

Appendix F

Public Transport Opex Methodology

Technical note

PT Spine Study – Short List OPEX Costing Methodology

1.0 Background

This technical note sets out the methodology used to produce operating cost (OPEX) estimates for short list option comparison purposes. The methodology has been developed in agreement with the independent peer reviewer.

2.0 Level of Detail for OPEX Estimates

Costs estimates for the Short List option evaluation are at a sufficient level of detail to provide information suitable for the simplified benefit cost assessment required.

The OPEX cost estimate is at the Feasibility Estimate (FE) level in terms of NZTA's Cost Estimation Manual SM014. This ensures costs are developed in a consistent manner which allows a for the comparison of costs and an understanding of differences between options

3.0 OPEX cost estimation methodology

OPEX costs have been developed by:

- Extracting total in service vehicle minutes and kilometres by mode from the Wellington Public Transport Model for the morning and interpeak period.
- Applying daily and yearly expansion factors to provide annual in service vehicle hours and kilometres travelled.
- Applying mode specific unit cost rates to provide option specific annualised OPEX costs.

4.0 OPEX Unit Cost Rates

For Bus Priority and Bus Rapid Transit Options the estimate uses NZTA's Research Report 472 (RR472) Bus Policy Model operational costs which give indicative operating costs for NZ buses, supplemented with actual costs provided by Greater Wellington Regional Council.

For LRT, the Australian Council Guidelines Volume 4 Urban Transport cost parameters is used adjusted for NZ conditions. The New Zealand Government was represented on the ATC Committee by LTNZ senior officials and the peer reviewer was involved in the work underpinning the Guidelines. The above are considered to be appropriate references and a starting point for cost estimates at the Feasibility stage.

The peer reviewer has recommended the use of ATC rates for light rail and these have been adopted as the basis from which to establish the local cost of operating light rail. For bus and BRT the peer reviewer recommended use of RR 472 which states that where available locally based rates should be used. Local rates for buses supplied by greater Wellington Regional Council have been used.

The following assumptions have been used in developing the OPEX estimates:

Cost Rates

- RR 472 rates were updated from 2009/10 using NZTA's PT Cost Index. These figures are supplemented by labour and vehicle rate ranges for bus provided by Greater Wellington Regional Council.
- For Light Rail Transit ATC rates were updated for inflation in PT costs since 2006 using NZTA's PT Cost Index. The ATC rates will be converted 1 to 1 from A\$ to NZ\$ to reflect lower labour and other costs in NZ compared to Australia. This is appropriate at Feasibility stage and will be used for estimating Light Rail Transit OPEX costs.

Exclusions from OPEX Cost Estimation

- Heavy Rail operating costs were excluded as the PT Spine Routes run south from the Railway Station and therefore the options are likely to have no measurable effect on Rail OPEX.
- Any costs related to the replacement of the Trolley bus system with other buses is excluded from the PT Spine Study.
- 22 new light rail vehicles and 40 new articulated buses are included in CAPEX for Light Rail Transit and Bus Rapid Transit respectively.

Calculation of OPEX Costs

- The Bus, Bus Rapid Transit and Light Rail Transit OPEX have been calculated by mode and in total at a regional level for input to the benefit cost calculations.
- The cost of the existing bus fleet (approximately 500 buses) has been included in the OPEX as a capital charge of \$36,000 per bus as per RR 472. It is assumed that the bus fleet will stay the same size for Bus Priority option. For Light Rail Transit and Bus Rapid Transit the existing bus fleet has been reduced due to the additional capacity provided by new vehicles covered in CAPEX. For Feasibility Estimates a reduction of 40 existing buses will be assumed for Bus Rapid Transit and Light Rail Transit. This based on the bus fleet being reduced by 8% or 40 Buses (Equivalent capacity of about 13 light rail vehicles or 26 articulated buses)
- A contingency of 10% has been applied to the total regional cost of providing public transport services. This is considered appropriate for a change to existing services that only affect a relatively small part of the regional network.
- OPEX costs for Light Rail Transit are based on operating hours from the model. A scale factor has been applied to this to represent that the ATC costs are for larger systems with greater economies of scale. A factor of 20% has been applied and reflects that the length of the routes in the Short List options is not as long as those on which the costs are based (Melbourne). (Note this scale factor is an estimate only but is considered suitable for use at the feasibility stage).
- The operating costs of articulated buses have been calculated pro rata to existing buses using ATC parameters for large bus and medium sized buses.