| | |
|---|---|
| **From:** | Information Management Team |
| **To:** | Matthew Young |
| **Subject:** | LGOIMA Request - Cross Valley Connections – Lower Hutt Economic Appraisal Peer Review. |
| **Date:** | Tuesday, 17 May 2022 9:08:00 am |
| **Attachments:** | BCR - preferred programme - V2.pdf |

Tēnā koe Matthew

**Request for Information – Local Government Official Information and Meetings Act (LGOIMA) 1987**

We refer to your official information request dated 27 October 2021 for information about the Cross Valley Connection Programme Business Case and your subsequent email of 19 April 2022.

The worksheets that you have requested are attached.

It should be noted that:

- It is normal practise for the economics assessment spreadsheet with formulae (model) not to be provided to a third party as it is the developer's intellectual property, hence the information is provided in pdf form;
- The economics assessment was carried out in January 2020, hence the previous version of New Zealand Transport Agency's Economics Evaluation Manual (EEM) was used. The EEM was later superseded by the new Waka Kotahi Monetised Benefits and Costs Manual (MBCM) in August 2020; and
- The economic assessment was carried out at a Programme Business Case level with assumptions made by the best information available at the time the assessment was done in January 2020. These assumptions will be continuously refined and updated through the development of the programme.

You have the right to seek an investigation and review by the Ombudsman of this response. Information about how to make a complaint is available at www.ombudsman.parliament.nz or freephone 0800 802 602.

Please note that this letter may be published on the Council's website.

Nāku noa, nā

**Susan Sales**
Ringa Āwhina Tāhūhū ki Te Koromatua | Senior Advisor
Te Kaunihera o Te Awa Kairangi | Hutt City Council, 30 Laings Road, Private Bag 31912, Lower Hutt 5040, New Zealand
**Paetukutuku:** www.huttcity.govt.nz

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**From:** Matthew Young <mattyjyoung@gmail.com>
**Sent:** Tuesday, 19 April 2022 4:57 pm
**To:** Information Management Team <informationmanagementteam@huttcity.govt.nz>
**Subject:** [EXTERNAL] Re: LGOIMA Request - Cross Valley Connections – Lower Hutt Economic Appraisal Peer Review.

Kia ora, I believe that there was some confusion over what I was asking for in this request. My request was not concerning Tony Brennand's review but rather the BCR analysis he was provided

with to undertake the review. Alternatively, if it adds further clarification, page 167 of the same document (the Cross Valley Connection PBC) says the following:

*"The transport and economic benefits to be generated by the emerging preferred programme have been calculated using an adaption of the standard the NZTA EEM worksheets. The worksheets can be provided upon request."*

Can I please be provided with these worksheets?

Thanks,
Matt Young

On Tue, 23 Nov 2021 at 16:30, Information Management Team <informationmanagementteam@huttcity.govt.nz> wrote:

> Tēnā koe Matthew,
>
> I refer to your request dated 27 October 2021.
>
> Please find attached the Cross Valley Connections – Lower Hutt Economic Appraisal Peer Review.
>
> Please note that this email (with your personal details removed) may be published on the Council's website.
>
> Nāku noa, nā
>
> **Kate Ostapowicz**
> Senior Advisor, Official Information
>
> Hutt City Council, 30 Laings Road, Private Bag 31912, Lower Hutt 5040, New Zealand
> **M** 027 265 5849 **W** www.huttcity.govt.nz
>
> ---
>
> **From:** contact mailbox <contact@huttcity.govt.nz>
> **Sent:** Wednesday, 27 October 2021 12:37 PM
> **To:** Information Management Team <informationmanagementteam@huttcity.govt.nz>
> **Subject:** LGOIMA Request
>
> | | |
> |---|---|
> | **Name** | Matthew Young |
> | **Organisation** | |
> | **Address** | 703 High St |
> | **Telephone** | |
> | **Mobile** | |
> | **Email** | mattyjyoung@gmail.com |
> | **Response By** | Email |
> | **Information** | The Cross Valley Connection Programme Business Case (as available at this |

| | |
|---|---|
| **requested** | link- http://www.huttcity.govt.nz/Your-Council/Projects/cross-valley-connections) says on page 114 that "Tony Brennand from Waka Kotahi was provided the detailed analysis completed to calculate the BCRs shown in Table 32." Can I please be provided with this detailed analysis. |
| **File upload** | |
| **Urgency Reason** | |
| **Invisible CAPTCHA** | 2021-10-27 12:35:22\| |

## Worksheet 1: Evaluation summary

Worksheet 1

### Evaluation summary

| | | | |
|---|---|---|---|
| **1** | Evaluator(s) | Laura Skilton | |
| | Reviewer(s) | Jamie Rowe | |
| **2** | **Project/package details** | | |
| | Approved organisation name | Hutt City Council | |
| | Project/package name | Cross Valley Transport Connections | |
| | Your reference | NZ0116141 | |
| | Project description | Improve west-east connections in Hutt Valley | |
| **3** | **Location** | | |
| | Brief description of location | Petone and Alicetown, Lower Hutt | |
| **4** | **Alternatives and options** | | **BCR** |
| | Do minimum | Retain Existing | |
| | Option | Preferred Programme | 3.6 |
| **5** | **Timing** | | |
| | Earliest construction start date (mm/yyyy) | | 2021 |
| | Expected construction start date (mm/yyyy) | | 2021 |
| | Expected duration of construction (months) | | 12 |
| | Start of Benefits | | 2022 |
| **6** | **Economic efficiency** | | |
| | Date economic evaluation completed (mm/yyyy) | | Jan-2020 |
| | Time zero | | 2019 |
| | Base date for costs and benefits | | 2019 |

## Worksheet 3: Benefit cost analysis

**Benefit cost analysis** Cross Valley Transport Connections

| Benefits | Preferred Programme |
|---|---|
| Travel time savings | 221,990,522 |
| Vehicle Operating Costs | 4,311,391 |
| Crash cost savings | 485,115 |
| Vehicle Emmisions Savings | 215,570 |
| Pedestrian and Cycle | 2,443,969 |
| **Sub Total - Traditional Benefits** | **229,446,567** |
| Agglomeration | 22,678,703 |
| Imperect Competition | 11,339,351 |
| Increased Labour | 11,339,351 |
| Land Value | 22,678,703 |
| Resilience | 34,018,054 |
| **Sub Total - WEBs** | **102,054,163** |
| **TOTAL BENFITS** | **331,500,730** |
| **Costs** | |
| Construction | 62,984,269 |
| Maintenance | - |
| **PV total net costs** | **62,984,269** |
| **BCR =** | |
| **Without WEBs** | **3.6** |
| **With WEBs** | **5.3** |

## Worksheets A1: Discounting and update factors

### Discounting and updating factors — Worksheet A1.3

| | |
|---|---|
| Project name | Cross Valley Transport Connections |
| Base date | 2019 |
| Time zero | 2019 |

| | | Stage 1 | Stage 2 | Stage 3 |
|---|---|---|---|---|
| | | Active Mode Improvements | Gracefield Interchange | CVL Built |
| **6** | **Single payment** | | | |
| **(a)** | Amount | 17,000,000 | 8,000,000 | 75,600,000 |
| **(b)** | time, n | 2021 | 2025 | 2029 |
| **(c)** | SPPWF for time n | 0.89 | 0.70 | 0.56 |
| **(d)** | PV time zero **(a)** x **(c)** | 15129939 | 5639684 | 42214645 |
| **9** | **Total PV time zero** | 15129939 | 5639684 | 42214645 |
| **10** | **Update factor for year of estimate** | 1.00 | 1.00 | 1.00 |
| **11** | **Total PV time zero at base date** **(9) x (10)** | 15129939 | 5639684 | 42214645 |

| | | | |
|---|---|---|---|
| Construction Period (years) | 1 | 1 | 2 |
| Benefits will start in | 2022 | 2026 | 2031 |
| Number of years of benefits | 39 | 35 | 30 |

| | |
|---|---|
| Analysis Period | 40 |

## Worksheets SP11: Walking and Cycling Benefits

### Benefits for walking and cycling facilities — Worksheet SP11-5

| | |
|---|---|
| Project name | Cross Valley Transport Connections |
| Option Name: | Active Mode Improvements |

| | | | |
|---|---|---|---|
| Pedestrian Growth Rate | 1.0% | Cycle Growth Rate | 1.3% |
| Length new Pedestrian Facility | 0 | Length new Cycle Facility (K | 2.93 |

| | **New and Existing cyclists** | <0.4 | 0.4 to <0.8 | 0.8 to ≤ 1.6 |
|---|---|---|---|---|
| **1** | Area ($km^2$) | 2.34 | 2.34 | 7.03 |
| **2** | Density per square kilometre | 780.0 | 780.0 | 780.0 |
| **3** | Population in each buffer **(3)** = **(1)** x **(2)** | 1,828 | 1,828 | 5,485 |
| **4** | Total population in all buffers (Sum of **(3)**) | 9,142 | | |
| **5** | Commute share (single value for all) | | 1.50% | |
| **6** | Likelihood of new cyclist multiplier | 1.04 | 0.54 | 0.21 |
| **7** | Row **(7)** = **(3)** x **(6)** | 1,901 | 987 | 1,152 |
| **8** | Sum of row **(7)** | 4,041 | | |
| **9** | Cyclist rate **(9)** = (**(5)** x 0.96) + 0.32% | 1.76% | | |
| **10** | Total existing daily cyclists **(10)** = **(4)** x **(9)** | 161 | | |
| **11** | Total new daily cyclists **(11)** = **(8)** x **(9)** | 71 | | |

| | | New Users | Length | days | Benefit per User | Annual Benefit |
|---|---|---|---|---|---|---|
| **(a)** | Pedestrian Facility | 0 | 0.00 | 365 | $ 2.70 | $ - |
| **(b)** | Hazadous pedestrian site | 0 | | 365 | $ 2.70 | $ - |
| **(c)** | Cycle facility | 71 | 2.93 | 365 | $ 1.40 | $ 106,475 |
| **(d)** | Hazadous cycle site | 71 | | 365 | $ 4.20 | $ 109,018 |
| **(e)** | Cycle Facility Safety Benefits | 232 | 2.93 | 365 | $ 0.05 | $ 12,406 |
| **(f)** | Hazardous site Safety Benefits | 232 | | 365 | $ 0.15 | $ 12,702 |
| | **Benefits for first year** | | | | | $ 121,721 |

**Worksheets A4: Travel time cost savings**

**Travel Time Savings** **Worksheet A4.0**

Project name Cross Valley Transport Connections

Stage Name: Gracefield Interchange

| | | | | Year 2019 | | ıvel Time Saving | | 21 | Year 2029 | | ıvel Time Saving | | 71 | Year 2039 | | ıvel Time Saving | | 188 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Road | Section | Length (km) | Vol Change | Base Volume | Option Volume | Base Speed | Option Speed | Time (vh-hr) | Base Volume | Option Volume | Base Speed | Option Speed | Time (vh-hr) | Base Volume | Option Volume | Base Speed | Option Speed | Time (vh-hr) |
| Cambridge Tce | | 2.00 | 0 | 5950 | 5950 | 49.4 | 49.4 | 0 | 6750 | 6750 | 49.3 | 49.3 | 0 | 7550 | 7550 | 49.1 | 49.1 | 0 |
| Cuba Street | Wakefield to Udy | 0.46 | 0 | 13500 | 13500 | 47.9 | 47.9 | 0 | 15300 | 15300 | 47.4 | 47.4 | 0 | 17150 | 17150 | 46.8 | 46.8 | 0 |
| Cuba Street | Udy to Jackson | 0.57 | 0 | 9400 | 9400 | 48.8 | 48.8 | 0 | 10650 | 10650 | 48.6 | 48.6 | 0 | 11900 | 11900 | 48.3 | 48.3 | 0 |
| Cuba Street | Jackson Esplanade | 0.32 | 0 | 3550 | 3550 | 49.8 | 49.8 | 0 | 4050 | 4050 | 49.7 | 49.7 | 0 | 4500 | 4500 | 49.6 | 49.6 | 0 |
| Esplanade East | Waione to Cuba | 0.56 | 0 | 25000 | 25000 | 43.0 | 43.0 | 0 | 28350 | 28350 | 40.1 | 40.1 | 0 | 31700 | 31700 | 35.6 | 35.6 | 0 |
| Esplanade Central | Cuba to Victoria | 0.99 | 0 | 24000 | 24000 | 43.7 | 43.7 | 0 | 27200 | 27200 | 41.2 | 41.2 | 0 | 30450 | 30450 | 37.5 | 37.5 | 0 |
| EsplanadeWest | Victoria to Hutt | 0.96 | 0 | 36050 | 36050 | 39.5 | 39.5 | 0 | 40900 | 40900 | 33.8 | 33.8 | 0 | 45750 | 45750 | 25.3 | 25.3 | 0 |
| Ewen Bridge | Queen to Victoria | 0.27 | 0 | 24350 | 24350 | 43.4 | 43.4 | 0 | 27600 | 27600 | 40.8 | 40.8 | 0 | 30900 | 30900 | 36.8 | 36.8 | 0 |
| Hutt Road North | Railway to Wakefi | 0.97 | 0 | 12500 | 12500 | 48.1 | 48.1 | 0 | 14200 | 14200 | 47.7 | 47.7 | 0 | 15850 | 15850 | 47.3 | 47.3 | 0 |
| Hutt Road North | Wakefield to Udy | 0.45 | 0 | 12500 | 12500 | 48.1 | 48.1 | 0 | 14200 | 14200 | 47.7 | 47.7 | 0 | 15850 | 15850 | 47.3 | 47.3 | 0 |
| Hutt Road Central | Udy to Jackson | 0.79 | 0 | 11100 | 11100 | 48.5 | 48.5 | 0 | 12600 | 12600 | 48.1 | 48.1 | 0 | 14100 | 14100 | 47.7 | 47.7 | 0 |
| Hutt Road South | Jackson to Esplan | 0.70 | 0 | 18150 | 18150 | 46.5 | 46.5 | 0 | 20600 | 20600 | 45.5 | 45.5 | 0 | 23050 | 23050 | 44.2 | 44.2 | 0 |
| Jackson Street | River to Cuba | 1.34 | 0 | 2550 | 2550 | 49.9 | 49.9 | 0 | 2900 | 2900 | 49.8 | 49.8 | 0 | 3250 | 3250 | 49.8 | 49.8 | 0 |
| Jackson Street | Cuba to Victoria | 0.99 | 0 | 7450 | 7450 | 49.2 | 49.2 | 0 | 8450 | 8450 | 49.0 | 49.0 | 0 | 9450 | 9450 | 48.8 | 48.8 | 0 |
| Jackson Street | Victoria to Hutt | 0.45 | 0 | 8800 | 8800 | 48.9 | 48.9 | 0 | 10000 | 10000 | 48.7 | 48.7 | 0 | 11150 | 11150 | 48.5 | 48.5 | 0 |
| Knights Road | Oxford to Queend | 1.60 | 0 | 8500 | 8500 | 49.0 | 49.0 | 0 | 9650 | 9650 | 48.8 | 48.8 | 0 | 10800 | 10800 | 48.5 | 48.5 | 0 |
| Ludlam Crescent | Woburn to Whites | 0.50 | 0 | 9100 | 9100 | 48.9 | 48.9 | 0 | 10300 | 10300 | 48.6 | 48.6 | 0 | 11550 | 11550 | 48.4 | 48.4 | 0 |
| On Ramp | Dowse | 0.70 | 0 | 11600 | 11600 | 48.4 | 48.4 | 0 | 13150 | 13150 | 48.0 | 48.0 | 0 | 14700 | 14700 | 47.6 | 47.6 | 0 |
| Parkside Road | Wainiomata to Ra | 1.20 | 1000 | 17850 | 18850 | 46.6 | 46.2 | -30 | 20250 | 21400 | 45.7 | 45.1 | -37 | 22650 | 23900 | 44.5 | 43.7 | -45 |
| Parkside Road | Rail to Seaview | 0.62 | 1000 | 17850 | 18850 | 46.6 | 46.2 | -15 | 20250 | 21400 | 45.7 | 45.1 | -19 | 22650 | 23900 | 44.5 | 43.7 | -23 |
| Queens Drive | Woburn to Waterl | 0.70 | 0 | 14150 | 14150 | 47.7 | 47.7 | 0 | 16050 | 16050 | 47.2 | 47.2 | 0 | 17950 | 17950 | 46.6 | 46.6 | 0 |
| Railway Ave | Hutt to Ewen | 0.46 | 0 | 14350 | 14350 | 47.7 | 47.7 | 0 | 16300 | 16300 | 47.1 | 47.1 | 0 | 18200 | 18200 | 46.5 | 46.5 | 0 |
| Randwick Road | Waione to York | 0.80 | -1000 | 20300 | 19300 | 45.6 | 46.1 | 21 | 23050 | 21900 | 44.2 | 44.9 | 26 | 25750 | 24500 | 42.4 | 43.3 | 33 |
| Randwick Road | York to Ludlum | 0.53 | -1000 | 20300 | 19300 | 45.6 | 46.1 | 14 | 23050 | 21900 | 44.2 | 44.9 | 17 | 25750 | 24500 | 42.4 | 43.3 | 22 |
| Seaview Road | Waione to Parksid | 0.36 | -1000 | 29650 | 28650 | 38.6 | 39.7 | 17 | 33650 | 32500 | 32.0 | 34.2 | 36 | 37600 | 36350 | 22.9 | 25.9 | 84 |
| Udy Street | Randwick to Cuba | 1.58 | 0 | 1000 | 1000 | 50.1 | 50.1 | 0 | 1150 | 1150 | 50.1 | 50.1 | 0 | 1250 | 1250 | 50.1 | 50.1 | 0 |
| Udy Street | Cuba to Hutt | 0.86 | 0 | 6750 | 6750 | 49.3 | 49.3 | 0 | 7650 | 7650 | 49.1 | 49.1 | 0 | 8550 | 8550 | 49.0 | 49.0 | 0 |
| Victoria Street | Railway to Wakefi | 0.89 | 0 | 13750 | 13750 | 47.8 | 47.8 | 0 | 15600 | 15600 | 47.3 | 47.3 | 0 | 17450 | 17450 | 46.7 | 46.7 | 0 |
| Wakefield Street | River to Hutt | 1.43 | 0 | 1800 | 1800 | 50.0 | 50.0 | 0 | 2050 | 2050 | 50.0 | 50.0 | 0 | 2300 | 2300 | 49.9 | 49.9 | 0 |
| Wainuiomata Hill Rd | | 0.60 | 0 | 11500 | 11500 | 48.4 | 48.4 | 0 | 13050 | 13050 | 48.0 | 48.0 | 0 | 14600 | 14600 | 47.6 | 47.6 | 0 |
| Wainuiomata Rd | Whites Line to Par | 1.11 | 1000 | 9900 | 10900 | 48.7 | 48.5 | -24 | 11250 | 12350 | 48.4 | 48.2 | -27 | 12550 | 13850 | 48.1 | 47.8 | -32 |
| Waione Street | Esp to Rrandwick | 1.21 | 0 | 32250 | 32250 | 42.4 | 42.4 | 0 | 36600 | 36600 | 39.0 | 39.0 | 0 | 40900 | 40900 | 33.8 | 33.8 | 0 |
| Waiwhetu Road | Whites Line to Wa | 1.78 | 0 | 7700 | 7700 | 49.1 | 49.1 | 0 | 8750 | 8750 | 48.9 | 48.9 | 0 | 9750 | 9750 | 48.7 | 48.7 | 0 |
| Waterloo Road | Waiwhetu to Quee | 2.05 | 0 | 7200 | 7200 | 49.2 | 49.2 | 0 | 8150 | 8150 | 49.0 | 49.0 | 0 | 9150 | 9150 | 48.9 | 48.9 | 0 |
| White Lines East | Wainui to Waiwhe | 0.10 | -1000 | 12900 | 11900 | 48.1 | 48.3 | 2 | 14650 | 13500 | 47.6 | 47.9 | 3 | 16350 | 15100 | 47.1 | 47.5 | 3 |
| White Lines East | Waiwhetu to Rand | 0.70 | -1000 | 12900 | 11900 | 48.1 | 48.3 | 15 | 14650 | 13500 | 47.6 | 47.9 | 18 | 16350 | 15100 | 47.1 | 47.5 | 20 |
| White Lines West | Randwick to River | 0.40 | 0 | 1500 | 1500 | 50.0 | 50.0 | 0 | 1700 | 1700 | 50.0 | 50.0 | 0 | 1900 | 1900 | 50.0 | 50.0 | 0 |
| Woburn Road | Ludlum to Queens | 0.90 | 0 | 11550 | 11550 | 48.4 | 48.4 | 0 | 13100 | 13100 | 48.0 | 48.0 | 0 | 14650 | 14650 | 47.6 | 47.6 | 0 |
| Western Hutt Road | Railway to Dowse | 0.78 | 0 | 55800 | 55800 | 89.3 | 89.3 | 0 | 63300 | 63300 | 85.5 | 85.5 | 0 | 70800 | 70800 | 80.2 | 80.2 | 0 |
| Western Hutt road | Dowse to Udy | 0.75 | 0 | 44500 | 44500 | 93.2 | 93.2 | 0 | 50500 | 50500 | 91.3 | 91.3 | 0 | 56450 | 56450 | 89.0 | 89.0 | 0 |
| Western Hutt road | Udy to Petone | 1.38 | 0 | 44500 | 44500 | 93.2 | 93.2 | 0 | 50500 | 50500 | 91.3 | 91.3 | 0 | 56450 | 56450 | 89.0 | 89.0 | 0 |
| New Road west of riv | Railway to Wakefi | 0.83 | 0 | 0 | 0 | 50.2 | 50.2 | 0 | 0 | 0 | 50.2 | 50.2 | 0 | 0 | 0 | 50.2 | 50.2 | 0 |
| New Road west of riv | Wakefield to Udy | 0.46 | 0 | 0 | 0 | 50.2 | 50.2 | 0 | 0 | 0 | 50.2 | 50.2 | 0 | 0 | 0 | 50.2 | 50.2 | 0 |
| New Road west of riv | Udy to Jackson | 0.85 | 0 | 0 | 0 | 50.2 | 50.2 | 0 | 0 | 0 | 50.2 | 50.2 | 0 | 0 | 0 | 50.2 | 50.2 | 0 |
| New Road west of riv | Jackson to r'bout | 0.48 | 0 | 0 | 0 | 50.2 | 50.2 | 0 | 0 | 0 | 50.2 | 50.2 | 0 | 0 | 0 | 50.2 | 50.2 | 0 |
| New Road Seaview R | R'bout to Parkside | 1.60 | 0 | 0 | 0 | 50.2 | 50.2 | 0 | 0 | 0 | 50.2 | 50.2 | 0 | 0 | 0 | 50.2 | 50.2 | 0 |

| Intersection | Base Cap. | Option Cap. | Base Volume | Option Volume | Base Delay | Option Delay | Time (vh-hr) | Base Volume | Option Volume | Base Delay | Option Delay | Time (vh-hr) | Base Volume | Option Volume | Base Delay | Option Delay | Time (vh-hr) | Int. Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Whitesline/Randwick/Ludlum | 2900 | | 43800 | 41800 | 9.3 | 9.2 | 3.0 | 49700 | 47400 | 9.7 | 9.5 | 4.4 | 55550 | 53050 | 10.5 | 10.1 | 7.0 | R'bout |
| Waione Roundabout | 3500 | | 82200 | 80200 | 16.1 | 14.9 | 17.9 | 93300 | 91000 | 27.5 | 24.3 | 48.7 | 104250 | 101750 | 51.5 | 44.4 | 117.8 | R'bout |
| Esplanacde / Cuba | 2800 | | 52550 | 52550 | 28.8 | 28.8 | 0.0 | 59600 | 59600 | 46.1 | 46.1 | 0.0 | 66650 | 66650 | 73.9 | 73.9 | 0.0 | Signal |
| Esplanacde / Victoria | 3000 | | 73800 | 73800 | 34.1 | 34.1 | 0.0 | 83700 | 83700 | 54.9 | 54.9 | 0.0 | 93650 | 93650 | 84.6 | 84.6 | 0.0 | Priority |
| Hutt Road / Esplanade | 3500 | | 47150 | 47150 | 9.1 | 9.1 | 0.0 | 53500 | 53500 | 9.3 | 9.3 | 0.0 | 59850 | 59850 | 9.7 | 9.7 | 0.0 | R'bout |
| Hutt Road / Jackson | 1500 | | 38050 | 38050 | 21.7 | 21.7 | 0.0 | 43200 | 43200 | 42.0 | 42.0 | 0.0 | 48300 | 48300 | 85.2 | 85.2 | 0.0 | R'bout |
| Hutt Road / On Ramp | 1500 | | 35200 | 35200 | 16.1 | 16.1 | 0.0 | 39950 | 39950 | 27.4 | 27.4 | 0.0 | 44650 | 44650 | 51.3 | 51.3 | 0.0 | R'bout |
| Hutt Road / Udy | 1500 | | 30350 | 30350 | 16.9 | 16.9 | 0.0 | 34450 | 34450 | 26.5 | 26.5 | 0.0 | 38500 | 38500 | 40.0 | 40.0 | 0.0 | Priority |
| Hutt Road / Wakefield | 1500 | | 35100 | 35100 | 16.0 | 16.0 | 0.0 | 39850 | 39850 | 27.0 | 27.0 | 0.0 | 44550 | 44550 | 50.6 | 50.6 | 0.0 | Priority |
| Cuba / Jackson | 2200 | | 19400 | 19400 | 9.5 | 9.5 | 0.0 | 22000 | 22000 | 9.8 | 9.8 | 0.0 | 24600 | 24600 | 10.5 | 10.5 | 0.0 | Signal |
| Cuba / Udy | 1500 | | 30650 | 30650 | 17.5 | 17.5 | 0.0 | 34750 | 34750 | 27.3 | 27.3 | 0.0 | 38850 | 38850 | 41.4 | 41.4 | 0.0 | Priority |
| Dowse / Wakefield | 99999 | | 25000 | 25000 | 0.0 | 0.0 | 0.0 | 28350 | 28350 | 0.0 | 0.0 | 0.0 | 31700 | 31700 | 0.0 | 0.0 | 0.0 | R'bout |
| Seaview / Railway Link | 99999 | | 59300 | 57300 | 0.0 | 0.0 | 0.0 | 67300 | 65000 | 0.0 | 0.0 | 0.0 | 75200 | 72700 | 0.0 | 0.0 | 0.0 | R'bout |
| Randwick Road / Randwick Cres | 99999 | | 41600 | 39600 | 0.0 | 0.0 | 0.0 | 47250 | 44950 | 0.0 | 0.0 | 0.0 | 52750 | 50250 | 0.0 | 0.0 | 0.0 | R'bout |

**Worksheets A4: Travel time cost savings**

**Travel Time Savings** **Worksheet A4.0**

Project name Cross Valley Transport Connections

Stage Name: CVL Built

| | | | | Year 2019 | | ıvel Time Saving | | 719 | Year 2029 | | ıvel Time Saving | | 1368 | Year 2039 | | ıvel Time Saving | | 2787 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Road | Section | Length (km) | Vol Change | Base Volume | Option Volume | Base Speed | Option Speed | Time (vh-hr) | Base Volume | Option Volume | Base Speed | Option Speed | Time (vh-hr) | Base Volume | Option Volume | Base Speed | Option Speed | Time (vh-hr) |
| Cambridge Tce | | 2.00 | 0 | 5950 | 5950 | 49.4 | 49.4 | 0 | 6750 | 6750 | 49.3 | 49.3 | 0 | 7550 | 7550 | 49.1 | 49.1 | 0 |
| Cuba Street | Wakefield to Udy | 0.46 | 2630 | 13500 | 16130 | 47.9 | 47.2 | -28 | 15300 | 18300 | 47.4 | 46.4 | -33 | 17150 | 20450 | 46.8 | 45.6 | -38 |
| Cuba Street | Udy to Jackson | 0.57 | -1370 | 9400 | 8030 | 48.8 | 49.1 | 17 | 10650 | 9100 | 48.6 | 48.9 | 19 | 11900 | 10200 | 48.3 | 48.6 | 21 |
| Cuba Street | Jackson Esplanade | 0.32 | -2630 | 3550 | 920 | 49.8 | 50.1 | 17 | 4050 | 1050 | 49.7 | 50.1 | 19 | 4500 | 1150 | 49.6 | 50.1 | 22 |
| Esplanade East | Waione to Cuba | 0.56 | -11645 | 25000 | 13355 | 43.0 | 47.9 | 170 | 28350 | 15150 | 40.1 | 47.5 | 217 | 31700 | 16950 | 35.6 | 46.9 | 296 |
| Esplanade Central | Cuba to Victoria | 0.99 | -5015 | 24000 | 18985 | 43.7 | 46.2 | 136 | 27200 | 21550 | 41.2 | 45.0 | 179 | 30450 | 24100 | 37.5 | 43.6 | 255 |
| EsplanadeWest | Victoria to Hutt | 0.96 | -5015 | 36050 | 31035 | 39.5 | 43.1 | 184 | 40900 | 35200 | 33.8 | 40.3 | 322 | 45750 | 39350 | 25.3 | 36.0 | 687 |
| Ewen Bridge | Queen to Victoria | 0.27 | 0 | 24350 | 24350 | 43.4 | 43.4 | 0 | 27600 | 27600 | 40.8 | 40.8 | 0 | 30900 | 30900 | 36.8 | 36.8 | 0 |
| Hutt Road North | Railway to Wakefi | 0.97 | 0 | 12500 | 12500 | 48.1 | 48.1 | 0 | 14200 | 14200 | 47.7 | 47.7 | 0 | 15850 | 15850 | 47.3 | 47.3 | 0 |
| Hutt Road North | Wakefield to Udy | 0.45 | -4000 | 12500 | 8500 | 48.1 | 49.0 | 38 | 14200 | 9650 | 47.7 | 48.8 | 44 | 15850 | 10800 | 47.3 | 48.5 | 50 |
| Hutt Road Central | Udy to Jackson | 0.79 | 0 | 11100 | 11100 | 48.5 | 48.5 | 0 | 12600 | 12600 | 48.1 | 48.1 | 0 | 14100 | 14100 | 47.7 | 47.7 | 0 |
| Hutt Road South | Jackson to Esplan | 0.70 | 0 | 18150 | 18150 | 46.5 | 46.5 | 0 | 20600 | 20600 | 45.5 | 45.5 | 0 | 23050 | 23050 | 44.2 | 44.2 | 0 |
| Jackson Street | River to Cuba | 1.34 | 0 | 2550 | 2550 | 49.9 | 49.9 | 0 | 2900 | 2900 | 49.8 | 49.8 | 0 | 3250 | 3250 | 49.8 | 49.8 | 0 |
| Jackson Street | Cuba to Victoria | 0.99 | 0 | 7450 | 7450 | 49.2 | 49.2 | 0 | 8450 | 8450 | 49.0 | 49.0 | 0 | 9450 | 9450 | 48.8 | 48.8 | 0 |
| Jackson Street | Victoria to Hutt | 0.45 | 0 | 8800 | 8800 | 48.9 | 48.9 | 0 | 10000 | 10000 | 48.7 | 48.7 | 0 | 11150 | 11150 | 48.5 | 48.5 | 0 |
| Knights Road | Oxford to Queend | 1.60 | 0 | 8500 | 8500 | 49.0 | 49.0 | 0 | 9650 | 9650 | 48.8 | 48.8 | 0 | 10800 | 10800 | 48.5 | 48.5 | 0 |
| Ludlam Crescent | Woburn to Whites | 0.50 | 0 | 9100 | 9100 | 48.9 | 48.9 | 0 | 10300 | 10300 | 48.6 | 48.6 | 0 | 11550 | 11550 | 48.4 | 48.4 | 0 |
| On Ramp | Dowse | 0.70 | 0 | 11600 | 11600 | 48.4 | 48.4 | 0 | 13150 | 13150 | 48.0 | 48.0 | 0 | 14700 | 14700 | 47.6 | 47.6 | 0 |
| Parkside Road | Wainiomata to Ra | 1.20 | -2530 | 17850 | 15320 | 46.6 | 47.4 | 72 | 20250 | 17400 | 45.7 | 46.8 | 86 | 22650 | 19450 | 44.5 | 46.0 | 104 |
| Parkside Road | Rail to Seaview | 0.62 | -1070 | 17850 | 16780 | 46.6 | 47.0 | 16 | 20250 | 19050 | 45.7 | 46.2 | 19 | 22650 | 21300 | 44.5 | 45.2 | 23 |
| Queens Drive | Woburn to Waterl | 0.70 | 0 | 14150 | 14150 | 47.7 | 47.7 | 0 | 16050 | 16050 | 47.2 | 47.2 | 0 | 17950 | 17950 | 46.6 | 46.6 | 0 |
| Railway Ave | Hutt to Ewen | 0.46 | 0 | 14350 | 14350 | 47.7 | 47.7 | 0 | 16300 | 16300 | 47.1 | 47.1 | 0 | 18200 | 18200 | 46.5 | 46.5 | 0 |
| Randwick Road | Waione to York | 0.80 | 345 | 20300 | 20645 | 45.6 | 45.5 | -7 | 23050 | 23400 | 44.2 | 44.0 | -8 | 25750 | 26200 | 42.4 | 42.1 | -13 |
| Randwick Road | York to Ludlum | 0.53 | 345 | 20300 | 20645 | 45.6 | 45.5 | -5 | 23050 | 23400 | 44.2 | 44.0 | -6 | 25750 | 26200 | 42.4 | 42.1 | -8 |
| Seaview Road | Waione to Parksid | 0.36 | -2530 | 29650 | 27120 | 38.6 | 41.3 | 40 | 33650 | 30750 | 32.0 | 37.1 | 79 | 37600 | 34400 | 22.9 | 30.4 | 182 |
| Udy Street | Randwick to Cuba | 1.58 | 0 | 1000 | 1000 | 50.1 | 50.1 | 0 | 1150 | 1150 | 50.1 | 50.1 | 0 | 1250 | 1250 | 50.1 | 50.1 | 0 |
| Udy Street | Cuba to Hutt | 0.86 | 0 | 6750 | 6750 | 49.3 | 49.3 | 0 | 7650 | 7650 | 49.1 | 49.1 | 0 | 8550 | 8550 | 49.0 | 49.0 | 0 |
| Victoria Street | Railway to Wakefi | 0.89 | 0 | 13750 | 13750 | 47.8 | 47.8 | 0 | 15600 | 15600 | 47.3 | 47.3 | 0 | 17450 | 17450 | 46.7 | 46.7 | 0 |
| Wakefield Street | River to Hutt | 1.43 | 10330 | 1800 | 12130 | 50.0 | 48.2 | -308 | 2050 | 13750 | 50.0 | 47.8 | -352 | 2300 | 15400 | 49.9 | 47.4 | -399 |
| Wainuiomata Hill Rd | | 0.60 | 0 | 11500 | 11500 | 48.4 | 48.4 | 0 | 13050 | 13050 | 48.0 | 48.0 | 0 | 14600 | 14600 | 47.6 | 47.6 | 0 |
| Wainuiomata Rd | Whites Line to Par | 1.11 | 1070 | 9900 | 10970 | 48.7 | 48.5 | -26 | 11250 | 12450 | 48.4 | 48.2 | -29 | 12550 | 13900 | 48.1 | 47.8 | -33 |
| Waione Street | Esp to Rrandwick | 1.21 | -11645 | 32250 | 20605 | 42.4 | 47.1 | 391 | 36600 | 23350 | 39.0 | 46.3 | 525 | 40900 | 26150 | 33.8 | 45.3 | 766 |
| Waiwhetu Road | Whites Line to Wa | 1.78 | 0 | 7700 | 7700 | 49.1 | 49.1 | 0 | 8750 | 8750 | 48.9 | 48.9 | 0 | 9750 | 9750 | 48.7 | 48.7 | 0 |
| Waterloo Road | Waiwhetu to Quee | 2.05 | 0 | 7200 | 7200 | 49.2 | 49.2 | 0 | 8150 | 8150 | 49.0 | 49.0 | 0 | 9150 | 9150 | 48.9 | 48.9 | 0 |
| White Lines East | Wainui to Waiwhe | 0.10 | 1070 | 12900 | 13970 | 48.1 | 47.8 | -2 | 14650 | 15850 | 47.6 | 47.3 | -3 | 16350 | 17700 | 47.1 | 46.7 | -3 |
| White Lines East | Waiwhetu to Rand | 0.70 | 1070 | 12900 | 13970 | 48.1 | 47.8 | -17 | 14650 | 15850 | 47.6 | 47.3 | -19 | 16350 | 17700 | 47.1 | 46.7 | -23 |
| White Lines West | Randwick to River | 0.40 | 11645 | 1500 | 13145 | 50.0 | 48.0 | -98 | 1700 | 14900 | 50.0 | 47.5 | -112 | 1900 | 16700 | 50.0 | 47.0 | -127 |
| Woburn Road | Ludlum to Queens | 0.90 | 0 | 11550 | 11550 | 48.4 | 48.4 | 0 | 13100 | 13100 | 48.0 | 48.0 | 0 | 14650 | 14650 | 47.6 | 47.6 | 0 |
| Western Hutt Road | Railway to Dowse | 0.78 | 0 | 55800 | 55800 | 89.3 | 89.3 | 0 | 63300 | 63300 | 85.5 | 85.5 | 0 | 70800 | 70800 | 80.2 | 80.2 | 0 |
| Western Hutt road | Dowse to Udy | 0.75 | 5015 | 44500 | 49515 | 93.2 | 91.7 | -47 | 50500 | 56150 | 91.3 | 89.1 | -57 | 56450 | 62800 | 89.0 | 85.8 | -73 |
| Western Hutt road | Udy to Petone | 1.38 | 5015 | 44500 | 49515 | 93.2 | 91.7 | -86 | 50500 | 56150 | 91.3 | 89.1 | -106 | 56450 | 62800 | 89.0 | 85.8 | -134 |
| New Road west of riv | Railway to Wakefi | 0.83 | 0 | 0 | 0 | 50.2 | 50.2 | 0 | 0 | 0 | 50.2 | 50.2 | 0 | 0 | 0 | 50.2 | 50.2 | 0 |
| New Road west of riv | Wakefield to Udy | 0.46 | 0 | 0 | 0 | 50.2 | 50.2 | 0 | 0 | 0 | 50.2 | 50.2 | 0 | 0 | 0 | 50.2 | 50.2 | 0 |
| New Road west of riv | Udy to Jackson | 0.85 | 0 | 0 | 0 | 50.2 | 50.2 | 0 | 0 | 0 | 50.2 | 50.2 | 0 | 0 | 0 | 50.2 | 50.2 | 0 |
| New Road west of riv | Jackson to r'bout | 0.48 | 0 | 0 | 0 | 50.2 | 50.2 | 0 | 0 | 0 | 50.2 | 50.2 | 0 | 0 | 0 | 50.2 | 50.2 | 0 |
| New Road Seaview R | R'bout to Parkside | 1.60 | 0 | 0 | 0 | 50.2 | 50.2 | 0 | 0 | 0 | 50.2 | 50.2 | 0 | 0 | 0 | 50.2 | 50.2 | 0 |

| Intersection | Base Cap. | Option Cap. | Base Volume | Option Volume | Base Delay | Option Delay | Time (vh-hr) | Base Volume | Option Volume | Base Delay | Option Delay | Time (vh-hr) | Base Volume | Option Volume | Base Delay | Option Delay | Time (vh-hr) | Int. Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Whitesline/Randwick/Ludlum | 2900 | | 43800 | 56860 | 9.3 | 10.8 | -29.3 | 49700 | 64450 | 9.7 | 13.7 | -56.1 | 55550 | 72150 | 10.5 | 20.0 | -119.2 | R'bout |
| Waione Roundabout | 3500 | | 82200 | 68370 | 16.1 | 10.8 | 81.8 | 93300 | 77500 | 27.5 | 13.6 | 209.8 | 104250 | 86750 | 51.5 | 19.7 | 508.0 | R'bout |
| Esplanacde / Cuba | 2800 | | 52550 | 33260 | 28.8 | 11.0 | 159.2 | 59600 | 37750 | 46.1 | 12.8 | 314.7 | 66650 | 42200 | 73.9 | 15.6 | 592.7 | Signal |
| Esplanacde / Victoria | 3000 | | 73800 | 63770 | 34.1 | 20.1 | 26.8 | 83700 | 72350 | 54.9 | 31.7 | 50.2 | 93650 | 80900 | 84.6 | 48.2 | 88.3 | Priority |
| Hutt Road / Esplanade | 3500 | | 47150 | 42135 | 9.1 | 9.0 | 6.7 | 53500 | 47800 | 9.3 | 9.1 | 8.4 | 59850 | 53450 | 9.7 | 9.3 | 11.4 | R'bout |
| Hutt Road / Jackson | 1500 | | 38050 | 38050 | 21.7 | 21.7 | 0.0 | 43200 | 43200 | 42.0 | 42.0 | 0.0 | 48300 | 48300 | 85.2 | 85.2 | 0.0 | R'bout |
| Hutt Road / On Ramp | 1500 | | 35200 | 31200 | 16.1 | 11.9 | 27.3 | 39950 | 35400 | 27.4 | 16.4 | 71.1 | 44650 | 39600 | 51.3 | 26.2 | 174.0 | R'bout |
| Hutt Road / Udy | 1500 | | 30350 | 26350 | 16.9 | 10.6 | 5.9 | 34450 | 29900 | 26.5 | 16.1 | 11.1 | 38500 | 33450 | 40.0 | 23.8 | 19.2 | Priority |
| Hutt Road / Wakefield | 1500 | | 35100 | 31100 | 16.0 | 11.8 | -15.9 | 39850 | 35300 | 27.0 | 16.3 | -23.4 | 44550 | 39500 | 50.6 | 25.9 | -39.2 | Priority |
| Cuba / Jackson | 2200 | | 19400 | 18030 | 9.5 | 9.3 | 2.1 | 22000 | 20450 | 9.8 | 9.6 | 2.9 | 24600 | 22900 | 10.5 | 10.0 | 3.9 | Signal |
| Cuba / Udy | 1500 | | 30650 | 31910 | 17.5 | 20.1 | -2.5 | 34750 | 36200 | 27.3 | 31.8 | -4.7 | 38850 | 40450 | 41.4 | 48.2 | -8.1 | Priority |
| Dowse / Wakefield | 99999 | | 25000 | 35330 | 0.0 | 0.0 | 0.0 | 28350 | 40050 | 0.0 | 0.0 | 0.0 | 31700 | 44800 | 0.0 | 0.0 | 0.0 | R'bout |
| Seaview / Railway Link | 99999 | | 59300 | 54240 | 0.0 | 0.0 | 0.0 | 67300 | 61500 | 0.0 | 0.0 | 0.0 | 75200 | 68800 | 0.0 | 0.0 | 0.0 | R'bout |
| Randwick Road / Randwick Cres | 99999 | | 41600 | 42290 | 0.0 | 0.0 | 0.0 | 47250 | 47950 | 0.0 | 0.0 | 0.0 | 52750 | 53650 | 0.0 | 0.0 | 0.0 | R'bout |

## Worksheets A4: Travel time cost savings

**Travel time cost savings** — **Worksheet A4.1**

| Stage | Option | Days per year | Travel time cost | Daily Travel time Benefits (veh-hr) | | | Total Travel cost / year ($) | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | ($/hour) | 2019 | 2029 | 2039 | 2019 | 2029 | 2039 |
| 2 | Gracefield Interchange | 365 | 16.27 | 21 | 71 | 188 | 125,832 | 424,386 | 1,114,210 |
| 3 | CVL Built | 365 | 16.27 | 719 | 1368 | 2787 | 4,272,439 | 8,126,286 | 16,548,338 |

## Worksheets A4: Vehicle Operating Cost savings

**Vehicle Operating Costs** — **Worksheet A4.1**

| Stage | Option | Days per year | VOC | Reduction in vehicle km travelled | | | Total Travel cost / year ($) | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | ($/km) | 2019 | 2029 | 2039 | 2019 | 2029 | 2039 |
| 2 | Gracefield Interchange | 365 | 0.297 | -443 | -454 | -609 | - 48,023 | - 49,210 | - 66,046 |
| 3 | CVL Built | 365 | 0.297 | 4591 | 5396 | 5796 | 497,657 | 584,926 | 628,315 |

## Worksheets A6: Crash cost savings

**Crash by crash analysis** Cross Valley Transport Connections **Worksheet A6**

| | | | | |
|---|---|---|---|---|
| | Project option | Gracefield Interchange | | |
| | Movement category | ALL | Vehicle Involvement | ALL |
| 1 | Do minimum mean speed | 47.3 | Road Category | Urban |
| 2 | Option | 47.7 | Traffic Growth Rate | 1.3% |

| | Do minimum | Severity | | | Non Injury |
|---|---|---|---|---|---|
| | | Fatal | Serious | Minor | |
| 3 | Number of years of typical crash rate records | 5 | | | |
| 4 | Number of reported crashes over period | 0 | 34 | 201 | 722 |
| 5 | Fatal/serious severity ratio (tables A6.2(a)) | 0.07 | 0.93 | 1 | 1 |
| 6 | Number of reported crashes adjusted by severity **(4)** ´ **(5)** | 2.38 | 31.62 | 201 | 722 |
| 7 | Crashes per year = **(6)**/**(3)** | 0.476 | 6.324 | 40.2 | 144.4 |
| 8 | Adjustment factor for crash trend (table A6.1(a)) | 0.83 | | | |
| 9 | Adjusted crashes per year = **(7)** x **(8)** | 0.4 | 5.3 | 33.4 | 119.9 |
| 10 | Under-reporting factors (tables A6.20(a) and (b)) | 1.0 | 1.5 | 2.75 | 7 |
| 11 | Total estimated crashes per year = **(9)** x **(10)** | 0.4 | 7.9 | 91.8 | 839.4 |
| 12 | Crash cost, 100 km/h limit (tables A6.21(a) to (d)) | 4850000 | 525000 | 30000 | 3200 |
| 13 | Crash cost, 50 km/h limit (tables A6.4(a) to (h)) | 4600000 | 475000 | 28000 | 2800 |
| 14 | Mean speed adjustment = (**(1)** - 50)/50 | -0.0533 | | | |
| 15 | Cost per crash = **(13)** + **(14)** x [**(12)** – **(13)**] | 4586686 | 472337 | 27893 | 2779 |
| 16 | Crash cost per year = **(11)** x **(15)** | 1813071.5 | 3720868 | 2560770 | 2332467 |
| 17 | Total cost of crashes per year (sum of columns in row **(16)** fatal + serious + minor + non-injury) | 10427176 | | | |

| | Option | Severity | | | Non-injury |
|---|---|---|---|---|---|
| | | Fatal | Serious | Minor | |
| 18 | Percentage crash reduction | 0.00 | 0.00 | 0.00 | 0.00 |
| 19 | Percentage of crashes 'remaining' [100 – **(18)**] | 1.00 | 1.00 | 1.00 | 1.00 |
| 20 | Predicted crashes per year **(11)** x **(19)** | 0.4 | 7.9 | 91.9 | 840.1 |
| 23 | Mean speed adjustment = (**(2)** - 50)/50 | -0.0451 | | | |
| 24 | Cost per crash = **(13)** + **(23)** x [**(12)** – **(13)**] | 4588717 | 472743 | 27910 | 2782 |
| 25 | Crash cost per year = **(20)** x **(24)** | 1815371 | 3727141 | 2564376 | 2337122 |
| 26 | Total cost of crashes per year (sum of columns in row **(25)** fatal + serious + minor + non-injury) | 10444010 | | | |

## Worksheets A6: Crash cost savings

**Crash by crash analysis** Cross Valley Transport Connections **Worksheet A6**

| | | | | |
|---|---|---|---|---|
| | Project option | CVL Built | | |
| | Movement category | ALL | Vehicle Involvement | ALL |
| 1 | Do minimum mean speed | 47.3 | Road Category | Urban |
| 2 | Option | 47.7 | Traffic Growth Rate | 1.3% |

| | Do minimum | Severity | | | Non Injury |
|---|---|---|---|---|---|
| | | Fatal | Serious | Minor | |
| 3 | Number of years of typical crash rate records | 5 | | | |
| 4 | Number of reported crashes over period | 0 | 34 | 201 | 722 |
| 5 | Fatal/serious severity ratio (tables A6.2(a)) | 0.07 | 0.93 | 1 | 1 |
| 6 | Number of reported crashes adjusted by severity **(4)** ´ **(5)** | 2.38 | 31.62 | 201 | 722 |
| 7 | Crashes per year = **(6)**/**(3)** | 0.476 | 6.324 | 40.2 | 144.4 |
| 8 | Adjustment factor for crash trend (table A6.1(a)) | 0.83 | | | |
| 9 | Adjusted crashes per year = **(7)** x **(8)** | 0.4 | 5.3 | 33.4 | 119.9 |
| 10 | Under-reporting factors (tables A6.20(a) and (b)) | 1.0 | 1.5 | 2.75 | 7 |
| 11 | Total estimated crashes per year = **(9)** x **(10)** | 0.4 | 7.9 | 91.8 | 839.4 |
| 12 | Crash cost, 100 km/h limit (tables A6.21(a) to (d)) | 4850000 | 525000 | 30000 | 3200 |
| 13 | Crash cost, 50 km/h limit (tables A6.4(a) to (h)) | 4600000 | 475000 | 28000 | 2800 |
| 14 | Mean speed adjustment = (**(1)** - 50)/50 | -0.0533 | | | |
| 15 | Cost per crash = **(13)** + **(14)** x [**(12)** – **(13)**] | 4586686 | 472337 | 27893 | 2779 |
| 16 | Crash cost per year = **(11)** x **(15)** | 1813071.5 | 3720868 | 2560770 | 2332467 |
| 17 | Total cost of crashes per year (sum of columns in row **(16)** fatal + serious + minor + non-injury) | 10427176 | | | |

| | Option | Severity | | | Non-injury |
|---|---|---|---|---|---|
| | | Fatal | Serious | Minor | |
| 18 | Percentage crash reduction | 0.01 | 0.01 | 0.01 | 0.01 |
| 19 | Percentage of crashes 'remaining' [100 – **(18)**] | 0.99 | 0.99 | 0.99 | 0.99 |
| 20 | Predicted crashes per year **(11)** x **(19)** | 0.4 | 7.8 | 91.0 | 832.2 |
| 23 | Mean speed adjustment = (**(2)** - 50)/50 | -0.0451 | | | |
| 24 | Cost per crash = **(13)** + **(23)** x [**(12)** – **(13)**] | 4588717 | 472743 | 27910 | 2782 |
| 25 | Crash cost per year = **(20)** x **(24)** | 1798359 | 3692213 | 2540344 | 2315220 |
| 26 | Total cost of crashes per year (sum of columns in row **(25)** fatal + serious + minor + non-injury) | 10346136 | | | |

**Worksheet : Discounting**

**Project** Cross Valley Transport Connections

| | Year | NPV factor | BENEFITS | | | | | | | COSTS | Net Present Value | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Stage 1 | Stage 2 | | | Stage 3 | | | | Stage 1 | Stage 2 | | | Stage 3 | | | Wider Economic Benefits | | | | | COSTS |
| | | | Ped and Cycle | Travel Time | VOC | Crash | Travel Time | VOC | Crash | | Ped and Cycle | Travel Time | VOC | Crash | Travel Time | VOC | Crash | Agglomeration | Imperfect Competition | Increased Labour | Land Value | Resilience | |
| 0 | **2019** | 1.0000 | **121721** | **125832** | **-48023** | **-16834** | **4272439** | **497657** | **81040** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 2020 | 0.9434 | 123355 | 155687 | -48142 | -16892 | 4657824 | 506384 | 81318 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | 2021 | 0.8900 | 125012 | 185543 | -48261 | -16950 | 5043208 | 515111 | 81597 | 17000000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15129939 |
| 3 | 2022 | 0.8396 | 126691 | 215398 | -48380 | -17008 | 5428593 | 523838 | 81877 | 0 | 106372 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 | 2023 | 0.7921 | 128392 | 245254 | -48498 | -17066 | 5813978 | 532565 | 82158 | 0 | 101699 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 | 2024 | 0.7473 | 130117 | 275109 | -48617 | -17125 | 6199363 | 541292 | 82440 | 0 | 97231 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6 | 2025 | 0.7050 | 131864 | 304964 | -48736 | -17183 | 6584747 | 550019 | 82722 | 8000000 | 92959 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5639684 |
| 7 | 2026 | 0.6651 | 133635 | 334820 | -48854 | -17242 | 6970132 | 558745 | 83006 | 0 | 88875 | 222674 | -32491 | -11467 | 0 | 0 | 0 | 17872 | 8936 | 8936 | 17872 | 26807 | 0 |
| 8 | 2027 | 0.6274 | 135430 | 364675 | -48973 | -17301 | 7355517 | 567472 | 83291 | 0 | 84970 | 228802 | -30726 | -10855 | 0 | 0 | 0 | 18722 | 9361 | 9361 | 18722 | 28083 | 0 |
| 9 | 2028 | 0.5919 | 137248 | 394530 | -49092 | -17361 | 7740902 | 576199 | 83577 | 0 | 81237 | 233522 | -29057 | -10276 | 0 | 0 | 0 | 19419 | 9709 | 9709 | 19419 | 29128 | 0 |
| 10 | **2029** | 0.5584 | 139092 | **424386** | **-49210** | -17420 | **8126286** | **584926** | 83863 | 75600000 | 77668 | 236975 | -27479 | -9727 | 0 | 0 | 0 | 19977 | 9988 | 9988 | 19977 | 29965 | 42214645 |
| 11 | 2030 | 0.5268 | 140960 | 493368 | -50894 | -17480 | 8968492 | 589265 | 84151 | 0 | 74256 | 259900 | -26810 | -9208 | 0 | 0 | 0 | 22388 | 11194 | 11194 | 22388 | 33582 | 0 |
| 12 | 2031 | 0.4970 | 142853 | 562351 | -52578 | -17540 | 9810697 | 593604 | 84439 | 0 | 70993 | 279471 | -26129 | -8717 | 4875616 | 295003 | 41964 | 545721 | 272860 | 272860 | 545721 | 818581 | 0 |
| 13 | 2032 | 0.4688 | 144771 | 631333 | -54261 | -17600 | 10652902 | 597943 | 84729 | 0 | 67874 | 295994 | -25440 | -8252 | 4994496 | 280339 | 39724 | 557686 | 278843 | 278843 | 557686 | 836529 | 0 |
| 14 | 2033 | 0.4423 | 146715 | 700316 | -55945 | -17661 | 11495107 | 602282 | 85020 | 0 | 64892 | 309750 | -24744 | -7811 | 5084297 | 266390 | 37604 | 566549 | 283274 | 283274 | 566549 | 849823 | 0 |
| 15 | 2034 | 0.4173 | 148686 | 769298 | -57628 | -17721 | 12337312 | 606621 | 85311 | 0 | 62041 | 321001 | -24046 | -7394 | 5147929 | 253122 | 35597 | 572621 | 286310 | 286310 | 572621 | 858931 | 0 |
| 16 | 2035 | 0.3936 | 150683 | 838280 | -59312 | -17782 | 13179517 | 610960 | 85604 | 0 | 59316 | 329986 | -23348 | -7000 | 5188068 | 240502 | 33698 | 576191 | 288095 | 288095 | 576191 | 864286 | 0 |
| 17 | 2036 | 0.3714 | 152706 | 907263 | -60995 | -17843 | 14021723 | 615299 | 85898 | 0 | 56710 | 336925 | -22651 | -6626 | 5207169 | 228500 | 31899 | 577522 | 288761 | 288761 | 577522 | 866282 | 0 |
| 18 | 2037 | 0.3503 | 154757 | 976245 | -62679 | -17904 | 14863928 | 619638 | 86192 | 0 | 54218 | 342022 | -21959 | -6273 | 5207485 | 217086 | 30197 | 576856 | 288428 | 288428 | 576856 | 865284 | 0 |
| 19 | 2038 | 0.3305 | 156836 | 1045228 | -64362 | -17966 | 15706133 | 623976 | 86488 | 0 | 51836 | 345461 | -21273 | -5938 | 5191081 | 206232 | 28585 | 574415 | 287207 | 287207 | 574415 | 861622 | 0 |
| 20 | **2039** | 0.3118 | 158942 | **1114210** | **-66046** | -18027 | **16548338** | **628315** | 86784 | 0 | 49559 | 347416 | -20593 | -5621 | 5159850 | 195912 | 27060 | 570402 | 285201 | 285201 | 570402 | 855603 | 0 |
| 21 | 2040 | 0.2942 | 161076 | 1183193 | -67729 | -18089 | 17390543 | 632654 | 87082 | 0 | 47381 | 348043 | -19923 | -5321 | 5115522 | 186099 | 25616 | 565004 | 282502 | 282502 | 565004 | 847505 | 0 |
| 22 | 2041 | 0.2775 | 163240 | 1252175 | -69413 | -18151 | 18232749 | 636993 | 87381 | 0 | 45300 | 347485 | -19262 | -5037 | 5059681 | 176769 | 24249 | 558388 | 279194 | 279194 | 558388 | 837583 | 0 |
| 23 | 2042 | 0.2618 | 165432 | 1321158 | -71096 | -18213 | 19074954 | 641332 | 87680 | 0 | 43310 | 345875 | -18613 | -4768 | 4993771 | 167899 | 22955 | 550712 | 275356 | 275356 | 550712 | 826068 | 0 |
| 24 | 2043 | 0.2470 | 167654 | 1390140 | -72780 | -18276 | 19917159 | 645671 | 87981 | 0 | 41407 | 343335 | -17975 | -4514 | 4919111 | 159467 | 21729 | 542115 | 271058 | 271058 | 542115 | 813173 | 0 |
| 25 | 2044 | 0.2330 | 169905 | 1459122 | -74463 | -18338 | 20759364 | 650010 | 88283 | 0 | 39588 | 339974 | -17350 | -4273 | 4836903 | 151451 | 20570 | 532728 | 266364 | 266364 | 532728 | 799091 | 0 |
| 26 | 2045 | 0.2198 | 172187 | 1528105 | -76147 | -18401 | 21601569 | 654349 | 88586 | 0 | 37848 | 335893 | -16738 | -4045 | 4748242 | 143832 | 19472 | 522666 | 261333 | 261333 | 522666 | 783998 | 0 |
| 27 | 2046 | 0.2074 | 174499 | 1597087 | -77830 | -18464 | 22443774 | 658688 | 88890 | 0 | 36186 | 331185 | -16140 | -3829 | 4654120 | 136591 | 18433 | 512036 | 256018 | 256018 | 512036 | 768054 | 0 |
| 28 | 2047 | 0.1956 | 176843 | 1666070 | -79514 | -18528 | 23285980 | 663027 | 89194 | 0 | 34596 | 325933 | -15555 | -3625 | 4555440 | 129708 | 17449 | 500935 | 250468 | 250468 | 500935 | 751403 | 0 |
| 29 | 2048 | 0.1846 | 179218 | 1735052 | -81198 | -18591 | 24128185 | 667366 | 89500 | 0 | 33076 | 320216 | -14986 | -3431 | 4453019 | 123167 | 16518 | 489450 | 244725 | 244725 | 489450 | 734175 | 0 |
| 30 | 2049 | 0.1741 | 181625 | 1804035 | -82881 | -18655 | 24970390 | 671704 | 89807 | 0 | 31623 | 314101 | -14430 | -3248 | 4347598 | 116951 | 15636 | 477661 | 238830 | 238830 | 477661 | 716491 | 0 |
| 31 | 2050 | 0.1643 | 184064 | 1873017 | -84565 | -18719 | 25812595 | 676043 | 90115 | 0 | 30233 | 307652 | -13890 | -3075 | 4239844 | 111043 | 14802 | 465638 | 232819 | 232819 | 465638 | 698456 | 0 |
| 32 | 2051 | 0.1550 | 186536 | 1942000 | -86248 | -18783 | 26654800 | 680382 | 90424 | 0 | 28905 | 300927 | -13365 | -2911 | 4130358 | 105430 | 14012 | 453445 | 226723 | 226723 | 453445 | 680168 | 0 |
| 33 | 2052 | 0.1462 | 189041 | 2010982 | -87932 | -18848 | 27497006 | 684721 | 90735 | 0 | 27635 | 293978 | -12854 | -2755 | 4019683 | 100097 | 13264 | 441141 | 220571 | 220571 | 441141 | 661712 | 0 |
| 34 | 2053 | 0.1379 | 191580 | 2079964 | -89615 | -18912 | 28339211 | 689060 | 91046 | 0 | 26421 | 286851 | -12359 | -2608 | 3908304 | 95029 | 12556 | 428777 | 214389 | 214389 | 428777 | 643166 | 0 |
| 35 | 2054 | 0.1301 | 194153 | 2148947 | -91299 | -18977 | 29181416 | 693399 | 91358 | 0 | 25260 | 279589 | -11878 | -2469 | 3796654 | 90215 | 11886 | 416400 | 208200 | 208200 | 416400 | 624600 | 0 |
| 36 | 2055 | 0.1227 | 196760 | 2217929 | -92982 | -19042 | 30023621 | 697738 | 91671 | 0 | 24150 | 272230 | -11413 | -2337 | 3685122 | 85641 | 11252 | 404050 | 202025 | 202025 | 404050 | 606074 | 0 |
| 37 | 2056 | 0.1158 | 199403 | 2286912 | -94666 | -19108 | 30865826 | 702077 | 91986 | 0 | 23089 | 264809 | -10962 | -2213 | 3574052 | 81296 | 10651 | 391763 | 195882 | 195882 | 391763 | 587645 | 0 |
| 38 | 2057 | 0.1092 | 202081 | 2355894 | -96349 | -19173 | 31708031 | 706416 | 92301 | 0 | 22075 | 257355 | -10525 | -2094 | 3463749 | 77168 | 10083 | 379574 | 189787 | 189787 | 379574 | 569360 | 0 |
| 39 | 2058 | 0.1031 | 204795 | 2424877 | -98033 | -19239 | 32550237 | 710755 | 92618 | 0 | 21105 | 249897 | -10103 | -1983 | 3354482 | 73247 | 9545 | 367508 | 183754 | 183754 | 367508 | 551263 | 0 |
| 40 | 2059 | 0.0972 | 207545 | 2493859 | -99716 | -19305 | 33392442 | 715094 | 92936 | 0 | 20178 | 242458 | -9695 | -1877 | 3246486 | 69523 | 9035 | 355593 | 177797 | 177797 | 355593 | 533390 | 0 |
| 41 | 2060 | 0.0917 | 210332 | 2562842 | -101400 | -19371 | 34234647 | 719432 | 93254 | 0 | 19291 | 235061 | -9300 | -1777 | 3139969 | 65986 | 8553 | 343849 | 171925 | 171925 | 343849 | 515774 | 0 |
| 42 | 2061 | 0.0865 | 213157 | 2631824 | -103083 | -19438 | 35076852 | 723771 | 93574 | 0 | 18444 | 227725 | -8920 | -1682 | 3035109 | 62626 | 8097 | 332296 | 166148 | 166148 | 332296 | 498443 | 0 |
| 43 | 2062 | 0.0816 | 216020 | 2700806 | -104767 | -19504 | 35919057 | 728110 | 93895 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 44 | 2063 | 0.0770 | 218921 | 2769789 | -106450 | -19571 | 36761262 | 732449 | 94217 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 45 | 2064 | 0.0727 | 221861 | 2838771 | -108134 | -19638 | 37603468 | 736788 | 94540 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 46 | 2065 | 0.0685 | 224840 | 2907754 | -109818 | -19706 | 38445673 | 741127 | 94865 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 47 | 2066 | 0.0647 | 227860 | 2976736 | -111501 | -19773 | 39287878 | 745466 | 95190 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 48 | 2067 | 0.0610 | 230920 | 3045719 | -113185 | -19841 | 40130083 | 749805 | 95516 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 49 | 2068 | 0.0575 | 234021 | 3114701 | -114868 | -19909 | 40972288 | 754144 | 95844 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50 | 2069 | 0.0543 | 237164 | 3183684 | -116552 | -19977 | 41814494 | 758483 | 96173 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 51 | 2070 | 0.0512 | 240349 | 3252666 | -118235 | -20046 | 42656699 | 762822 | 96503 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 52 | 2071 | 0.0483 | 243577 | 3321649 | -119919 | -20115 | 43498904 | 767161 | 96834 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 53 | 2072 | 0.0456 | 246848 | 3390631 | -121602 | -20184 | 44341109 | 771499 | 97166 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 54 | 2073 | 0.0430 | 250163 | 3459613 | -123286 | -20253 | 45183314 | 775838 | 97499 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 55 | 2074 | 0.0406 | 253523 | 3528596 | -124969 | -20322 | 46025519 | 780177 | 97833 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 56 | 2075 | 0.0383 | 256928 | 3597578 | -126653 | -20392 | 46867725 | 784516 | 98169 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57 | 2076 | 0.0361 | 260378 | 3666561 | -128336 | -20462 | 47709930 | 788855 | 98506 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 58 | 2077 | 0.0341 | 263875 | 3735543 | -130020 | -20532 | 48552135 | 793194 | 98844 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 59 | 2078 | 0.0321 | 267419 | 3804526 | -131703 | -20603 | 49394340 | 797533 | 99183 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60 | 2079 | 0.0303 | 271010 | 3873508 | -133387 | -20673 | 50236545 | 801872 | 99523 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 61 | 2080 | 0.0286 | 274650 | 3942491 | -135070 | -20744 | 51078751 | 806211 | 99864 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 62 | 2081 | 0.0270 | 278339 | 4011473 | -136754 | -20815 | 51920956 | 810550 | 100207 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 63 | 2082 | 0.0255 | 282077 | 4080455 | -138438 | -20887 | 52763161 | 814889 | 100550 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 64 | 2083 | 0.0240 | 285865 | 4149438 | -140121 | -20958 | 53605366 | 819227 | 100895 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 65 | 2084 | 0.0227 | 289704 | 4218420 | -141805 | -21030 | 54447571 | 823566 | 101241 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 66 | 2085 | 0.0214 | 293595 | 4287403 | -143488 | -21102 | 55289776 | 827905 | 101589 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 67 | 2086 | 0.0202 | 297538 | 4356385 | -145172 | -21175 | 56131982 | 832244 | 101937 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 68 | 2087 | 0.0190 | 301533 | 4425368 | -146855 | -21247 | 56974187 | 836583 | 102287 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 69 | 2088 | 0.0179 | 305583 | 4494350 | -148539 | -21320 | 57816392 | 840922 | 102637 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL PV TIME ZERO | | | | | | | | | | | 2019809 | 10660471 | -662983 | -185036.27 | 137333210 | 4692320 | 642692 | 15248067 | 7624034 | 7624034 | 15248067 | 22872101 | 62984269 |
| UPDATE FACTOR for year of estimate | | | | | | | | | | | 1.21 | 1.50 | 1.07 | 1.06 | 1.50 | 1.07 | 1.06 | 1.49 | 1.49 | 1.49 | 1.49 | 1.49 | 1.00 |
| TOTAL PV TIME ZERO | | | | | | | | | | | 2443969 | 15990707 | -709392 | -196138.44 | 205999815 | 5020783 | 681253 | 22678703 | 11339351 | 11339351 | 22678703 | 34018054 | 62984269 |

**Worksheet: Factors**

**Factors** **Worksheet**

**Project** Cross Valley Transport Connections

| Discount Factor | |
|---|---|
| | 1.06 |

| Speed Data | |
|---|---|
| Depowered speed | 30 |
| Urban Speed Limit | 50 |
| SH2 Speed Limit | 100 |
| Link Capacity | 1600 |
| Esplanade Capacity | 2000 |
| SH2 Capacity | 4000 |
| ADT Factor | 22.94 |

| OD Patterns | | ADT |
|---|---|---|
| Wellington | Waiwhetu | 3900 |
| | Wanuiomata | 9200 |
| | Eastbourne | 9400 |
| Petone | Waiwhetu | 1900 |
| | Wanuiomata | 5300 |
| | Eastbourne | 2200 |

| WEBs | Percent |
|---|---|
| Agglomeration | 10% |
| Imperect Competition | 5% |
| Increased Labour | 5% |
| Land Value | 10% |
| Resilience | 15% |

| **Days per year** | |
|---|---|
| weekday | 245 |
| weekend | 120 |

| Growth Rate | |
|---|---|
| Vehicle | 1.3% |
| Pedestrian | 1.0% |
| Cycle | 1.3% |
| Delay | 1.5% |

| Growth rate adjustment | |
|---|---|
| 50-60 | -0.010 |
| 70+ kph | -0.020 |

| Update Factors | |
|---|---|
| travel time | 1.50 |
| accident | 1.06 |
| VOC | 1.07 |
| Cycle | 1.21 |
| Cost | 1.00 |

| Costs | |
|---|---|
| $/hr | 16.27 |
| $/km | 0.297 |
| Emissions | 0.05 |

| | | | | 0.229439 |
|---|---|---|---|---|
| | Hour | Ave Hr | Daily | Factor |
| Jackson St EB (after Te Puni St) | 1715 | | | |
| Jackson St EB (after Gear St) | 1450 | 1878 | 8650 | 21.71% |
| Jackson St EB (after Victoria St) | 2089 | | | |
| Jackson St EB (towards Victoria St) | 2256 | | | |
| Jackson St EB (after Sydney St) | 2000 | | | |
| Jackson St EB (towards Sydney St) | 2050 | | | |
| Jackson St EB (after Nelson St) | 1966 | 1862 | 7350 | 25.33% |
| Jackson St EB (towards Nelson St) | 1996 | | | |
| Jackson St EB (Brittania St) | 1696 | | | |
| Jackson St EB (towards Buick St) | 1780 | | | |
| Jackson St EB (after Buick St) | 1543 | | | |
| Jackson St EB (Cuba St) | 1077 | | | |
| Jackson st eb(Aurora Oriental) EB | 618 | 848 | 3604 | 23.52% |
| Victoria Street North NB (Pedestria | 3323 | 3245.5 | 13573 | 23.91% |
| Victoria Street NB (Nth of Valentine | 3168 | | | |
| Cuba Street NB (Montague St) | 2743 | 2662 | 13140 | 20.26% |
| Cuba St NB (after Udy St) | 2581 | | | |
| Cuba St NB (towards Udy St) | 1683 | 2134 | 13140 | 0.162367 |
| Cuba Street NB (Jackson St) | 2584 | | | |
| Cuba (Adelaide Esplanade) NB | 812 | 812 | 5128 | 0.158346 |