

Juliet Esposito

From: Mark Edwards
Sent: Wednesday, 31 July 2019 12:19 PM
To: Glenn Bunting
Cc: Emma Speight; Jenny Dickinson
Subject: FW: Rainbow crossing - monitoring information
Attachments: Pedestrian crossing Risk Ratio testing.csv

Hi Glenn,

Colin has looked at the data from a risk perspective using a risk ratio statistical tool.

This compares the before state with after in terms of "has the risk of an event happening changed?" and "if so, by how much?"

As Colin suggests (below) in simple terms "the chance of someone crossing on a red has doubled." This ranges from an increase of 53% in the risk of crossing on a red (January 2019 - middle of the day) up to 158% for the morning December 2018.

The most recent data July 2019 has increased risk numbers of +77% (morning), +72% (middle of the day) and +131% (late afternoon) with risk in the late afternoon at its highest recorded in the most recent data.

Colin hasn't put a statistical significance on this as it isn't that type of analysis he has said. He did say though that the risk likelihood is self-explanatory given it has all risen and still remains noticeably above the before levels.

The would seem to support my rather rudimentary analysis from yesterday.

Kind Regards Mark

Senior Engineer

Safety, Health and Environment

DDI **s9(2)(a)**

E mark.edwards2@nzta.govt.nz / W nzta.govt.nz

50 Victoria Street, Private Bag 6995,
Wellington 6141, New Zealand

From: Colin Morrison
Sent: Wednesday, 31 July 2019 11:58 AM
To: Mark Edwards <Mark.Edwards2@nzta.govt.nz>
Subject: RE: Rainbow crossing - monitoring information

Hello Mark

Attached and below risk ratios shows a higher risk of pedestrians crossing on a red phase at all three time slots.

The percentage increase in risk is between 53% and 158%.

A summary in simple terms: the chance of someone crossing on a red has doubled.

Xing	am_Pre	am_Post_2M	am_Post_3M	am_Post_9M	mid_Pre	mid_Post_2M	mid_Post_3M
Green	1125	1343	1845	1717	2183	2357	3324

Red	371	959	665	655	689	1227	1054
%red	0.247995	0.416594	0.26494	0.276138	0.239903	0.342355	0.240749
Risk Ratio		2.584906	1.792453	1.765499		1.780842	1.529753
Percentage increase in risk		158%	79%	77%		78%	53%
	If the risk ratio is 1 (or close to 1), it suggests no difference or little difference in risk (incidence in each group is similar)						
	A risk ratio > 1 suggests an increased risk of that outcome in the exposed group, re post installation of the rainbow crossing						
	A risk ratio < 1 suggests a reduced risk in the exposed group, re post installation of the rainbow crossing						

Enjoy
Colin

Colin McLeod Morrison / Senior Advisor Strategic Interventions

Safety, Health & Environment / NZ Transport Agency

DDI s9(2)(a) / DOW Mon-Wed / E colin.morrison@nzta.govt.nz

From: Mark Edwards

Sent: Wednesday, 31 July 2019 8:06 AM

To: Colin Morrison <Colin.Morrison@nzta.govt.nz>

Subject: FW: Rainbow crossing - monitoring information

Hi Colin,

Could you have a look at the attached before and after numbers for Glenn and I?

I've done some basic comparisons but wanted a more professional eye to have a look at it and also from the perspective of statistical confidence in the results.

The data is in the attached excel sheet, before data (Sept) to be compared against each of the after surveys (Dec, Jan and July). Whilst the time periods are consistent (morning, middle of the day and late afternoon) the days of collection vary in some of the after data sets. I'd suggest comparing like days with like days and then average daily against average daily which would permit different days in the after sets to be compared as a daily average. All the averages are calculated in the data so it is a quick compare the numbers analysis.

Data measures the degree of compliance with red or green pedestrian phases, the question is how has the after situation compared to the before in terms of compliance being better or worse. We can ignore the pedestrians walking between traffic gaps data as this is such a small data set it would I expect be unlikely to be statistically robust s9(2)(g)(i)

Kind Regards Mark

Senior Engineer

Safety, Health and Environment

DDI s9(2)(a)

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50 Victoria Street, Private Bag 6995,
Wellington 6141, New Zealand

From: Glenn Bunting
Sent: Tuesday, 30 July 2019 10:25 AM
To: Mark Edwards <Mark.Edwards2@nzta.govt.nz>
Subject: FW: Rainbow crossing - monitoring information

Can you have a look at this to see **s9(2)(g)(i)** ? Also there is no before and /gap speed data I can see to justify the assertion below.

Cheers, GB

From: Emma Speight
Sent: Tuesday, 30 July 2019 10:18 AM
To: Glenn Bunting <Glenn.Bunting@nzta.govt.nz>
Subject: FW: Rainbow crossing - monitoring information

Hi Glenn

Updated information as we requested – can you please update me on the next steps from here, now that Greg is back?

Thanks
Emma

From: David Chick <David.Chick@wcc.govt.nz>
Sent: Monday, 29 July 2019 12:45 PM
To: Emma Speight <Emma.Speight@nzta.govt.nz>
Cc: **s9(2)(a)** David Chick <David.Chick@wcc.govt.nz>; **s9(2)(a)**
Subject: RE: Rainbow crossing - monitoring information

Good afternoon Emma,

As discussed, please find attached the comparing statistics for the Rainbow crossing for September (before installation) and for December, January & July (after installation).

The additional July data shows that the percentages of pedestrians crossing during the Flashing Red Human Symbol and Steady Red Human Symbol are similar to the previous 'after' monitoring.

It is also noted that the percentages of pedestrians crossing between traffic, from this additional data have not changed compared to the 'before' and previous 'after' monitoring data. Implementation of the rainbow marking has not increased the percentages of pedestrians crossing between traffic for the 'before' and 'after' pedestrian crossing behaviour.

It is also observed that the installation of the speed cushion has created larger gaps and slower speed in the vehicular flow which resulted in more opportunity for pedestrians to cross Dixon Street during the Flashing Red Human Symbol and Steady Red Human Symbol.

Based on these 'before' and 'after' monitoring data on pedestrian crossing behaviour, the conclusion is that the implementation of the rainbow marking has not created or increased any negative risks to pedestrians.

I look forward to now being able to confirm the next steps in relation to the exemption.

Kind regards,

David

David Chick

Chief City Planner | | Wellington City Council

s9(2)(a)

E David.Chick@wcc.govt.nz | W Wellington.govt.nz |

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**Absolutely Positively
Wellington City Council**

Me Heke Ki Pōneke



-----Original Message-----

From: Emma Speight [<mailto:Emma.Speight@nzta.govt.nz>]

Sent: Thursday, 25 July 2019 3:20 PM

To: David Chick

Subject: RE: Rainbow crossing - monitoring information

Hi David

I never received any follow up to this email - can you please advise whether you have updated information available?

Thanks
Emma

-----Original Message-----

From: David Chick <David.Chick@wcc.govt.nz>

Sent: Wednesday, 26 June 2019 5:11 AM

To: Emma Speight <Emma.Speight@nzta.govt.nz>

Cc: Samantha Callen <Samantha.Callen@nzta.govt.nz>

Subject: Re: Rainbow crossing - monitoring information

Hi Emma

I am currently in s9(2)(a) but have included s6(d) and s9(2)(a) into this response as they will be able to get back to you in this regard.

Kind regards

David

Sent from my iPhone

On 24/06/2019, at 10:04 PM, Emma Speight
<Emma.Speight@nzta.govt.nz<mailto:Emma.Speight@nzta.govt.nz>> wrote:

Hi David

Do you have updated monitoring information for the rainbow crossing? If so, I would be great if you could provide it to me. I'll give you a call later today to discuss the next steps in relation to the exemption - let me know if there are any times that work well for you.

Cheers
Em

Emma Speight
Director Regional Relationships, Lower North Island

DDI s9(2)(a)
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nzta.govt.nz<<http://nzta.govt.nz>>

Find the latest transport news, information, and advice on our website:
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