2.0 Strategic context

2.1 Introduction

The Princes Highway is the main north-south corridor between Sydney and the Illawarra and South Coast regions. It is a critical link for both passenger and freight transport and is a major route for tourism with significant peaks in holiday periods. The section of the highway from Gerringong to Bomaderry experiences a high rate of accidents with seven fatalities occurring in 2003/04. The two lane undivided road has limited overtaking opportunities, many junctions with rural roads and private uncontrolled accesses.

On completion of the Oaks Flats to Dunmore project, planned for late 2009, this section of the Princes Highway will be the only section of two lane highway between Sydney and Nowra.

The NSW Government is committed to the investigation of this section of the Princes Highway to determine a preferred route. This commitment was further demonstrated recently by the NSW Treasurer in the 2007/08 budget, when he announced further budget allocation of $3.4 million towards planning of this upgrade.

Figure 2.1 indicates this section of the Princes Highway in its regional context.

2.2 Planning context

The South Coast is experiencing a significant expansion in terms of population and tourism. This is due to an attractive climate, a unique blend of landscape setting and cultural heritage and its growing popularity as a “lifestyle change” destination.

As the traditional agricultural Characteristics of the area are changing they will affect the landscape and the economic make-up of the local environs.

The upgrade of the Princes Highway from Gerringong to Bomaderry is identified in the State Infrastructure Strategy Projects 2006/7 - 2015/16 and is part of the Draft Illawarra Regional Strategy: 2006-31 (Department of Planning, 2006).

The project’s planning context is further documented in Chapter 4.

2.3 Transport

2.3.1 Existing traffic and transport conditions

The Princes Highway provides the principle road linking Sydney and Wollongong to the South Coast and southeastern Victoria. It is an important link for the following purposes:

- Commuter route between Sydney, Wollongong and Nowra.
- Local route for residents of surrounding smaller towns and rural residences.
- Major tourist route for key destinations including Berry, Nowra and the South Coast with peak traffic on weekends and holiday periods.
- Important freight and bus route, particularly for the South Coast and far South Coast where there are no rail services.
2.3.2 Existing traffic volumes

Traffic counts conducted in February 2007 recorded traffic flows at locations within the study area. These are summarised in Table 2.1.

Table 2.1 Traffic volumes on the Princes Highway in February 2007

<table>
<thead>
<tr>
<th>Location</th>
<th>Highest weekday peak hour flow (vehicle/hour)</th>
<th>Estimated 2007 AADT (veh/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Northbound</td>
<td>Southbound</td>
</tr>
<tr>
<td>Princes Highway, north of Fern Street, Gerringong</td>
<td>800</td>
<td>800</td>
</tr>
<tr>
<td>Princes Highway, north of Tannery Road, Berry</td>
<td>400</td>
<td>350</td>
</tr>
<tr>
<td>Princes Highway, north of Cambewarra Road, Bomaderry</td>
<td>450</td>
<td>500</td>
</tr>
</tbody>
</table>

Source: Australasian Traffic Surveys, 2007
* AADT = average annual daily traffic

The highest traffic volumes were observed on the existing highway just north of Fern Street at Gerringong.

2.3.3 Daily variations

Analysis of the weekday traffic profiles on the highway at Gerringong (north of Fern Street) and Bomaderry (north of Cambewarra Road) shows that the AM peak period occurs between 8am and 9am and the PM peak period occurs between 4pm and 5pm. These peaks can be primarily attributed to commuter traffic.

However, the daily profile of traffic on the Princes Highway in Berry (north of Tannery Road) does not show a distinct AM peak as traffic increases gradually from the morning to midday until reaching the PM peak between 3pm and 5pm. The earlier afternoon peak may indicate school and commercial activity at these locations. The weekend traffic counts show that the peak hour varies at different locations along the Princes Highway, but traffic volumes remain consistent between 10am and 5pm on Saturdays and Sundays.

2.3.4 Seasonal variations

Figure 2.2 shows the seasonal variations in traffic flow over the course of 2003.

The highest flow on the Princes Highway north of Gerringong occurred during the school holidays at Christmas, Easter and in October. At the same location, traffic flows during the Christmas / New Year week accounted for 2.5 per cent of the yearly flows, more than 25 per cent higher than the average weekly traffic flow.

2.3.5 Freight movements

Currently, the Princes Highway is classified as a B-double route between Wollongong and Nowra. Heavy vehicles currently make up between nine and 15 per cent of traffic on the Princes Highway in the study area on weekdays. The proportion of heavy vehicles is much lower on weekends (three to five per cent). Further upgrades within the region are expected to increase the attractiveness of the Princes Highway for freight transport. In particular, the upgrading of Main Road 92 between Nowra and Nerriga may improve freight access to Port Kembla for south-east NSW and Gippsland, Victoria and between the ACT and Shoalhaven. This may increase the amount of freight using the Princes Highway between Gerringong and Bomaderry in the future.

2.3.6 Public and active transport movements

The study area is served by two modes of public transport - bus / coach services and train. Public transport accounts for less than 10 per cent of the mode share in Kiama and Shoalhaven Local Government Areas.

The bus and coach services that utilise the Princes Highway route comprise local / regional services and cater for long distance travel. The area is mainly served by the one private bus operator Shoal Bus (previously Harrisons), with services operating between Gerringong and Nowra. Premier Motor Service provides two bus services daily in each direction between Sydney and Melbourne via Kiama, Gerringong and Nowra on the Princes Highway.

The use of rail services is limited as the South Coast Line terminates at Bomaderry north of the Shoalhaven River. There are 18 services in each direction between Gerringong and Bomaderry during the weekdays, and 14 services operate in each direction during the weekends. Services operate approximately once every hour during the morning and afternoon peak hours. During the inter peak period, between 9am and 3pm, there are train services every two hours. Buses replace some late night and early morning train services.

There are limited footpaths along the Princes Highway within the study area. Pedestrian volumes are generally low for the majority of the route with the exception of Berry. A 2002 pedestrian survey between Prince Alfred Street and Alexandra Street in Berry showed that there were approximately 1000 people crossing the highway in an hour on a Sunday afternoon. Pedestrian refuges are installed along the highway in Berry to assist pedestrians to cross the highway.

In 1996 the Kiama Municipal Council adopted a cycleway plan developed by the Walking Tracks and Cycleways Committee. The plan provided details of cycleways in major towns within the Local Government Area. There are currently no cycle facilities along the Princes Highway in the Kiama Local Government Area. An off-road cycle route linking Gerringong and Gerroa along Fern Street was completed in 2000.
There is unmarked on-road cycle route provision on the Princes Highway between Berry and Bomaderry (within the Shoalhaven Local Government Area). This route connects with on-road cycle routes in Bomaderry on Meroo Road and Bolong Road.

2.3.7 Crash analysis

Crash data shows that 243 recorded crashes have occurred on the Princes Highway between the Mount Pleasant Lookout and Cambewarra Road in Bomaderry in five years between 2001 and 2005. Of the crashes, nine were fatal crashes that resulted in 10 fatalities. There were 109 injury crashes that resulted in 189 casualties and 125 non-injury accidents. Figure 2.3 shows the location of each type of crash along the Princes Highway within the study area. The comparison of local to State wide crash rates is included in Appendix D, Preliminary Traffic Assessment Report.

Pedestrians were involved in three crashes which resulted in injuries only. All of the crashes that involved pedestrians occurred in Berry at Victoria Street, Prince Alfred Street and Alexandra Street.

Figure 2.3 Location of crashes on the Princes Highway (2001-2005)

Source: RTA, 2006

2.3.8 Existing travel patterns

An Origin-Destination survey was undertaken in February 2007 as part of this study. An Origin-Destination Survey involves collecting parts of number plates at stations located on key points throughout the survey area. Matching the number plates recorded allows the origin / destination of vehicles to be determined and travel times from one station to another to be calculated.

One of the major components of trips identified during the Origin-Destination Survey is through trips, which are trips that start and finish at either end of the survey area (Shoalhaven Bridge and north of Gerringong). In the northbound direction, the survey shows that over 17 per cent of the vehicles recorded at the through lanes of the Shoalhaven Bridge are through trips during the AM and PM peaks. For southbound trips, over 46 per cent of vehicles recorded at Mount Pleasant Lookout are through trips in the morning peak. For southbound trips, over 46 per cent of vehicles recorded at Mount Pleasant Lookout are through trips in the morning peak, whilst over 38 per cent of vehicles recorded at this station are through trips in the afternoon peak.

Apart from the through trips in the study area, the following major traffic movements were also observed:

- North Nowra / Bomaderry to / from south of Bomaderry
- Gerringong to / from north of Gerringong.
- Berry to north Nowra / Bomaderry and south Bomaderry.

There are two existing major routes connecting Gerringong to Bomaderry within the survey area – the Princes Highway and the Sandtrack. According to the Origin-Destination Survey, the split of total traffic using the Princes Highway and the Sandtrack is approximately 60 per cent to 40 per cent respectively in both directions and during both AM and PM peaks.

Figure 2.4 shows the existing peak hour traffic patterns.

2.3.9 Existing travel times

Travel times of all matched trips were also determined from the Origin-Destination Survey based on the difference in time stamps between each pair of matched number plates. The survey suggested that it takes approximately 30 minutes to travel from the Mount Pleasant Lookout to the Shoalhaven Bridge along the Princes Highway. The travel time of the same Origin-Destination Survey movement using the Sandtrack is very similar (within one minute) to that of using the Princes Highway. The average travel times for light vehicles are very similar for trips made in both directions; whereas average travel times for heavy vehicles are longer when travelling southbound compared with northbound.

2.3.10 Existing levels of service

Level of service is a measure to determine the operational efficiency of a roadway or intersection. The RTA suggests that when a link falls to level of Service C, investigations should be initiated to provide suitable treatment prior to the link reaching levels of Service E or F.

The level of service for the highway based on 2003 average annual daily traffic and estimated 2007 average annual daily traffic is summarised in Table 2.2.

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* A further Origin-Destination survey was carried out over the October holidays and results are being used in interchange planning.

* The difference in northbound and southbound travel times for heavy vehicles cannot be explained by the Origin-Destination Survey.
Table 2.2 Level of service for the Princes Highway within the study area

<table>
<thead>
<tr>
<th>Section from</th>
<th>Section to</th>
<th>Length (km)</th>
<th>2003 AADT*</th>
<th>LoS*</th>
<th>Estimated 2007 AADT</th>
<th>LoS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mt Pleasant Lookout</td>
<td>Fern Street, Gerringong</td>
<td>2.27</td>
<td>19,293</td>
<td>D</td>
<td>20,700</td>
<td>D</td>
</tr>
<tr>
<td>Fern Street, Gerringong</td>
<td>Kiama / Shoalhaven Local Government Area</td>
<td>10.75</td>
<td>10,271</td>
<td>D</td>
<td>11,500</td>
<td>D</td>
</tr>
<tr>
<td>Kiama / Shoalhaven Local Government Area</td>
<td>Tannery Street, Berry</td>
<td>5.13</td>
<td>10,271</td>
<td>D</td>
<td>11,500</td>
<td>D</td>
</tr>
<tr>
<td>Tannery Road, Berry</td>
<td>Victoria Street, Berry</td>
<td>1.95</td>
<td>11,790</td>
<td>C</td>
<td>13,400</td>
<td>C</td>
</tr>
<tr>
<td>Victoria Street, Berry</td>
<td>Cambewarra Road</td>
<td>12.30</td>
<td>11,790</td>
<td>C</td>
<td>13,400</td>
<td>C</td>
</tr>
</tbody>
</table>

Source: 2003 Level of Service Southern Region, RTA, 2005
*AADT = average annual daily traffic
*LoS = level of service

2.3.11 Forecast traffic volumes

Traffic flows extracted from RTA Southern Region's strategic traffic models for 2001 and 2026 indicate that the highway is experiencing an approximate growth of three per cent per annum based on the change in land use within the region. Applying this growth rate, the forecast level of traffic expected to use the existing highway route in 2026 can be determined. Table 2.3 summarises the forecast traffic flows at selected locations.

Table 2.3 Traffic forecasts at selected locations

<table>
<thead>
<tr>
<th>Location</th>
<th>2003</th>
<th>2007</th>
<th>2027</th>
<th>Percentage increase 2007-2027</th>
</tr>
</thead>
<tbody>
<tr>
<td>Princes Highway, north of Fern Street</td>
<td>19,293</td>
<td>20,700</td>
<td>36,300</td>
<td>75%</td>
</tr>
<tr>
<td>Princes Highway, north of Tannery Road</td>
<td>10,271</td>
<td>11,500</td>
<td>20,800</td>
<td>80%</td>
</tr>
<tr>
<td>Princes Highway, north of Cambewarra Road</td>
<td>11,790</td>
<td>13,400</td>
<td>22,500</td>
<td>70%</td>
</tr>
</tbody>
</table>

Source: Maunsell, 2007
*AADT = average annual daily traffic

2.4 Consequence of no action

Should the highway not be upgraded between Gerringong and Bomaderry, higher traffic volumes would continue to grow on the present highway and the Sandtrack with increases in travel time and the potential for crashes on both roads.

2.4.1 Overall efficiency

Travel times on the Princes Highway within the study area would increase as the level of congestion increases. Delays may be caused by local traffic conflicting with major through traffic movements at major destinations such as Berry. Heavy delays would also result in economic impacts, especially to freight and tourist traffic travelling either to local areas or long distance.
Figure 2.4  Peak hour traffic patterns

<table>
<thead>
<tr>
<th>From To</th>
<th>North of Gerringong</th>
<th>Gerringong</th>
<th>Berry</th>
<th>Bomaderry</th>
<th>South of Bomaderry</th>
</tr>
</thead>
<tbody>
<tr>
<td>North of Gerringong</td>
<td>170/270</td>
<td>30/10</td>
<td>80/70</td>
<td>180/190</td>
<td></td>
</tr>
<tr>
<td>Gerringong</td>
<td>280/180</td>
<td>-</td>
<td>30/50</td>
<td>30/40</td>
<td>10/10</td>
</tr>
<tr>
<td>Berry</td>
<td>70/70</td>
<td>10/10</td>
<td>-</td>
<td>80/110</td>
<td>110/100</td>
</tr>
<tr>
<td>Bomaderry</td>
<td>90/50</td>
<td>10/20</td>
<td>90/100</td>
<td>-</td>
<td>1090/1300</td>
</tr>
<tr>
<td>South of Bomaderry</td>
<td>140/220</td>
<td>10/10</td>
<td>60/100</td>
<td>780/1040</td>
<td>-</td>
</tr>
</tbody>
</table>

Total through traffic between north of Gerringong and south of Bomaderry (Princes Highway and "the sandtrack")

<table>
<thead>
<tr>
<th>From To</th>
<th>North of Gerringong</th>
<th>Gerringong</th>
<th>Shoalhaven Heads/Gerroa</th>
<th>Bomaderry</th>
<th>South of Bomaderry</th>
</tr>
</thead>
<tbody>
<tr>
<td>North of Gerringong</td>
<td>-</td>
<td>-</td>
<td>50/100</td>
<td>40/30</td>
<td>110/140</td>
</tr>
<tr>
<td>Gerringong</td>
<td>-</td>
<td>-</td>
<td>50/50</td>
<td>20/20</td>
<td>40/20</td>
</tr>
<tr>
<td>Shoalhaven Heads/Gerroa</td>
<td>110/80</td>
<td>20/10</td>
<td>-</td>
<td>110/50</td>
<td>150/80</td>
</tr>
<tr>
<td>Bomaderry</td>
<td>50/40</td>
<td>20/50</td>
<td>20/30</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>South of Bomaderry</td>
<td>80/130</td>
<td>40/40</td>
<td>60/130</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: Traffic flows are shown for one hour per day peak period. AM - 6am - 9am; PM - 4pm - 5pm.

LEGEND
- Existing Princes Highway
- The sandtrack
- Total traffic
- Study area
- Other roads
- Eastern gas pipeline
- South Coast Railway
- Residential area
- Waterbody
- Wetland
- National parks/reserves
- Elevated areas

EXISTING TRAFFIC PATTERNS

DIRECTION OF TRAFFIC FLOW
- NB Northbound traffic
- SB Southbound traffic

Traffic flows along the existing Princes Highway
Traffic movements along the "sandtrack"

Source: MAFF 2007