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Programme Cost Summary Technical Note

LGWM

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Table of Contents

Revision History

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1. Purpose / Scope

This technical note sets out the costs for the programme options to be engaged on, describes the engagement affordability threshold and working assumption for funding partner shares of those costs.

The focus is on financial, and not economic, analysis. All figures given are nominal, that is inflated, and no discounting has been applied. Essentially this provides a cash forecast.

As this note focuses on financial information only, it assumes the reader has a good working knowledge of the programme and the programme options being consulted on. Descriptions of the options being consulted on can be found in the All projects tab at the following link https://lgwm.nz/all-projects/

2. Summary

To support the Let's Get Wellington Moving (LGWM) engagement on programme options, a detailed financial model has been developed to understand the cost impact over time.

A wide range of project options were considered, and the financial model allowed a series of programme cost scenarios to be run.

Some of the long-listed programme options produced costs well above the programme cost estimate at the May 2019 indicative package announcement of $6.4b[1]. This created a risk that shortlisted options could be presented to the community which would later prove to be unaffordable for funding partners, and ultimately the community.

To ensure the engagement only included potentially affordable options, an engagement affordability threshold of $7.4b was agreed by funding partners. To meet the affordability test for engagement, the cost of a programme option would need to fall below this threshold. There are four shortlisted options which have met the engagement affordability threshold. A summary of each option is available on the LGWM website in the All projects tab at the following link https://lgwm.nz/all-projects/

The cost calculated for each option is an estimate of whole of life cost (WoLC) over a 30-year period to 2049/50, including: investigations, design, construction and on-going operational and financing charges.

To acknowledge the cost uncertainty at this early design stage, the upper range cost estimates (P95) were used, and an allowance for inflation has been included.

3. Financial modelling approach

At this stage of the programme development substantial uncertainty exists as key decisions are yet to be made. Cost refinement and therefore certainty will increase as key decisions are made and further work is done.

The cost estimates provided at this stage are based on the best information available at this time. The following is a description of key elements and assumptions of the financial modelling approach.

A list of more detailed assumptions is included in Annex 1.

[1] The cost announced in May 2019 of $6.4b didn't fully account for the impact of Council borrowing, as it focused on the Central government perspective. The current model accounts for Council borrowing, the equivalent value from the May 2019 analysis was $6.7b.

Engagement affordability threshold

At the Programme Business Case stage, the initial proposal (Recommended Programme of Investment) was deemed to be unaffordable by the funding partners so was revised to the indicative package announced in May 2019 of $6.4b[2].

To avoid engaging with the community on options which could not ultimately be funded, an engagement affordability threshold of $7.4b was agreed by funding partners, this is a 30-year WoLC for the 30-year period. For programme options to proceed to engagement, the WoLC cost needed to fall within this maximum threshold.

This threshold was based on the funding assumptions for the May 2019 indicative package and amended for the impact of inflation since the 2019 announcement.

Note this is not the same as a funding approval by partners, this will be subject to future approval processes.

Engagement options

There are four shortlisted engagement options which met the engagement affordability threshold, named i-iv. A summary of each option available on the LGWM website in the All projects tab at the following link https://lgwm.nz/all-projects/

Whole of life costs (WoLC)

The final cost estimates are on a whole of life (WoLC) basis which estimates the overall impact of LGWM. This includes planning and delivering the projects, financing charges and ongoing costs including: operations and maintenance, replacing asset components as they come to the end of life, operating costs for the new MRT service, and an estimate of the lost revenue from Council owned on street car parking.

Using the WoLC allows an understanding of the total cash impact of the programme so funding strategies can be developed.

It also enables comparison between options with different delivery approaches. For example, a lease option vs a buy option. The lease option will have a low upfront cost but a high ongoing cost and vice versa. By using the WoLC these two approaches can to compared side by side whereas if only the upfront cost was used this would be misleading.

[2] The cost announced in May 2019 of $6.4b didn't fully account for the impact of Council borrowing, as it focused on the Central government perspective. The current model accounts for Council borrowing, the equivalent value from the May 2019 analysis was $6.7b.

Using capital spend to create a 30-year cashflow

Capital cost estimates were provided by cost estimation experts from the project teams.

To determine operation & maintenance (O&M) and asset renewal costs industry benchmarks were applied.

The Mass Rapid Transit (MRT) team provided service provision costs (net of revenue). The service provision is incremental only and accounts for the cost savings where sections of the existing bus network would be affected by the MRT service. The service provision costs are based on transport modelling undertaken by the Wellington Analytics Unit and used across the programme.

The timing of project element implementation will be subject to more detailed work once a programme option is selected. To enable calculation of ongoing costs, financing and inflation across the 30-year period, an indicative sequence and project duration has been developed as per annex 2.

Only net ongoing costs included

The upfront costs of delivering the programme are included in the financial model. However on-going costs are incremental only and account for “assets in place”. While the programme will likely replace these existing assets, a budget for O&M and asset renewals already exists.

An assessment of the percentage of new assets was made to enable only the net increase to be recognised.

Financing

The financial analysis which underpinned the Indicative Package announcement in 2019 assumed partners would finance parts of the programme. All partners would finance MRT and the Councils would finance all capital costs including renewals. On-going costs would be funded as they occur (Paygo). This same assumption has been applied for the financial analysis underpinning the engagement.

The WoLC figures for comparison to the engagement affordability threshold represent the cash requirement by year and include the impact of financing. The current assumption is that financing has a 30-year repayment profile from the year the cost is incurred. This means financed capital costs are not fully repaid during the 30-year period and some debt is outstanding at 2049/50.

Currently financing is assumed to be Government or Council debt. No consideration of available debt headroom for funding partners has been made, and interest rates used are in line with current borrowing rates provided by each funding partner.

Cost sharing

LGWM is a significant investment and is expected to deliver benefits locally, regionally and nationally. The cost shares are expected to recognise this.

At this time cost shares have not been finalised, so a working assumption has been used for the engagement cost estimates. The principles applied are:

- *investment split:* The split between central and local government is based on the indicative split in the May 2019 Cabinet paper. There is no formal agreement on the cost sharing between the local government partners. For engagement purposes the split between the local government partners is based on the indicative funding assumptions in the analysis which supported the May 2019 announcement. This simplifies the cost share assumption to 60% Waka Kotahi; 30% WCC; and 10% GWRC.
- *ongoing cost split* cost: allocated to the asset / service owner with current Funding Assistance Rates (FAR) applied.

Detail assumptions are included in Annex 4.

Funding

At this time the funding sources have not been agreed and a range of options are still being considered.

Central Government share: The most likely source for the central government share will be the National Land Transport Fund administered by Waka Kotahi the New Zealand Transport Agency. Other Crown funding sources may also be used for all or part of the Crown share.

Local Government share: Local funding is expected to come from city council and regional rates within Wellington City, and regional rates only for the rest of the region.

However, we expect some groups will receive specific benefits, so we are considering funding approaches to reflect this. The key options are below and if implemented these would reduce the general rates funding requirement.

- Council Rates: If the local share were to be funded from rates alone, we would expect to see cumulative annual increases of between 1.3% and 1.7% each year for over a decade for LGWM. This would be in addition to increases for other Council cost pressures.
- Value Capture Targeted Rate: International experience is mass rapid transit solutions improve the attractiveness of areas where they operate and increase property values. We are considering asking those expected to receive increased property values to contribute through a targeted rate (or similar levy).
- Travel Demand Management Pricing: We are considering pricing demand management tools for transport network users. While the purpose is to manage congestion, we expect this to generate a surplus after administration costs.
- Public Transport Fares: Public transport users contribute to operating costs through fares. While we are not planning to increase fares for LGWM, we expect more public transport users which will increase total fares.
- Urban Development: We expect LGWM to stimulate an increase in construction activity. There may be opportunities to work with developers at mass rapid transit stops and there will be development contributions for the infrastructure which supports new buildings.

4. Cost summary by programme option

Cost estimates have been provided to LGWM using a range from low (base) to the upper range (P95).

These cost estimates are based on early designs and as more detailed design work is completed in later phases they can change. This can add items which were not initially identified and costed. The upper range adds contingency to account for unforeseen elements and cost escalation.

To acknowledge the programme is still in the early design stage, and therefore the level of cost certainty is low, the upper range cost estimates (P95) were used, and an allowance for inflation has been included.

The tables below provide a breakdown of the costs by programme option.

See Glossary of terms following the tables for a description of cost categories

Option i

Programme Element	Cost Element				
	Investment	Whole of life cost (30 years)			
		Capital cost[3]		Operating cost	Total
		Paygo	Financing charges		
Mass Rapid Transit[4]	2.4b	0.4b	2.4b	0.6b	**3.5b**
Strategic Highway Improvements	2.2b	1.3b	1.1b	0.2b	**2.6b**
City Streets	0.5b	0.3b	0.3b	0.3b	**1.0b**
Three Year Programme	0.1b	0.1b	0.1b	0.1b	**0.3b**
Travel Demand Management[5]	0.2b	0.0b	0.0b	-	**0.1b**
Total	**5.4b**	**2.2b**	**3.9b**	**1.2b**	**7.4b**

[3] The cash requirement for capital investment is split based on whether financing is assumed or not. As the assumption for financing is a 30-year repayment from when the cost occurs the debt will not be fully repaid at year 30.
[4] The construction costs for MRT are assumed to be financed by Waka Kotahi. However there are still capital costs which are assumed paygo including business case development, property and asset renewals.
[5] Travel demand management is considering pricing options, for example a commuter parking levy or a congestion charge. At this stage these are only options but if agreed would have operating costs. Any scenarios including pricing assume operating costs net against revenue.

Option ii

Programme Element	Cost Element				
	Investment	Whole of life cost (30 years)			
		Capital cost[3]		Operating cost	Total
		Paygo	Financing charges		
Mass Rapid Transit[4]	2.1b	0.6b	2.0b	0.5b	**3.1b**
Strategic Highway Improvements	2.2b	1.3b	1.1b	0.2b	**2.6b**
City Streets	0.5b	0.3b	0.3b	0.3b	**1.0b**
Three Year Programme	0.1b	0.1b	0.1b	0.1b	**0.3b**
Travel Demand Management[5]	0.2b	0.0b	0.0b	-	**0.1b**
Total	**5.1b**	**2.4b**	**3.6b**	**1.1b**	**7.0b**

Option iii

Programme Element	Cost Element				
	Investment	Whole of life cost (30 years)			
		Capital cost[3]		Operating cost	Total
		Paygo	Financing charges		
Mass Rapid Transit[4]	2.8b	0.5b	2.8b	0.6b	**3.9b**
Strategic Highway Improvements	1.2b	0.7b	0.6b	0.1b	**1.4b**
City Streets	0.5b	0.3b	0.3b	0.3b	**1.0b**
Three Year Programme	0.1b	0.1b	0.1b	0.1b	**0.3b**
Travel Demand Management[5]	0.2b	0.0b	0.0b	-	**0.1b**
Total	**4.7b**	**1.7b**	**3.8b**	**1.1b**	**6.6b**

Option iv

Programme Element	Cost Element				
	Investment	Whole of life cost (30 years)			
		Capital cost[3]		Operating cost	Total
		Paygo	Financing charges		
Mass Rapid Transit[4]	2.8b	0.5b	2.8b	0.6b	**4.0b**
Strategic Highway Improvements	0.4b	0.3b	0.2b	0.0b	**0.5b**
City Streets	0.5b	0.3b	0.3b	0.3b	**1.0b**
Three Year Programme	0.1b	0.1b	0.1b	0.1b	**0.3b**
Travel Demand Management[5]	0.2b	0.0b	0.0b	-	**0.1b**
Total	**4.0b**	**1.3b**	**3.5b**	**1.1b**	**5.8b**

Glossary of terms

Programme elements

- **Mass Rapid Transit** – Project considering a step change in public transport for the city focusing on solutions to the south and east.
- **Strategic Highway Improvements –** State Highway One runs through the city to the airport. This project is considering improvements to the State Highway at the Basin Reserve and the Mount Victoria tunnel.
- **City Streets –** Programme of works covering key transport corridors across Wellington City, with particular focus on improvements to public transport, walking and cycling.
- **Three Year Programme –** Programme of smaller projects which can be completed more quickly. Key components include improvements to the Golden Mile, Thorndon Quay and Hutt Road corridors, speed limit reviews and improvements for pedestrians.
- **Travel Demand Management –** Project considering options to manage transport network demand through initiatives to encourage changes in user behaviour.

Cost elements

- **Investment** - all costs up to the end of construction, including inflation but excluding the impact of financing. Includes: business case development, technical investigations, design, consenting, construction and LGWM programme staff costs.
- **WoLC (Whole of life costs)** – total forecast cash requirement over a 30-year period to 2049/50:
- **Capital cost –** includes the initial investment & any renewal of assets which come to end of life within the modelled period. This is then broken down based on whether the cost is financed or paid as it occurs (paygo)
    - **Paygo** – Waka Kotahi is assumed to pay all capital costs, except MRT construction, as they occur.
    - **Financing charges** – Councils' are assumed to debt finance all capital costs (including renewals) and Waka Kotahi is assumed to finance MRT construction. This item includes the principle repayments and interest costs over the period modelled.
- **Operating cost** – assumed to be paid as it occurs by all funding partners. Includes infrastructure operations and maintenance, costs to provide the new MRT service net of farebox revenue, and an estimate of the lost revenue from Council owned on streetcar parking.

Annexes

Annex 1 – Key financial assumptions

Category	Item	Assumption / description
Global	Benefit Cost Ratio (BCR) of projects / value for money	The financial model is not intended to address value for money. The model assumes all options would pass the value for money test.
	Interest rate used	Interest rates were specified by Partners and reflect their long-term planning assumptions. Interest rates increase to a long-run 5% interest rates for periods beyond partner provided numbers. Currently assuming all finance will be provided by funding partners at their normal rates, i.e. no allowance for higher cost private equity capital.
	Financing assumptions - programme	Normally NZTA fund projects in the year of spend (Paygo) and the local share normally finance all capital spend. The local share assumed to finance all capital spend with a 30-year repayment period from the year the cost is incurred. The central share assumed all paygo except for the MRT programme which assumes the investment capital (but not renewals) is financed with a 30-year repayment period from the year the cost is incurred.
	Centralised programme costs	Assumes programme office costs (including any cross-programme workstreams e.g. funding and financing) are recharged, pro-rata, per project based on % of total programme spend.
	Inflation	Cost increases differ for property, revenue and capital spend based on consensus view across funding partners. Capital spend inflation starts at 2.9% and moves to long-run 2.47%. This is used for ongoing transport costs also. Property inflation starts at 5% and moves to a long-run 2%. Revenue inflation is assumed at 2%.
Capital investment costs	Costs by project	Capital costs provided by work packages based on current design and QS estimate sheets provided. Costs are provided at P50 and P95 cost estimate levels. Parallel estimation has been undertaken.

Category	Item	Assumption / description
		At this stage of design, costs are still uncertain, but funders need some confidence cost escalation can still be funded. P50 and P95 normally represent percentile points on the distribution of project costs. All figures in this report at the P95 cost estimate.
	Timing of each project	Commencement dates are based on current technical advice. This is still subject to change and further detailed work is required once a preferred programme is agreed.
	Duration of project	Delivery durations are based on current technical advice. This is still subject to change and further detailed work is required once a preferred programme is agreed.
Renewal and operating costs - infrastructure	Split of Capital investment costs by asset class	Capital costs estimates are provided using standardised cost sheets which breakdown costs by category. These categories were then assigned an asset class so O&M % and useful lives could be applied to calculate the ongoing O&M and renewal costs.
	% of investment needed for annual maintenance (O&M cost)	Based on WCC spend by asset class total as % of investment by asset class total. This was reviewed and amended where appropriate based on input from partners and technical teams. This assumption is used to create the base O&M cost in the financial model. This is then revised for assumptions below.
	Useful life of asset classes (renewals cost)	Based on useful life information by asset class provided by Opus (via WCC) and partner input (such as rolling stock). This assumption is used to create the renewal cost in the financial model. This is then revised for assumptions below.
	% of investment renewal and operational covered in existing budgets	This recognises the programme may be replacing some existing assets which, if the programme did not exist, partners would have borne the O&M and renewal costs for and will already be included in budgets. This percentage deflates the costs attributed to the programme for O&M or renewals (such as street lighting or signals). This assessment was completed by the F&F team with input from the technical teams. This assessment differs by project, for example completely new assets, such as a new tunnel would have 0% assets already in place/ covered in existing budgets.
	% of asset class requiring renewal	Not all capital costs are required during renewal, such as initial earthworks. The asset class categorisation assessed which cost categories would not require renewal.

Category	Item	Assumption / description
New Operating Costs – Service provision	Operating costs of MRT nett of Public Transport impact	This recognises the PT network is already in operation and included in budgets. This applies just the change in the cost and farebox revenue on the existing PT budgets as a result of MRT. Costs/ farebox numbers are provided by the MRT work package by applying a benchmark cost/ revenue figure to the net passenger KM figures calculated in the transport modelling done by the Wellington Analytics Unit. Farebox is based on fares for the new MRT service being in line with the same fare structure as existing services.
Operating income lost	Car parking income lost	Based on WCC 2019 calendar year on-street, enforcement and coupon parking revenue and costs (2019 was used to avoid the impact of Covid). A per car park/parking space amount per street was calculated and each project provided a forecast of spaces removed and when. This work is still subject to change as more detailed design work is completed.
Capital and operational costs eliminated	Any currently funded projects which will be removed if LGWM project goes ahead	No material cost elimination included at this stage. The principle used is any initial investment costs of LGWM are considered a programme cost and do not account for any changes a funding partner may make to their renewals as a result of LGWM investment. LGWM is a major investment and is well above the level of normal BAU investment and will be subject to bespoke funding agreements. However as noted above beyond the initial investment phase it is currently assumed the asset / service owner will take over operation and update their BAU budgets for incremental the asset / service costs post LGWM.
Depreciation		Currently excluded from the model, the model is provided on a cash basis.

Annex 2 – Indicative programme sequencing for engagement financial analysis

Programme Element	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
Mass Rapid Transit												
Strategic Highway Improvements												
City Streets												
Three Year Programme												
Travel Demand Management												

Annex 3 – Engagement cost share assumptions

		Investment % split (1)			O&M / renewals % split (2)			Asset ownership % split		
Programme Element	**Sub Project**	**GWRC**	**WCC**	**NZTA**	**GWRC**	**WCC**	**NZTA**	**GWRC**	**WCC**	**NZTA**
Mass Rapid Transit	Mass Rapid Transit (3)	10.0%	30.0%	60.0%	21.9%	8.2%	69.8%	44.8%	16.8%	38.4%
Strategic Highway Improvements	Mt Vic Tunnel (4)	10.0%	30.0%	60.0%	-	49.0%	51.0%	-	-	100.0%
	Basin Reserve	10.0%	30.0%	60.0%	-	-	100.0%	-	-	100.0%
City Streets	City Streets	10.0%	30.0%	60.0%	-	49.0%	51.0%	-	100.0%	-
Three Year Programme	Golden Mile	10.0%	30.0%	60.0%	-	49.0%	51.0%	-	100.0%	-
	Thorndon Quay & Hutt Road	10.0%	30.0%	60.0%	-	49.0%	51.0%	-	100.0%	-
	Central City Walking Improvements	10.0%	30.0%	60.0%	-	49.0%	51.0%	-	100.0%	-
	Cobham Crossing	10.0%	30.0%	60.0%	-	-	100.0%	-	-	100.0%
Travel Demand Management	Travel Behaviour	10.0%	30.0%	60.0%	49.0%	-	51.0%	100.0%	-	-
	Parking Levy	10.0%	30.0%	60.0%	25.0%	75.0%	-	25.0%	75.0%	-

Notes:

(1) Cost shares for the investment are yet to be formally agreed, simplified assumption for the engagement.
(2) Operation & maintenance (O&M) / asset renewals linked to the asset ownership with standard funding assistance rates (FAR) applied.
(3) MRT Ownership assumptions: NZTA road surface and rails, GWRC vehicles and stations, WCC utilities and walking / cycling.
(4) Mt Vic Tunnel: currently assuming the current tunnel asset will fall to the Council to maintain as part of the local roading network and the new asset will form part of the State Highway. The O&M/renewals calculation for the new tunnel is used as a proxy for the costs of current State Highway assets becoming local roads. This assumption will be reviewed and worked though in more detail in the next phase of work.

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