**Guideline 2: Cost estimation for essential public assets**

Victorian

Disaster Recovery Funding Arrangements

Updated November 2024

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# Glossary of terms

|  |  |
| --- | --- |
| Terms | Description |
| Administering Authority | The Administering Authority for the DRFA in Victoria is Emergency Recovery Victoria, the Department of Justice and Community Safety. DJCS serves as the single point of contact with the Australian Government and oversees the implementation of the DRFA across state agencies and local council. |
| Allowable time limits | Prescribed timeframes under the DRFA including, but not limited to, the following activities:   * Notification of the Australian Government of a disaster event * Completion of emergency works and non-REPA reconstruction works * Provision of evidence of damage to the State for an eligible disaster event * Approval of cost estimates related to a disaster event * Period to incur REPA expenses |
| ASAE3150 | ASAE3150 Assurance Engagements on Controls, issued by the Auditing and Assurance Standards Board |
| ASA 800 | Auditing Standard ASA 800 Special Considerations-Audits of Financial Reports Prepared in Accordance with Special Purpose Frameworks, issued by the Auditing and Assurance Standards Board. |
| Assessing Authority | The Assessing Authority assesses claims on behalf of Emergency Recovery Victoria. The Assessing Authority appointed is the Department of Transport. |
| Borrow pit | A borrow pit is an area where material (usually soil, gravel or sand) has been excavated for use at another location |
| Claim pack | The financial reporting pack provided by the Australian Government to the State each year. |
| Contingency | The allowance reflecting the reconstruction project risk profile, complexity, investment lifecycle, benchmarks and past performance for similar projects. |
| Control agency | The agency who is responsible to undertaking the control activity to mitigate the risk to ensure that the control objective(s) can be met. |
| Control objectives | The control objectives established within these arrangements, as required under ASAE3150 |
| Cost estimation | The process of developing the estimated reconstruction cost for the reconstruction of essential public assets by building up the component elements including:   * scoping and defining the works required for reconstruction of the essential public asset; * applying relevant assumptions and exclusions, and * using available historical data of actual costs (that is, benchmark pricing, or recently tendered rates from similarly scoped works (i.e. gravel re-sheeting, formation grading, minor patching etc) provided to a Delivery Agency, either through maintenance programs or other DRFA works) and/or supplier quotes to estimate the cost of reconstruction works. Refer to section 3.1.64 in this Guideline.   Where cost estimation is the selected method, Delivery Agencies must verify the estimated reconstruction cost by:   * Using an internal engineer or quantity surveyor with the appropriate level of expertise and experience (from within the Delivery Agency) as defined in the Glossary as a suitably qualified professional; or * Engaging an independent engineer or quantity surveyor with the appropriate level of expertise and experience.   A suitably qualified professional may be defined as a person with relevant tertiary qualification and a minimum of five years’ experience in the appropriate field of work for the asset type, or a person with the appropriate level of expertise and experience within the Delivery Agency at the Director level, for example, Director Infrastructure or its equivalent. |
| Counter disaster operations | Activities undertaken by the state in response to the occurrence of a disaster event to protect a community from the impacts of the disaster event |
| Day Labour | The use of a Delivery Agency’s own plant, equipment or resources to reconstruct an asset. The key components of day labour are plant, labour and materials. Refer to [Victorian DRFA Guideline 1 Claims and Eligibility for essential public assets](https://www.emv.vic.gov.au/how-we-help/disaster-recovery-funding-arrangements-drfa/disaster-recovery-funding-arrangements-drfa-claims/gl-1-victorian-drfa-guideline-1-claims-and-eligibility-for-essential-public-assets) for more details on the eligibility of Day labour under Direct Costs section. |
| Disaster event activation | Under the DRFA, for an event to be activated, the following conditions must be satisfied:   * Meets the definition of a natural disaster or terrorist event and eligible disaster; and * Has impacted an eligible undertaking. |
| Disaster Recovery Funding Arrangements Management System | The processes and controls implemented by state agency and third-party organisations (where applicable) in relation to an estimated reconstruction cost, as defined by these arrangements. |
| Delivery Agency | A State or Local Government agency responsible for delivering emergency or reconstruction works to restore an asset post-disaster. |
| Direct costs | Costs directly associated with the reconstruction of an eligible essential public asset, commonly referred to as construction costs. |
| Eligible disaster | A natural disaster or terrorist act for which:   * a coordinated multi-agency response was required, and * state expenditure exceeds the small disaster criterion. |
| Eligible measure | A relief or recovery assistance measure specified in these arrangements, or a cost to the state under clause 8.1 of these arrangements. |
| Eligible undertaking | A body that:   * is one of the following:   + a department or other agency of a *state* government, or   + established by or under *state* legislation for public purposes (for example, a local council), and * in the operation of the asset provides services free of charge or at a rate that is 50 per cent or less of the cost to provide those services. |
| Emergency works | Urgent activities necessary following an eligible disaster to temporarily restore an essential public asset to enable it to operate/be operated at an acceptable level of efficiency to support the immediate recovery of a community, and take place:   * prior to the state commencing essential public asset reconstruction works in accordance with these arrangements, or * prior to or at the same time as immediate reconstruction works and where no essential public asset reconstruction works are required. |
| Escalation | The allowance for expected changes in capital costs throughout the project lifecycle. |
| Essential public asset | A transport or public infrastructure asset of an eligible undertaking which, the state considers, and the Australian Government agrees, is a necessary part of a state’s infrastructure and is integral to the normal functioning of a community. |
| Essential public asset function framework | The Essential Public Asset Function Framework as defined by these arrangements (refer to clause 6.3). |
| Essential public asset reconstruction works | Reconstruction works on an essential public asset directly damaged by an eligible disaster for which an estimated reconstruction cost (known as a certified estimate works package once approved by the Emergency Recovery Victoria, has been developed. |
| Estimated reconstruction costs | The estimated cost of reconstruction of an essential public asset damaged by an eligible disaster and calculated in accordance with these arrangements (known as a certified estimate works package once approved by the ERV. |
| Extensions to allowable time limits | Extensions to prescribed timeframes under special/ extenuating circumstances to maintain eligibility of a claim under the DRFA |
| First principles estimation | The process of assigning plant, labour and material rates to a given work activity or standard treatment. |
| Immediate reconstruction works | Immediate reconstruction activities following an eligible disaster to fully reconstruct an essential public asset, and where no essential public asset reconstruction works are required. |
| Ineligible works | Works that are not eligible for claiming under the DRFA arrangements |
| Indirect costs | Costs indirectly related to the reconstruction of an eligible essential public asset, including overheads, project management, procurement and engineering assessment costs. |
| Independent Technical Review | A review of estimated reconstruction costs in accordance with the DRFA |
| Market response | The process of developing estimated reconstruction cost for reconstruction of essential public assets by tender or competitive bidding. This includes those costs incurred outside the allowable time period for either emergency works or immediate reconstruction works, where an extension request has not been approved. |
| Monitoring agency | The agency who is responsible for monitoring that the control activity has been undertaken to successfully meet the control objective(s). |
| Natural disasters | According to the DRFA, a natural disaster is one, or a combination of the following rapid onset events: Bushfire, earthquake, flood, storm, cyclone, storm surge, landslide, tsunami, meteorite strike or tornado. |
| Pre-disaster condition | Condition of an eligible asset prior to the occurrence of the disaster event. |
| Post-disaster condition | Condition of an eligible asset in the aftermath of a disaster event occurring. |
| Pre-disaster asset function | Under the DRFA, the Australian Government will provide funding equivalent to reconstruct an essential public asset to its pre-disaster function. Therefore, the pre-disaster function must be determined to establish the proposed treatment and subsequent estimated reconstruction cost. It is important to note that pre-disaster condition of the asset is still an important factor, and evidence of the assets condition prior to the disaster event is required as part of the funding claims process. |
| Project | For the purpose of defining a project, a project shall be considered one of the following:   * a single asset * up to 10 individual assets with a reasonable total estimated cost |
| Public infrastructure | An asset that is an integral part of a state’s infrastructure and is associated with health, education, justice or welfare. |
| Reconstruction | The restoration or replacement of an essential public asset. |
| Re-damaged essential public asset | An essential public asset is re-damaged if it suffers additional damage from a subsequent eligible disaster which occurs after the development of an estimated reconstruction cost for the preceding eligible disaster. |
| Reasonable assurance engagement | An assurance engagement in which the assurance practitioner reduces engagement risk to an acceptably low level in the circumstances of the engagement as the basis for the assurance practitioner’s conclusion. The assurance practitioner’s conclusion is expressed in a form that conveys the assurance practitioner’s opinion on the outcome of the measurement or evaluation of the underlying subject matter against criteria |
| Responsible agency | The agency who is responsible for undertaking the activity as prescribed under the DRFA. |
| Small disaster criterion | For the purposes of these arrangements, the amount of $240 000 or an amount as published by the department. |
| Special Circumstances | Where the estimated reconstruction cost is lower than the actual cost of a project as a result of special circumstances, and the variance does not meet the criteria for an Independent Technical Review, delivery agencies can adjust the estimated reconstruction cost to reflect the variance. The Delivery Agency must provide evidence to the Assessing Authority to demonstrate the special circumstances encountered, including why the special circumstances could not reasonably have been foreseen. |
| Standard treatment(s) | Common or typical reconstruction/ repair procedures undertaken in response to damage sustained from natural disasters |
| Suitably qualified professional | A suitably qualified professional may be defined as a person with relevant tertiary qualification and a minimum of five years’ experience in the appropriate field of work for the asset type, or a person with the appropriate level of expertise and experience within the Delivery Agency at the Director level, for example, Director Infrastructure or its equivalent.  A suitably qualified professional may be defined as a person within the Assessing Authority as having the appropriate level of expertise and experience to assess and verify the supporting documentation provided by the Delivery Agency. |
| The System (Disaster Recovery Funding Arrangements Management System) | The processes and controls implemented by a *state agency* and third-party organisations (i.e. delivery agencies where applicable) in relation to an estimated reconstruction cost, as defined by the DRFA. |
| Terrorist act | An action or a series of actions committed in Australia which the Minister has determined is a terrorist act for the purposes of an eligible disaster under these arrangements.  Without limiting the matters to which the Minister may have regard in determining whether the action or series of actions is a terrorist act, the Minister may have regard to:   * the definition of a terrorist act under section 100.1 of the Criminal Code Act 1995, and * if available, the advice of other Commonwealth agencies.   In the event of one or more acts, the Minister may determine two or more related acts to be a single terrorist act. |

# Introduction

Victoria's Natural Disaster Financial Assistance (NDFA) scheme is available to Delivery Agencies including local councils and Catchment Management Authorities (CMAs), to relieve some of the financial burden that may be experienced following a natural disaster, in accordance with the Australian Government’s Disaster Recovery Funding Arrangements (DRFA).

The DRFA is intended to support relief and recovery measures delivered by the states. In Victoria and under the DRFA, eligible reconstruction works are to be jointly funded by the Australian and Victorian governments.

Under the DRFA, the Australian Government will reimburse the states under a certified estimate-based model for the Reconstruction of Essential Public Assets (REPA) following an eligible disaster. The DRFA specifies that:

“States must establish the estimated reconstruction cost for the reconstruction of an essential public asset through:

*market response, or*

*cost estimation.*

A critical step in this process is the estimate of the reconstruction cost of the essential public asset and identification of a total project cost. States must develop the estimated reconstruction cost for the reconstruction of an essential public asset comprising eligible state expenditure for construction, design and project management, contingency and cost escalation.” (DRFA 2018, Section 6.4.2–6.4.3).

Consistency in the application of overhead, indirect allowances and contingency is crucial across the program of works from both a controls perspective and to ensure auditability.

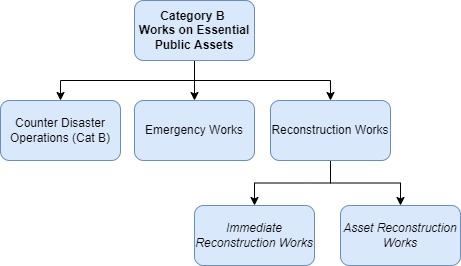
* + - 1. Purpose

This guideline documents the process adopted by the State of Victoria for developing a certified estimated reconstruction cost following an eligible disaster and is consistent with the requirements under Category B of the DRFA published by the Australian Government. The guideline also documents the twenty-five (25) standard treatments associated with reconstruction works and the five (5) standard treatments associated with emergency works, and the work activities and scope of works included in each of these treatments, under [Guideline 2 Appendix B Standard Treatments](https://www.emv.vic.gov.au/how-we-help/disaster-recovery-funding-arrangements-drfa/disaster-recovery-funding-arrangements-9).

This Guideline should be read in conjunction with **Guideline 1: Claims and eligibility for essential public assets**.

The five (5) standard treatments associated with emergency works are not included in the estimating tool but can be used in the [V Form B-EW form](https://www.emv.vic.gov.au/how-we-help/disaster-recovery-funding-arrangements-drfa/disaster-recovery-funding-arrangements-16).

The Category B works on essential public assets is as per the hierarchy below:



* + - 1. Scope

This guideline applies to all emergency and reconstruction works undertaken following damage from eligible disasters activated under *Category B, 4.3.2(b), (c) and (d)* of the DRFA. Counter disaster operations is out of scope for the purpose of this Guideline.

* + - 1. Timeframes

Identification of damage, scoping of works, investigations and design and estimation of project costs should occur as soon as reasonably practical following an event.

Endeavours should be made to sufficiently design, quantify and mitigate project specific risks to provide greater confidence in the estimated project costs through a Certified Estimate Works Package. All Certified Estimate Works Packages must be submitted to the Assessing Authority no later than 31 March in the financial year after the eligible disaster occurred, and prior to undertaking the reconstruction works. For market response estimate packages, this includes the preferred tender, which details the scope and applicable rates. REPA works must be completed within two years from the end of the financial year in which the eligible disaster occurred.

* + - 1. Estimate by projects

For the purpose of defining a project, a project shall be considered one of the following:

* + - a single essential public asset, or
    - a group of related essential public assets which could be contracted jointly.

For the purposes of ongoing document control and audit, efforts should be made to align submissions with the intended packaging of works for delivery or contract.

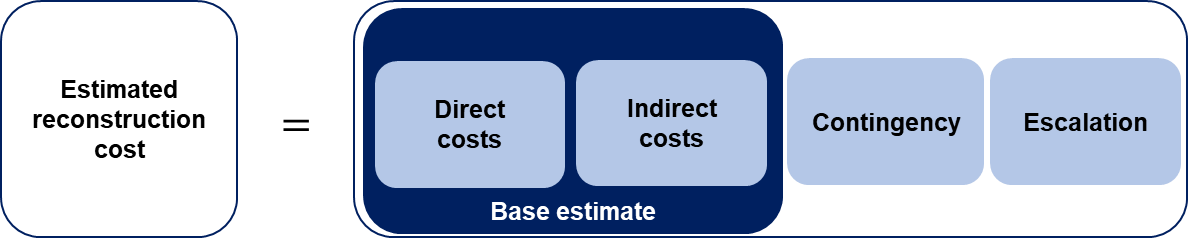
All reconstruction projects within a given financial year should be included in a single claim to the Assessing Authority.

* + - 1. Approach

The estimated reconstruction cost should be established by determining the base estimate on which contingency and escalation is applied as a percentage. The base estimate should include:

* + - direct costs; and
    - indirect costs (design and project management costs).

Figure 1: Breakdown of estimated reconstruction cost



Refer to the following sections for detailed guidance on each component of the estimated reconstruction cost:

* + - direct costs, Section 2;
    - indirect costs, Section 3;
    - contingency, Section 4; and
    - escalation, Section 5.
    1. Direct costs

The first component of the estimated reconstruction is direct costs. Direct costs may be established through cost estimation or market response. The following sections provide guidance for the application of these approaches.

* + - 1. Cost estimation
         1. Process

Cost estimates, utilising the ‘cost estimation’ mechanism is to be undertaken using first principles estimation.

To facilitate consistency and ease of estimation, an estimating tool for standard treatments has been developed for typical and common types of works undertaken in response to damage sustained from disasters. The estimating tool for standard treatments can be customised to the applicants’ local construction rates and specific arrangements. All estimates are exclusive of Goods and Services Tax (GST). From June 2024, where estimates are developed without the use of the [*Cost Estimation Tool (VT-CE),*](https://www.emv.vic.gov.au/publications/victorian-drfa-cost-estimation-tool)an estimate build-up using an alternative template may be used. Any alternative must provide an equivalent level of detail to the [*Cost Estimation Tool*](https://www.emv.vic.gov.au/publications/victorian-drfa-cost-estimation-tool) and align with *the* [*DRFA Standard Treatment Guidelines*](https://www.emv.vic.gov.au/how-we-help/disaster-recovery-funding-arrangements-drfa/disaster-recovery-funding-arrangements-drfa-claims/victorian-drfa-guideline-2-appendix-b-standard-treatments).

Where cost estimation is the selected method, Delivery Agencies must verify the estimated reconstruction cost by:

* Using a suitably qualified professional (such as an internal Delivery Agency engineer or quantity surveyor with the appropriate level of expertise and experience (from within the Delivery Agency) as defined in the Glossary as a suitably qualified professional; or
* Engaging an independent engineer or quantity surveyor with the appropriate level of expertise and experience.

A suitably qualified professional may be defined as a person with relevant tertiary qualification and a minimum of five years’ experience in the appropriate field of work for the asset type, or a person with the appropriate level of expertise and experience within the Delivery Agency at the Director level, for example, Director Infrastructure or its equivalent.

* + - * 1. Standard treatments

Standard treatments most commonly used in Victoria’s reconstruction activities have been collated. The use of common terminology and unit of measure aims to provide consistency across REPA works to:

* + - assist applicants during scoping;
    - assist the review process; and
    - audit of claims.

Twenty-five standard treatments have been identified, including an ‘other’ category provided for non‑standard treatments that are unique in nature. The standard treatments are listed below.

Table 1: Standard treatments

|  |  |  |  |
| --- | --- | --- | --- |
| Category | No. | Treatment | Unit |
| Unsealed pavements | ST1.1 | Light formation grading | m |
| ST1.2 | Pothole repair (unsealed roads) | tonne |
| ST2 | Medium formation grading | m |
| ST3 | Heavy formation grading | m |
| ST4 | Gravel material supply | m3 |
| ST5 | Gravel resheeting | m3 |
| Sealed pavement repairs | ST6 | In-situ stabilisation – including additional material as required | m2 |
| ST7 | Granular overlay – overlay with imported material (≤150mm) | m2 |
| ST8 | Reconstruct unbound granular pavement | m2 |
| ST9 | Patch repair – patch unbound pavement failure | m3 |
| ST10 | Pothole repair | tonne |
| ST11 | Heavy shoulder grading | m |
| ST12 | Shoulder reconstruction | m |
| ST13 | Asphalt | m3 |
| Clearing and earthworks | ST14 | Bulk excavate surplus material or debris and remove from site | m3 |
| ST15 | Bulk fill | m3 |
| ST16 | Rock protection | m3 |
| ST17 | Reshape table drain | m |
| Road furniture and delineation | ST18 | Replace road signage | each |
| ST19 | Replace roadside barriers | m |
| ST20 | Replace guide posts or markers | each |
| Concrete | ST21 | Reconstruct reinforced concrete | m3 |
| Drainage structures | ST22 | Repair drainage structure – excavate, repair and reinstate | m |
| ST23 | Replace Reinforced Concrete Box Culvert (RCBC) | m |
| ST24 | Replace concrete pipe | m |
| Other | OT1 | ‘Other’ – including structures, retaining items | lump sum |

The cost estimation tool (outlined in Section 2.1.4 below) includes the provision for the addition or removal of the nominated resources within the standard treatments, to establish the direct cost estimate. This allows the standard treatments to be tailored to the resources that are expected to be available and used during reconstruction.

The ‘OT1 – Other’ treatment has been included in the tool for any treatment that is unique in nature and is not appropriately reflected in any of the standard treatments. Where non-standard treatments are required, a first principles or itemised cost estimate must be developed. It is expected that the basis of the derivation of the direct cost rates will be reviewed as part of the claim assessment process.

To support each of the standard treatments, a ‘Standard Treatment Guideline’ is included in Appendix B to further detail the work activities and scope of works included in each of these treatments.

The cost estimation tool and the corresponding V Form C-RW claim form does not include standard treatments specifically associated with emergency works, including:

|  |  |  |
| --- | --- | --- |
| Category | No. | Treatment |
| Emergency works | ST25 | Clear disaster related silt & debris (Public Infrastructure) |
| ST26 | Clearing and removal of disaster related fallen or damaged trees & vegetation |
| ST27 | Processing of stockpiled disaster related fallen or damaged trees, vegetation & green waste |
| ST28 | Inspection costs associated with identifying Emergency Works |
| ST29 | Traffic management including temporary lights, closures, fencing, signs |

* + - * 1. First principles estimation

First principles estimation is the process of assigning plant, labour and material rates to a given work activity or standard treatment. The process used to develop resource build-ups is outlined below:

* + - standard treatment build-up
    - applicant specific treatment build-up.

The standard treatment build-ups account for common inputs to develop a first principles estimate for a reconstruction treatment. These include:

* + - construction methodologies (type of plant, labour, materials);
    - basis for rates (resource rates to take into account current market conditions including supply and demand);
    - size and number of sites;
    - productivity;
    - remote locations or distance of travel; and
    - materials availability.
      * 1. Cost estimation tool

A cost estimation tool has been developed for each of the standard treatments listed in Section 2.1.2 and can be found at the following link: https://www.emv.vic.gov.au/publications/victorian-drfa-cost-estimation-tool. With the adoption of this tool for the standard treatments, Delivery Agencies are able to input the resource (plant, labour, and materials) and other input factors (productivities, travel times) to develop a first principles estimate.

* + - * 1. Standard treatment build-up

Resource based treatment build-ups have been developed for the standard treatments. The treatments have been allocated a Work Breakdown Structure (WBS) and assigned a typical batch size and length of site and corresponding quantities or measure-ups. Resource rates for plant, labour and materials, typical productivities and other inputs can be applied to derive the proposed direct cost estimate.

* + - * 1. Applicant specific treatment build-up

Construction methodologies

Typical resources have been included in the standard treatments. Whilst these resources are commonly used as part of the respective standard treatments, there is capability within the estimating tool for the Delivery Agencies to amend the resources to be in-line with likely construction methodologies. This includes consideration of locally available plant and skilled resources.

Basis for rates

Plant and labour rates should reflect the market rate relevant to the applicant. Materials rates should be based upon the applicant’s typical supply arrangements. Where market rates are not available or internal material resources are predominantly used, internal supply rates should be provided.

Key inputs typically include:

* + - materials supply rates;
    - standing offer arrangements;
    - contractor plant hire rates;
    - council plant and equipment rates (if approved);
    - day labour rates (if approved); and
    - site establishment and disestablishment costs.

Productivities

Productivities represent the rate of delivery with regard to time, typically expressed per day. Baseline productivity rates established for each standard treatment should be varied according to the applicants amended construction methodology and local conditions (including remoteness of works, delivery of materials, and workability of materials).

Utilisation of Existing Rates

From June 2024, where appropriate historical pricing data is held by Delivery Agencies it may be used to inform part or a whole of the development of a Cost Estimate. This may include existing quotes, tenders, supply panel contracts or the like for similarly scoped works (i.e. gravel re-sheeting, formation grading, minor patching etc) provided to a Delivery Agency. Where existing pricing data is to be utilised in the formation of a Cost Estimate, sufficient detail in data must be available to consider its application against Standard Treatments and identified scope of works. It is expected that where existing pricing data is to be relied upon it will be submitted as supporting documentation alongside the Reconstruction Works estimate package.

* + - * 1. Review, validation and assurance

The first principles cost estimates are to be reviewed by the Assessing Authority as part of the claim review process. This review shall consider the value of plant, labour and materials and the expected duration to complete the works.

The unit rates derived from the estimate may be compared against other similar types of works undertaken recently in the area. Over time, it is expected that a library of unit rates will be compiled along with some historical information on actual costs and unit rates achieved.

* + - 1. Market response
         1. Process

A market response methodology may be used in assigning direct costs to an estimated reconstruction cost.

If market response is the selected method, applicable procurement processes must be followed when requesting pricing from the market.

Various procurement options, depending on the size and complexity of works are available in sourcing market responses. Works may be awarded based on standing offer arrangements, tender or other competitive process. In addition, works may be awarded as a design and construct contract where the scale of works is appropriate.

When using a market response, the preferred tender, detailing the scope and applicable rates must be provided to the Assessing Authority by 31 March following the financial year in which the disaster occurred.

* + - * 1. Considerations

To minimise ongoing risk of cost overruns, contractual variations or delay claims, best practices should be implemented to ensure a successful tendering process. Best practices include:

* + - ensuring works area is adequately scoped and designed;
    - ensuring quantities and price schedule are accurate;
    - providing sufficient time for contractors to price;
    - programming works to avoid known periods of weather-related disruptions;
    - using contractors for concurrent projects in the same region where value for money can be maintained; and
    - ensuring Delivery Agency’s procurement guidelines are adhered to.
      * 1. Provisional / Additional Works Items

Provisional and Additional Works Items are utilised in a road construction contract to establish a unit rate where there may be a change in the quantity beyond the original scope in which a tender price has been received. The inclusion of Provisional / Additional Work Items in tenders is a common practise to provide a degree of certainty to the client on the value of additional works if they are requested/required.

Where provisional items have been included in a tender (direct cost), and the quantities reflect the design and eligible scope at the time of tender, these costs will be considered eligible.

Additional works items are generally used at time of tender where it is not certain that the scope is required. If these items and quantities are in addition to the quantities that reflect the design and eligible scope at time of tender, these items and costs should form part of the contingency allowance for the Certified Estimates Works Package.

* + - * 1. Examples of Provisional or Additional Works Items

Provisional Work Item: Remove Silt and Debris

Standard Unit of Measure: m3

Assessment: The agreed eligible scope of this activity is 10m3 and would represent the eligible direct cost. Any quantity included in the tender over and above the 10m3 would be not considered a direct cost. Any variance to this quantity experienced during construction, and subsequent additional cost, would be considered as part of the contingency for the submission.

Provisional Work Item: Subgrade Treatment Type B – Rockfill.

Standard Unit of Measure: m3

Assessment: The site investigations and subsequent design for the eligible scope of works have determined that only Subgrade Treatment Type A – General Fill in only anticipated to be required. To obtain certainty in other subgrade treatment types (i.e. Type B – Rock) pricing at time of tender, this provisional item is proposed to be also included the tender. As the Type A treatment is anticipated to be required, this can be considered part of the direct costs. Any provision for the Type B treatment would be considered as part of the contingency for the submission.

Additional Work Item: Additional supply and lay 100 mm PVC pipe.

Standard Unit of Measure: Lm

Assessment: The eligible scope of works has determined that 120 Lm of 100m PVC Pipe is required to be constructed as part of the works. An item for 12 Lm of ‘Additional supply and lay of 100mm PVC pipe’ has been included in the tender schedule. As this quantity is over and above the approved eligible scope this should not be part of the direct costs but rather be considered part of the contingency allowance.

* + - * 1. Procurement

In addition to meeting relevant procurement requirements, effective procurement may include:

* + - using appropriate means to invite tenders;
    - running a robust evaluation process, including documenting evaluation criteria and reasons for selecting; and
    - appropriate consideration and weighting of price and non-price criteria.
    1. Indirect costs
       1. Introduction

The allocation of indirect costs associated with road construction projects can be influenced by a number of factors. The key factors include the:

* + - Complexity of the works;
    - Degree of investigations and the design required;
    - Degree of interface with the community and live traffic;
    - Duration of the works and the number of concurrent works fronts;
    - Level of community consultation and engagement required;
    - Degree of environmental factors that require oversight; and
    - Location of works.

In general, for a reconstruction project, allowances should be made for the following indirect costs:

* + - design
    - project management
    - contract administration

Guidance in the allowances for these indirect cost components when establishing an estimated reconstruction cost are summarised below.

* + - 1. Design

Design costs can vary widely depending on the complexity of the works and location. Works may vary from simple maintenance style interventions through to complex geotechnical projects with difficult environmental interfaces. Accordingly, design costs may vary from 0.5 to 15 per cent.

Design includes, but is not limited to, the following activities:

* + - options identification and analysis;
    - design development;
    - detailed design and tender design documentation;
    - investigations covering requirements and supply for geotechnical, land, materials and water;
    - surveys, including topographical and property;
    - utilities surveys, searches and reports;
    - technical studies, including (for example): noise, environment, flora, fauna, cultural, heritage, air quality, safety, hydrological, etc;
    - updating design documentation and reports;
    - independent verifier or certifier; and
    - environmental impact studies.
      1. Project management

Similarly, project management costs can vary subject to the ease of procurement, delivery method and complexity of works and includes the overall management of the project from initiation to completion. For example, works delivered by a contractor, adopting a standing offer arrangement, using principal supplied materials will have different project management costs to a custom build with pre-fabrication of time crucial elements of a structure. Accordingly, project management costs may vary from 3 to 5 per cent.

Project management includes, but is not limited to, the following activities:

* + - program administration;
    - stakeholder consultation and communication;
    - legal and commercial;
    - planning and programming;
    - risk assessment; and
    - obtaining consents and approvals.
      1. Contract Administration

Contract Administration includes the oversight of the construction works to ensure that all designs and specifications are being adhered to in accordance with the contract and to resolve any technical issues throughout the delivery of the works. Depending on the complexity of the works and contractual matters that may need to be resolved during the delivery, the contract administration costs may vary from 1.5 to 10 per cent.

Contract Administration includes, but is not limited to the following activities:

* tender assessment and contract award;
* administration of the contract during the delivery of the works;
* ensuring works are undertaken in accordance with design and drawings;
* occupational Health and Safety (OH&S) activities;
* ensuring adherence to all consents and approvals
* project and progress reporting; and
* stakeholder consultation and communication
  + - 1. Overall indirect cost allowances

Combining design, project management and contract administration costs, an overall percentage of between 5 and 30 per cent may be required depending on the relevant factors outlined in section 3.1 above.

|  |  |
| --- | --- |
| Discipline | Typical Ranges |
| Project Management | 3 – 5% |
| Investigations & Design | 0.5% - 15% |
| Contract Administration | 1.5% - 10% |
| **TOTAL** | **5% - 30%** |

By way of example, the type of works which are anticipated to fall within the low, medium and high levels of the indirect cost ‘typical ranges’ are as follows:

|  |  |  |
| --- | --- | --- |
| Low | Medium | High |
| formation grading | standard pavement works | geotechnical works |
| unsealed pavement works | drainage works | major structure repair works |
| table drain works | minor pavement works | major drainage works |

Ultimately the appropriate allocation of indirect costs needs to be considered on a project-by-project basis. For example, projects with large and complex geotechnical failures, with difficult interfaces, with traffic and private property interfaces requiring staging, or projects located within environmentally sensitive areas, it is expected the indirect costs would be at the upper end of the indirect cost range. In contrast, for standard road reconstruction projects, with well-defined scope and standard treatments, it is expected the indirect costs would be at the lower end of the range.

The reasons that form the basis of the percentage selected within the ranges is to be documented. There may be circumstances where the level of indirect costs may not fall within these ranges. In these circumstances it is important to document the reasons why the indirect costs may not fall within the above ranges.

An indirect cost calculation tool (VT-Indire) has been prepared for application to reconstruction works which have been based on an estimate using the first principles approach and/or market response approach. Delivery Agencies should refer to the Indirect Costs Calculation tool tab (refer to Contingency Calc (VT-Indire) as part of the V Form C-RW to determine the indirect costs percentage. The indirect cost calculation tool can be found at the following link:

https://www.emv.vic.gov.au/how-we-help/disaster-recovery-funding-arrangements-drfa/disaster-recovery-funding-arrangements-drfa.

* + 1. Contingency
       1. Introduction

Recognising the uncertainties in disaster recovery works, including pressures on the workforce, short supplies of materials and difficulty of access, allowance has been made within the DRFA for the inclusion of reasonable contingency.

‘In estimating reconstruction costs, the states will be required to account for residual risks through the inclusion of a contingency allowance.

The calculation of a contingency allowance estimate should reflect the reconstruction project risk profile, complexity, investment lifecycle, benchmarks and past performance for similar projects. In determining a contingency allowance, the Commonwealth will require the states to use an appropriate contingency estimation approach, noting that **a deterministic factor-based cost estimation approach will be suitable for most reconstruction projects**. For certain reconstruction projects, states may consider a streamlined approach to the application of a contingency allowance based on the type of treatment required and the unique characteristics of a particular region of a state. However more sophisticated approaches to estimating contingency may also be appropriate for complex/high dollar value reconstruction projects.

In identifying a contingency allowance, states will be expected to follow the established cost estimation guidance published by the Commonwealth Department of Infrastructure, Regional Development and Cities at [www.investment.infrastructure.gov.au](http://www.investment.infrastructure.gov.au)’ (DRFA 2018, Section 6.5)

To allow the use of the ‘streamlined approach to the application of a contingency allowance’, treatment categories and grouping by region is required.

* + - 1. Risk profiles – treatment types

Standard treatments have been developed to assist the cost estimation process. These treatments fall within the following categories:

* + - Unsealed pavements
    - sealed pavement repairs
    - clearing and earthworks
    - road furniture and delineation
    - concrete
    - drainage structures
    - ‘other’ – complex projects, geotechnical and structures.

Although the categories (and treatments) are common, the risks associated with each category is different. Common considerations in terms of the risk for each of the categories is included in the table below.

Table 2: Key risk considerations by treatment categories

|  |  |
| --- | --- |
| Treatment category | Key risk considerations |
| Unsealed pavements | * Located in remote areas * High camp or mobilisation costs for remote works * Loss of productivity due to travel times * Lack of resource availability or distance to source may require long hauls of gravel or water * Higher risk of plant and labour shortages |
| Sealed pavement repairs | * Higher order roads with ongoing operation imperative * Lost productivity and increased traffic control costs * Potential subgrade issues and conflicts with services or underground drainage |
| Clearing and earthworks | * Difficulties in quantification * Risk of contaminated materials * Difficulty of access |
| Road furniture and delineation | * Low productivity due to spread over long distances * Potential need for mobile traffic control |
| Concrete | * Supply availability * Distance to supply * Quality of supply * Labour shortages for skilled steel fixers * Loss of productivity due to small sites * Design risks |
| Drainage structures | * Potential trigger of statutory approvals * Environmental complexities * Subject to weather and season * Variable materials * Difficulty of access * Supply and haulage costs |
| Other | * Detailed investigations and design * Ongoing design requirements * Statutory approvals * Environmental complexities * Variable materials * Complex interfaces with traffic or other infrastructure * Difficulty of access * Availability of suitable plant, equipment and labour |

* + - 1. Risk profiles – location

The delineation of regions is useful in considering local risks and their impacts on reconstruction works. Risks include:

* + - Increased haulage due to reduced water or gravel supply;
    - Higher cost of labour due to labour shortages;
    - High costs of mobilisation and camp due to remoteness;
    - Availability of local supplies;
    - Delays and further investigations due to environmental risks;
    - Traffic related risks due to complex staging requirements; and
    - Impact associated with the climate in the region.
      1. Deterministic approach – typical reconstruction projects

In considering the regional specific risks, the deterministic approach to calculating contingencies can be applied by treatment category as is detailed in the standard deterministic matrix developed for common risk factors, included in Appendix C in this Guideline.

Regional characteristics and risks will determine where within this range each treatment should site or whether an adjustment to the range is required. For each risk listed it is necessary to determine the level of confidence and reliability and hence the appropriate risk adjustment. It is recommended that the deterministic risk matrix in Appendix C in this Guideline is used for each of the standard treatments included in a project cost estimate.

Typical contingency ranges, correlating to a first principles estimate phase for each treatment category is outlined below:

|  |  |
| --- | --- |
| Treatment category | Typical contingency ranges  (First Principles Estimate) |
| Unsealed pavements | 24 – 30% |
| Sealed pavement repairs | 24 - 30% |
| Clearing and earthworks | 28 - 34% |
| Road furniture and delineation | 24 - 34% |
| Concrete | 30 - 40% |
| Drainage structures | 30 - 40% |
| Other | 40% |
| Total | 24 - 40% |

Should a market response be used to establish the estimated reconstruction cost, a lower contingency should be considered. Prior to seeking a market response, investigations should have been carried out, and the design developed sufficiently to enable pricing by the market. As a result, reductions (or removal) of allowances for project scope, key dates and site-specific risks should be considered. Consequently, typical contingency ranges, as outlined below for the different treatment categories may be more suitable (with the exception of complex geotechnical or marine projects). Note that typical contingency by treatment categories at market response/tender stage should be 50% of the ranges at the estimate stage.

|  |  |
| --- | --- |
| Treatment category | Typical contingency ranges  (Market Response) |
| Unsealed pavements | 12 - 15% |
| Sealed pavement repairs | 12 - 15% |
| Clearing and earthworks | 14 - 17% |
| Road furniture and delineation | 12 - 17% |
| Concrete | 15 - 20% |
| Drainage structures | 15 - 20% |
| Other | 20% |
| Total | 12 - 20% |

It is recommended that all scope items, whether priced by first principles estimate or market response (Tender), are categorised by the above treatment categories. With this structure in place the typical contingency ranges can be considered to be adopted.

A contingency calculation tool (VT-Cont) has been prepared for application to reconstruction works which have been based on an estimate using the first principles approach. Delivery Agencies should refer to the standard deterministic risk matrix and Contingency Calculation tool tab (refer to Contingency Calc (VT-Cont) as part of the V Form C-RW to determine the contingency percentage.

The contingency calculation tool can be found at the following link: https://www.emv.vic.[gov](https://www.emv.vic.gov.au/how-we-help/disaster-recovery-funding-arrangements-drfa/disaster-recovery-funding-arrangements-drfa).au/how-we-help/disaster-recovery-funding-arrangements-drfa/disaster-recovery-funding-arrangements-drfa.

* + - 1. Probabilistic approach – high value and complex projects

The DRFA also allows:

‘sophisticated approaches to estimating contingency may also be appropriate for complex/high dollar value reconstruction projects‘ (DRFA 2018, Section 6.5.2)

The use of a probabilistic (rather than deterministic) calculation of contingency and the review of its calculation involves considerably more effort and should be applied to very large projects only.

In accordance with Australian Government Investment Framework (<https://www.finance.gov.au/government/commonwealth-investment-framework/commonwealth-investments-toolkit/cost-estimation>), the probabilistic calculation should only be adopted when the a total anticipated outturn cost (including indirect costs and contingency) exceeds $25 million. Confirmation of the adoption of the probabilistic calculation for DRFA reconstruction projects should also be sought from the Emergency Recovery Victoria.

Further information and guidance regarding this approach can be found in guidance note 3A: probabilistic contingency estimation in Appendix D in this Guideline.

* + 1. Escalation

Escalation is the allowance for expected changes in capital costs throughout the project lifecycle. The DRFA states:

’Cost escalation allowances are applied to an estimated reconstruction cost to ensure adequate capital funding is provided to compensate for the expected change, generally positive, in costs over the life of a reconstruction project. These cost increases can be the result of a number of factors including price fluctuations in labour, plant and material, and global and local market pressures.

The Commonwealth expects that at the time of preparing the estimated reconstruction cost the states will be required to account for cost changes, generally increases, over the life of a reconstruction project by establishing a realistic cost escalation allowance. Consistent with the objectives of ensuring the reconstruction of an essential public asset following an eligible disaster is achieved, cost escalation would at a maximum only be applied and eligible for a period of three years from the end of the financial year in which the eligible disaster occurred.

States will be expected to utilise the escalation rates and the escalation calculation methodology included in the state specific road construction cost escalation forecasts prepared annually by the Commonwealth Department of Infrastructure, Regional Development and Cities, and provided to each state and territory infrastructure delivery agency.’ (DRFA 2018, Section 6.6)

Where the estimated reconstruction cost of a specific project is not based a market response (tender or similar), escalation should be allowed for in accordance with the DRFA. The DRFA refers to utilising the escalation rates and the escalation calculation methodology included in the state specific Road Construction Cost Escalation Forecasts prepared annually by the Commonwealth Department of Infrastructure, Regional Development and Cities, and provided to each state and territory infrastructure delivery agency.

This cost escalation report addresses price movements in road construction components such as construction wages, materials and plant and equipment hire rates. Movements in contractor margins are incorporated into the analysis, as well as non-construction jurisdictional (“client”) costs to arrive at an overall composite Road Construction Outturn Cost Index (RCOCI).

The RCOCI for road infrastructure projects in Victoria for the current financial year and three future years is as follows:

Table 3: RCOCI Current and Three Future Years

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Financial Year | 2022/23 | 2023/24 | 2024/25 | 2025/26 | 2026/27 |
| Escalation – RCOCI | 10.33% | 2.19% | 1.94% | 1.24% | 2.51% |

A cost escalation calculation tool (VT-CEsc) has been prepared for application to reconstruction works which have been based on an estimate using the first principles approach. Delivery Agencies should refer to the separate diagram and Escalation Calculator tab (refer to Escalation Calculator (VT-Cesc) as part of the V Form C-RW to determine the cost escalation percentage. The cost escalation calculation tool can be found at the following link: <https://www.emv.vic.gov.au/how-we-help/disaster-recovery-funding-arrangements-drfa/disaster-recovery-funding-arrangements-drfa>.

Should a market response be utilised to price the works, escalation should be removed.

* + - * 1. Use of the Cost Escalation Calculation Tool (VT-CEsc)

The cost escalation calculation tool calculates the escalation proportion for each financial year based on the dates when the benchmark estimate is lodged and when the reconstruction works are completed. An overview of the basis of the calculation within the tool is illustrated (using the rates in Table 4) in the following examples:

**Example:**

Date Benchmark Estimate is lodged = 15-April-2024

Date Reconstruction Works are forecast to be completed = 1-May-2026

Effective escalation FY0 (2023-24)

= 30/6/2024 – 15/4/2024 = 76 Days / 365 = 20.82% x 2.19% (2023-24 escalation rate) = 0.46%

Effective escalation FY1 (2024-25)

= Lodgement and completion dates outside of Financial Year, adopt 100% of escalation rate = 100% x 1.94% = 1.94%

Effective escalation FY2 (2025-2026)

= 1/5/26 – 1/7/25 = 305 days / 365 = 83.29% x 1.24% (2025-26 escalation rate) = 1.04%

**Total escalation for period**

= [(1+0.46%) x (1+1.94%) x (1+1.04%)] – 1 = **3.43%**

* + 1. Document information

For the list of documentation related to cost estimation, refer to Appendix A: Cost estimation standard forms and templates.

* + - 1. Document details

|  |  |
| --- | --- |
| Criteria | Details |
| TRIM ID: |  |
| Document title: | Guideline 3: Cost estimation for essential public assets |
| Document owner: | Emergency Recovery Victoria, Department of Justice and Community Safety |

* + - 1. Version control

|  |  |  |  |
| --- | --- | --- | --- |
| Version | Date | Description | Author |
| V1.0 | 12 10 18 | Issued for IDC review |  |
| V2.0 | 24 10 18 | Issued for IDC approval |  |
| V2.1 | 26 10 18 | Minor updates to final issue |  |
| V2.2 | 30.10.18 | Working document |  |
| V2.3 | 07.01.19 | Updates to glossary |  |
| V2.4 | 31.10.19 | Update Administering Authority  Minor update to Introduction |  |
| V2.5 | 19.08.2020 | Update Introduction to include reference to standard treatments for emergency works not included in this Guideline 3 and/or the Cost Estimation Tool or V Form C-RW |  |
| V2.6 | 19.04.2021 | Update to Indirect Costs, Contingency and Escalation |  |
| V 3.0 | 15.10.21 | Renamed Guideline 2 to be consistent with new Guideline names |  |
| V4.0 | 01.03.22 | Links added to Appendices (page 25)  Minor updates on development of a Cost escalation calculator tool, indirect cost calculator and contingency calculation tool (Page 10, 16, 20 and 22)  Reference to EMV replaced with Emergency Recovery Victoria |  |
| V5.0 | 30.08.22 | Reference to EMV replaced with Emergency Recovery Victoria and Regional Roads Victoria to Department of Transport  Update Introduction, Purpose and Scope to include reference to standard treatments for emergency works not included in this Guideline 3 and/or the Cost Estimation Tool or V Form C-RW  Updates to Glossary for Essential public asset reconstruction works and Estimated reconstruction costs |  |
| V6.0 | 06.07.23 | Updates across the Guideline to remove reference to Sharefile and the ACMS, and include reference to the new online portal CMS. |  |
| V7.0 | 17.09.23 | Inclusion of Suitably qualified professional in Glossary |  |
| V8.0 | 19.10.2023 | Amendments to Page 6 & 12 to clarify that market response is based on preferred tender |  |
| V9.0 | 26.02.2024 | Amendments to Pages 21 – 22 for new cost escalation rates for 2023-24 onwards |  |
| V10.0 | 03.06.2024 | Update to Pages 2, 7-8 and 12 to clarify that recently tendered rates for maintenance or DRFA reconstruction works, may be used to inform the costing of a certified estimate where cost estimation is the selected method. |  |
| V11.0 | 01.11.24 | Update of Page 3 to clarify that the Market Response definition includes those costs incurred outside the allowable time period for either emergency works or immediate reconstruction works, where an extension request has not been approved. |  |

* + - 1. Document approval

This document requires the following approval:

|  |  |  |
| --- | --- | --- |
| Name | Title | Organisation |
|  |  |  |
|  |  |  |

* + - 1. Reference material

|  |  |
| --- | --- |
| Attached references | TRIM ID/Location |
|  |  |

|  |  |  |
| --- | --- | --- |
| Bibliography | Author | TRIM ID/Location |
| Disaster recovery funding arrangements 2018 | The Australian Government |  |

* + - 1. Acronyms

|  |  |  |
| --- | --- | --- |
| Acronyms | Description | |
| CMA | Catchment Management Authority |
| DRFA | Disaster Recovery Funding Arrangements |
| DTF | Department of Treasury and Finance |
| ERV | Emergency Recovery Victoria |
| GST | Goods and services tax |
| OH&S | Occupational health and safety |
| RCBC | Reinforced concrete box culvert |
| RCCEF | Road construction cost escalation forecasts |
| REPA | Reconstruction of essential public assets |
| WBS | Work breakdown structure |

* + 1. Appendices

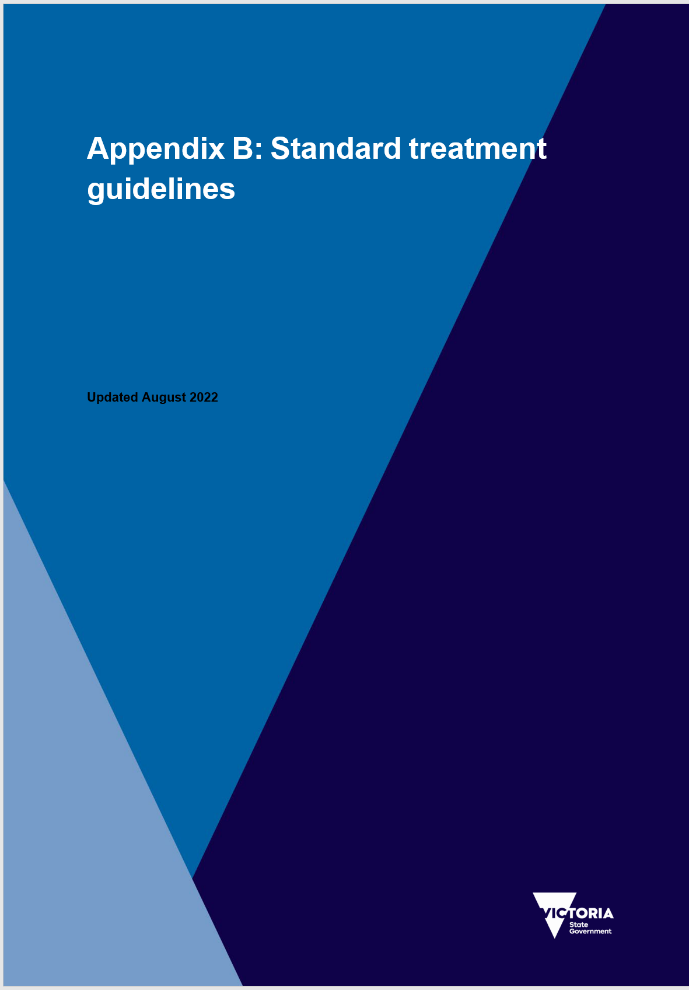
## Appendix A: Cost estimation standard forms and templates

|  |  |  |
| --- | --- | --- |
| Item | Description | Form/Doc ID |
| 1 | Victorian DRFA Guideline 2 – Cost estimation for essential public assets | [GL-2](https://www.emv.vic.gov.au/drfa/guideline-2) |
| 2 | Victorian DRFA Fact Sheet 2 – Cost estimation for essential public assets | [FS-2](https://www.emv.vic.gov.au/drfa/fact-sheet-2) |
| 3 | Standard treatment guidelines for cost estimation | [GL-2 App B](https://www.emv.vic.gov.au/how-we-help/disaster-recovery-funding-arrangements-drfa/disaster-recovery-funding-arrangements-9) |
| 4 | Standard Deterministic Risk Matrix – Victoria | [GL-2 App C](https://www.emv.vic.gov.au/drfa/guideline-2) |
| 5 | Guidance Note 3A | [GL-2 App D](https://www.emv.vic.gov.au/drfa/guideline-2) |
| 6 | Victorian DRFA Cost estimation tool | [VT-CE](https://www.emv.vic.gov.au/publications/victorian-drfa-cost-estimation-tool) |
| 7 | Victorian DRFA Cost Escalation calculation tool | VT-Cesc |

## Appendix B: Standard treatment guidelines

Reference Appendix B: Victorian DRFA guideline 2 Standard treatment – available on the website

<https://www.emv.vic.gov.au/natural-disaster-financial-assistance/events-post-1-november-2018>



## Appendix C: Standard deterministic risk matrix – Victoria

Table C.1: Standard deterministic risk matrix – Victoria

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Available information on which the estimate is based | Questions as relevant to works | Confidence and reliability | | |
| **Highly confident and reliable** | **Reasonably confident and reliable** | **Not confident and not reliable** |
| **Project scope** | A set of well-defined project objectives and related performance criteria. | What is the level of confidence and reliability in the scope and quantities inherent to this treatment? | **6%** | **7%** | **9%** |
| Precast items and discreet elements (e.g. headwalls, culvert units and aprons). | Scope and quantities defined by road chainage and length and depth. | Scope and quantities cannot be readily measured (e.g. scour holes, debris blockage). |
| Investigations or test results, design report and design drawings. | Scope and quantities relate to elements that are both easily quantifiable and distinct from the surrounding environment. | Investigation and design undertaken; however, uncertainties exist with subgrade or subsurface conditions. | Conditions and materials are variable. Ongoing investigations and design anticipated. |
| **Risk identification** | Risk analysis of significant risks (political, community, technical, financial, environmental, labour and materials). | What is the level of confidence with:   * + 1. the availability of labour to undertake the works?     2. the availability of the materials to undertake the works? | **6%** | **7%** | **9%** |
| The treatment is not reliant on materials supply. | Regional areas with variable availability of labour. | Region consists of predominantly remote areas with limited suppliers |
| Good materials supply throughout the region. | Materials supply occasionally affected by environmental conditions (e.g. drought affecting water supply. | Materials supply frequently affected by environmental conditions (e.g. drought affecting water supply). |
| **Constructability** | A constructability, staging and construction access review and construction program. | What is the level of confidence and reliability in the treatment cost with respect to constructability or complexity? | **3%** | **4%** | **5%** |
| The treatment is typically undertaken in isolation to other activities. | The treatment is typically delivered concurrently with other construction activities where there is minimal likelihood of one activity significantly impacting the other. | The treatment is typically delivered concurrently with other construction activities with the potential for interrelated delays due to conflicts. |
| **Key dates** | A set of project dates (to enable outturn cost to be assessed). | What is the level of confidence and reliability that the works be completed within the required timeframe? | **1%** | **2%** | **3%** |
| The region’s construction period is typically independent of seasonal weather patterns. | The region’s construction period is somewhat influenced by seasonal weather patterns. | The region’s construction period is heavily influenced by seasonal weather patterns. |
| **Site specific information** | Sufficient and documented investigation of concept design (geotechnical, heritage, environmental, technical, hydraulic). | What level of confidence is there in the treatment cost with respect to statutory approvals? | **5%** | **6%** | **9%** |
| Works associated with this treatment are unlikely to be associated with statutory approvals or require additional investigations. | Works associated with this treatment may require statutory approvals and additional investigations. | Works associated with this treatment are likely to require statutory approvals and additional investigations. |
| **Project interfaces** | External interfaces (identified and defined in terms of scope, access and risk). | What level of confidence and reliability is there in the treatment cost with respect to interfaces with adjacent assets? | **3%** | **4%** | **5%** |
| Works associated with this treatment can be undertaken with little to no disruption to asset operations during construction. | Works associated with this treatment typically involve moderate complexity in maintaining existing asset operations during construction. | Works associated with this treatment typically involve significant complexity in maintaining existing asset operations during construction. |

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## Appendix D: Guidance note 3A



Note: This is an embedded document. Please double click on the image to access document.