

## Chapter 22 Justification and conclusions

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*The background to and need for the Proposal is discussed in earlier sections of this EIS. In this chapter, the overall justification for the Proposal is presented in the context of the likely impacts, nominated environmental management measures and the principles of ecologically sustainable development.*

### 22.1 Justification for the proposal

The proposed upgrading of the Pacific Highway between Moorland and Herons Creek is part of the ten year Pacific Highway Upgrading Program jointly funded by the New South Wales and Commonwealth Governments. The intended outcomes of this Program are substantial improvements to the standard of the Pacific Highway between Hexham and the Queensland border, resulting in improved road safety and travel times, and improved economic efficiency at the local, regional and national levels.

Upgrading the Pacific Highway between Moorland and Herons Creek has been identified as necessary because of the traffic delays in Kew and, to a lesser extent, Johns River for highway traffic and local traffic during peak holiday periods. These delays are caused by a combination of the speed restrictions through the townships, local traffic volumes and, in the case of Kew, the operation of the traffic signals at the intersection of Kew Road/Ocean Drive and the highway. In addition, the number of reported accidents resulting in fatality for this section of the highway is higher than the state-wide average. State-wide analysis of the accident statistics show that higher standard roads have lower accident rates.

There are current construction works and plans to upgrade the highway between Coopernook and Moorland, and the highway north of Herons Creek has previously been upgraded. The continued presence of the Moorland to Herons Creek section in its current two-lane configuration may result in an increased accident rate with a change of road conditions from four-lane divided to two lane undivided within the study area.

The projected traffic growth rates for the Pacific Highway overall (based on forecast population growth in the North Coast Region) and traffic projections in the vicinity of the Proposal both indicate that the level of service provided by the highway would continue to deteriorate unless additional road capacity is provided and the standard of road is improved. Related to this continued growth in traffic would be implications for road safety in terms of local vehicular and pedestrian safety, and the number and severity of accidents.

This section of the Pacific Highway has a lower level of accident rate than the state-wide average, however, as noted above, the number of reported accidents resulting in a fatality is higher than the state-wide average. It is anticipated that these rates would be lowered by upgrading of the highway. The road design criteria required for the Proposal incorporates key safety features such as straighter alignment, dual carriageways, separation of local traffic and removal of through traffic from the townships of Johns River and Kew (see Section 6.1).

The road user benefit cost analysis indicated that, at a discount rate of 7%, the proposed Proposal would return a Benefit Cost Ratio in the order of 3.5 with a net present value of \$355 million (see Section 6.17). This indicates that the Proposal would be economically viable.

#### **Conclusion**

In transport terms, the Proposal can be justified because of the savings in travel time and vehicle operating costs, as well as reductions in accident rates that would result from the provision of a continuous high standard road from just north of Bulahdelah to the intersection with the Oxley Highway to the west of Port Macquarie in the medium term.

## 22.2 Options considered

As the Proposal is part of the Pacific Highway Upgrading Program, non-road based options were not considered. However, an improved Pacific Highway would assist in the efficiency of road-based public transport.

As discussed in Chapter 5, the physical setting of the study area imposes major constraints on the location of the new road corridor, particularly the presence of Watson Taylors Lake; the Main Northern Railway line; SEPP 14 wetlands; Middle Brother Mountain and associated Middle Brother National Park and Middle Brother State Forest; and existing residential development.

For planning purposes, the Proposal was initially divided into four sections: Johns River, Lake, Kew and Herons Creek. Options considered for the upgrade of each of these sections included the existing highway alignment as well as alternative corridors (where possible). Options were developed, made available for public comment and then subjected to a detailed comparative evaluation. Community consultation was integral to the development and selection of a preferred option for the Proposal.

When compared with the other route options, the preferred option was selected because it represented the best overall outcome for the local communities and areas of environmental conservation significance. It would also provide motorists with a safer and more accessible road as well as reducing local and regional travel times and traffic congestion.

## 22.3 Impacts on the local environment

### 22.3.1 Biophysical considerations

As discussed throughout this EIS, the study area includes areas of conservation significance, namely Middle Brother National Park, Middle Brother State Forest, Watson Taylors Lake and two SEPP 14 wetlands.

The evaluation of alternative routes examined the extent of high and medium value conservation areas and SEPP 14 wetlands potentially affected by each route option. The preferred option has been selected so that limited vegetation clearing would occur, and that high conservation areas (i.e. National Park and SEPP 14 wetlands) would not be disturbed.

Much of the Proposal route would involve duplication of the existing highway and removal of vegetation that is already highly disturbed. Other areas, such as the bypasses of Johns River and Kew, would impact upon small sections of relatively intact vegetation and thus the vegetation removal would be more significant. The majority of land to be cleared for the length of the Proposal is located within the current road reserve.

A number of threatened flora species have potential habitat in the study area, however construction and operational activities associated with the Proposal would not encroach upon these species. No significant impact is expected on the threatened and migratory fauna species listed under the relevant Acts. Nonetheless, two species were given special consideration - the Koala and the Green-thighed Frog.

Measures have been incorporated into the concept design to mitigate adverse impacts on conservation resources. This includes provision for fauna movement integrated with major bridges and some drainage structures and fauna-proof fencing, and the design of the bridges and culverts to allow for fish passage.

## Conclusion

Based on the design approach of the Proposal and extensive mitigation measures designed to reduced adverse environmental impacts, it is considered that the Proposal is justified in terms of the unavoidable adverse impacts on the biophysical, social and economic environment of this area. It is recognised that while there are some adverse environmental impacts associated with the Proposal, the route selection process that preceded the preparation of this EIS concluded that the biophysical environmental impacts associated with the preferred route are less than those associated with other route options.

### 22.3.2 Economic considerations

The two key economic considerations for the Proposal relate to:

- the overall economic benefit that would derive from upgrading this section of the highway
- the substantial business and employment impacts that would be experienced by the highway service sector in Kew and Johns River as a result of the Proposal

#### Road user economic assessment

The detailed road user economic assessment of the Proposal is presented in Section 6.17 and is based on a nominal 5-year construction period (2006 to 2010) followed by a 30-year operation period (2011 to 2040). The assessment indicated that based on a project cost of \$223 million and a discount rate of 7%, the Proposal returns a BCR in the order of 3.5, with a net present value of \$355 million. This amount represents the savings to the community of building the Proposal compared with continuing to use the existing highway through Johns River and Kew. These savings would accrue primarily through savings in travel time, maintenance costs and, to a lesser extent, vehicle operating costs. Because of the relatively high level of accidents resulting in fatality on the existing highway, the accident costs savings would also contribute to the overall net savings attributable to the Proposal.

The road user benefit cost of 3.5 indicates that the Proposal would be economically viable with a total project costs of approximately \$223 million (including RTA management costs and land acquisition). This estimate includes the cost of mitigation measures specifically included to reduce adverse impacts on conservation resources.

#### Impacts on the economic structure of Johns River and Kew

The Proposal would have adverse impacts on a majority of existing businesses in Kew and, to a lesser extent, Johns River directly or indirectly reliant on providing services to highway users. The overall intensity and duration of this impact on the economic structure of Kew and Johns River would depend in part on the extent that alternative businesses, and thus employment opportunities, develop ahead of or coincident with the opening of the Proposal and whether a highway service centre is developed by the private sector in the study area. If this latter development were to occur, employment opportunities created there would help to offset any job losses in the townships.

Research into the economic impact of bypass roads on country towns (Parolin and Garner 1996) indicates that negative economic effects of bypass roads are offset by the positive environmental effects. The Parolin and Garner report suggests that indirect impacts of the highway bypass would be minor and affect gross annual turnover rather than employment levels. Improvement programs can contribute to the longer-term attractiveness of the townships both for local residents and as a stopping place for motorists. The Proposal would provide opportunities for Kew and Johns River to develop new economic functions and improved amenity in the business areas. However there would be a period of adjustment for Kew and Johns River, at a community level and for individual people, in the short to medium term once the Proposal is opened.

### Conclusion

It is considered that the Proposal is justified in terms of the substantial economic benefits that would accrue to the overall community and local community in the long term as new economic activities are developed to offset the loss of local highway-related business and employment.

## 22.4 Social considerations

In social terms, the upgrading of the highway in the form of bypassing Johns River and Kew would result in the permanent improvement in the amenity of the two townships. Noise levels, especially at night, and vehicle emissions would reduce substantially in them. Safety levels for people accessing shops and facilities in the townships would improve. Urban design and landscape improvements would be possible with the removal of virtually all through traffic.

Although there would be major economic adjustments required for businesses with a high dependence on highway traffic, opportunities would be created for a new role and character for the two townships to evolve.

For the small number of residents living near the Proposal, existing access would generally be maintained and, where required, noise mitigation measures would be implemented after consultation with affected residents. For a number of property owners some property acquisition would be required, including four houses - two in Kew and two in the Herons Creek section.

### Conclusion

The assessment of the Proposal in traffic and transport efficiency terms indicates the broad social benefit of the Proposal. The calculated long term savings in vehicle operating costs and accident reduction would be in the order of \$50 million (net present value) over a 35 year period. Accordingly, it is considered that the Proposal is justified in terms of the substantial social benefits that would accrue to the communities of Johns River and Kew and the manageable impacts on the residents in the vicinity of the Proposal.

## 22.5 Ecologically sustainable development

ESD aims to sustain and conserve natural resources through 'using, conserving and enhancing the communities resources so that the ecological processes, on which life depends, are maintained and the total quality of life, now and in the future, can be increased' (Commonwealth Government of Australia 1990).

Therefore ESD principles must be considered in the planning and management of transport systems within Australia by giving consideration to the environmental resources where it is often difficult to place monetary values such as air, flora, fauna, hydrology, soil and public health.

### 22.5.1 Precautionary principle

#### Interpretation

This principle was developed in response to one of the great difficulties when interpreting scientific data: that the results produced are based on limitations of the scientific methods used. The scope of data acquisition, interpretation and general understanding of scientific disciplines can control these limits. Therefore the 'lack of full scientific certainty' is not a valid reason for postponing measures that prevent environmental degradation if the uncertainty and level of associated risk is considered in decision-making.

## Implementation

The Precautionary Principle has been implemented through all stages of the route options development, preferred option selection and design phases of the Proposal. Environmental assessment has relied on the best available technical information and precautionary mitigation measures have been developed to prevent or reduce any identified and anticipated impacts. Local anecdotal information has also been integrated into the assessment to ensure local conditions are understood.

The Precautionary Principle has aided the selection of the preferred option through enabling a holistic consideration of the environmental impacts of each option. The Precautionary Principle has been applied throughout this EIS and its application has resulted in:

- selection of a route alignment with the lowest amount of landtake from areas of high conservation value and avoidance of direct contact with the sensitive environs of Middle Brother National Park and two SEPP 14 wetland areas towards the northern end of the route
- identification of possible constraints for the Proposal through geological assessment including the likelihood of ASS and erosion
- calling for adherence to the 'best practice' construction management measures, so that environmental impacts would be appropriately mitigated with the construction of the Proposal
- proposing ongoing monitoring throughout and following the construction phase to ensure that mitigation measures put in place are as effective as possible in mitigating environmental impacts
- including a range of measures to limit or reduce potential adverse impacts on native biota and their habitats, including those that have not been rigorously evaluated in scientific terms - this includes mitigation measures to cater for safe fauna movement across the Highway corridor, fauna-proof fencing and the re-use of cleared native vegetation material would be implemented along the Proposal to limit or reduce adverse impacts on native biota and to contribute to the prevention of 'environmental degradation'
- proposing measures to offset any possible waterway productivity loss in the Moorland to Herons Creek area despite the fact that no threatened or vulnerable aquatic flora or fauna species would be affected by the proposed upgrading - the improvement of culverts currently existing for creek underpasses (Walkers Creek and Passionfruit Gully) will improve fish passage, natural sediment flow and aquatic vegetation movements
- undertaking air quality assessment with respect to relevant Australian, NSW and global standards - despite the assessment showing that all relevant air quality goals and standards would be met during construction and operation of the Proposal, mitigation measures during the construction period have been identified to reduce impacts as and when necessary
- selecting routes and undertaking environmental assessment to ensure that any potential damage or disturbance to known items or areas of cultural significance would be minimised as a result of the Proposal - in some locations, permits would be required from DEC and Heritage Office ensuring that the detail of these sites is recorded
- considering the implications of the Proposal on future developments in the study area and designing the highway so that minimal impacts will occur
- considering the concept design of the Proposal with respect to the recent construction of the Kew/Kendall STP that will allow further residential developments to proceed in the study area

- proposing measures to offset a possible economic downturn resulting from the operation of the Proposal at Johns River and Kew including the identification of a number of opportunities for the local community, Councils and the private sector to develop other economic roles for the townships
- the RTA proposing to install advance highway signage promoting both Johns River and Kew as 'stop-revive-survive' locations to mitigate possible economic impacts
- encouraging community concerns to be raised through consultation activities and be incorporated into assessment and mitigation. Consideration was given to the impact of various route options on local amenity during the route selection process. The selection of the preferred route with bypasses of Johns River and Kew has had regard to the potential for improved amenity within these two townships. It is recognised that the amenity of properties located close to the preferred route would decrease but appropriate mitigation measures have been identified for implementation.

### 22.5.2 Intergenerational equity

#### Interpretation

The Intergenerational Equity principle requires the present generation to ensure that the diversity, health and productivity of the environment is maintained or enhanced for future generations.

#### Implementation

The Proposal would provide a number of benefits to ensure intergenerational equity is maintained in the both the local communities and surrounding regions. These include:

- selecting the preferred route components in consultation with the community, to reduce environmental and social effects during both the construction and operation processes during for the well-being of future generations - this is particularly in relation to Middle Brother National Park, areas of SEPP 14 wetland, Middle Brother State Forest and Watson Taylors Lake, and the amenity of residents located at Kew and Johns River
- recognising that some level of adverse environmental impact would be caused by the construction and operation of the proposed new sections of road along this route - the detailed application of 'best practice' construction methods and proposed mitigation measures along the Proposal should ensure protection of environmental resources for future generations
- implementing nominated mitigation measures to ensure that long-term adverse impacts on flora and fauna resources, waterway productivity and fishery resources would not lead to a reduction in the quality or quantity of these resources available to users in the future
- the improvement of air quality for the majority of residents within the study area in the short-term future due to the design of the Proposal - improvements to fuel composition and engine technologies are anticipated in the longer term and would create improved air quality conditions for future generations
- consulting DEC and the LALCs throughout the construction phase of the Proposal to ensure that any potential irreparable damage to cultural heritage items would not occur now or in the future
- planning the Proposal so that it is consistent with local and regional planning policies, which govern development within specified objectives for desired future outcomes - the Proposal would not result in the degradation of land use resources for future generations

- ensuring the Proposal would improve the level of service of the Pacific Highway, which has economic benefits for future generations in terms of reduced travel and accident costs to the community - potential development strategies, if implemented, for Johns River and Kew would ensure that the township continues to be economically viable for future generations
- ensuring the Proposal would decrease the current and future adverse amenity and safety impacts on Johns River and Kew that are caused by the existing highway through the incorporation of bypasses of these townships.

### 22.5.3 Conservation of biological diversity

#### Interpretation

Biological diversity refers to the variety and abundance of species, their genetic composition, their communities, and the ecosystems and landscapes of which they are a part. Biological resources provide food, medicines, fibres and industrial products for human consumption. The maintenance of biological diversity is considered a minimal requirement for ensuring intergenerational equity.

#### Implementation

The Proposal has implemented the conservation of biological diversity throughout all stages of route selection, concept design and assessment. This includes:

- constraints being placed on the selection of all route options due to the proximity of areas with high biological diversity significance, such as Middle Brother National Park, Watson Taylors Lake and the SEPP 14 wetlands. Consequently, the preferred route avoids disturbing areas of National Park and SEPP 14 wetlands with biological diversity in mind
- proposing 'best practice' construction methods to mitigate environmental impacts and therefore conserve biological diversity and maintain ecological integrity
- designing the preferred option with careful regard to the reduction in vegetated areas to be cleared and the integration of features that would allow continued safe movement patterns for all fauna species
- implementing a comprehensive landscape strategy based on the use of indigenous vegetation species and a range of mitigation measures before, during and after construction to ensure that biological diversity in the local area and region is maintained and, if possible, enhanced
- designing the proposed bridges with careful regard to the reduction of the footprint of the bridge piers and abutments on the rivers and creeks to be crossed so that the vegetated area actually lost is reduced - mitigation measures, especially during the construction period, would protect the ecological functioning of the key elements of the waterways and catchments surrounding them, and monitoring appropriate indicators of longer-term health of the waterways would enable any relevant additional mitigation measures necessary to be implemented for the maintenance of ecological integrity and biological diversity
- ensuring good air quality as it is an essential element in the maintenance and enhancement of biological diversity - all relevant air quality criteria would be met and in many cases improved with the operation of the Proposal
- assessing the significance of cultural heritage items and sites to acknowledge the close connections between Aboriginal sites and management of environmental resources and the maintenance of biological diversity.

## 22.5.4 Improved valuation and pricing of environmental resources

### Interpretation

This principle establishes the need to quantify the economical value of services provided by the natural environment including cultural values, visual amenity and the ability of the atmosphere to receive gaseous emissions. This is often complex due to the intangible nature of much of the natural environment. A common approach is to consider the costs involved in formulating and implementing mitigation measures to provide a broad estimate of the value of these natural resources.

### Implementation

This includes:

- detailed consideration during the route selection process of the influence of environmental resources
- specific design responses to reduce adverse impacts on areas of high conservation value, such as the decision to avoid all SEPP 14 areas and Middle Brother National Park, and inclusion of measures to cater for safe fauna movement being included in the initial concept designs with consequent increases in cost estimates
- consideration of improvements in environmental amenity in terms of potential reductions in traffic noise and air emissions that would be experienced by residents of Kew and Johns River as a result of bypass options were also included in the consideration of the Proposal selection
- valuation of environmental resources such as non-contaminated and non-erodible soils has been reflected in the investigation of potential contaminated sites and areas of PASS that may be affected by the Proposal - measures identified would decrease the likelihood of costly clean-up tasks being required throughout the operation of the Proposal
- consideration of environmental issues in the early stages of route development and route selection assisted in achieving improved valuation and pricing of environmental resources as it ensures that these issues are given equal or more important consideration than other issues such as strategic planning and engineering issues
- measures to facilitate fauna movement across the reserve of the preferred option being integrated into the concept design and included in estimates of total project cost
- proposal of mitigation measures and monitoring programs emphasizes the protection of the natural resources and reinforces their environmental and economic values
- recognising the ecological and economic importance of good air quality as being essential to community and environmental well-being
- recognising the importance of cultural heritage resources during route selection, concept design and environmental assessment phases of the Proposal - while economic valuation has not been made of these resources, their importance from a community factor has been an integral factor in project development
- acknowledgement of the value of environmental resources such as SEPP 14 wetlands, Middle Brother and Crowdy Bay National Parks and Middle Brother and Johns River State Forests in the vicinity of the Proposal during concept design of the Proposal and the proposal of mitigation measures for these areas
- considering the significance and value (in a non-monetary sense) of environmental resources - this indicates that improved valuation and pricing of environmental resources has been recognised beyond the 'traditional' aspects of economic impact on employment and land use.

## 22.6 Conclusion

The proposed upgrading of the Pacific Highway between Moorland and Herons Creek would meet the objectives of the Pacific Highway Upgrading Program. The proposed route would result in substantial improvements in the amenity of the townships at Johns River and Kew and provide a route alternative that is appropriate in the long term.

The route described and assessed in this EIS provides the most appropriate solution in terms of biophysical, social and economic considerations and is acceptable in terms of economic parameters. The adverse impacts of the Proposal can be managed so that the environment is adequately protected and an overall benefit to the local and wider community can be achieved.

The major conclusions of this assessment are that:

- The Proposal would result in substantial transport benefits including:
  - improved road safety for highway users, especially reduced fatalities, and local residents
  - an improved level of service to road users through increased traffic capacity
  - reduced congestion on the highway during peak holiday periods and within the townships of Kew and Johns River
  - reduced travel times and journey costs.
- The Proposal would result in substantial improvement in the amenity of the townships of Johns River and Kew, through the removal of increasing levels of through traffic, particularly heavy vehicles at night. This would result in:
  - improved lifestyle with greater amenity and accessibility within Johns River and Kew
  - greater physical integration of the community of the two townships
  - improved air quality for residents
  - lower noise levels for residents, especially at night.
- The continued movement of local and regional fauna would be facilitated by the integration in the concept design of features that would allow continued safe movement patterns for fauna.
- The reduction in local employment levels in Johns River and Kew resulting from the loss of trade for existing highway-related businesses could be mitigated by the development of other economic activities.
- The visual integration of the Proposal into the setting would be facilitated by the implementation of the detailed Urban Design and Landscape strategy developed in response to the environmental and land use characteristics of the area.

Overall, it is considered that, with the proposed mitigation measures, the Proposal would result in a substantial net benefit for the community as a whole.