Indicative Cost Estimate

NZ Transport Agency Waka Kotahi note:

The information contained within this document contains preliminary indicative cost ranges for certain projects. This information was provided to the Ministry of Transport in late 2023 as part of early work to prepare for the Government Policy Statement on Land Transport 2024 (GPS 2024).

This document should be read in conjunction with the limitations outlined on page 2 and the caveats provided in the Cost Note column of the table.

The indicative cost ranges reflected cost escalation, changes in standards and uncertainty from the projects early stage of development. Following the Governments release of GPS 2024, these estimates are unlikely to reflect a current or accurate cost for each project. NZTA is currently developing investment cases for each of these projects to align with the scope expectations set out in GPS 2024.

Cost Estimation – Purpose, Methodology and Assumptions (20/11/2023)

Purpose

The purpose of this document is to share preliminary indicative cost range for the projects to support MOT work to development of GPS activity class ranges.

Cost estimates are subject to further review and analysis. We will keep MOT informed as we revise our estimates.

We request that individual project estimates are not quoted, and that Waka Kotahi is provided opportunities to review the use of the numbers in briefings to Ministers and others.

Overall assumptions

Cost estimates are dependent on the outcomes the Minister trying to achieve and the costs and benefits of different design/timing options. These estimates are based on the latest known project scope. In many cases, the projects have been inactive for 2-6 years. Projects have scope/outcome options at different scales.

Cost ranges are modelled output based on various business case inputs. They do not represent project estimates using our standard cost estimation processes. Formal cost estimation (at project level) will occur through business case work.

- All cost ranges are indicative and provided as June 2023 figures,
- Costs will need to be further inflated to reflect the actual construction period,
- Cost ranges are provided to support Activity Class range development and Treasury Cashflow projections only - They are indicative of potential costs across the programme.
- Assumes projects will be managed as a portfolio focused on outcomes rather than fixed scope projects and will be delivered using standard NLTP governance and delivery processes. Alternative approaches may result in different cost estimates.

Source Information and its limitations

Starting cost estimates have been derived from previously completed business cases, scheme assessments or using internal experts.

Cost estimates range in time from 2013 up to 2023. More recent estimates will be more accurate but are still subject to variations in project scope.

Cost estimates have been sourced from business cases at various stages of the project delivery lifecycles including Programme business case, indicative business case, detailed business case and at design phase.

Early phases have higher uncertainty of scope (as designs are less progressed and detailed investigations, such as ground conditions) have not yet occurred and consents have not been secured. For example, only once a project reaches the pre-implementation phase would a detailed design be completed.

Typically, costs will increase as a project moves through business case phases as detailed scope and designs are finalised and consents are secured, hence the reason we focus on higher end P95 costs at early stages.

Model based methodology.

We have used a simple model to produce cost estimations. It uses two input values (If they exist) – 1) Last known P50 2) Last known P95,

To allow comparison between projects, two adjustments are applied:

Step 1 – Inflate last known business case to 2023 $

1) We apply an inflation factor (source Waka Kotahi Open Data – Infrastructure and PT contract price adjustment – Informetrics/Stats NZ),
2) We apply a nominal 2% per annum adjusted for policy and standards changes (up until the commencement of construction),
3) We apply a nominal 15% contingency (if the previous business case excluded contingency),
4) We apply 9% overhead charge (if the previous business case excluded overheads),

Step 2 – Adjust the upper range for scope uncertainty

We adjust for scope uncertainty – Based on experience, each of the phases of the lifecycle has a different level of scope definition and risks. The earlier in the project lifecycle, the less defined scope, and the more unknown aspects. This infers higher cost risk multipliers.

This results in cost estimation range:

- Low estimate – Last known P50 (adjusted to 2023 $)
- High estimate – Last known P95 (adjusted to 2023$ + the calculated scope uncertainty multiplier)

Note – Projects in early phases will have larger ranges than projects that are more progressed.

Factors impacting actual costs

While modelled costs support high-level planning, such as activity class funding ranges development, there is a wide range of factors that will influence actual projects costs, including:

- Project scope, in particular function and form macro-level scope,
- Project detailed design decisions, particularly in relation relating to intersections/interchanges and structures, or changes in design standards,
- Project phasing and timing,
- Future escalation of labour costs plant, and materials, and changes in property values,
- The level of sector productivity gains that can be realised,
- Ground conditions identified during detailed design phases,
- Changes to consenting and/or other statutory approval requirements or timeframes, such as RMA changes, (e.g. fast-track legislation)
- Consenting requirements and conditions
- Market capacity and capability at the point of tendering and the selected procurement method,
- Funding and/or financing options agreed for projects.

Preliminary indicative cost ranges

Project	Indicative cost range	Cost notes
Roads of National Significance		
SH1 Whangarei to Port Marsden	$1.85-2.45bn	Cost estimates derived from an incomplete 2021 DBC, adjusted to 2023 $. Range reflects medium level scope uncertainty and incomplete DBC status.
SH1 Warkworth to Wellsford	$2.9-3.75bn	Cost estimates derived from 2018 DBC adjusted to 2023 $. Range reflects lower scope uncertainty.
East-West Link	$2.35-3.1bn	Cost estimates derived from 2018 DBC adjusted to 2023 $. Range reflects high scope uncertainty.
Mill Road Stage 1	$1.45-1.95bn	Cost estimated derived from 2020 DBC adjusted to 2023 $. Range reflects very high scope uncertainty. Note – This cost excludes route protection for Stages 2 and 3
NW Alternative SH	$2.5-4bn	Cost estimated derived from 2021 DBC adjusted to 2023 $. Range reflects lower level of scope confidence as the DBC was developed for route protection only.
Cambridge to Piarere	$1.3-1.7bn	Cost estimate derived from 2023 design phase estimate adjusted to 2023 $. Range reflects higher level of scope confidence and that the work is currently in pre-implementation phase.
Hamilton Southern Links	$1.75-2.75bn	Cost estimate derived from estimate per lane km of work in similar environments – project provides options for sequencing which can be refined through business cases. Likely to be progressed in stages so overall cost estimate is indicative. Cost estimate excludes local road elements.
Takitimu Norh Link Stage 2	$0.9-1.4bn	Cost estimate derived from 2023 design phase estimate adjusted to 2023 $. The range reflects higher confidence to the scope and that the project is in pre-implementation phase.
Tauriko West	$2.55-3.2bn	Cost estimate derived from 2023 DBC phase estimate adjusted to 2023 $. The range reflects medium level scope confidence. Note – DBC covers SH29 and SH29a improvements.
Petone to Grenada (Excluding Cross Valley Link)	$1.75-2.65bn	Cost estimate derived from 2017 IBC phase estimate adjusted to 2023 $. The range reflect very low scope confidence due to unresolved macro-level scope and design matters and a very challenging delivery environment. Options and choices should be explored to allow for cost estimates to be refined.
Cross Valley Link	$0.25-0.6M	Cost estimate derived from 2018 PBC phase estimate adjusted to 2023$. The range reflects very low scope and design confidence and uncertainty about cost inclusions. Note – This is a Hutt City Council project and further clarification should be undertaken on project costs.

2nd Mt Vic Tunnel and Basin Reserve	$1.75-2.75bn	Cost estimate derived from 2022 IBC phase estimate adjusted to 2023$. The range reflect medium level scope confidence. **NOTE – This project cost estimation is still being reviewed with the project team.**
Hope Bypass	$0.4-0.7bn	Cost estimate derived from 2021 PBC phase estimate adjusted to 2023 $. The range reflects medium level confidence of the scope and that the project has not progressed beyond early planning (PBC phase).
Belfast to Pegasus Motorway and Woodend Bypass	$0.55-1.0bn	Cost estimate derived from 2014 scheme assessment (prior to business case approach currently in use) adjusted to 2023 $. The range reflects medium level confidence of the scope largely related to the early planning phase and the age of previous work.