

WONGALING CORRIDORS FAUNA CROSSING STUDY:

A CASE EXAMPLE IN DEVELOPING CROSSING OPTIONS IN A PRIORITY BIODIVERSITY AREA

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ABSTRACT

Mission Beach is a Priority Biodiversity Area in Far North Queensland and supports one of the highest densities of the 'Endangered' cassowary in Australia, with approximately 79 independent birds.

The number one cause of cassowary mortality at Mission Beach is vehicle strike. Significant historic work at Mission Beach aimed to mitigate cassowary road deaths, including through passive means such as signage and psychological measures to slow traffic (e.g. the installation of line markings and rumble strips) and some modification of culverts and integration of fencing. Speed limits were also reduced. However cassowary road mortalities at Mission Beach continue, with four known road deaths in 2008, possibly partly due to increased development and traffic.

An integrated fauna crossing strategy for the whole of Mission Beach is required to identify and implement regional priorities. In the meantime, the Wongaling Creek area was (and is) experiencing development proposals that would increase motor traffic through habitat and corridors. Terrain NRM engaged Chenoweth EPLA to undertake field work, knowledge review and community consultation (government, industry and community), and provide information on type, scale and cost of possible fauna crossing options for a section of the main road where significant development was proposed. Chenoweth's solutions ranged from an elevated road structure and land bridge estimated to cost > \$25 million through to speed limit reduction. This information was publicised, including to development assessment agencies.

The project provided timely expert information, engaged relevant stakeholders thereby facilitating ongoing 'ownership' of the problem and possible solutions, and helped scope out the future broader Mission Beach fauna crossing strategy. The process serves as an example for other priority biodiversity areas where decisions about development and conservation are being made.

APPROACH

Mission Beach is one of four "Priority Biodiversity Areas" in the Wet Tropics, Terrain NRM and partners have undertaken various studies to improve understanding of the biological diversity of Mission Beach, including threats and possible responses. This has included studies focused on the Wongaling Creek area, a hotspot for biodiversity and development.

A study by Biotropica detailed the existing Wongaling Creek habitat matrix, to identify the key habitat linkages and connectivity within this matrix, and to make recommendations for the long term conservation of linkages, and management of their associated connectivity points.

James Cook University's (JCU) Mission Beach Cassowary Road Management Study, covering the whole of Mission Beach and incorporating the Wongaling Creek area, would have provided valuable information but was not due for completion within development assessment timeframes. The study is investigating the cassowary population's current road crossing points, to provide for improved habitat connectivity strategy implementation and reduced vehicle strike.

To build on the Biotropica study and provide information within development assessment timeframes, Terrain NRM engaged Chenoweth Environmental Planning and Landscape Architecture (EPLA) to undertake field work, knowledge review and community consultation (government, industry and community), and provide information on type, scale and cost of possible fauna crossing options for portions of the Tully Mission Beach and El Arish Mission Beach Roads in the Wongaling Creek area (see Figure 1).

The Chenoweth study was undertaken using data collected through field work and from knowledge reviews. The study centred on:

1. Review of previous assessments of the Wongaling area to identify locations where mitigation measures may be required for the target roads;
2. Research of literature of mitigation measures for reducing cassowary road mortality; Assessment of some of the behavioural traits of cassowaries that may affect their interaction with mitigation measures;
3. A review of other mitigation measures employed for other fauna species for the purpose of identifying suitable measures for other species in the study area and to potentially identify measures that can be adapted for cassowaries;
4. A field trip specifically for the purpose of assessing the landform and existing landscape features at key locations in the study area; and
5. The development of preliminary options for mitigation measures and identification of implementation issues.

Of great value was review of the draft report by stakeholders including: the Department of Environment, Water, Heritage and the Arts, Terrain NRM, CSIRO, Cassowary Coast Regional Council, Mission Beach Community Association, Wet Tropics Management Authority, Queensland Department of Main Roads, James Cook University, the Department of Infrastructure and Planning, C4, and Queensland Parks and Wildlife. Although, this does not necessarily imply the final report was endorsed by these agencies, their input was important to the process, ensured stakeholders were engaged, and resulted in best possible information.

FINDINGS

There are a number of potential mitigative measures which were considered in the project for the reduction of road mortality of the cassowary and other fauna in the Wongaling Creek area. These include:

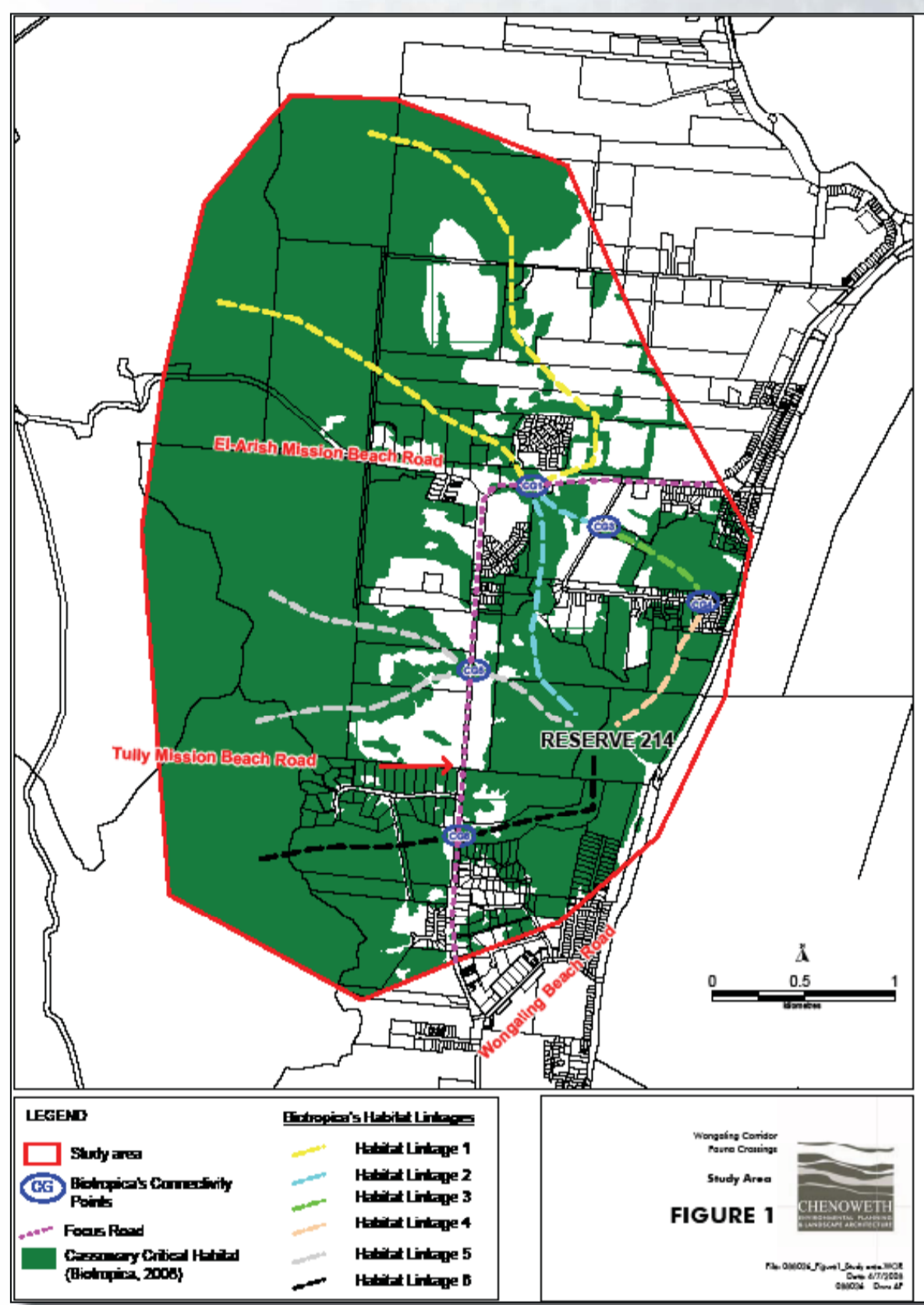
Physical measures:

- Reduce speed limit from 80km/hr to 50 km/hr;
- integrate psychological traffic calming measures;
- increase culvert diameter to accommodate larger fauna (not cassowaries);
- re-contour banks and revegetate to facilitate cassowary movement along Wongaling Creek;
- structures to guide fauna to crossing areas;
- dedicated fauna underpass;
- rope bridges / canopy connectivity (for arboreal fauna only);
- land bridges; and
- elevated road.

Addressing Driver Behaviour:

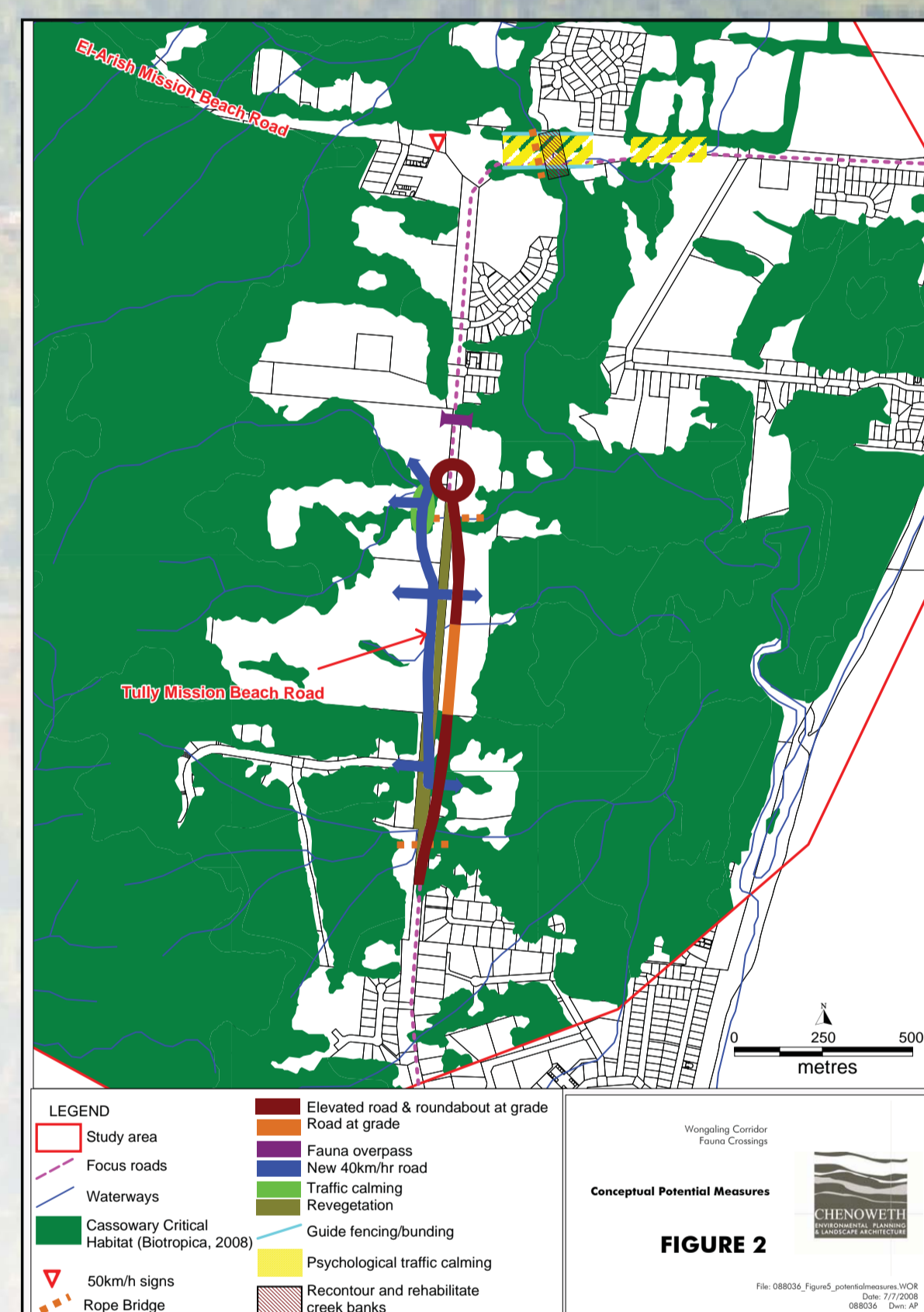
- Managing roadside vegetation; and
- discouraging driving, through the provision of safe walk and cycle ways.

The establishment of a complete solution integrating the above measures requires additional information including expert knowledge of current cassowary crossing points in the Wongaling Creek area (as per the pending JCU study). Because development assessment was already occurring in the Wongaling Creek area, an interim integrated measure was prepared by using previous known cassowary crossing points, plus the Connectivity Gaps identified by Biotropica (2008) as crossing surrogates.

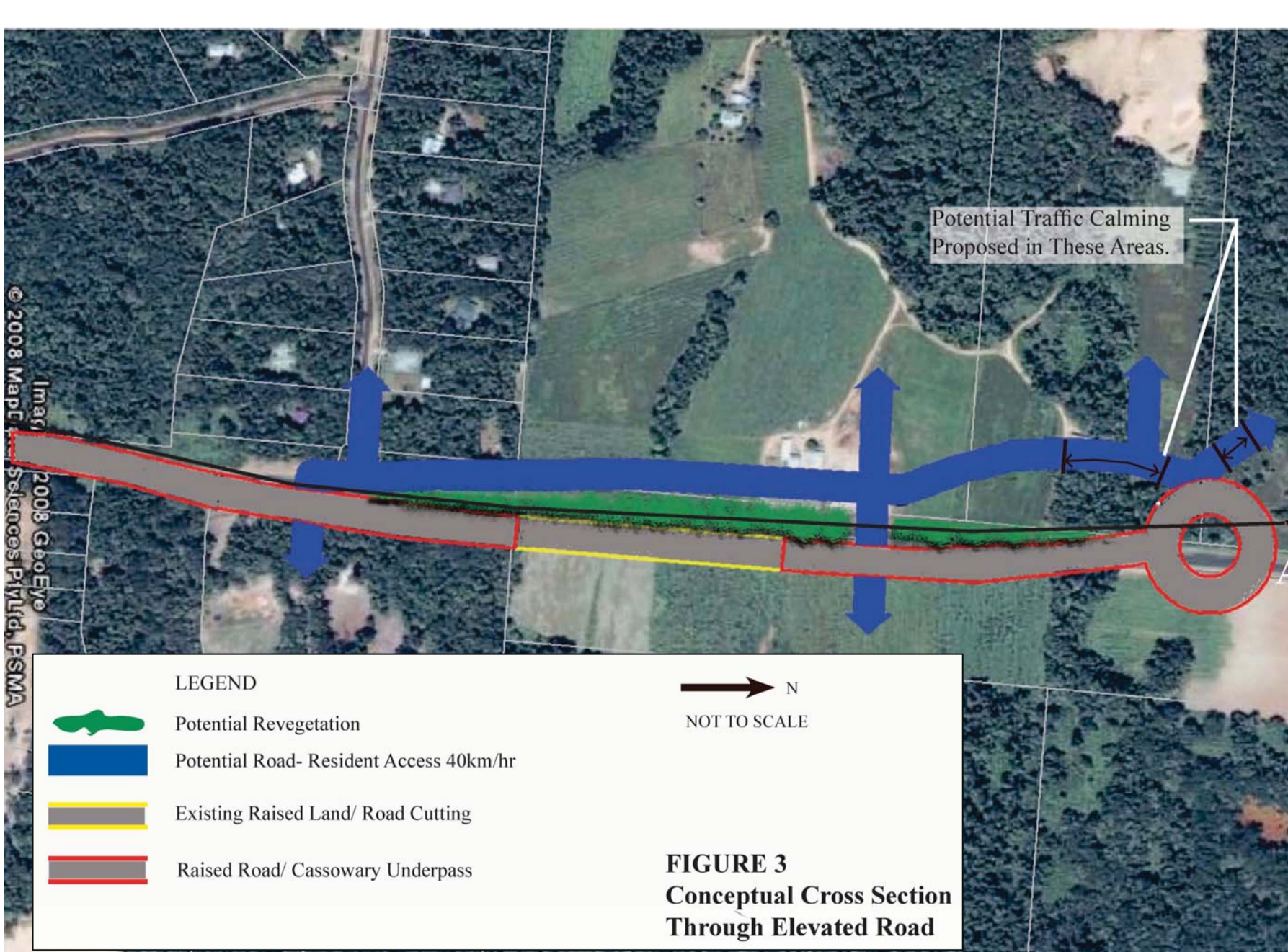
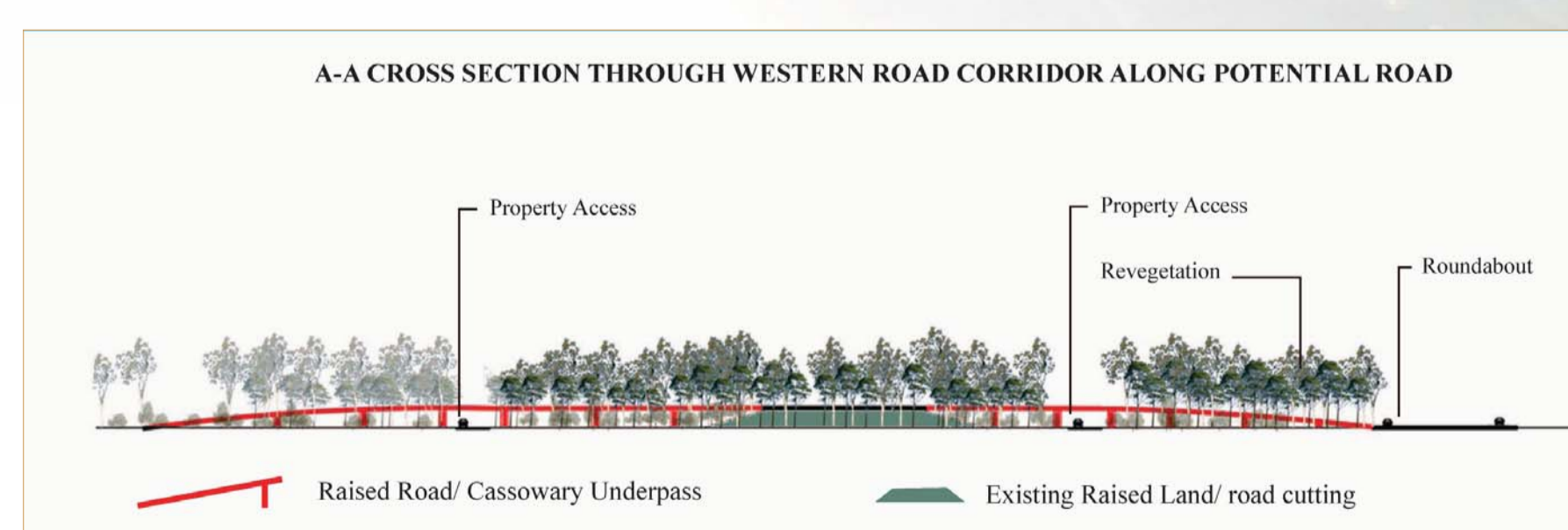


The conceptual integrated solution is illustrated in Figure 2 with further detail provided in Figure 3.

The conceptual integrated solution would require considerable funding. Some of the major infrastructure elements of the solution were broadly estimated as tabulated below:



Measure	Estimate
Elevated Road Structure	\$23,688,000
Land Bridge	\$1,385,000
Rope Bridge	\$130,000
Enhanced Crossing at Wongaling Creek	\$10,000
TOTAL	\$25,213,000



WHERE TO FROM HERE?

Despite current levels of strategic planning indicating that large habitat areas at Mission Beach will remain intact, cassowary mortality continues to occur as a result of road strike. Based on the known habitat ranges of individual cassowaries at Mission Beach, it has been estimated that two-thirds of the population is at risk of road death. On this basis, intervention is needed.

The required work is likely to require considerable funds. This may be partly sourced through *Environmental Protection and Biodiversity Act 1999* development approval offset conditions. However traffic and road kill are also caused by historic approvals. Implementation base funding from National and State government is appropriate, considering the National and State values of Mission Beach biodiversity. A whole-of-Mission Beach habitat traffic strategy is required to identify and prioritise fauna crossing infrastructure investment. In any case, the Chenoweth study provided timely expert public information on fauna crossing options (including costs) for a specific geographic area characterised by development proposals, increasing traffic and endangered species.

