



# Asset Management Plan

## Traffic Facilities

*Policy Number: POL08/431*

*Adopted: 25/06/2007*

*Reaffirmed: 28/07/2009*

*Minute Number: MIN07.869, MIN09.978*

*File: 25442*

*Produced By: Strategic Planning & Infrastructure Group*

*Review Date: 1/12/2012*

---

**For more information contact the Strategic Planning & Infrastructure Group**

Administrative Centre, Bridge Road, Nowra • Telephone (02) 4429 3111 • Fax (02) 4422 1816 • PO Box 42 Nowra 2541  
Southern District Office – Deering Street, Ulladulla • Telephone (02) 4429 8999 • Fax (02) 4429 8939 • PO Box 737 Ulladulla

[council@shoalhaven.nsw.gov.au](mailto:council@shoalhaven.nsw.gov.au) • [www.shoalhaven.nsw.gov.au](http://www.shoalhaven.nsw.gov.au)

---

Shoalhaven City Council  
PO Box 42  
NOWRA NSW 2541  
telephone (02) 4429 3111  
facsimile (02) 4422 1816  
e-mail [planning@shoalhaven.nsw.gov.au](mailto:planning@shoalhaven.nsw.gov.au)  
internet [www.shoalhaven.nsw.gov.au](http://www.shoalhaven.nsw.gov.au)

---

**Disclaimer**

Every effort has been made to provide accurate and complete information.  
However, Shoalhaven City Council assumes no responsibility for any direct, indirect, incidental, or consequential damages arising from the use of information in this document.

**Copyright Notice**

No part of this publication may be reproduced in any form, or stored in a database or retrieval system, or transmitted or distributed in any form by any means, electronic, mechanical photocopying, recording, or otherwise without written permission from Shoalhaven City Council. All rights reserved.

Copyright © 2007, Shoalhaven City Council

---

# CONTENTS

<b>1. INTRODUCTION AND EXECUTIVE SUMMARY</b> .....	<b>1</b>
<b>2. PROGRAM OBJECTIVES</b> .....	<b>1</b>
<b>3. ASSET DESCRIPTION</b> .....	<b>2</b>
<b>4. ASSET EXTENT &amp; CONDITION</b> .....	<b>2</b>
4.1. Condition assessment of assets. ....	3
4.2. Overall Conditions.....	3
<b>5. FUTURE DEMAND AND ENHANCEMENT NEEDS</b> .....	<b>5</b>
5.1. Current Situation .....	5
5.2. Enhancement and replacement needs. ....	5
<b>6. MAINTENANCE STRATEGIES</b> .....	<b>6</b>
6.1. Round-a-bouts .....	6
6.2. Barrier fencing.....	6
6.3. Traffic facilities .....	7
<b>7. CAPITAL WORKS STRATEGIES</b> .....	<b>7</b>
7.1. Crash Barrier / Guardrail Program .....	7
7.2. Local Area Traffic Management Program. ....	7
7.3. Intersection Upgrade Program .....	8
7.4. Safety Around Schools Program.....	8
<b>8. FUNDING NEED SUMMARY AND LEVELS OF SERVICE</b> .....	<b>8</b>
<b>9. COMMUNITY CONSULTATION</b> .....	<b>9</b>
<b>10. RISK MANAGEMENT</b> .....	<b>9</b>
<b>11. SERVICE DELIVERY MODEL</b> .....	<b>9</b>
<b>12. ASSET DISPOSAL</b> .....	<b>9</b>
<b>13. REVIEW</b> .....	<b>10</b>
<b>ATTACHMENT 1 – GUARD RAIL STRATEGY</b> .....	<b>11</b>
<b>ATTACHMENT 2 – LATM RANKING METHOD</b> .....	<b>12</b>
<b>ATTACHMENT 3 – LATM’S LIST OF PROJECTS</b> .....	<b>13</b>
<b>ATTACHMENT 4 – INTERSECTION UPGRADE STRATEGY</b> .....	<b>14</b>
<b>ATTACHMENT 5 – SAFETY AROUND SCHOOLS STRATEGY</b> .....	<b>15</b>

## **1. INTRODUCTION AND EXECUTIVE SUMMARY**

Shoalhaven City Council provides approximately 1637 kilometres of roads that are critical for the Shoalhaven transport network that supports the delivery of many services provided by the Council and others. Many of these council services, that rely on the effectiveness and availability of the transport network, are included in the programs and strategies identified in council's strategic Cityplan under the four headings of: -

- Environment,
- Economy
- Community, and
- Council

Shoalhaven City Council is committed to providing quality traffic facilities to control and manage traffic to improve efficiency and road safety. The plan recognises the continuous improvements that have been achieved in the provision of traffic facilities.

Realistic targets for service levels, age and renewal demands need to be adopted as it is appreciated that funding shortfalls based on past target levels are unlikely to be achieved. Community expectation is increasing especially in relation to the residential precincts with the emphasis on slower traffic environment and safety concerns with through traffic. Both regulatory and traffic management are included in the Plan. Each has its own unique issues for approval and installation when changes are needed. The regulatory items have legal and physical processes which have to be followed if enforcement is to be able to be achieved.

With the increase in traffic volumes there may be a need to increase the number of traffic facilities to manage and direct the traffic flows to the roads with the higher capacity and to ensure that the local amenity is not compromised.

Additional funding may be required if community expectations or unusual circumstances arise compelling expansion of the facilities for a special location. Placement of traffic facilities in any new road project would be included in the capital cost of the works and be incorporated with the construction.

## **2. PROGRAM OBJECTIVES**

Council is committed to providing safe and efficient facilities with the main objectives being to facilitate the movement of vehicles and maximize the efficiency of the road network. The Strategy aims to guide the provision, development and maintenance of Council's traffic facilities and directional signage over the next five years.

Council is also committed to ensuring that the traffic facilities and signage on the road network is maintained to a high standard and in a manner that ensures that the resources are effectively applied with regard to the efficiency and safety of the road network. It is acknowledged that there is a balance between various types of traffic control devices which will enhance traffic flow and improve safety.

In the context of this plan the predominance has been directed towards vehicular traffic. It is acknowledged that there are a number of other users of the road network which have an affect on the traffic facilities required. The facilities for other user groups other than vehicular traffic have not been considered as part of this plan. If the plan was to be expanded to cover the needs of all road users it would be more of a network study with all the interactions

between the various stakeholders being beyond Asset Management issues, it would have to cover the interrelationship of all road related Asset Management Plans.

This plan only relates to the maintenance of the physical assets that are used to assist to manage the traffic flows. It is not intended to address the human issues and how they may be managed by provision of rest area, emergency break-down facilities and other attributes which may be desirable for aesthetics of the environment.

It is recognized that it is neither reasonable nor practical to target zero defects. However it is an objective to have a tolerable level of defects and none that affect customer health and safety or facility's structural integrity.

The desirable situation is that the annual capital works and maintenance programs need to allocate sufficient resources to ensure these objectives are achieved.

### **3. ASSET DESCRIPTION**

There is an increasing complexity in types and performance of traffic facilities, in this plan only the following are considered on roads and do not include items in carparks, reserves or recreational areas.

- Round-a-bouts
- All types of guard or barrier fencing
- Signs
- Line marking
- Guideposts
- Local Area Traffic Management installations including
  - Speed humps or slow points
  - Safety Around School projects
  - Pedestrian fencing – separate pedestrians and traffic

Traffic signal lights at intersections and pedestrian crossings are not considered to be part of this plan as those signals are under the care, control and management of the Roads and Traffic Authority. All maintenance costs for these facilities are currently borne by that Authority.

### **4. ASSET EXTENT & CONDITION**

As of January 2005 the network consisted of

- Round-a-bouts            53
- Barrier fencing            17.225 kms
- Signs                        13,409 units
- Line marking            591.6 kms
- Guide posts                no details recorded in asset register
- Local Area Traffic Management installations
  - Speed humps or slow points            46 devices
  - Safety Around Schools program        new RTA program
  - Pedestrian fencing                        864 metres

#### 4.1. Condition assessment of assets.

An issue which has to be addressed relates to the demarcation between the parts of the round-a-bout and what is the functional use. Travelling Pavement, traffic control portion (the disc) and then the landscaping of the central island which as a whole make up the facility. The AMP for traffic facilities, only relates to the traffic control portion of the intersection. The pavement is covered by the Asset Management Plan for Sealed Roads. The landscaping and beautifications are not part of this AMP.

As prioritized maintenance tasks are completed the overall condition of facilities will improve, consequently satisfying the key performance indicator to achieve facilities in a fair or better condition each year.

#### 4.2. Overall Conditions

##### 4.2.1. Round-a-bouts

The general condition of the traffic facilities portion of the round-a-bouts are in good to fair condition, this section normally does not deteriorate at a significant rate, as it is not part of the travelled surface. Technological and regulatory changes would create the highest reason for round-a-bouts to require maintenance or rehabilitation. The landscaping is not part of this maintenance plan. The current situation allows the Parks staff to carry out routine maintenance to the landscaping within Round-a-about when carrying out other related tasks in the area. It is not funded as a separate item within the budget but included with the overall parks allocation.

##### 4.2.2. Barrier fencing.

- “W” type guard rail
- Chain mesh fencing

Guard Rail "W" type			Chain wire and timber posts		
Condition		Length	Condition		
as new	1	3.277	as new	1	Nil
good	2	0.729	good	2	Nil
Fair	3	10.305	Fair	3	Nil
Poor	4	0.318	poor	4	0.89
U/serviceable	5	0.028	U/serviceable	5	1.708
<b>Total</b>		<b>14.657 Kms</b>	<b>Total</b>		<b>2.598 Kms</b>

It can be seen for the condition that the older type of chain mesh fencing has come to the end of its useful economic life. This should be a priority to be assessed for need or warrant for barrier fencing. If a warrant is established a program should be developed for the replacement with a more durable type.

All new or replaced barrier fencing should be of the fully galvanised style which has an anticipated life of 40 years. From experience this life has been exceeded. The new styles of barrier fencing requires minimal programmed maintenance as it has a passive affect to warn of a hazard and only has an active role when a incident has occurred. Then it is repair or replacement function rather than maintenance.

Using the current CW funding for barrier fencing it is anticipated that the current level of poor and unserviceable fencing could be replaced with 10 years; if all is directed to barrier fence replacement would reconstruct all of the Chain mesh and U/serviceable “W” type guard rail

with the timeframe. Whilst this may not be ideal the ongoing allocation will bring the facilities up to an acceptable standard within the anticipated budget allocation considering the relative priority of the works.

#### 4.2.3. Signs

The asset maintenance strategy has tried to have a replacement program to renew signs at the end of the life; this is affected by a number of factors. The main consideration is to have the signs readable so the message is conveyed to the reader. The expected life under normal conditions would be in the range 8 to 12 years. In most cases the defect would be with the fading of the message or loss of reflectivity.

In many cases the sign has to be replaced before the end of the useful life due to changing circumstances either physical need or legislative changes. A high proportion of signs requiring replacement are a result of traffic damage or vandalism.

Generally the signs are in a reasonable condition but the condition of individual signs is not monitored at this time. Location and type is collected in the conquest database. The current data collection does not include an assessment of the individual signs physical condition or the whether to signs should be replaced within a period.

Inspection program for audit of conditions in low visibility conditions As an additional issue to the current inspection program consideration should be given to the establishment of a regime for inspections of traffic facilities to be undertaken in conditions of low light or poor visibility. It is important that this is included as a defect inspection situation. There can be considerable variations in the standard of signs and line marking which can only be determined by an inspection in non-ideal condition.

These inspections should be undertaken as a risk management situation where a higher emphasis should be placed on delineation and to provide visual guidance to road users. The inspection should be matched to the traffic volumes and road hierarchy and the possible risk if the quality of marking falls below an acceptable standard.

An inspection schedule should be determined and the program developed to complement the risk management procedure for both sealed and unsealed roads. The inspections should be carried out concurrently to improve efficiency and have a consistent approach for all roads in all conditions.

Funding for regulatory signs is available under the Traffic Facilities portion of the Regional Road Block Grant, whilst other signage is funded under Road Maintenance

#### 4.2.4. Line Marking

The asset maintenance strategy aims to have the longitudinal marking repainted on a Four (4) year cycle for all roads. For longitudinal long line marking Council currently uses water based paints. For transverse and directional arrows Council currently uses "thermoplastic" material in preference to paint due to the longer service life although at a higher material and installation cost.

High traffic volume roads have a monitoring program to determine if the lines are visible in period of poor visibility at night, in fog or wet weather. Line marking should be repainted on new works within 30 days of reseals or large heavy patches.

Installation and maintenance of line marking is funded under Traffic Facilities portion of the Regional Road Block Grant.

#### 4.2.5. Guide posts

At this time Council has not recorded the number, location or condition of guide posts in the conquest assets data base. From observations it appears that the guide posts are in a reasonable condition. There is no programmed replacements or ongoing maintenance strategy for guide post repairs. Maintenance or replacement is carried out on a needs basis, the majority of the maintenance is to replace or renew posts damaged by traffic or vandalism.

This is an area where some improvements may be needed, from observations some roads may not be adequately delineated in poor visibility conditions

#### 4.2.6. Speed humps or slow points

At this time there are only a limited number of these devices within the City Area. They have been generally placed as a result of traffic safety concerns. The main reasons these have been placed is to reduce traffic speed or encourage through traffic to use an alternative preferred route. Funding for the installations has mainly been from Council sources, on occasions the RTA has made available grant moneys on a 50/50 basis. These cases are considered on a merit and depending on funds available from the grant programs the RTA may contribute.

The condition of the devices is not currently collected in the Conquest database, from anecdotal evidence and observations the installations are in a reasonable condition. Any repairs would be carried out from the routine maintenance allocation for the road pavement.

It is anticipated that any facilities which may be installed as part of the Safety Around Schools would be of the speed bumps, slow points or kerb blisters or like facilities. These would be treated for maintenance funding similarly to the currently installed speed bumps and slow points.

## **5. FUTURE DEMAND AND ENHANCEMENT NEEDS**

### **5.1. Current Situation**

The majority of areas where barrier fencing would be required have been identified on the existing network. Any proposed Capital works projects would be considered and if the warrant justified barrier fencing would be placed as part of the initial project construction. A strategy has already been developed for installation of barrier fencing predominately on the Kangaroo Valley and Burrier Roads where the traffic volumes and warrants can justify the installation. A proportion of the funds are available as a grant from the Roads and Traffic Authority. The ongoing maintenance funding will be the responsibility of Council.

### **5.2. Enhancement and replacement needs.**

Reviews of traffic management facilities are an ongoing issue which takes many forms. The enhancement is predominately driven by community suggestions or by examination of road safety and accident history at a specific site. The situation can also be raised as an item in the Local Traffic Committee if a safety issue is a problem or as an examination of an accident site.

The existing poor and unsatisfactory chain- mesh and timber fencing will be replaced with either “W” type guardrail or rope protection fencing as part of the normal enhancement and



replacement program. The type would be considered on merit for the appropriate locations. Technological or standard changes may have an effect on the funding situation if Council were to make the changes at the time the change was published, but it has been accepted that items which complied with the current standards at the time of installation and have routine maintenance with normal wear and tear do not have to upgrade until a significant alteration is proposed.

Traffic control devices are facilities which are generally placed to physically control traffic as a means of reinforcing changes proposed in driver behaviour in sensitive road situations where there have been traffic safety matters raised. The need for the devices varies depending on the situation. They may be used in conjunction with regulatory means to achieve the road safety goals.

Depending on the circumstances and the sensitivity of the site funds may be available for the installations from grant sources if the conditions fit into one of the grant categories and guidelines. In those cases Council would be able to make submission for grants to assist with the installations.

The majority of new installations are driven by the ability to obtain grant funds to offset or recover the full cost of installations.

## **6. MAINTENANCE STRATEGIES**

### **6.1. Round-a-bouts**

As this plan relates to the traffic facility portion of the round-a-bout there is little routine maintenance required as it is generally a concrete structure and would normally have little wear and tear by vehicle use. The major issue of maintenance would be repairs to the structure caused by abnormal use or vehicle crashes. These would be special actions for repairs if the person causing the damage can be identified as cost recovery action could be taken to recover the costs of repairs.

At this time no specific allocation has been in the budget for the maintenance of the landscaped portion of the round-a-bout. This is both an aesthetic and "sight distance" issues. The cost of the landscape maintenance is estimated to be \$25,000 per year if carried out by Parks Staff when carrying out works in the vicinity. As this activity is not a specific line item in the budget allocation in some cases especially in the months of high grass growth the Parks Operations staff may tend to concentrate the activities of grass cutting to playing fields. This sometimes tends to allow the landscaping to get a neglected appearance for a period until the growing season ends.

It is suggested that if the appearance of the landscape of the roadside and traffic facilities is to be improved an additional allocation should be provided in the budget. This should not be a total redistribution of the landscape portion of the Parks Operations budget as the staff in the parks still have sufficient work in the off season to prepare for the new growth period.

### **6.2. Barrier fencing**

In relation to maintenance two (2) areas are to be considered, routine activities required by normal wear and by use; the other repair of damage caused by an accident. The routine maintenance is minimal with the newer types of guard rail, as the materials have a longer life

and designed for minimum maintenance. The older high maintenance barrier fencing is at the poor or unsatisfactory level and is being replaced on a program.

Repairs of accident damaged guard rail are a problem and may require a short response time depending on location. If the person responsible for the damage can be identified Council is able to recover the cost of repairs. This type of maintenance is an unknown quantity and the amount that can be recovered varies depending on whether the person who caused the damage can be identified. However, it is considered that \$25,000 needs to be allocated annually for this activity. Currently this is included in the routine maintenance allocation for fencing or street furniture.

### **6.3. Traffic facilities**

These are grouped as an item for the maintenance strategies as the total cost of the activities is relatively small when compared with the overall budget. The cost of guide post maintenance is kept as a line item but that is used for all maintenance from cleaning to replacement. The other items are usually costed to similar like items, e.g. Speed bumps to pavement repairs and kerb blister and slow point to kerb and gutter repairs.

## **7. CAPITAL WORKS STRATEGIES**

Traffic Facilities are provided under the following Programs

7.1 Crash Barrier / Guardrail Program

7.2 Local Area Traffic Management Program

7.3 Intersection Upgrade Program

7.4 Safety Around Schools Program

Signs and line marking are normally installed as the need is identified via the Shoalhaven Local Traffic Committee.

### **7.1. Crash Barrier / Guardrail Program**

A strategy was considered and adopted by Council in September, 2002. (Copy Attached) Funding has been limited for this Program due to other high priority Programs. The total identified need for new rail is \$1.7 million and it is considered that an annual budget of \$170,000 is satisfactory (but not ideal) and occasionally will be supplemented by grant funding.

Based on a 40 year useful life and at \$180/l.m replacement cost an average of \$77,000 is required per annum for ongoing replacement. Currently 2.598 Kms requires replacement at a total cost of \$470,000.

### **7.2. Local Area Traffic Management Program.**

There are ongoing resident requests to provide traffic calming and the requests are generally reviewed by the Shoalhaven Traffic Committee. It is not considered possible to provide speed control devices to all locations of resident concerns and in June 2005, Council adopted a ranking method to determine whether to include projects in a LATM Strategy. The adopted ranking method is attached and also a list of projects for consideration. The ranking of projects requires considerable resources and will be undertaken as resources are available. The preliminary cost for identified LATM's is \$2 Million and it is considered that an annual average budget of \$200,000 is required.

Occasionally, a need is identified, from inspections arising from residents requests, for minor capital works such as a median at an intersection. These works are minor (up to \$20,000)

but currently there is no budget provision for implementation. It is considered that an annual funding provision of \$40,000 be provided to cater for these minor capital projects.

### **7.3. Intersection Upgrade Program**

A draft strategy was adopted by Council in August 2004, and a copy is attached. Funding is generally 100% Council. However some intersections meet the Blackspot criteria and an application is made for grant funding. Grant is often not available as the accident history rate in the Shoalhaven is generally less than other LGA's in the region. It is considered that an annual allocation of \$200,000 is required. This will complete currently identified needs within 10 years.

A significant need for upgrades has been identified in the Nowra CBD and a funding strategy (RTA, SCC, s94) is currently being developed and will be reported to Council separately.

### **7.4. Safety Around Schools Program**

A strategy has been developed and reported to Council in November 2005. Annual funding of \$25,000 is forecast onwards from 2006/07 with the expectation that matching grant funding will be available. A copy of the strategy is attached and it is noted that the strategy includes a number of projects that are not considered to be Council responsibility. Staff will continue to "lobby" for funding for those projects.

## **8. FUNDING NEED SUMMARY AND LEVELS OF SERVICE**

In the past Council has been able to have some reliance on grant funding for Major Traffic Facilities. However, this is likely to change and funding is only likely to be for high accident rate intersections (Black Spots) and for the Safety Around Schools program. Most projects will be 100% Council funding if works are to proceed. Additional funding is recommended.

A summary of current funding and short fall to maintain the recommended level of service is in the table below.

<b>Activity</b>	<b>SCC \$'s Annual funding Need</b>	<b>2005/06 Budget</b>	<b>Current annual short fall</b>	<b>Comments</b>
Signs	\$161,000	\$139,000	\$22,000	Replace average 10 Years
Guide posts	\$52,000	\$52,000	\$0	
Line Marking	\$180,000	\$120,000	\$60,000	Re Paint every 4 Years
Crash Barrier			\$0	
> Maintenance	\$25,000	\$25,000	\$0	
> New	\$170,000	\$50,000	\$120,000	
> Renewal	\$77,000	\$0	\$77,000	
LATM's	\$200,000	\$0	\$200,000	
Minor Traffic Facility	\$40,000	\$0	\$40,000	
Intersection upgrade	\$200,000	\$36,570	\$163,430	
Safety Around Schools	\$25,000	\$0	\$25,000	
<b>Totals</b>	<b>\$1,130,000</b>	<b>\$422,570</b>	<b>\$707,430</b>	

## **9. COMMUNITY CONSULTATION**

Community consultation to reflect the community's views for satisfaction and importance of Council facilities provided, and for identifying community needs and wants has been made by Council as part of the budget process. Some barrier fencing proposals are initiated from community requests or via the Local Traffic Committee. Submissions received from the public are taken into consideration as appropriate. No formal community consultation specifically for traffic facilities is undertaken by Council.

## **10. RISK MANAGEMENT**

Risk management shall be carried out in accordance with the Council's Defect and Risk Management Inspection Procedure. The inspection schedule shall be at the same frequency as the adjoining road pavement. As an additional consideration the risk management inspections should be expanded include asset which have conditions which change depending on weather conditions.

This may require out of hours inspection on an annual basis on local roads to every six (6) months on the more highly traffic roads. These would be for safety inspection for road delineation devices and for sight distance at intersections and at round-a-bouts.

The estimated cost of these inspections is anticipated to be in the order of \$15,000 per annum.

## **11. SERVICE DELIVERY MODEL**

Maintenance activities will be undertaken by our internal service provider Works and Services section (W&S), or under contract, depending on availability of resources, skills required and cost considerations. Works will be performed in accordance with the Defect and Risk Management Inspection Procedure and this Asset Management Plan.

The Service Agreement will include a financial provision for 'Programmed Maintenance' from a prioritized list of defects as well as provision for urgent repairs arising from hazard inspections, customer reporting or cyclic defect/condition inspections.

Service delivery will be monitored by unit cost of repairs, random audits of quality and achievement of the specified annual 'Programmed Maintenance'.

The provision of new traffic facilities will generally be undertaken in accordance with the adopted Capital Works.

## **12. ASSET DISPOSAL.**

The opportunity to dispose of assets (remove and not replace) is minimal. However the need to retain assets will be reviewed on an individual case basis as the need for replacement or low usage is identified.

The Asset inspections and review provides the opportunity to analysis the value and needs of the community for the traffic facilities. The effectiveness is also monitored by the Shoalhaven Local Traffic Committee and Police.

**13. REVIEW**

The Asset Management Plan shall be reviewed each 3 years and the outcomes reported to Council.

# Shoalhaven City Council Asset Management Plan – Traffic Facilities

## Attachment 1 – Guard Rail Strategy

Asset No	Asset Name	Village	Road Start Point	Side	Start Chainage	End Chainage	Length (m)	Cost (\$)	Existing Type	Comments	Shoulder Width	Shoulder Height	Speed Zone (kph)	Gravel/Gravelled	Lane Width	Lane AADT	Urban Rural	Curve Radius	Batter %	Ditch Score	Test multi criteria (height)	Test multi criteria (speed)	Test multi criteria (sealed/unsealed)	Test multi criteria (curve)	Test multi criteria (batter)	Sum of test multi criteria	Score Adjusted based on multi criteria analysis	Final Score	
<b>ALL COMPLETED PROJECTS</b>																													
<b>SHOALHAVEN EXISTING BUT OLD AND CONSIDER FOR REPLACEMENT WHEN ADJACENT WORKS ARE UNDERTAKEN</b>																													
259	Burner Rd	West Nowa	Yalval Rd	R	3.74	3.77	30	10,300		Basic Giral & seling Proposal Burner Rd School Bus Route Risk Assessment Report ERM Mitchell McCotter P/L	0.5	80	60	U	3	200	R	200	0.5	1003	1	0	1	0	1	1303	1303		
259	Burner Rd	West Nowa	Yalval Rd	R	3.8	3.87	70	14,700		Basic Giral & seling Proposal Burner Rd School Bus Route Risk Assessment Report ERM Mitchell McCotter P/L	0.5	80	60	U	3	200	R	200	0.5	1003	1	0	1	0	1	1303	1303		
260	Burner Rd	West Nowa	Yalval Rd	R	3.74 to 3.885 (14.35)			10,950		Basic Giral & seling Proposal Burner Rd School Bus Route Risk Assessment Report ERM Mitchell McCotter P/L	0.5	80	60	U	3	200	R	200	0.5	1003	1	0	1	0	1	1303	1303		
268	Burner Rd	West Nowa	Yalval Rd	R	3.45	3.53	80	15,800		Basic Giral & seling Proposal Burner Rd School Bus Route Risk Assessment Report ERM Mitchell McCotter P/L	0.5	80	60	U	3.5	200	R	300	0.5	945	1	0	1	0	1	1245	1245		
269	Grassy Gully Road	West Nowa	Burner Road	R	0.93	1.05	136	21,960		Road Maintenance Required following by Guardrail protection / Shrub Drop Off	0.1	20	60	U	2.5	50	R	100	0.5	470	1	0	1	0	1	870	870		
624	Kangaroo Valley Road	Bellaangrah	Queen St	R	10.47	10.5	30	10,300		Maintenance (replace) existing guardrail posts and extend length	0.3	20	60	S	2.5	650	R	100	1	455	1	0	1	0	1	755	755		
269	Burner Rd	West Nowa	Yalval Rd	R	3.38	3.4	20	9,200		Basic Giral & seling Proposal Burner Rd School Bus Route Risk Assessment Report ERM Mitchell McCotter P/L	0.5	20	60	U	3.5	200	R	300	0.5	345	1	0	1	0	1	645	645		
256	Burner Rd	West Nowa	Yalval Rd	R	0.67	0.86	312	41,320		Distance From Yalval Rd Full Giral Proposal Burner Rd School Bus Route Risk Assessment Report ERM Mitchell McCotter P/L	0.8	15	70	U	3.7	200	R	500	0.5	273	1	1	0	1	0	1	673	673	
256	Burner Rd	West Nowa	Yalval Rd	R	1.04	1.09	50	12,500		Distance From Yalval Rd Full Giral Proposal Burner Rd School Bus Route Risk Assessment Report ERM Mitchell McCotter P/L	0.1	15	60	U	2.5	200	R	1000	0.5	383	1	0	1	0	1	883	883		
269	Burner Rd	West Nowa	Yalval Rd	R	5.66	5.6	40	11,400		Basic Giral & seling Proposal Burner Rd School Bus Route Risk Assessment Report ERM Mitchell McCotter P/L	0.1	20	60	U	2.5	200	R	1000	0.5	433	1	0	1	0	1	733	733		
680	Greenwell Point Road - install new GR on inside of	Mayfield	McKay St	R	5.8	5.875	75	15,250		Guardrail is in poor condition, shrubs growing over it, is low (Approx Ch)	4	1	80	S	3.3	6000	R	100	3	412	0	1	0	1	0	1	562	562	
680	Greenwell Point Road - install new GR on inside of	Mayfield	McKay St	R	5.8	5.875	74	15,140		There is currently NO Guardrail. Guardrail required to protect 2 year storm water channels recommended by TC in January 04 after request by NSW Police Dept	4	1	80	S	3.3	6000	R	100	3	412	0	1	0	1	0	1	562	562	
7333	Sussex Inlet Access Rd (Cow Creek)	Sussex Inlet	Princes Highway	R	3.24	3.264		7,000		EW works req for Mett. Approaches to Cow Creek Bridge timber post & chain wire fence in reasonable condition	1	4	100	S	3	2180	R	1000	2	277	0	1	0	1	0	1	277	277	
1447	Sussex Inlet Rd (Access Rd) Bomanas Bridge	Sussex Inlet	Princes Highway	LR	9.88		300	40,000		Met rail required on all approaches for the bridge	2	3.5	100	S	3.5	2180	R	900	2	222	0	1	0	1	0	1	222	222	
256	Burner Rd	West Nowa	Yalval Rd	R	1.11	1.27	152	23,720		Distance From Yalval Rd Full Giral Proposal Burner Rd School Bus Route Risk Assessment Report ERM Mitchell McCotter P/L	0.1	15	60	U	2.5	200	R	1000	0.5	383	1	0	1	0	1	883	883		
259	Burner Rd	West Nowa	Yalval Rd	R	6.12	6.46	340	44,400		Basic Giral & seling Proposal Burner Rd School Bus Route Risk Assessment Report ERM Mitchell McCotter P/L	0.1	15	60	U	2.5	200	R	1000	0.5	383	1	0	1	0	1	883	883		
624	Kangaroo Valley Road	Bundwallah	Queen St	R	2.15	2.73	580	70,800		Needled	0.3	15	60	S	2.5	950	R	200	1	355	1	0	1	0	1	0	1	545	545
624	Kangaroo Valley Road	Bundwallah	Queen St	L	2.9	2.92	130	21,300		Needled	0.3	15	60	S	2.5	950	R	200	1	355	1	0	1	0	1	0	1	545	545
624	Kangaroo Valley Road	Bundwallah	Queen St	R	2.96	3.43	480	59,800		Needled	0.3	15	60	S	2.5	950	R	300	1	367	1	0	1	0	1	0	1	537	537
624	Kangaroo Valley Road	Bundwallah	Queen St	L	3.45	3.52	70	14,700		Needled	0.3	15	60	S	2.5	950	R	300	1	367	1	0	1	0	1	0	1	537	537
624	Kangaroo Valley Road	Bundwallah	Queen St	R	3.53	3.6	70	14,700		Needled	0.3	15	60	S	2.5	950	R	300	1	367	1	0	1	0	1	0	1	537	537
624	Kangaroo Valley Road	Bundwallah / Berry	Queen St	R	3.64	4.19	550	67,500		Needled	0.3	15	60	S	2.5	950	R	300	1	367	1	0	1	0	1	0	1	537	537
624	Kangaroo Valley Road	Berry Mountain	Queen St	R	4.34	4.46	120	20,200		Needled	0.3	15	60	S	2.5	950	R	300	1	367	1	0	1	0	1	0	1	537	537
624	Kangaroo Valley Road	Bundwallah	Queen St	L	4.49	4.65	160	24,600		Needled	0.3	15	60	S	2.5	950	R	300	1	367	1	0	1	0	1	0	1	537	537
624	Kangaroo Valley Road	Bellaangrah	Queen St	R	10.63	10.65	220	31,200		Needled	0.3	15	60	S	2.5	650	R	200	1	380	1	0	1	0	1	0	1	530	530
624	Kangaroo Valley Road	Bellaangrah	Queen St	Both	10.143		60	13,600		Culvert	0.3	15	60	S	2.5	650	R	200	1	380	1	0	1	0	1	0	1	530	530
624	Kangaroo Valley Road	Bellaangrah	Queen St	Both	10.5		60	13,600		Culvert	0.3	15	60	S	2.5	650	R	200	1	380	1	0	1	0	1	0	1	530	530
624	Kangaroo Valley Road	Bellaangrah	Queen St	R	10.5	10.54	40	11,400		Needled	0.3	15	60	S	2.5	650	R	200	1	380	1	0	1	0	1	0	1	530	530
624	Kangaroo Valley Road	Bellaangrah	Queen St	R	10.63	10.65	220	31,200		Needled	0.3	15	60	S	2.5	650	R	200	1	380	1	0	1	0	1	0	1	530	530
624	Kangaroo Valley Road	Bellaangrah	Queen St	R	10.98	11.16	260	37,800		Needled	0.3	15	60	S	2.5	650	R	200	1	380	1	0	1	0	1	0	1	530	530
624	Kangaroo Valley Road	Bellaangrah	Queen St	L	11.21	11.33	120	20,200		Needled	0.3	15	60	S	2.5	650	R	200	1	372	1	0	1	0	1	0	1	522	522
624	Kangaroo Valley Road	Bellaangrah	Queen St	L	11.35	11.57	220	31,200		Needled	0.3	15	60	S	2.5	650	R	200	1	355	0	1	0	1	0	1	505	505	
624	Kangaroo Valley Road	Bellaangrah	Queen St	L	11.69	11.76	70	14,700		Needled	0.3	10	60	S	2.5	650	R	100	1	355	0	1	0	1	0	1	505	505	
624	Kangaroo Valley Road	Bellaangrah	Queen St	R	11.78	11.99	210	30,100		Needled	0.3	10	60	S	2.5	650	R	100	1	355	0	1	0	1	0	1	505	505	
624	Kangaroo Valley Road	Bellaangrah	Queen St	R	12.02	12.66	640	77,400		Needled	0.3	10	60	S	2.5	650	R	100	1	355	0	1	0	1	0	1	505	505	
624	Kangaroo Valley Road	Bellaangrah	Queen St	R	12.7	13.23	530	65,300		Needled	0.3	10	60	S	2.5	650	R	100	1	355	0	1	0	1	0	1	505	505	
624	Kangaroo Valley Road	Bellaangrah	Queen St	R	13.26	13.33	60	12,500		Needled	0.3	10	60	S	2.5	650	R	100	1	355	0	1	0	1	0	1	505	505	
624	Kangaroo Valley Road	Bellaangrah	Queen St	Both	13.44		60	13,600		Culvert	0.3	15	60	S	2.5	650	R	200	1	380	1	0	1	0	1	0	1	530	530
624	Kangaroo Valley Road	Bellaangrah	Queen St	R	13.44	13.59	150	23,500		Needled	0.3	15	60	S	2.5	650	R	200	1	380	1	0	1	0	1	0	1	530	530
259	Burner Rd	West Nowa	Yalval Rd	R	5.93	5.97	40	11,400		Basic Giral & seling Proposal Burner Rd School Bus Route Risk Assessment Report ERM Mitchell McCotter P/L	0.1	15	60	U	2.5	200	R	1000	0.5	383	1	0	1	0	1	883	883		
259	Burner Rd	West Nowa	Yalval Rd	R	5.97	6.03	60	13,600		Basic Giral & seling Proposal Burner Rd School Bus Route Risk Assessment Report ERM Mitchell McCotter P/L	0.1	15	60	U	2.5	200	R	1000	0.5	383	1	0	1	0	1	883	883		
259	Burner Rd	West Nowa	Yalval Rd	R	6.03	6.08	50	12,500		Basic Giral & seling Proposal Burner Rd School Bus Route Risk Assessment Report ERM Mitchell McCotter P/L	0.1	15	60	U	2.5	200	R	1000	0.5	383	1	0	1	0	1	883	883		
259	Burner Rd	West Nowa	Yalval Rd	R	3.96	4.43	470	58,700		Basic Giral & seling Proposal Burner Rd School Bus Route Risk Assessment Report ERM Mitchell McCotter P/L	0.5	15	60	S	3	200	R	200	0.5	348	1	0	1	0	1	498	498		
259	Burner Rd	West Nowa	Yalval Rd	R	5.63	5.93	300	40,000		Basic Giral & seling Proposal Burner Rd School Bus Route Risk Assessment Report ERM Mitchell McCotter P/L	2	15	60	S	3.9	200	R	1000	2	178	1	0	1	0	1	178	178		
259	Burner Rd	West Nowa	Yalval Rd	R	6.08	6.42	340	44,400		Basic Giral & seling Proposal Burner Rd School Bus Route Risk Assessment Report ERM Mitchell McCotter P/L	2	15	60	S	3.9	200	R	1000	2	178	1	0	1	0	1	178	178		
259	Burner Rd	West Nowa	Yalval Rd	R	2.85	3.18	330	43,300		Basic Giral & seling Proposal Burner Rd School Bus Route Risk Assessment Report ERM Mitchell McCotter P/L	1	3	80	U	3	200	R	200	2	173	0	1	0	1	0	1	173	173	
1154	Yalval Rd	West Nowa	Albattross Rd	Both	4.58		120	20,200																					

Shoalhaven City Council  
Asset Management Plan – Traffic Facilities

**Attachment 2 – LATM Ranking Method**

<b>TABLE 1</b>				
<b>LATM Priority Assessment</b>				
<b>Points Ranking Values</b>				
<b>Traffic Speed as 85th percentile in a 60kph zone</b>				
Value	Local Street	Local Collector	District Distributor	
45-49	0	0	0	
50-54	3	0	0	
55-59	9	1	0	
60-64	15	6	1	
65-69	24	12	4	
70-74	33	18	7	
75-79	45	27	15	
Over 80	55	35	20	
<b>Portion of non-local Traffic as:</b>				
10-11%	5	5	5	
11-12%	2	2	2	
Over 12%	1	1	1	
<b>Traffic Volume</b>				
1000-1499	4	0	0	
1500-1999	7	0	0	
2000-2499	10	2	0	
2500-2999	15	3	0	
3000-3999	20	4	0	
4000-4999	30	7	0	
<b>Heavy Vehicles</b>				
Points per % over 3%	1	1	0	
<b>Crash Data</b>				
fatal crash	5	5	5	
casualty crash	2	2	2	
non injury crash	0.5	0.5	0.5	
<b>Topographic Factor</b>				
Restricted Sight Distance	4	5	6	
Steep Grade	2	1	1	
Long Straight	5	2	0	
Tight Bend	3	2	3	
<b>Activity Generators</b>				
Passive Reserve	1	1	1	
Active Reserve	2	2	1	
Normal Residential	1	1	1	
Medium Residential	2	2	2	
Primary School	6	8	15	
Secondary School	6	8	12	
College	10	10	12	
Small Retail	6	8	10	
Large Retail	8	10	12	
Bike Crossing	3	5	7	
Major Bike Route	4	6	8	
Major On St Parking	10	10	10	
Major Ped Crossing	5	8	12	
<b>These factors are being considered for inclusion to modify ranking criteria to suit SCC needs</b>				
<b>If existing Mid Street Improvements</b>				
Pedestrian/Cycle Refuge	-4	-4	-4	
Slow Point	-8	-8	N/A	
Embayed Parking	-6	-6	-6	
Part Road Closure	-8	-8	-8	
Hump/Plateau	-8	-8	N/A	
Continuous Median	-5	-5	-5	
40 km zone	-3	-3	N/A	
<b>If existing Intersection Treatments</b>				
Traffic island	-5	-5	-5	
Roundabout	-8	-8	-8	
Threshold	-4	-4	-4	
Part Road Closure	-8	-8	-8	
Stop/Give Way	-3	-3	-3	
<b>Demand/Support for an LATM</b>				
Little	0	0	0	
Occasional	5	5	5	
Steady support	10	10	10	
Overwhelming	20	20	20	
<b>Warrant Classification Recommended Actions(excludes subtracted items)</b>				
from LATM Workshop Assessment Booklet p11				
0-20	The "problem" is not of such an extent that it is ever likely to be funded for treatment			
21-40	There may be a problem but not so serious as to attract funding even in the longer term			
41-60	Acknowledged problem, but not of sufficient degree to attract funding in the short term			
60+	Problem which is great enough to be included in a funded treatment program			

Attachment 3 – LATM's List of Projects

LATM Program	Location	Suburb	Project	Priority	Estimated Cost	Classification S = State R = Regional L = Local	Comment	Other Programs
	Minor Traffic Control Works		Annual allocation for implementation of minor works					
	Golf Av, Shepherd St & Ocean St	Mollymook	Mollymook Beach LATM	H	\$300,000	L	Funding forecast in 2007/08	Mollymook Beach Plan of Management
	Elizabeth Dr	Vincentia		H	\$200,000	L	K&G construction expected next 3-5 years. LATM should be at same time.	K&G Program
	East Nowra	East Nowra	Clipper Rd - 2x Raised Thresholds between Greenwell Point Rd & Park Rd. Improve Holloway Rd/Rark Rd intersection	H	\$90,000	L	4x raised thresholds installed 04/05, 2x in Park Rd & 2x in John Purcell Way	- Crossings - Safety Around Schools
	Boree St	Ulladulla		H	\$100,000	L		
	Mitchell P de	Mollymook	LATM central beach reserve	H	\$100,000	L	Work at north end of central beach reserve in 2005/06	- Greenwell Point Plan of Management - Safety Around Schools
	Greenwell Point Rd	Greenwell Point	Preliminary Investigation	H	\$100,000	L		
	Hillcrest Ave	Nowra		M	\$100,000	L		
	Village Dr	Ulladulla		M	\$100,000	L		
	Sanctuary Point	Sanctuary Point	Refer to Bay & Basin Traffic Study	M	\$400,000	R/L	Kerry St completed	
	Hawken Road	Tomerong	Speed humps either end of the 'school zone' would help to reduce speed through the village and adjacent to Tomerong Public School	M	\$60,000	L	Existing Blisters	Safety Around Schools
	Tomerong & Sydney Streets	Huskisson	Speed control / Traffic calming	M	\$60,000	R/L	LATM measures around Huskisson Public School	Safety Around Schools
	Princes Highway	Milton	CBD Traffic Management	M	\$100,000	S	- Milton CBD Traffic Management Plan currently under preparation	- Milton CBD Traffic Management Plan - Safety Around Schools - Crossings
	Beach St	Vincentia		M	\$100,000	L		
	Marramarang Road	Kiola	Traffic calming north entrance to Village near caravan park & store	L	\$30,000	L	SCC Traffic Committee Item 2.15 June 2004	
	Cambewarra Public School	Cambewarra	Traffic calming devices in the streets surrounding the school	L	\$30,000	L		Safety Around Schools
	Camden/Geoffrey Village	Ulladulla		L	\$30,000	L		
		Hyams Beach	Shared Space zone to be created within the village (road markings, signage, reduced (40kph) speed zone etc)	L	\$40,000	L	Request from Hyams Beach Villagers Association	
			<b>Total Cost:</b>		<b>\$2,040,000</b>			



**Attachment 4 – Intersection Upgrade Strategy**

	Town/Village	TRAFFIC COUNTS				Accidents Sep 98 to Sep 03	Meets Blackspot Criteria	Treatment	Preliminary Estimate	Comments
		Leg 1		Leg 2						
		Volume	Date	Volume	Date					
<b>Rural Intersections</b>										
Springs/Hoffman		2742	Apr-98			3 accidents	Yes	AUR	Under investigation. Funding forecast for 2006/07.	
Bolong/Coolangatta		8008	Jan-03	1003	Jun-03	7 accidents	No	AUR/AUL	Design funded. Implementation funding forecast for 2006/09	
Culburra/Coonemia		5627	Sep-02	3453	Mar-03	5 accidents	Yes	AUR/AUL	Under investigation	
Greenwell Pt Rd/Pyree		6647	Oct-01	4378	Sep-96	5 accidents	Yes	AUR/AUL	Under investigation	
Jervis Bay/Gardiners		6392	2000			1 accident	No	AUR	To be investigated - low priority	
Jervis Bay/Woolleemia		6392	2000	953	Mar-03	1 accident	No	AUL	To be investigated - low priority	
Jervis Bay/Pine Forest		3300	Mar-99	639	Jul-95	1 accident	No	AUR	To be investigated - low priority	
								<b>Total:</b>	<b>\$930,000</b>	
<b>Urban Intersections (excluding Nowra CBD strategic requirements)</b>										
Golf/Shepherd	Mollymook	7291	Mar-01	2825	Feb-03	3 accidents at Golf/Ocean	No	MIST	\$75,000	Change directional priority to allow for the pedestrianisation of Golf/Ocean as part of Mollymook Beach Reserve & Precinct Improvements. Funded 2005/06.
Maisie Williams Dr/Ocean	Mollymook							Roundabout	\$350,000	Section 94 project. Funding forecast for 2008/09
Old Southern Rd/Quimms	Worrige							Roundabout	\$500,000	Section 94 project. Funding forecast for 2009/10
Illaroo/Philip	Bomaderry					5 accidents			\$100,000	To be investigated. Estimate needs to be confirmed.
McMahons Rd/Illaroo Rd	Bomaderry					5 accidents				To be investigated. Need for other than roundabout to be confirmed.
Central/Bellvue	Nowra								\$150,000	Under investigation. Intersection needs widening to cater for truck movements. Estimate needs to be confirmed.
Cambewarra/Jasmine	Bomaderry					4 accidents			\$100,000	To be investigated. Estimate needs to be confirmed.
Albatross/Yahwal	Nowra					3 accidents	No	Lane Addition	\$80,000	Option confirmed. Estimate needs to be confirmed.
Owen/Sydney	Huskisson							Roundabout	\$600,000	DCP indicates roundabout
North/Osborne	Nowra	3080	Jun-03	695	Jun-00	6 accidents	Yes	Roundabout		No recent accidents following installation of Stop
Junction/Osborne	Nowra	1797	Sep-00	695	Jun-00	4 accidents	No			Refer to STC for improvement to Signs/Lines.
Douglas/Osborne	Nowra					6 accidents		Stop Signs, Linemarking		Refer to STC for improvement to Signs/Lines.
Bridge/Hyam	Nowra	9732	May-01	1777	Oct-03	2 accidents		Roundabout		To be investigated in conjunction with NBSP and Bridge Rd LEP.
Wool Rd/Tallyan Point Rd	Basin View									To be investigated - low priority
Victoria/Alexandria	Berry	1581	Apr-02	365	Apr-02	1 accident		MIST		To be investigated - low priority
Coomea/Birely	Bomaderry	1124	Jul-94	550	Mar-84	0 accident		MIST		To be investigated - low priority
North/Carmen	Ulladulla	1301	Jun-01			3 accidents		MIST		To be investigated - low priority
South/Jubilee	Ulladulla	1913	May-02					Roundabout		To be investigated - low priority
								<b>Total:</b>	<b>\$1,955,000</b>	
								<b>Total (Urban &amp; Rural):</b>	<b>\$2,885,000</b>	

