Appendix E, Attachment K – EAB Preferred Alternative Recommendation

Environmental Statement
East-West Arterial Extension:
Section 2 (Woodland Drive – Lookout Road)
Section 3 (Lookout Road – Frank Sound Road)

29 May 2024

Based on the Critical Success Factors and Constraints agreed by the Steering Committee and the results of the assessments undertaken by WRA and reviewed by the NRA, the Environmental Assessment Board (EAB) has selected B2 as their preferred option because it provides the most transportation benefits, the lowest total cost, the least environmental impact, and the best cost-benefit ratio (see attached graphic, Appendix X).

The Traffic Evaluation showed that **B2 is better than B3 at improving traffic**. The Cost-Benefit Analysis quantified those transportation benefits by considering factors such as travel time for commuters, businesses, and tourists and vehicle operating costs. The Cost-Benefit Analysis predicted that B2 will have a $11.472 million USD greater transportation benefit than B3 in terms of Transportation Economic Efficiency benefits.

B2 is also predicted to have $3.782 million USD lower total construction and maintenance costs because it is a shorter and more direct route than B3.

B2 will impact the environment to a lesser extent than B3 across nearly all categories. It will impact fewer sensitive resources such as upland habitats, wetland habitats, the Central Mangrove Wetland and brackish groundwater. It will also require removal of fewer cubic yards of peat (i.e. carbon storage), resulting in the loss of less sequestered carbon. B2 will impact more acres of parrot habitat but it is important to note that the parrot habitat map overlaps with the wetland habitat so this double-counting must be eliminated to get a true picture of the amount of sensitive habitat that is affected.

B2 is predicted to have a net benefit $7,414,000 USD higher than B3, resulting in a higher benefit-cost ratio when that number is shown to more than one decimal place.

Concerns with quarries were not raised until after the Short-List Evaluation was completed. They should either be evaluated fairly and comprehensively or not considered at this stage. All parties in the Steering Group agreed the aspects to be assessed, the Critical Success Factors to be used and the Environmental, Social and Engineering Constraints that were raised. The quarries were not raised as a factor to be assessed and all parties also acknowledge that B2 is feasible. The proposals for new quarries next to Meagre Bay Pond do not impact the feasibility of B2 as these quarries do not have planning permission. Further, B3 does not eliminate conflict with quarries with planning permission as adjustments have been made to the B3 alignment to shift it south into the area where the Paul Bodden quarry was granted Planning Permission to excavate to 50 ft depth in October 2011.

B2 will impact **0.7 fewer acres** of upland habitats

B2 will impact **22.9 fewer acres** of wetland habitat

B2 will impact **23.6 fewer acres** of sensitive habitat

B2 will impact **11.3 more acres** of parrot habitat

B2 will **avoid 53.9 tCOQeq/year in loss** of carbon sequestration

B2 will **avoid $800,000 in loss** of amenity value from ecology

B2 will impact **3 fewer acres** of brackish groundwater

B2 will require removal of **240,618 fewer cubic yards** of peat

B2 will impact **0.7 fewer acres** of peat

B2 will impact **19 fewer acres** of the Central Mangrove Wetland as a cultural and natural heritage resource

B2 will result in **$4 million more** GHG emissions from 2026-2074

B2 will result in **1134 tCO2eq more** annual operational traffic emissions

B2 will **provide $11.5 million more** of transportation benefits (improved commuter times, reliability etc.)

The Case for B2 versus B3

*all values in USD

B2 will result in **$1.3 million more** in Net Present Value costs

B2 will result in **$8.7 million more** Net Present Value benefits

The overall Net Present Value of B2 is **$7.4 million higher** than B3

B2 results in **3 additional noise receptors** being above the Significant Observed Adverse Effect Level

B2 results in **162 additional noise receptors** experiencing a non-negligible change in noise conditions

B2 will **avoid $800,000** in monetised noise disbenefits (i.e. reduced sleep disturbance, risk of adverse health outcomes etc.)

B2 will result in **$11 million fewer** one-time GHG emissions

B2 will result in **34,446 tCO2eq fewer** one-time Net Present Value emissions

B2 will result in **31,000 tCO2eq fewer** total one-time emissions

B2 will cost **$1.3 million more** in right-of-way costs

In engineering constraints, B2 is **cheaper by $2.4 million**

In construction and maintenance costs, B2 is **cheaper by $3.8 million**