05

summary and conclusions

The Plan has been prepared in accordance with the procedures agreed for the Project. A summary of the key issues on a chapter by chapter basis follows.

5.1 SUMMARY - THE CURRENT TRANSPORT SITUATION

The major road network in the study area consists of the following key routes:

- Princes Highway.
- Kings Highway.
- Beach Road /George Bass Drive/North Head Drive.
- Cullendulla Drive.
- Clyde Street/Orient Street/Old Princes Highway.
- Tomakin Road.
- Dunns Creek Road/Tallgums Way.
- Broulee Road.
- Campbell Street/Araluen Road.
- South Head Road.

5.1.1 Planned Improvements

The following improvements to the road network within the study area are planned for implementation in the near future:

- Batemans Bay Link Road – extension of George Bass Drive from Glenella Road west to Princes Highway near the junction with Ridge Road. This project is intended for commencing in 2010/2011 financial year.
- Extension of Ridge Road.
- A Bulky Goods precinct and the associated road network off the roundabout located at the intersection of George Bass Drive & Beach Road, Surf Beach.
- Intersection upgrades within Batemans Bay Town Centre highlighted in 2010 micro-simulation traffic study (Bitzios, 2010).

These improvements are shown on Figure 1.14.

5.1.2 Road Safety

RTA crash data was supplied by Council for the study area for the five year period from 2004 to 2008. This data was used in a crash investigation of the existing road network. Generally crash data is categorised as; tow-away, injury and fatality. These crash statistics along with traffic volume counts (where available) were used to calculate crash rates, casualty rates and fatality rates. The following definitions were used in these calculations:

There were a total of 655 crashes, 44% (289) resulted in injuries and 2% (15) resulted in fatalities with an overall severity index of 1.3. The 289 injury crashes resulted in 406 injuries and the 15 fatal crashes resulted in 16 fatalities.

Further calculations showed that following road sections all experience a high percentage of heavy vehicle crashes compared with the proportion of heavy vehicle traffic by volume:

- Sections 1—3 along Beach Road.
- Sections 5—6 and 8 along George Bass Drive.
- All sections along the Princes Highway.
- Section 18 – 19 along Kings Highway.

The crash statistics were used to calculate the casualty rates, fatality rates and crash rates for each sub-section of road. Comparisons between the critical crash rates and crash rates for each length of road and the respective sub-sections emphasise which areas include crash clusters.

5.1.3 Daily traffic flows

Traffic volumes along the Princes Highway vary significantly between Batemans Bay and Moruya. The highest average daily traffic (ADT) volumes (14,125 vpd) were observed south of the Clyde Bridge. South of Batemans Bay volumes ranged from approximately 7,500 to 8,300 vpd.

Beach Road carries over 16,000 vpd around Catalina.

Other routes considered in the area carry lower daily traffic volumes up to 5,000 vpd.

Overall, 37 junctions were assessed using SIDRA for LoS and the regional and state roads inside the study areas were also assessed at mid-block points for operational performance. In addition, the TRACKS model which was built and validated to existing conditions was examined for evidence of road network performance issues; none was found in the above tests.

5.1.4 Mid-block performance

Generally mid-block performance is LoS A with some locations at LoS B or C, with zero having LoS D or lower. All evidence from the modelling and SIDRA checks are consistent with survey examinations and site visits, whereby the road network is broadly performing well at an operations level, with some additional spare capacity throughout the study network.

5.1.5 Intersection performance

Similarly, intersection performances are also LoS A, LoS B and LoS C, with none lower than that. As was the case with the mid-block performances, the evidence and assessments for intersections clearly show well performing junctions with spare capacities available.

5.1.6 Rural Roads

- Rural roads also have a LoS A to C, again with spare capacity and zero locations with LoS D or lower.

As is clear from these results, the current traffic conditions, from an operations perspective, are solid with minimal congestion and capacity to spare.

5.2 SUMMARY - BASE YEAR MODELLING (2010)

The Eurobodalla Shire TRACKS Model was developed using the TRACKS software package. The model was developed as a standard three step model consisting of total vehicle trip generation (based on land use assumptions and trip generation rates), trip distribution and trip assignment.

The Eurobodalla Shire TRACKS Model was built to provide a good representation of average conditions in the study area for the base year of 2010, and was robustly validated whereby the outputs from the model emerged as being

statistically solid. The entire process was also carried out with very close communications with Eurobodalla Shire Council to ensure a robust and transparent process.

It should also be noted that any model which represents traffic and transport conditions is just an approximation of an existing situation, or what's often referred to as 'actual conditions'. As such, models always have inherent in them some degree of inaccuracy and in fact a proper model will never actually replicate exact conditions; instead a good model will provide a useful representation of actual conditions. These actual conditions being modelled vary from one day of the week to the next, from month to month and from season to season. Therefore, in order to calculate a reasonable representation of what the actual conditions to be modelled are, significant amounts of data need to be collected for the time periods being assessed. This data is collected on a day which is regarded as being representative of the area being modelled and for the purpose of the study. Such data often includes counts, origin and destination (O/D) data and travel times, and these were also collected for this modelling study.

The reality is that counts, queues and travel times vary from hour to hour, from day to day and from month to month, depending on a large host of influencing factors. In addition, driver behaviour also varies significantly from day to day, and never will there be the exact same traffic occurrences form one day to the next. The purpose of traffic and transport modelling is to produce a useful tool which is valuable and effective for planning and/or engineering purposes. In the case of Eurobodalla Shire, the models which have been produced and robustly validated, are useful tools which went on to inform Eurobodalla Shire Council's planning process regarding network planning and also determining appropriate developer contributions. The models were independently audited and signed off by Eurobodalla Shire Council.

Although the models built for this study are good representations of existing conditions; as with any model there are some limitations to be aware of. There was no Household Travel Survey Data available for the area which could be used in model construction and validation; this has impacted the model to the extent that some trip information was less robust than we would have liked. In light of the above, it is recommended that for future possible extensions of these existing models, HTS surveys be carried out.

In conclusion, the validated TRACKS models presented here are robust and useful tools which are ready for use in the Council's planning process, and suitable to be further developed for future tests.

5.3 SUMMARY - FUTURE YEAR MODELLING (2020 AND 2030)

The aim of the existing year (2010) transport modelling was to produce a fully functioning land use/transport model that accurately models the present traffic conditions within the Northern Area of Eurobodalla Shire for both a morning peak (8AM – 9AM) and evening peak (4PM – 5PM) period in non peak season conditions, and use these models to plan for the future. The purpose of the future year modelling was to grow the 2010 models and use them as a planning tool to aid in the future planning of the study area.

Future year models were produced for the years of 2020 and 2030. The growth in population, employment, education enrolments and the subsequent growth in dwellings across the study area were taken into consideration. Census data along with information provided in various Council reports and studies were used to determine the growth across the study area.

A range of upgrades were added to the 2020 and 2030 modelling scenarios; these are documented in detail in Section 3 and generally the road network operates well in terms of capacities in these years with the upgrades. It should be noted that without these upgrades, the required LoS could not be maintained resulting in significant delays throughout the model, particularly in the higher populated areas. There are some junctions where LoS E and F occur and in most of

these cases it is as a result of delays on a medium or minor approach to a major junction. Mainline flows along Princes Highway and George Bass Drive generally experience a satisfactory LoS.

The 2030 TRACKS modelling indicated that an unsatisfactory LoS existed at some intersections not listed in the above upgrades. For a full list of the required upgrades and a detailed timetable for their implementation, refer back to the Future Transport Plan section of this report.

5.4 SUMMARY - THE FUTURE TRANSPORT PLAN

The Future Transport Plan provided recommendations for transport related upgrades and mitigation in the future years of 2020 and 2030 within the study area for the Eurobodalla Shire Tracks modelling project. There was a major focus on the strategic road network.

The modelled volumes used for the detailed analysis throughout this study were based on the average weekday AM and PM peak periods during the low season (i.e. low season for tourism) time of year; it was a requirement of the project that the TRACKS model be built and validated to this off-peak seasonal time of year, which for this project was May. Building a model for the peak tourist season was outside the scope of this project. It needs to be recognised therefore that the modelled volumes analysed in this report will be exceeded on several occasions throughout the year and so cognisance must be maintained of this when reading the report and also incorporating the recommendations already provided.

Furthermore, and in relation to this, Council previously developed an Infrastructure Contributions Plan, which identified upgrades to infrastructure that are likely to be required in the future for the shire. The recommendations given here are provided to supplement those previously outlined in the Infrastructure Contributions Plan.

The bulk of our findings and recommendations directly relate to the road network and specifically the strategic road network in 2020 and 2030. What follows are mitigations that are recommended for implementation, based on the outputs and findings as detailed earlier in the future modelling section of the report.

Refer to Section 4 for an extensive and detailed list of recommendations and timeframes for upgrades to occur. They are too numerous to mention again here, so refer to the recommendations section of the Future Transport Plan.

5.4.1 Sustainability

Eurobodalla Shire's philosophy is for the development of sustainable communities, to ensure the area's ongoing viability and desirability. Provision of appropriate sustainable transport options and travel demand management tools are key components of this. The recommendations presented in the future plan demonstrate measures that will assist in actively reducing car mode share across the subject area. This includes measures to increase active transport and public transport engagement.

5.4.2 Apportionment of Costs

Apportionment procedures are technical calculations used to determine a total contribution for all proposed network upgrades from infrastructure and/or transportation upgrades. Once the value of the total contribution has been estimated, the allocation of funds towards individual upgrade projects is expected to be rationalised. The selected improvements are considered elements of achieving a better balance and are deliverable. It is proposed that Eurobodalla shire Council adopt and incorporate the recommendations of this Transport Plan into their existing contributions plan; in this sense the report is supplemental and needs to be considered appropriately.

A possible methodology for inclusion in the Council contributions apportionment process is also provided.

5.5 CONCLUSIONS

The modelling carried out for this project was based on the low season (or non-tourist season), and not for peak season travel times; the models were validated and independently audited prior to Council sign-off. Future year tests were then carried out for 2020 and 2030. The recommendations in this report are based on all of this modelling with some cursory sensitivity tests undertaken for the 90th percentile day for which there are some recommendations provided, though further analysis in this area is recommended.

With regard to the modelling within the scope of this study, namely the peak times during the non-tourist season, it is proposed that the recommendations be implemented as detailed earlier.

With regard to the comments on the 90th percentile day, it is recommended that further modelling tests and analysis be carried out if a more robust test is required by Council.

Overall, the modelling and analysis have been robust and well documented, with discussions between consultants and Council having been ongoing and transparent for the entire process of the study. The results provide suites of treatments which will mitigate congestion within the study area for strategic transport routes. These recommendations are complementary to those previously proposed during a microsimulation study commissioned by Council.

Crucial also to implementation of these recommendations, is the high probability of improvements for safety which it is anticipated will result from the treatments at several locations. It is recommended that high priority be given to all treatment upgrades for accident mitigation, especially where existing high accident rates occur.

Methodologies for increasing transportation sustainability and also apportionment of upgrade costs have been provided. It is envisioned that these will provide Council with the necessary practical guidance to help make sustainability a reality in the Shire, an also allocate upgrade costs in a transparent, fair and equitable manner.