

Appendix B

Consideration of clause 228(2) factors and matters of national environmental significance

Clause 228(2) Checklist

In addition to the requirements of the *Is an EIS required?* guideline as detailed in the REF, the following factors, listed in clause 228(2) of the *Environmental Planning and Assessment Regulation 2000*, have also been considered to assess the likely impacts of the proposal on the natural and built environment.

Factor	Impact
<p>a. Any environmental impact on a community?</p> <p>The long term benefits of the proposal would include improved safety at the intersection for road users, as the construction of additional lanes would reduce the length of traffic queues and allow for increased traffic flow. The proposal would also cater for the predicted traffic growth as a result of developments occurring in the area, including the proposed Tuggerah Town Centre. There would be an increase in the safety and level of service for pedestrian and cyclists using the intersection through the provision of pedestrian crossings at all legs of the intersection and improved connections and extensions of existing shared use pathways.</p> <p>Construction activities have the potential to impact residents, and businesses in the region, Accesses may be temporarily altered and road users may experience temporary delays during construction which would be carried out in stages to further minimise potential traffic and access impacts. Other construction impacts include the generation of noise and vibration, and a potential reduction in air quality and visual amenity. These would only be temporary and would be managed and mitigated through safeguards listed in Chapter 7. Partial acquisition of some properties would also be required for construction of the proposal.</p>	<p>Long term positive</p> <p>Short term negative</p>
<p>b. Any transformation of a locality?</p> <p>The proposal would result in changes to the locality through the provision of an intersection appropriate for the urban setting. This would include vegetation clearance and construction of wider approach roads and replacement of the Pacific Highway and Wyong Road roundabout with traffic signals. A number of mitigations measures have been provided in Chapter 7 to minimise any negative impacts. There has also been a conscious effort to change the locality from a heavily vegetated intersection to a more open environment that ties into the regional landscape character. A landscape plan has also been developed and cleared land would be revegetated at the conclusion of the construction works.</p>	<p>Short term negative</p> <p>Long term positive</p>

Factor	Impact
<p>c. Any environmental impact on the ecosystems of the locality?</p> <p>The terrestrial and aquatic ecosystems in the locality are highly disturbed due to current industrial and urban land uses. The proposal would require the removal of a total of 2.75 hectares of vegetation. Of this, 0.67 hectares was identified as TEC and 2.08 identified as planted and exotic vegetation. Assessments of significance were undertaken for the TECs impacted by the proposal in these areas. The assessments found that the impacts from the proposal would not be considered significant. Safeguards have been proposed to minimise the impacts to surrounding vegetation and have been outlined in Section 6.3.3. Safeguards include revegetating cleared areas.</p> <p>Potential impacts to Tuggerah Creek and Mardi Creek may also result from erosion and sedimentation during earthworks. Groundwater may also be adversely impacted during piling works and excavation of foundations for retaining walls. These impacts are expected to be minor, localised in nature and be temporary in duration. Impacts to waterways and groundwater would be managed and mitigated through safeguards outlined in Sections 6.6 and 6.7.</p>	<p>Short term negative</p> <p>Short term negative</p>
<p>d. Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality?</p> <p>There would be a minor reduction in the aesthetic quality of the locality due to the removal of vegetation, increase in road width, construction of a new bridge and changes to the intersection layout and some property boundaries. These changes, however, would be consistent with the regional context which is urban in character.</p> <p>Mitigation measures would however be implemented to reduce visual impacts and detailed design would be undertaken in accordance with the urban design objectives of the proposal. These include revegetation and landscaping of the road corridor and retention of vegetation where practical. The various land uses adjacent to the proposal including areas defined as recreational and environmental spaces have been considered as part of the urban design process. As such the proposal would improve the visual amenity surrounding the intersection through improved landscaping and implementation of urban design principles as assessed in Section 6.4.</p>	<p>Short term negative</p> <p>Long term positive</p>

Factor	Impact
<p>e. Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations?</p> <p>The proposal is not expected to have an impact on any locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations.</p>	<p>Nil</p>
<p>f. Any impact on the habitat of protected fauna (within the meaning of the <i>National Parks and Wildlife Act 1974</i>)?</p> <p>The proposal would have an impact on vegetation that has been identified as being potential habitat for mobile species including threatened birds, flying mammals as well as amphibian species.</p> <p>Measures to avoid, reduce or minimise the impact to the environment have been incorporated into the concept design during design development. As per the revegetation and landscaping plans (refer to Sections 6.3, 6.4 and Appendix N and H) rehabilitation of cleared areas would be undertaken.</p>	<p>Short term negative</p> <p>Long term positive</p>
<p>g. Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air?</p> <p>The area surrounding the proposal is a mixture of urban land uses fringed with vegetation both remnant and exotic. As such, the environment is reasonably fragmented, but includes sections of remnant bushland that includes areas identified as TEC. Suitable habitat for threatened flora and fauna species was identified and it was considered highly likely that some threatened flora and fauna species may experience indirect impacts from the proposal.</p> <p>The proposal would involve the removal of 0.67 hectares of TEC and 2.08 hectares of exotic/planted vegetation. Fauna species considered highly likely to occur Individuals of the <i>Melaleuca biconvexa</i> (Biconvex Paperbark) and the <i>Syzygium paniculatum</i> (Magenta Lilly Pilly) recorded in the NSW Wildlife Atlas would also be affected. Following completion of works areas impacted would be revegetated.</p> <p>Assessments of significance, have found that no species, populations or ecological communities would be endangered as a result of the proposal.</p>	<p>Long term negative</p>

Factor	Impact
<p data-bbox="252 253 858 286">h. Any long-term effects on the environment?</p> <p data-bbox="252 338 1023 501">The proposed upgrade would increase the number of traffic lanes, signalise the intersection and provide cyclist facilities. It would improve traffic conditions, including safety for pedestrians, cyclists and motorists and would improve traffic flow.</p> <p data-bbox="252 521 1023 887">The proposal would require the removal of a total of 2.75 hectares of vegetation. Of this, 0.67 hectares was identified as TEC and 2.08 identified as planted and exotic vegetation. Assessments of significance were undertaken for the TECs impacted by the proposal in these areas. The assessments found that the impacts from the proposal would not be considered significant. Safeguards have been proposed to minimise the impacts to surrounding vegetation and have been outlined in Section 6.3.3. Safeguards include revegetating cleared areas where possible.</p> <p data-bbox="252 949 1023 1077">The proposal would result in visual impacts due to the increased width of the road and construction of retaining walls. Urban design principles would be incorporated into the detailed design to minimise impacts.</p>	<p data-bbox="1045 338 1289 371">Long term positive</p> <p data-bbox="1045 521 1302 555">Long term negative</p> <p data-bbox="1045 949 1086 983">Nil</p>
<p data-bbox="252 1099 962 1133">i. Any degradation of the quality of the environment?</p> <p data-bbox="252 1184 1023 1379">Landscape and urban design has been considered as part of the development of the concept design, which would minimise visual degradation of the environment. Measures to manage the potential visual impacts from the construction of the proposal have been outlined in Section 6.4.4.</p> <p data-bbox="252 1400 1023 1630">The proposal has the potential to degrade the quality of the environment through accidental spills and erosion and sedimentation during construction. A Soil and Water Management Plan would be implemented to mitigate these impacts refer to Section 6.6 and 6.7. Construction works would be stage and sites would be rehabilitated as work progresses to minimise impacts.</p>	<p data-bbox="1045 1184 1305 1218">Short term negative</p> <p data-bbox="1045 1400 1305 1433">Short term negative</p>

Factor	Impact
<p>j. Any risk to the safety of the environment?</p> <p>The construction works has the potential to temporarily decrease safety along the Pacific Highway and Wyong Road due to road works and movement of construction plant.</p> <p>Operation of the proposal would not pose any risk of safety of the environment. All chemicals and fuels used during construction and maintenance activities would be stored within bunded areas to ensure that spills are not released to the environment.</p>	<p>Short term negative</p> <p>Nil</p>
<p>k. Any reduction in the range of beneficial uses of the environment?</p> <p>The proposal would improve public transport, pedestrian and cycling facilities and improved access and through traffic through the intersection and therefore within the locality.</p>	<p>Long term positive</p>
<p>l. Any pollution of the environment?</p> <p>There is the potential for accidental spills of chemicals during the construction period which could affect surrounding land and surface and groundwater. There is the potential for air quality to be reduced during construction activities.</p> <p>The proposal is expected to have a beneficial impact on air quality in the area. Increased efficiency of the intersection would result in shorter vehicle delays and a reduction in associated air emissions.</p> <p>There is also a risk of increased accidental fuel spillage from increased vehicle numbers during operation which would be managed as discussed in Section 6.7.</p>	<p>Short term negative</p> <p>Long term positive</p> <p>Short term negative</p>
<p>m. Any environmental problems associated with the disposal of waste?</p> <p>There are some existing asbestos pipes that would be replaced and require disposal. These pipes would need to be managed according to safeguards outlined in an Asbestos Management Plan.</p> <p>Waste would be managed in accordance with the <i>Waste Avoidance and Resource Recovery Act 2001</i> and recycled where possible. Issues associated with the disposal of waste are not expected.</p>	<p>Nil</p> <p>Nil</p>

Factor	Impact
<p>n. Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply?</p> <p>The proposal would require a number of resources as described in Chapter 3. None are to put pressure on resources or are likely to become in short supply as a result of the proposal. Resource use management measures are provided which would include reuse and recycling when feasible refer to Section 6.14.</p>	<p>Nil</p>
<p>o. Any cumulative environmental effect with other existing or likely future activities?</p> <p>The proposal may occur concurrently with other road upgrades and future development in the area (potentially including the proposed Tuggerah Town Centre). Cumulative noise and traffic construction impacts may result.</p> <p>Vegetation would be removed for the proposal and as part of other developments in the region. However, this would have the additional benefit of improving transport and enhancing the development of the area as an urban area.</p>	<p>Short term negative</p> <p>Long term positive</p>
<p>p. Any impact on coastal processes and coastal hazards, including those under projected climate change conditions?</p> <p>The proposal is located about 2.5 kilometres from Tuggerah Lake, a coastal saltwater lake connected to the Tasman Sea. It is not located within the Coastal Hazard Planning boundaries for 2050 or 2100 undertaken by Wyong Shire Council (2011). The proposal is unlikely to have an impact on coastal processes and coastal hazards.</p>	<p>Nil</p>

Matters of National Environmental Significance

Under the environmental assessment provisions of the EPBC Act, the following matters of national environmental significance and impacts on Commonwealth land are required to be considered to assist in determining whether the proposal should be referred to the Australian Government Department of Sustainability, Environment, Water, Population and Communities.

Factor	Impact
<p>a. Any impact on a World Heritage property? There would be no impact to World Heritage properties by the proposal.</p>	Nil
<p>b. Any impact on a National Heritage place? There would be no impact to National Heritage places by the proposal.</p>	Nil
<p>c. Any impact on a wetland of international importance? There would be no impact to wetlands of international importance by the proposal.</p>	Nil
<p>d. Any impact on a listed threatened species or communities? The biodiversity assessment has identified 5 species listed as vulnerable under the EPBC Act that would be impacted by the proposal and includes the following: Biconvex Paperbark (<i>Melaleuca biconvexa</i>); Magenta Lily Pilly (<i>Syzygium paniculatum</i>); Grey-headed Flying-fox (<i>Pteropus poliocephalus</i>); Large-eared Pied Bat (<i>Chalinolobus dwyeri</i>). The Australian Painted Snipe (<i>Rostratula australis</i>) and the Australasian bittern (<i>Botaurus poiciloptilus</i>) and Green and Golden Bell Frog (<i>Litoria aurea</i>). According to the tests of significance no significant impact would occur to these species as a result of the proposal. Mitigation measures to manage impacts to these species are included in Section 6.3. This includes revegetating.</p>	Short term negative
<p>e. Any impacts on listed migratory species? A total of 33 migratory fauna species were identified as potentially occurring within 10 kilometres of the proposal. None of these migratory species were considered to be potentially occurring within the construction footprint (ie within 10 metres of the proposal). No migratory species would be affected by the proposal.</p>	Nil
<p>f. Any impact on a Commonwealth marine area? There would be no impact to Commonwealth marine areas by the proposal.</p>	Nil
<p>g. Does the proposal involve a nuclear action (including uranium mining)? The proposal does not involve a nuclear action (including uranium mining).</p>	Nil

Factor	Impact
<p>h. Additionally, any impact (direct or indirect) on Commonwealth land?</p> <p>There would be no direct or indirect impact to Commonwealth land by the proposal.</p>	<p>Nil</p>