# Project Name –Resilience Improvement Business Case for Implementation

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| **RTC Region:** | **Submitted by:** **Phone:**  | **Date:** |
| **NOC Region:**  |

### Part A – Project Overview

#### Previous Application

Has this project/work been applied for previously - under either Preventive Maintenance or Resilience Improvements?

Yes [ ]  No [ ]

**If yes, has significant change occurred since the last application (detail what has changed)?**

#### Problem Definition

*Provide information/evidence of the problem (i.e. cause and effect).*

*Example: Recent weather events have caused xxx to occur, resulting in xxx which has led to an unstable bank below the road.*

#### Problem Background

*Describe the context of the problem, detailing what caused the problem to occur and why it needs to be fixed, this may include, the severity, the length, urgency, land use being impacted etc.* ***Include photos*** *which may help demonstrate the significance of the problem.*

#### Benefits of fixing the problem

*Describe the benefits of fixing the problem – this should be wider in perspective than just the immediate response to fixing it.*

*This may also include the risk of not doing something, or opportunities which may result.*

*Example: This part of SH3 is an important corridor as it has a high percentage of Heavy Commercial Vehicles (HCVS) (15% as told by the XXX). If this problem is not fixed, freight will be unable to use this corridor.*

*Or this corridor is an important life line for the community, connecting two settlements….*

#### Site Description

*This description should include a description of the location of the problem that needs to be addressed – State Highway, RS/RP and reference to ONRC of road in question.*

**Attach a map**

*Must include geospatial information (i.e. coordinates) or attach a zip file containing GIS files showing coordinates of investment proposal e.g. (shape file, map info tab file, DXF file or similar)*

#### Required Rockfall Information

|  |  |
| --- | --- |
| **Length of site (m)** |  |
| **Height of site (m)** |  |
| **Rockfall History/Likelihood of rocks landing on road****(e.g. few, occasional, often or constant falls throughout year).** |  |
| **5 year History of rockfall and related crashes** |  |
| **Likely Mitigation****(e.g. scaling, fencing, bolting etc.)** |  |
| **RHRS Score** |  |
| **Cost Estimate ($k)** |  |

#### Project Objectives

*Project objectives should relate to your problem statement and show that the correct solution is being targeted.*

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| **Project Objectives** |
| Objective One | *Prevent road failure as a result of a flooding event* |
| Objective Two | *Improve the ability of road to withstand future flooding events (i.e. 50 year return period)* |

#### Has the activity been included in the current RLTP and NLTP?

*The project should have been included in the RLTP/NLTP. Most regions included an enhanced resilience line in their RLTPS. Please include current status and funding priority.*

***Please check this in TIO or with the local planning team before submitting.***

#### Project Options Development

*Have a number of potential options been considered to address the problem, and is it clear why the preferred option is best?*

*Has the activity, to a practicable extent, been assessed against other land transport options and alternatives? (In the case of small resilience activities this would require looking at things such as leaving the road closed, alternative options for keeping the road open and small realignment. It would be unlikely that mode choice would be involved.*

*This may include brief comments on affordability, feasibility, acceptance to stakeholders, environmental effects etc.*

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| --- | --- | --- |
| **Option name** | **Description**  | **Pros / cons, cost estimate** |
| Do Nothing Option | Leave to fail | The problem will get worse/road failure will occur |
| Do Minimum Option | Maintenance and continue to monitor | The problem will continue to occur |
| Option one | Underpin piers of bridge | This will strengthen bridge and greatly reduce risk of failure  |
| Option two | Build a new bridge | Too much time and too expensive to implement |

#### Project Description of preferred option:

*From the assessment above, what activity was the ideal solution to the identified problem?*

*What is the detail of the activity intended to fix the problem. This requires a detailed explanation of what work is required to be undertaken.*

#### Cost of preferred option:

#### Resilience Information:

**Do - Nothing Option**

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| **Description of the failure mode if nothing done:** |
| **Probability of occurrence in next 12 months****Certain = 0.8 Probable = 0.5 Possible = 0.2** | **(B)** |  |

|  |  |  |
| --- | --- | --- |
| **Probability of occurrence** | **(B)** (See B in 8.1) |  |
| **Probable length of full road closure (Days)** | **(X)** |  |
| **Detour length (Km)** | **(Y)** |  |
| **ADT** | **(Z)** |  |
| **Security Factor**  | Multiply **B, X, Y& Z** |  |

### Part B – Project Assessment

#### Risk Assessment

*Assessment – Description/commentary on how the rating was achieved*

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| **Risk assessment procedure** |
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|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Descriptor** | **Consequence** | **Insignificant** | **Minor** | **Moderate** | **Major** | **Critical** |
| **Probability** | Description | Minor delays during clean-up and/or insignificant risk to users | Reduced capacity and/or low risk to users  | Reduced to half the capacity for more than 24 hours and/or unacceptable risk to users | Route closed for more than 24 hours and/or major risk to users | Sever the route and/or extreme risk to users |
| **Almost Certain**  | Expected to occur in most circumstances | High | High | Extreme | Extreme | Extreme |
| **Likely**  | Will probably occur in most circumstances | Low | High | High | Extreme | Extreme |
| **Possible**  | Might occur at sometime | Negligible | Low | High | Extreme | Extreme |
| **Unlikely**  | Could occur at sometime | Negligible | Negligible | Low | High | Extreme |

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#### Strategic Fit Profile

*Rating: (H/M/L)*

*Strategic fit asks you to explain whether your current level of service represents a gap, a demonstrated gap, or a significant gap from the appropriate level of service for the corridor (influenced by ONRC). For example; management of closures may be acceptable for a collector route but not for a national strategic. Refer to link below for more information.*

*(See:* [*https://www.pikb.co.nz/assessment-framework/strategic-fit-3/strategic-fit-for-road-improvements/*](https://www.pikb.co.nz/assessment-framework/strategic-fit-3/strategic-fit-for-road-improvements/) *for more detail).*

#### Effectiveness Profile

*Rating: (H/M/L)*

*Assessment – Description/commentary on how the rating was achieved*

**Effectiveness Profile procedure**

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| --- | --- | --- |
| **Component** | **Explanation** | **Rating** |
| outcomes focused | * *tangible change in addressing the problem, issue or opportunity identified in the Strategic Fit assessment*
* *consistency with levels of service in an appropriate classification system*
 | L/M/H |
| integrated | * *consistency with the current network and future transport plans*
* *consistency with other current and future activities*
* *consistency with current and future land use planning*
* *accommodates different needs across modes*
* *support as an agreed activity across partners*
 | L/M/H |
| correctly scoped | * *the degree of fit as part of an agreed strategy or business case*
* *has followed the intervention hierarchy to consider alternatives A strategic option that may encompass a mix of modes and/or high level routes and/or land use options. Alternatives would be considered during strategy development, with the preferred alternative being selected and taken through into package and project development. and options including low cost alternatives and options*
* *is of an appropriate scale in relation to the issue/opportunity*
* *covers and/or manages the spatial impact (upstream and downstream, network impacts)*
* *mitigates any adverse impacts on other results*
 | L/M/H |
| affordable Demonstrates that adequate funding to deliver the activity, or combination of activities, is available from identified sources, e.g. a funding plan has been identified.  | * *is affordable Demonstrates that adequate funding to deliver the activity, or combination of activities, is available from identified sources, e.g. a funding plan has been identified. through the lifecycle for all parties*
* *has understood and traded off the best whole of life cost approach*
* *has understood the benefits and costs between transport users and other parties and sought contributions as possible*
 | L/M/H |
| timely | * *delivers enduring benefits over the timeframe identified in the justified strategy or business case*
* *provides the benefits in a timely manner*
 | L/M/H |
| confidence | * *manages current and future risk for results/outcomes*
* *manages current and future risk for costs*
 | L/M/H |
| **Overall** | **Assessment based on lowest rating of all components** | L/M/H |

#### *(See* [*https://www.pikb.co.nz/assessment-framework/effectiveness-2/*](https://www.pikb.co.nz/assessment-framework/effectiveness-2/) *for detail)*

#### Present Value Calculations

Detail PV calculations below or attach an SP1 form in supporting documents. We recommend you only use the provided SP1 forms at the link below. This will allow for automatic upload of efficiency fields into TIO.

*See* [*/assets/resources/economic-evaluation-manual/economic-evaluation-manual/docs/sp1-road-renewals.xls  (181 KB)*](http://www.nzta.govt.nz/assets/resources/economic-evaluation-manual/economic-evaluation-manual/docs/sp1-road-renewals.xls)

#### BCR

A Benefit Cost calculation will also be accepted. BC calculations should be submitted on the appropriate EEM spread sheet.

See [*https://www.nzta.govt.nz/assets/resources/economic-evaluation-manual/economic-evaluation-manual/docs/sp3-road-improvements.xls*](https://www.nzta.govt.nz/assets/resources/economic-evaluation-manual/economic-evaluation-manual/docs/sp3-road-improvements.xls)

#### Supporting Documents

List any supporting documents here.

**National office use only:**

Application assessed by: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Comments: