing drivers to confront the possibility of small errors, the chance of them making larger ones was greatly reduced.

Monderman, who died in 2008, was the most famous of a small group of traffic planners around the world who have been pushing against the trend towards an ever-tidier strategy for making traffic flow smoothly and safely. The usual approach is to give drivers the clearest possible guidance as to what they should do and where they should go: traffic lights, bus lanes, cycle lanes, left- and right-filtering traffic signals, railings to confine pedestrians, and of course signs attached to every available surface, forbidding or permitting different manoeuvres.

Laweiplein in the Dutch town of Drachten was a typical such junction, and accidents were common. Frustrated by waiting in jams, drivers would sometimes try to beat the traffic lights by blasting across the junction at speed – or they would be impatiently watching the lights, rather than watching for other road users. (In urban environments, about half of all accidents happen at traffic lights.) With a shopping centre on one side of the junction and a theatre on the other, pedestrians often got in the way, too.

Monderman wove his messy magic and created the “squareabout”. He threw away all the explicit efforts at

control. In their place, he built a square with fountains, a small grassy roundabout in one corner, pinch points where cyclists and pedestrians might try to cross the flow of traffic, and very little signposting of any kind. It looks much like a pedestrianisation scheme – except that the square has as many cars crossing it as ever, approaching from all four directions. Pedestrians and cyclists must cross the traffic as before, but now they have no traffic lights to protect them. It sounds dangerous – and surveys show that locals think it is dangerous. It is certainly unnerving to watch the squareabout in operation – drivers, cyclists and pedestrians weave in and out of one another in an apparently chaotic fashion.

Yet the squareabout works. Traffic glides through slowly but rarely stops moving for long. The number of cars passing through the junction has risen, yet congestion has fallen. And the squareabout is safer than the traffic-light crossroads that preceded it, with half as many accidents as before. It is precisely because the squareabout feels so hazardous that it is safer. Drivers never quite know what is going on or where the next cyclist is coming from, and as a result they drive slowly and with the constant expectation of trouble.

And while the squareabout feels risky, it does not feel threatening; at the gentle speeds that have become the custom, drivers, cyclists and pedestrians have time to make eye contact and to read one another as human beings, rather than as threats or obstacles. When showing visiting journalists the squareabout, Monderman’s party trick was to close his eyes and walk backwards into the traffic. The cars would just flow around him without so much as a honk on the horn.

In Monderman’s artfully ambiguous squareabout, drivers are never given the opportunity to glaze over and switch to the automatic driving mode that can be so familiar. The chaos of the square forces them to pay attention, work things out for themselves and look out for each other. The square is a mess of confusion. That is why it works.

*Source: shortened version of an article by Tim Harford, Guardian*



*The day Sweden switched sides of the road 1967*

# Exciting career opportunities



TDG is a multi-office specialist transportation engineering consultancy offering the full range of professional transportation services. The company has a strong reputation as a market leader in New Zealand and, increasingly, across the Tasman.



TDG is 100% employee owned and our culture is professional and fun. With a broad scope of private and public projects spanning large and small developments, our people are among the industry's finest. We are big on mentoring and skills transfer to ensure all our people realise their potential and build reputations as respected transportation professionals and accomplished leaders. You will work alongside like-minded, recognised industry experts who provide support and mentoring.

To meet the increasing demand for our services we are looking for professionals with energy and passion to join us in creating remarkable journeys across all our main branches – Auckland, Wellington, Hamilton and Christchurch.

## Senior/Principal Transportation Engineer/Planner

– team leadership and business development role involving identifying and developing new opportunities. You'll have energy and charisma plus the confidence and ability to enhance our client relationships. For the Hamilton position, modelling experience is preferred.

## Intermediate Transportation Engineer/Planner

– intermediate role involving contributing to and/or leading projects from proposals and tenders to design and project management. You'll have recognised skills in transportation engineering or planning.

## Ideal candidates will have:

a degree in engineering or equivalent, with a minimum 2-5 years' experience for the **Intermediate** positions and with 8 years' experience in traffic/transportation fields for the **Senior** positions;

- > relevant experience in working alongside both private industry and public sector clients;
- > superior spoken and written English, with the ability to communicate clearly and accurately;
- > a personality and ability to develop and nurture client relationships and gain the clients' trust and loyalty;
- > the enthusiasm, initiative and determination to overcome challenges and achieve results;
- > creativity and innovation to bring new perspectives, fresh ideas, and flair.

To explore working at TDG and becoming part of our unbeatable culture, please apply via our website careers page

[tdg.co.nz/careers](http://tdg.co.nz/careers)

or contact Karolina Spencer, HR Manager  
at [recruitment@tdg.co.nz](mailto:recruitment@tdg.co.nz)

**We look forward to hearing from you!**



1976 – 2016  
40 YEARS OF CREATING  
REMARKABLE JOURNEYS

# World's worst traffic jam? Cars stuck in Thanksgiving getaway 'gridlock'

If these motorists thought setting off early would help them beat the Thanksgiving getaway rush, it appears a few others had the same idea.

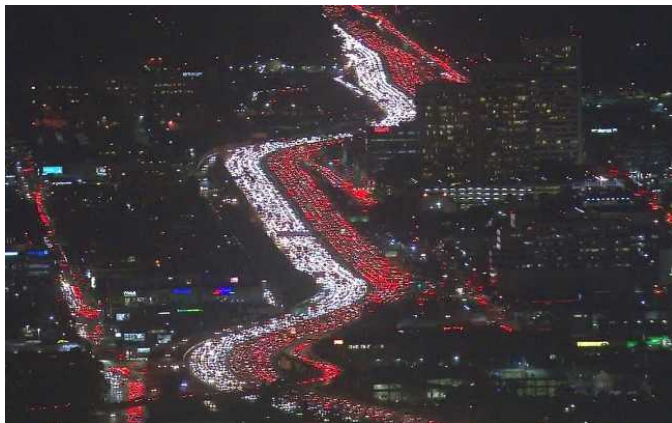
These images of what might just be the world's worst car jam in southern California, bringing traffic to a crawl. The news channel's helicopter captured the "complete gridlock" on the 405 motorway, one of the busiest and most congested routes in the United States.

I-405 is a heavily traveled thoroughfare by both commuters and by freight haulers along its entire length

and is the busiest and most congested freeway in the United States.

The freeway's annual average daily traffic between exits 21 and 22 in Seal Beach reached 374,000 in 2008, making it the highest count in the nation.

The freeway's congestion problems are legendary, leading to jokes that the road was numbered 405 because traffic moves at "four or five" miles per hour, or because drivers need "four or five" hours to get anywhere.



## The Aotearoa Bike Challenge is coming!

The Transport Agency is proud to announce that we are working on a new national bike initiative that will run in February 2017.

During February, organisations from across New Zealand can take part in the Challenge, getting their departments and staff to compete to see who can get the most staff to ride a bike. The aim of the Challenge is to encourage more people to discover how easy and enjoyable riding a bike can be, and there will be a number of exciting prizes and spot prizes available as an extra incentive to take part. You can check out the website here: [www.aotearoa.bike](http://www.aotearoa.bike)





# Transportation Engineering Postgraduate Courses 2017

## Civil and Natural Resources Engineering

### Course list

The courses below are available for full-time or part-time students studying for the following postgraduate transportation qualifications at Canterbury in 2017:

- 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 or thesis

#### Semester 1

ENTR 401	Fundamentals of Transport Engineering Self-study course, with 1-day tutorial S1 course: 27 Feb, S2 course: 24 June Transportation planning; Road link theory & design; Intersection analysis & design; Traffic studies; Accident reduction; Sustainable transport
ENTR 603	Advanced Pavement Design Block dates: 6-7 Mar, 8-9 May Covers the principles and fundamentals of Superpave characterization system, Multilayer analysis using Circlay, Traffic volume and loading calculations, Austroads Mechanistic Empirical Pavement Design, Deflection Analysis and Backcalculations, and Overlay Design.
ENTR 615	Transport Network Modelling Block dates: 20-21 Mar, 22-23 May Principles of transport modelling; Road network modelling; Meso-scopic simulation (SATURN); Microscopic simulation (Paramics); Intersection modelling (SIDRA); Road network reliability & resilience.

#### Semester 2

ENTR 613	Highway Geometric Design Block dates: 31 Jul - 1 Aug, 2-3 Oct Human and vehicle factors; sight distance; horizontal and vertical alignment; cross-section design; design plans; land use access; signs, marking, delineation; intersection design; major design project.
ENTR 619	Quantitative Techniques for Transport Engineering and Planning Block dates: 14-15 Aug, 18-19 Sep Optimisation and linear programming; sensitivity analysis; simulation modelling and analysis; statistical modelling; estimation of statistical models; validity and hypothesis testing; survey design; analysis of surveys experimental design; statistical inference techniques.
ENTR 617	Traffic Engineering and Design Block dates: 21-22 Aug, 25-26 Sep Traffic flow & queuing theory; traffic study design and analysis; local area traffic management; traffic signals; intersection safety; parking planning and design; traffic detection; intelligent transport systems.

More course details can be found on our website [www.met.canterbury.ac.nz](http://www.met.canterbury.ac.nz).

Note: Other relevant courses at Canterbury (e.g. Risk Management and Construction Management courses), University of Auckland or elsewhere may also be suitable for credit to a PGCertEng, MEngSt or MET.

### Block Mode Teaching

All courses run in "block mode" to enable part-time and distance students to easily take part. Each course is offered over two blocks, each block is two days teaching, 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 qualification and suitable work experience, will be considered for entry.

### How do I apply to enrol?

If you are interested in further studies your first step is to make contact with the Departmental Administrator.

Email: [postgrad-enquiries@civil.canterbury.ac.nz](mailto:postgrad-enquiries@civil.canterbury.ac.nz) Phone: +64-3-3642 987 Ext: 45540

### Contact Details

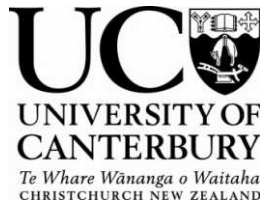
For more details contact:  
Associate Professor Mofreh Saleh  
Phone: (03) 364 2853

Email: [mofreh.saleh@canterbury.ac.nz](mailto:mofreh.saleh@canterbury.ac.nz)

Or visit the website:  
[www.met.canterbury.ac.nz](http://www.met.canterbury.ac.nz)



# ENTR603: Advanced Pavement Design - 2017



## Course Outline

### Aims and Objectives:

This course covers two important aspects of pavement design and materials. The first part is mainly concerned with pavement materials characterisation and mix design, with emphasis on Superpave technology for bitumen characterisation, hot mix design and Recycling.

The second part covers in detail Mechanistic-Empirical (M-E) design for both flexible and rigid pavements. The Austroads M.E. pavement design for is fully covered. Deflection analysis utilising FWD and deflectograph, deflection bowl parameters and back calculations are thoroughly covered. Circlly software and back calculation software are fully covered.

At the end of the course, students should:

- Be able to carry out advanced material characterisation using both conventional and Superpave specifications.
- Be able to carry out Mechanistic-Empirical pavement design for both new flexible and rigid pavements.
- Be able to undertake overlay design of existing flexible and rigid pavements.
- Demonstrate their research and presentation skills through their research work.

### Indicative Course Content

The course will comprise teaching material covering the following topics:

1. Bitumen Properties, Testing and Characterisation using conventional methods
2. Superpave Characterisation methods (Dynamic Shear Rheometer, Bending Beam Rheometer, Direct Tension Tester)
3. Superpave Aggregate Characterization
4. SuperPave Mix Design
5. APRG18 Mix Design
6. Pavement Recycling
7. Material Characterisations for fine grained, coarse grained unbound materials and asphalt concrete mixes
8. Stresses, Strains, and Deflection analysis of Multilayer system using Circlly
9. Traffic Loading and Volume analysis
10. Austroads Mechanistic–Empirical Pavement Design Procedure
11. Structural Responses in Rigid Pavements
12. Rigid Pavement Design Procedure (Austroads)
13. Deflection Analysis and back calculations
14. Overlay Design

### Teaching Block:

The course is delivered over two blocks, each block is two days of teaching from 9:00 to 5:00 pm with some frequent breaks for lunch and tea. Each block would comprise lectures, tutorial, student presentations for reach topics, and demonstrations within the pavement laboratory.

The teaching block would be held at the University of Canterbury. Students would need to make their own travel/accommodation arrangements.

Block 1: 6-7 of March

Block 2: 8-9 May

### Indicative Course Assessment: (subject to confirmation)

- |  |     |
|--|-----|
| • Research Paper (due date TBC)                  | 10% |
| • Two Assignments (due a week before final exam) | 20% |
| • Lab report (details TBC)                       | 10% |
| • Final Exam                                     | 60% |

Students will choose a research topic to investigate from a range of suggested topics (based on the course notes provided) or in any other related subject if the student desires (discuss with the course coordinator beforehand).

Students have to carry out literature review on this subject and make a class presentation for 10-15 minutes on this topic during the teaching block and submit a research report. The research project report will be in the form of conference or journal paper format.

The final exam will be a closed-book exam designed to test students' understanding and application of the material covered in the course notes and teaching block. Students from outside of Christchurch will be able to arrange to sit the final exam in their home town with a suitable local supervisor.

While a minimum 50% overall grade of the total course mark is the usual benchmark for passing, to guarantee a pass in the course you must also achieve at least 40% in both coursework and examination total marks.

**Teaching Staff:**

This course will be taught by:

- Associate Professor Mofreh Saleh (Course Coordinator), University of Canterbury

**Target Audience:**

This course is available to full-time and part-time students enrolled in Canterbury’s postgraduate transport programme (i.e. MET, MEngSt, PGCertEng; or CoP see the website [www.met.canterbury.ac.nz](http://www.met.canterbury.ac.nz) for more information).

Other undergraduate or postgraduate students at Canterbury (e.g. in engineering, geology, etc) may also apply to enrol and will be considered on a case-by-case basis. Such students should make contact in advance with the course coordinator.

The course will also benefit industry professionals and practitioners involved in pavement design but with little theoretical experience. The course can be undertaken for a one-off Certificate of Proficiency (COP) or as part of a larger qualification such as MET.

Some previous training in basic pavement engineering/design or rehabilitation is desirable, e.g. the undergraduate course ENC1415 (background reading references can be provided if necessary).

**Course Workload and Learning Resources:**

This course is worth (15 points), which translates into a nominal average of 150 hours of lectures, labs, assignment work, background reading and other study time for a typical student.

All participants will be given detailed lecture notes for each topic at the beginning of the course. While there is no required textbook, suggested books in the Engineering Library will be indicated where appropriate, and students will also be expected make use of the Library's research tools (note: distance services are available for non-Christchurch students).

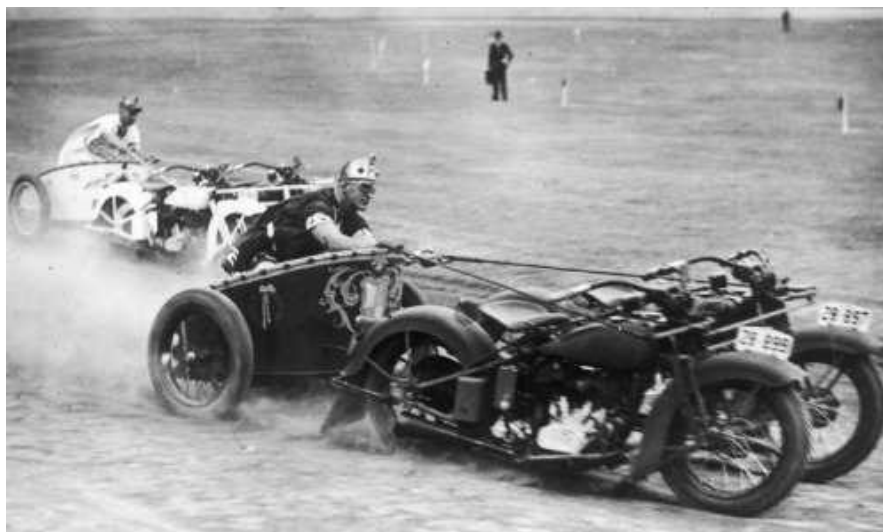
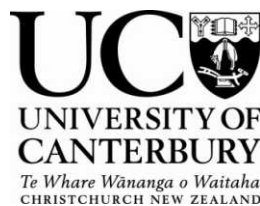
Links to useful websites and electronic documents (including Austroads pavement guides) will also be provided on the University’s online teaching system, Learn, and students will be expected to use Learn for ongoing communications and discussions.

**Enrolment:**

All students should apply to enrol in “ENTR603” no later than one week prior to the start of semester, i.e. by Mon 27th of February 2017 – otherwise late fees may be applied. Students new to the UC programme should ideally apply earlier than this to confirm eligibility.

Completion of enrolment (documentation, fees, etc) is required before access to Learn and course notes can be provided. See [www.canterbury.ac.nz/enrol/](http://www.canterbury.ac.nz/enrol/) for details on enrolling.

For more information about this course contact Associate Professor Mofreh Saleh, Civil & NatRes Eng Dept  
Phone: (03) 3642853 Email: [Mofreh.Saleh@canterbury.ac.nz](mailto:Mofreh.Saleh@canterbury.ac.nz)  
Postgraduate Transportation website: [www.met.canterbury.ac.nz](http://www.met.canterbury.ac.nz)



*Motorcycle chariot race, Australia 1936*



## PRINCIPAL TRANSPORTATION ENGINEER

**Abley Transportation Consultants is a leading consultancy providing strategic transportation advice to central government, regional and local authorities and private developers as well as non-profit groups.**

**To learn more about the specific work we undertake visit [www.abley.com](http://www.abley.com).**

We are seeking a highly competent, motivated and energetic person in the mid stage of their career to join our respected team. This person will support and build on the cutting edge thinking and analysis we provide for a wide range of clients. The role is an ideal opportunity for an ambitious transportation professional to take a rapid leap to a senior leadership role within our company. Ideally applicants would have knowledge and application in the areas of transportation assessment techniques, local, regional and national transportation and planning policies, various NZ engineering standards, transportation modelling software, planning and engineering design.

Abley Transportation Consultants is located in Auckland and Christchurch and either location would be suitable for this position at the option of the applicant.

The successful applicant will have the ability to develop the role and provide the top notch deliverables that our clients expect. At the same time our wider engineering and transport planning team will provide support and guidance.

To be successful in this role you will ideally have:

- Experience working within a transportation consultancy or a clear understanding of how consultants work, their business objectives and client interface.
- A clear determination for providing the best quality advice, both technically and professionally.
- Experience understanding and solving a wide range of complex transportation problems and presenting clear outcomes to decision makers.
- Proven ability to manage the delivery of concurrent projects.
- A relevant and respected tertiary qualification on the road towards competence assessment.

We fully support professional ethics and would support you with membership of an appropriate associated professional body.

This is a full time position. You will report to the Managing Director and be supported by (and in turn support) the other team members.

Further information including our company values, what makes us a great place to grow your career, and the rest of the team can be found at [www.ableycareers.com](http://www.ableycareers.com) and [www.abley.com](http://www.abley.com).

To make an application for this role please include a covering letter explaining what interests you about this position and your CV. Please make application via the [www.abley.com/careers/](http://www.abley.com/careers/) website and specifically the **Principal Transportation Engineer**. All enquiries will be treated with the utmost confidentiality.

If you are keen to develop an exciting career, contact us today. We look forward to your enquiry.

**abley**   
transportation consultants



# Photo Competition

This edition takes a New York theme. The top two images are from the 1940s and 1950s. The bottom coloured image is from the early 1900s. Got any better shots? Send photos to: [daniel.newcombe@at.govt.nz](mailto:daniel.newcombe@at.govt.nz)



## Auckland/Northland Branch

Rather than a Christmas function, the Auckland Branch committee is planning a Welcome Back event early in the new year.

Our first event will be our AGM at the end of January or early February. Formal notice of the AGM will be sent to all members in the new year.

Thanks to all our members for their help over the past year. We look forward to seeing everyone at our various events in 2017.

## Waikato/Bay of Plenty Branch

Waikato/BOP branch have been relatively inactive this month due to the level of commitment from the committee in organising the 2017 conference. We will be holding a social function early next year in lieu of a pre-Christmas gathering

## Central Branch

### Central Branch Hawkes Bay Cycle Tour



The central branch are planning to hold a cycle tour weekend in Hawkes Bay in March 2017 (exact dates yet to be decided), looking at some of the on road and off road cycling infrastructure and facilities.

The tour will involve a Saturday night dinner at a vineyard alongside other social opportunities, with members from other branches of the Transportation Group also invited to attend.



If you're interested in heading along on the cycle tour, please fill in the following form: <https://goo.gl/forms/xQDMwH08AVmlazlm2> or contact [Catherine.mills@opus.co.nz](mailto:Catherine.mills@opus.co.nz)

The Opus team 'Make Kaikoura Great Again' won the annual Wellington branch IPENZ TG quiz night recently, with their in-depth transport knowledge helping them to victory. Thanks to Andrew McLeod for organising another great event.

IPENZ TG Central Linked In page" – <https://www.linkedin.com/groups/7041564>

## Canterbury-Westcoast Branch

### Upcoming Events:

#### Walkabout and End of Year Drinks

Date: Thursday 15 December  
 Time: The walk will start outside 62 Worcester Boulevard at 5pm, then drinks at the Dux Central  
 Drinks and nibbles provided  
 RSVP to [Jeanette.ward@abley.com](mailto:Jeanette.ward@abley.com)

### Southern branch

Awaiting report

### NZMUGs update

After "the best NZMUGs Conference yet" in Wellington 2016, the new NZMUGs committee have embarked on an ambitious plan for 2017. First and foremost, we have agreed that the 2017 NZMUGs conference will be in the South Island next year (venue TBC), and planning is well underway to raise the bar on the conference again next year.

The key question I am pondering is "where to next for NZMUGs", after our successful project to contributing to the Model Development Guidelines with the NZ Transport Agency. To understand this, we will be seeking our member's views on what role we should be playing in the industry, but firstly we need to better understand our members! Apparently we have 196 right now, which is both more than we thought, and a good opportunity to grow.

Other initiatives will be to:

- Formalise a number of minor departures from the TG rules which were agreed at the last AGM;
- Complete the model forecasting research topic;
- Survey the membership on what they want NZMUGs to be; and
- Clarify the NZMUGs role in research going forward.

Happy non-denominational holidays to all, and best wishes to you and yours for 2017.

Nathan Harper  
 NZMUGs Chair

# New charging stations pave the way for electric cars

The arrival of electric vehicle company Tesla in New Zealand in November is expected to see a surge in the number of electric cars being sold here. But for those wanting to drive their electric vehicle (EV) beyond the city limits, how easy is it to recharge the car's battery?

A new company building a nationwide network of fast chargers for EVs says they have the solution and it won't be long before EV owners will be able to travel wherever and whenever they like.

ChargeNet NZ CEO Steve West says there are already more than 40 charging stations across the country with a new one being installed every two weeks.

"What we consider our minimum viable network is 100 stations because we need one every 60 to 70km on every highway in New Zealand," says Mr West.

The charging stations use state-of-the-art technology that significantly speeds up the time required to charge an EV's battery.

"Our fast chargers mean what takes you 6 hours to do

at home will take you only 20 minutes at one of our stations."

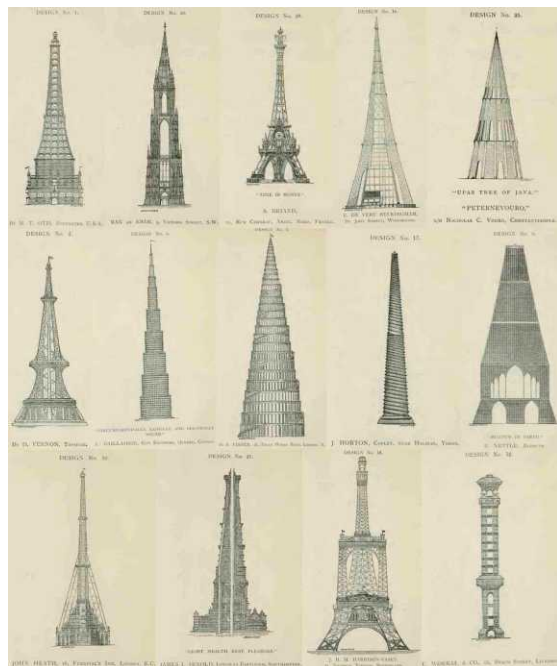
West says on top of paying for the electricity, EV owners will be charged 25c per minute to charge their cars.

"That means for a Nissan Leaf it will cost about \$10 to charge your car. It will be more expensive for a larger car, maybe \$30 to \$40 but that's still half the price of petrol."

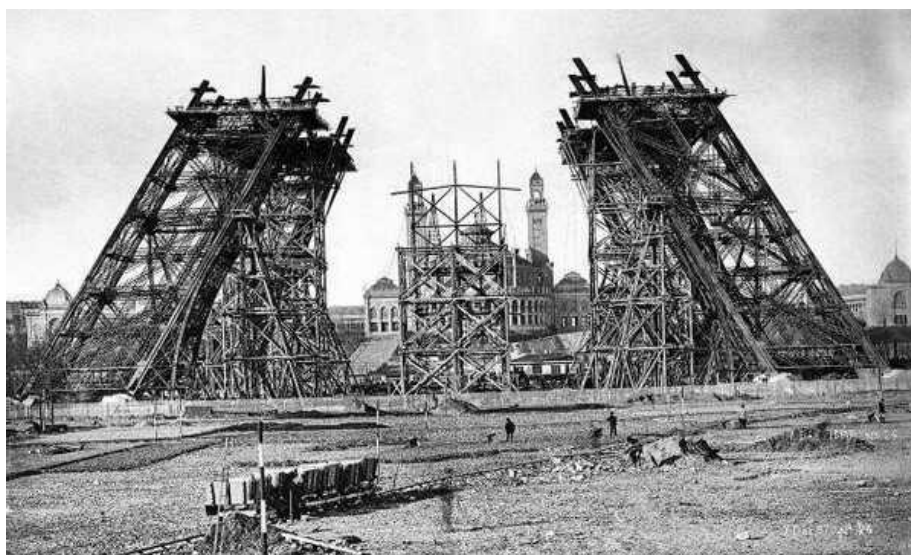
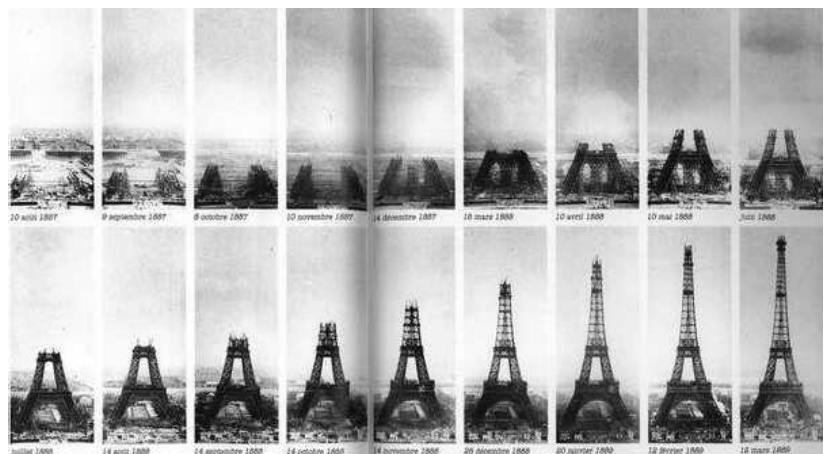
West says even though the vast majority of EV charging will take place at owners' homes overnight, his company's fast charging network will be increasingly important as the number of EVs in New Zealand increases.

"At present there are more than 2000 EVs registered in New Zealand but the rate of growth is exceeding expectations. We're more than doubling the number of EVs sold every year so by the end of 2021 we should have more than 64 thousand vehicles on the road."

Source: NZ Herald



## Rejected designs and construction phases of the Eiffel Tower





# Roundabout of the month



This edition's roundabout is the 'Fountain of Wealth' roundabout from Suntec City, Singapore. Seen a better one? Email [daniel.newcombe@at.govt.nz](mailto:daniel.newcombe@at.govt.nz)



Why science teachers should not be given playground duty.



# Caption competition



*"Footpath closed. Cross other hemisphere."*

TDG's Bridget Burdett sent through this photo of a not-quite-right sign for pedestrians. Bridget has also suggested the caption. If you have any other suggestions, send them to: [daniel.newcombe@at.govt.nz](mailto:daniel.newcombe@at.govt.nz)



*'Do you know why I pulled you over?'*

*'Is it the missing apostrophe?'*

*'It is the missing apostrophe'*

# SH20 Waterview update



Spectacular panels of concrete art depicting a Maori legend will welcome drivers when they enter the southern portal of the tunnels heading north towards Waterview and the Great North Road Interchange.

Designed by artist Graham Tipene of Ngati Whatua Orakei in Auckland, the panels (pictured) tell the story of two lovers – Hinemairangi and Tamaireia – who escaped underground.

They have been installed on the left side of the southern entrance to the northbound tunnels and will be 48 metres long and 1.5 metres high. Tipene has previously been involved with the project, having designed the artwork – Te Haerenga Hou (new journey).

A large circular artwork which depicted Alice TBM's journey from Manukau Harbour along the route of what is now State Highway 20, past the volcanoes of Te Ara Pūeru (Māngere), Te Hōpua (Gloucester Park), Maungakiekie (One Tree Hill) and Puketāpapa (Mt Roskill), to the feet of Ōwairaka (Mt Albert) where the southern portals are.



The story the concrete panels tell begins 30 metres outside the tunnel in the Southern Approach Trench and finishes 18 metres into the tunnel the concrete panels depict the same lovers portrayed on the TBM cover.

“The moulds were laser cut from our digital files, and then textures added to make the surface rough in places and give it some contrast, says Design Team Lead, Alasdair Rigby.

“It also needed quite a bit of thought from the construction team on how to bring these art pieces in, and amalgamate them with our roadside barrier system.”



The team working on the widening of State Highway 20 southbound have had the 'Dominion Road to Hillsborough Road' leg of the motorway added to their scope of work (above).

This work was officially approved by the NZ Transport Agency recently and will ensure that traffic moving through the tunnels will have three continuous lanes to Hillsborough.

With extra traffic expected to travel through the tunnels, the third lane will help to accommodate for this increase as well as allow for vehicles to leave the motorway more safely at Maioro Street, Dominion Road and Hillsborough Road.

Services and investigations work on the Dominion Road to Hillsborough Road part of the widening started in late October with temporary road barriers and traffic signage also set up. “We’re progressing at a good rate between Maioro Street and Dominion Road,” says Project Engineer, Dan Trotman.

“Earthworks, drainage and paving works are well underway which is great considering the narrow corridor that we’re working in alongside a live motorway.”

A traffic switch to the new lane will occur in late November to allow our team space to form a new gantry base for the Dominion Road signage.



All pavement work inside both tunnels is now finished. Our pavement team completed their last layer of stone mastic asphalt (SMA) late last month to finish the tunnels road surface (above).

Essentially this road surface will be what people will be driving on when the tunnels and adjoining interchange open in early 2017.

Section Engineer Sunil Punwani says there was a big and successful operation to co-ordinate all the teams involved with the tunnels so the paving could be completed.

“The paving programme required large sections underground – mainly half the tunnel and tunnel portals – to be handed over for paving works for number of days.”

“A big ‘thank you’ to all the teams for their cooperation to complete the paving works. Most of the teams were on critical path and coordinated the works to complete on programme.”

But before you start thinking that the tunnels will open this year, hold your horses (vehicles). The tunnels along with other works underground and on State Highway 16 and 20 will need to be commissioned before opening to the public. Work to paint line marking in the tunnels will start closer towards Christmas.

Water has been pouring down in bucket loads over the past month as the deluge safety system is tested to make sure all the sprinklers in the tunnel ceilings and the water pressure feeding them are working correctly.

“It’s a critical test to make sure the deluge system does what it is designed to do – suppress fires in the tunnel, stop any fire from escalating, and to allow people to escape safely,” says Commissioning Manager, Warwick Sextus.

The tests will run till the end of November, with every metre in the tunnels getting drenched with water, all

*If you want to find out a bit more information on the project, visit: [www.nzta.govt.nz/projects/waterviewconnection](http://www.nzta.govt.nz/projects/waterviewconnection) or for regular updates and some great vidoes [www.facebook.com/AliceTBM](http://www.facebook.com/AliceTBM)*

fed from five large deluge tanks located in the Southern Ventilation Building (below).

Each deluge tank weighs over 250 tonnes when full of water, stand 8.3 metres tall, and hold 250,000 litres of water – that’s 1.25 million litres of water in total. They feed the fire water mains which carry water to the Northern Ventilation Building, cross passages and deluge zones.

“We only open up the sprinklers for a minute or two during the tests, but in reality they can run for up to 60 minutes,” Warwick says.

A new logo and direction signs will guide motorists and



help them to get the most from the Western Ring Route in Auckland (below).

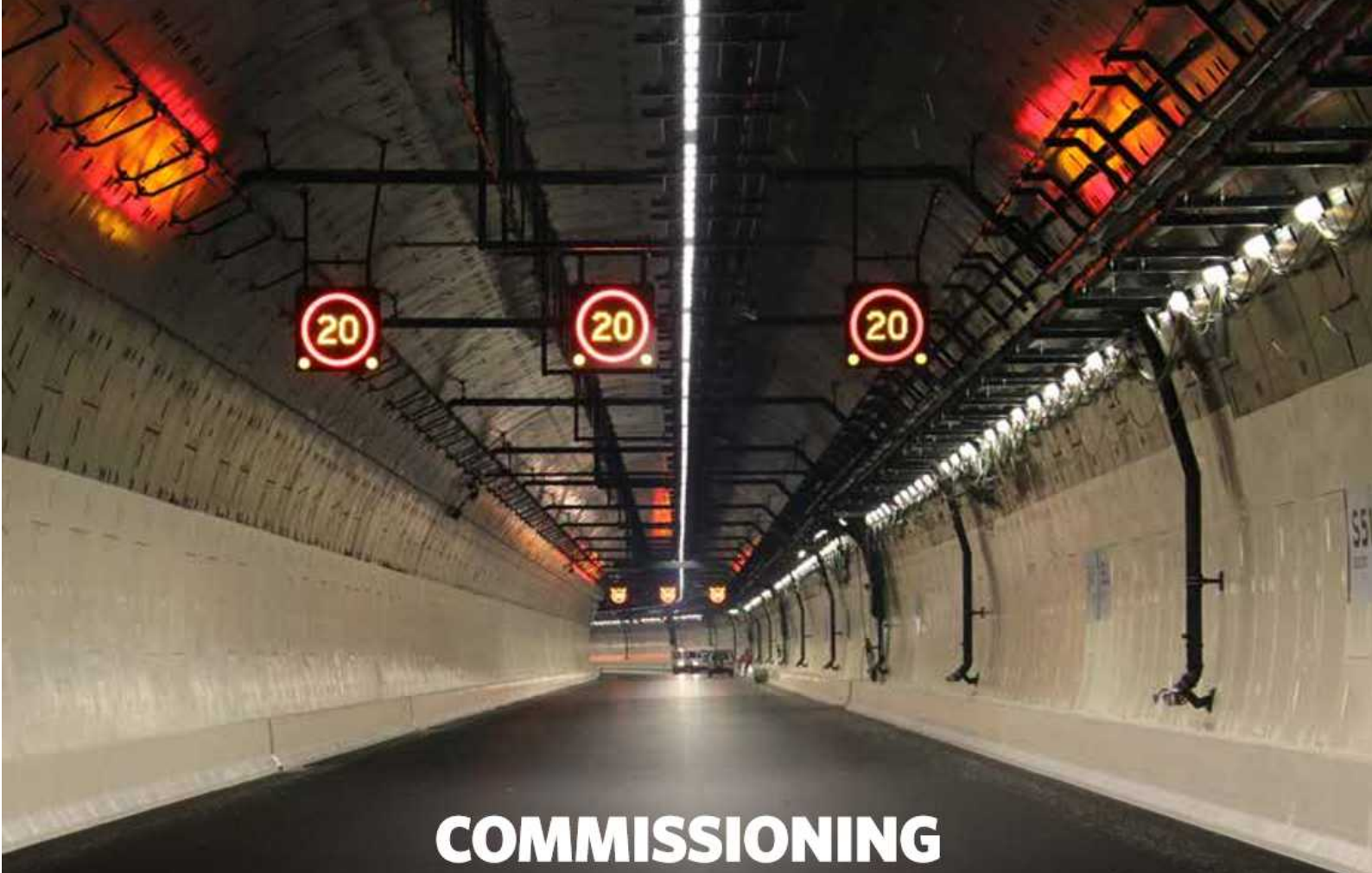
The opening of the tunnel and a new section of State Highway 20 next year will also mark the completion of a key project on the Western Ring Route, an additional route to use instead of State Highway 1, linking Manukau, central Auckland, West Auckland and the North Shore.

“The Western Ring Route will give drivers a direct motorway to motorway connection all the way from Manukau to West Auckland and the North Shore, helping them to skirt around the city,” says Brett Gliddon, the Transport Agency’s Auckland Highway Manager.



“Because it takes in several motorways including State Highway 16, 20 and 18 and connects at either end with State Highway 1, we’ve developed a new logo to help motorists easily identify that they are on the Western Ring Route.”

“This will help guide them along the Western Ring Route as a second route to use in addition to State Highway 1.”



# COMMISSIONING

## GETTING THE TUNNELS READY FOR OPENING

With the tunnels road surface already complete and ready to drive on, the Well-Connected Alliance has received several enquiries about whether the tunnels will be ready to open prior to Christmas.

While we appreciate the enthusiasm of people to drive through New Zealand's longest and largest road tunnels, before we can open arguably the most important stage of the construction process is required to be carried out – commissioning.

On the Waterview Connection project commissioning serves two main purposes – installing and testing gear which will assist traffic to operate safely in the tunnels such as lights, jet fans, cameras, video messaging signs.

The other is to ensure that all the fire life safety equipment in the tunnels perform as expected particularly in the event of an emergency. Well-Connected Alliance Commissioning Manager, Warwick Sextus, explains the comprehensive process that is involved in commissioning.

“We have approximately 4159 pieces of individual mechanical and electrical equipment in the tunnels alone that requires checks and tests, before we run it at full power to measure peak performance,” he says. “We do a thorough examination of the equipment’s software and check that all back-up systems such as electrical, communications and battery, work correctly. This will allow us to meet our regulatory and compliance requirements to demonstrate that these world class tunnels are safe to open.”

The mechanical and electrical team have a large scope of work on the project – commissioning all electrical gear from parts of the Causeway project on State Highway 16 to the Great North Interchange and tunnels right through to Hillsborough Road on State Highway 20.

“As construction finishes the transition phase to commissioning starts – which so far has been working very well, says Warwick. “We can tick off what works well as well as identify issues with some equipment and work to rectify them, which is exactly what this rigorous and extensive process is intended to do.”



**Waterview Connection**

FREEPHONE 0508 TUNNEL (88 66 35)  
PROJECT WEBSITE [www.nzta.govt.nz/waterviewconnection](http://www.nzta.govt.nz/waterviewconnection)  
FOLLOW THE PROJECT ON FACEBOOK [www.facebook.com/AliceTBM](http://www.facebook.com/AliceTBM)  
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# Transport Advice

## FOR DUMMIES



*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**

Why, oh why, whenever it rains do Auckland drivers forget how to drive? Every time it rains, Auckland grinds to a halt, with huge queues of slow-moving traffic, yet overseas they endure snow and hail with barely a hiccup. What gives?

**Gary, Devonport**

**Dear Garish**

You are quite right. Aucklanders are susceptible to light rain, as it blurs the windscreen and makes it harder for drivers to peer at the real estate signage as they cruise past with their lattes in hand and sunglasses on their heads. Obviously sometimes the slight precipitation also leads to low-speed crashes, with lattes spilled and sunglasses cast asunder. It could be worse though. UK readers will recall the issues British Rail has with 'the wrong kind of leaves on the track', which led to major delays and cancellations of trains.

**~Transport Guy**

**Dear Transport Guy**

I notice there are heaps of cycling articles in Roundabout. This shows a clear bias, as there aren't any balancing views. Where are all the car articles?

**Simon, Dunedin**

**Dear Slimey**

No-one sent us any.

**~Transport Guy**

**Dear Transport Guy**

Why do so many people want rail to the airport? Yes it would be a congestion free alternative, yes it would free up roads for business traffic, yes it would unlock previous investment in the rail system, yes it bring Auckland to the level of an equivalent international city, but... Never mind.

**Barry, Manukau**

**Dear Barely**

You're welcome.

**~Transport Guy**



**Dear Transport Guy**

Autonomous cars - are they here yet?.

**Mary, Napier**

**Dear Meekly**

Yes. Get into any car you come across and loudly tell the radio console where you want to go. Ignore the startled looks of anyone else in the car - some people are always slow to understand new technologies.

**~Transport Guy**



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

**CHALLENGE ACCEPTED**



Transportation Group National Committee  
**National Chairperson, Submissions Coordinator, Membership Coordinator, Treasurer**  
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**Branch Administrators**

**Auckland:** Stephanie Spedding stephanie.spedding@jacobs.com

**Waikato/Bay of Plenty:** Clara Hechei Clara.hechei@ghd.com

**Central:** Josephine Draper josephine.draper@nzta.govt.nz

**Canterbury/West Coast:** Jared White jared@abley.com

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



**Roundabout Editorial Team**

**Editor:** Daniel Newcombe daniel.newcombe@at.govt.nz

**Immediate past editor and dogsbody:** Bridget Burdett bridget.burdett@tdg.co.nz

**Additional dogsbody:** John Lieswyn john@viastrada.nz



## **Kids explain traffic engineering**

**"People who speed think its cool and they are partying. When they skid and crash they get angry with themselves because they wish they hadn't done it."**