

REPORT ON THE ROADS TO RECOVERY PROGRAMME

**Jointly prepared by the
Commonwealth Department of Transport and Regional Services
and the Australian Local Government Association**

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Acknowledgements

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The review was project managed by the LGINfo Group who also undertook the data collection and analysis and prepared this report for the review team.

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Overview of the Review

The *Roads to Recovery* Programme commenced in February 2001 and is due to expire on 30 June 2005. A review of the programme was announced by the Federal Minister for Transport and Regional Services, the Hon John Anderson MP, in response to requests from local government for the programme to be continued beyond 2005. The review was brought forward to provide a timely input to the Commonwealth's proposed new funding arrangements (AusLink).

A team comprising representatives of both the Department of Transport and Regional Services and the Australian Local Government Association undertook the review. They were asked to answer the question 'have the funds already provided to Councils under *Roads to Recovery* been well used?'

The key finding of the review was that the Roads to Recovery funds have generally been well used in ways consistent with the intention of the programme, namely to address the backlog of works on local roads.

The works undertaken had a strong safety emphasis with transport efficiency and economic development the next most common objectives. Most of the expenditure was on existing roads. The review team calculated an average Benefit Cost Ratio for a selection of projects at about 1.8. The programme provided economic stimulation to local economies across Australia and generated employment, particularly in rural and regional areas. Also important to the application of the funding was the widespread and growing recognition by Councils of the value of good asset management.

The Programme has gone a good way toward addressing the local roads problem but many deficiencies remain both in terms of the maintenance of the existing road system and the need to upgrade and in some cases to extend it.

Council views on the present programme

Councils saw the three main strengths of the programme as:

- local decision making, which has enabled them to implement their own priorities,
- simple reporting requirements and other administrative arrangements, and
- direct funding to Councils without State Government involvement.

Implications for a future regional programme under AusLink

The *Roads to Recovery* Programme operates fairly uniformly across Australia, but 15% of SA's funds are pooled for regional projects. This approach is tailored to SA's circumstances, has the support of local government and appears to have worked well.

If a more regional approach is adopted in a new programme, it would again be necessary to match the circumstances in each jurisdiction, particularly given the variation of size in

councils and the varying roles of the state governments in the provision of local and arterial roads.

Local government believes that it needs to be involved in the decision as to whether there would be a regional programme in each state, its nature and the amount of funding to be pooled.

The NT has unique circumstances that will need separate consideration in a future programme.

1. Introduction

Background

In recent years, the Australian Local Government Association (ALGA) has focused on establishing the gap between the funding that Councils receive from existing sources and that required to maintain existing levels of service.

A national roads congress addressing this issue has become an annual event with the first conference in Moree in March 2000, the second in Mildura a year later and the third in Toowoomba in July 2002.

ALGA commissioned two reports to help define concepts and strategies for developing a strong case for continued and increased Commonwealth funding for local roads. They are the Butcher (2001)¹ and Burns (2001)² reports, both of which focus on a strategic approach to making the funding case.

Since the first Local Roads Congress, State Local Government Associations have completed a considerable amount of work on asset management. Most of the effort has been in a collegiate arrangement with the respective State Government.

The *Roads to Recovery* Programme

In November 2000, the Federal Government announced a \$1.2 billion boost in its funding for local roads through the *Roads to Recovery* Programme with \$850 million to be spent in rural and regional Australia. The Programme was to run from 1 January 2001 to 30 June 2005.

The *Roads to Recovery Act 2000* received royal assent on 21 December 2000. The Minister determined the conditions that would apply to payments and approved administrative guidelines for the Programme on 7 February 2001.

The Act specifies the funding available to each Council over the life of the Programme and these allocations are fixed for the life of the Programme. Councils are required to at least maintain their own spending on roads at a level equal to the average of their expenditure from 1998-99 to 2000-01

The Programme conditions and guidelines were circulated to Councils on 9 February 2001. Councils were invited to provide the Department with their administrative details and to lodge a schedule of works for the first year of operation of the Programme. The

¹ Report from the Moree Roads Committee. Chaired by Ted Butcher and presented to the Mildura Local Roads Congress (2001)

² AMQI Review of Asset Management. Dr Penny Burns and presented to the National General Assembly of Local Government (2001)

first payment was made on the submission of the first schedule. Subsequent payments were made on the basis of quarterly reports lodged by each Council.

The annual reporting requirements are set out in Appendix 4 of the Programme Guidelines. These include an audited statement, which provides public accountability for the funds and an assessment of the works undertaken against a set of desired outcomes.

The distribution of *Roads to Recovery* funds between States and Territories was based on historical precedents, length of local roads and population. Allocations between Councils within each State are in accordance with formulae adopted by State Grants Commissions for the distribution of Financial Assistance Grants identified for roads.

The Roads to Recovery Programme was introduced as a single intervention by the Commonwealth to address the specific problem that much local government road infrastructure is about to reach the end of its economic life and its replacement is beyond the capacity of local government.

However, pressure quickly developed for an extension of the programme beyond 2005, even at this early stage in the Programme. The Federal Minister for Transport and Regional Services, the Hon John Anderson MP, indicated that the Government would consider extending the programme after a joint review by the Australian Local Government Association (ALGA) and the Department of Transport and Regional Services (DOTARS) to address how well the money already provided had been spent.

In 2002, the Commonwealth decided to review all Commonwealth funding of transport infrastructure and introduce a new arrangement. The new arrangement is called AusLink and a Green Paper was issued in November 2002 for comment by all stakeholders. The review of the *Roads to Recovery* Programme, which was originally intended for later in the programme, was brought forward to provide input to the Auslink process.

This report presents the results of the review. It has been prepared for consideration by both parties, particularly in the context of the policy position that the Government will take with respect to AusLink. To assist in its reading, a glossary of terms is included as Appendix A.

2. The Approach Taken with the Review

The review involved collecting and analysing data from a number of sources to provide an insight into the projects that Councils funded from the *Roads to Recovery* Programme.

The review team also utilised data provided by Councils to the Department when registering their projects and information on the payments made to Councils by the Department under the programme.

Additional data was collected for the review from two main sources, namely a national survey of all Councils and an in depth survey of a smaller number of Councils to study what each Council did with their funding and why.

The national survey³ provided further information on projects funded from the *Roads to Recovery* Programme as well as a number of typical cases studies. 279 Councils responded to the survey covering all States and the Northern Territory and all Council categories.

The in depth survey included information on Council's normal roads programmes for comparison with their *Roads to Recovery* priorities as well as information for an asset management analysis of their local road network and an economic analysis of a selection of their *Roads to Recovery* projects.

Fourteen regional workshops involving 83 Councils⁴ were held between August and October 2002 to identify and brief Councils on the data required for the in depth data analysis. 48 Councils responded with additional data. Asset and financial data from 39 of the Councils was used for the asset management analysis and 41 Councils provided further supplementary data on 98 individual projects for the economic analysis.

The review also took the opportunity to study the SA regional roads approach, as it was thought this might be relevant to a future programme. In SA, Councils pool part of their funding for regionally important projects.

The report provides a comprehensive analysis of the data and information collected and establishes a number of themes as to how Councils used their *Roads to Recovery* funding.

³ The survey was only sent to those Councils with an e-mail address, which totalled approximately 600

⁴ The full list of Councils who participated in the workshops is given in Appendix B

3. A Picture of Local Government

Councils in Australia are classified according to the Australian Classification of Local Governments⁵ according to whether they are urban or rural, established or growing and the size and/or density of the city or town area.

The classification contains 7 categories and a total of 22 sub-categories. The review of the *Roads to Recovery* Programme draws heavily on the classification system to present the results of its analyses.

These analyses are reported primarily in terms of the 7 main categories, which are summarised below. The full list of the sub-categories is described in Appendix C, which classifies Councils by a three letter code, the last letter of which is S (small), M (medium), L (large) and V (very large). Thus a Council described in the report as RAM is a medium sized rural agricultural Council.

Table - Local Government Classification System

| <i>Category</i> | <i>Code</i> | <i>Description</i> | <i>% Councils</i> |
|------------------------------|-------------|--|-------------------|
| Urban Capital City | UC | UC Councils are the Capital City Council in each State/Territory. These Councils cover the CBD in each capital city and have relatively high levels of both motor vehicle and bus traffic, particularly during peak hours. Nearly 100% of roads are sealed. | 0.9% |
| Urban Metropolitan Developed | UD | UD Councils are part of an urban centre with a population of more than 20,000 or a population density of greater than 600 persons per sq km. These Councils are usually well established and surround the CBD of the capital cities. They carry relatively high volumes of traffic, particularly commuter traffic to the CBD and major centres of employment. Approximately 95% of roads are sealed. | 12.3% |
| Urban Fringe | UF | UF Councils are those with at least 90% of their population classified as urban. They include the outer developing or fringe areas of the capital cities and major regional centres. Approximately 65% are sealed. | 6.1% |

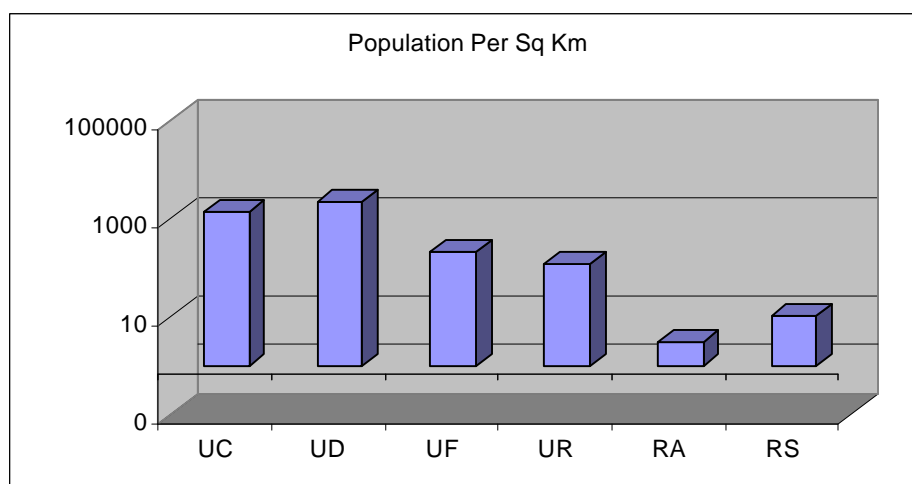
⁵ 1995-96 Report on the Operation of the Local Government (Financial Assistance) Act 1995. National Office of Local Government (1996)

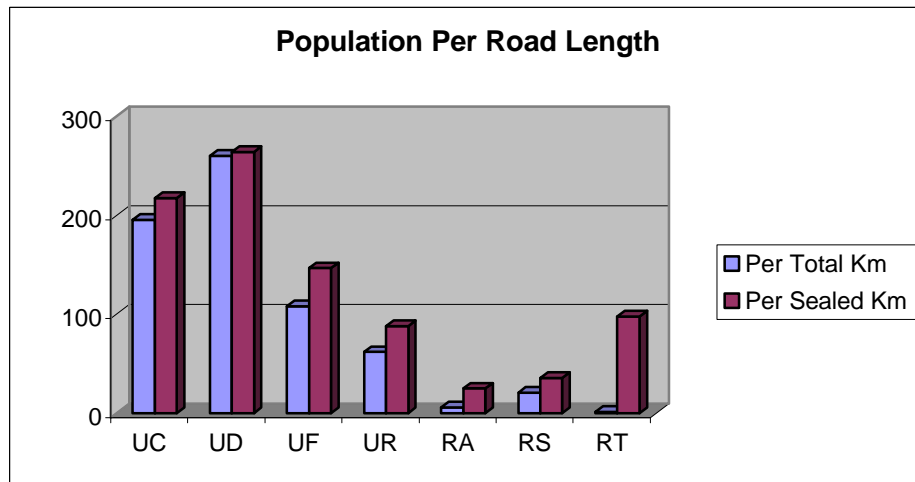
| | | | |
|---------------------------|----|---|-------|
| Urban Regional Towns/City | UR | UR Councils have an urban characteristic with a population density greater than 30 persons per sq km. This category encompasses the major regional centres outside the capital cities. Just over 50% of roads are sealed. | 15.2% |
| Rural Agricultural | RA | RA Councils are those with a predominantly agricultural focus, with populations less than 20,000 and a population density of less than 30 persons per sq km. They include the largest number of Councils. Almost 20% of roads are sealed. | 43.6% |
| Rural Significant Growth | RS | RS Councils are rural Councils with a population less than 20,000 but greater than 5,000, with an average annual growth rate of more than 3%. They tend to be Councils, which are relatively close to a capital city and often have a tourism or retirement focus. Approximately 33% of roads are sealed. | 4.4% |
| Rural Remote | RT | RT Councils are remote Councils in which less than 10% of the population could be characterised as urban. They have very low traffic volumes. Less than 10% of roads are sealed. | 17.5% |

Characteristics of the Various Categories

The following two figures show the population density in terms of area and road length of the seven Council categories. The RT category is not included in the population per area figure as it is less than 1 and difficult to plot on a logarithmic scale.

These are the inherent characteristics of the categories which will assist in the interpretation of the analyses undertaken as part of the review.





4. What is Meant by the Backlog?

The *Roads to Recovery* Programme was introduced as a single intervention by the Commonwealth to address the specific problem of local roads reaching the end of their economic life and their replacement being beyond the capacity of local government. With this in mind, it is useful to gain an estimate of the extent of the need.

Size of the Problem

A number of attempts have been made over the last ten years to assess the requirements of the local road network. An early study of the maintenance and renewal needs and funding of the Tasmanian local road network in 1996⁶ estimated the long term life cycle cost of the Tasmanian local roads network at \$91M per annum (1993 dollars). Councils' road expenditure in 1992/93 was \$60M leaving a shortfall in funding of \$31M per annum. The shortfall was roughly half the level of expenditure at that time.

A similar result was obtained by the ALGA in the analysis in their submission to the Federal Road Funding Inquiry in 1997⁷ where the annual shortfall in expenditure terms was estimated at \$1 billion per annum for a national local road expenditure of \$2.1 billion (1995/96). The methodology used was similar to that used in the earlier Tasmanian study but was drawn from data collected from Councils in all States.

A more recent analysis by the National Office of Local Government (within the Department of Transport and Regional Services) estimated the shortfall in funding at \$630

⁶ Life Cycle Road Funding, LGAT Inquiry into Federal Road Funding Forum, Howard (1996)

⁷ Submission to the House of Representatives Standing Committee on Communications, Transport and Microeconomic Reform Inquiry into Federal Road Funding, ALGA (1997)

million using the findings of local government studies in four States. The analysis is shown in the following table.

Table - Gap Between Local Road Renewal Needs and Expenditure, \$m for Next 5 Years

| <i>State</i> | <i>% length of the national local road network</i> | <i>Estimated annual local road renewal shortfall, \$m</i> | <i>Reference to notes below</i> |
|------------------------------|--|---|---------------------------------|
| NSW | 22.3 | \$156 | (1) |
| Vic | 20.0 | \$176 | (2) |
| WA | 19.0 | \$61 | (3) |
| SA | 11.6 | \$66 | (4) |
| Total | 72.9 | \$459 | |
| Australia (estimated) | 100 | \$630 | |

Notes:

- (1) According to the NSW Department of Local Government, the 2001-02 council annual reports disclose a transport infrastructure renewal gap for Local Government of \$156 million.
- (2) According to the June 2002 Victoria's Auditor General's Report Management of roads by local government, the infrastructure renewal gap is at least \$1.4 billion over the 5 years to 2002, (p3). This equates to an average annual gap of about \$280 million. According to Victoria's Facing the Renewal Challenge report (p56), 63% of annual asset consumption is on local roads, so the local roads gap would be about \$176 million.
- (3) Western Australian Local Government Association 2000–01 Assets and Expenditure Report (page 2).
- (4) According to A Wealth of Opportunities, the annual infrastructure renewal gap for local government in SA over the 5 years to 2004-05 will be about \$105 million per annum (page ii and page 19). Assuming that, like Victoria, 63% of annual asset consumption is on local roads, then the annual local road deficit would be about \$66 million.

While the individual State estimates are not necessarily comparable, when aggregated they estimate an overall funding gap of \$459 million for local roads in the four States. Extrapolating to the national network based on road length yields an annual national figure of \$630 million. This figure applies to the gap for the next five years. Beyond that period both the Victorian and South Australia studies suggest that it will increase due to the aging of the network.

The National Office of Local Government also estimated the value of the local road assets at \$75 billion once again from State sources, as shown in the following table.

Table - Value of Local Roads (replacement cost)

| <i>State</i> | <i>% road length</i> | <i>Value of the asset, \$ billion</i> | <i>Reference to notes below</i> |
|----------------------------------|----------------------|---|-------------------------------------|
| NSW | 22.3 | 30.8 | (1) |
| Vic | 20.0 | 14.4 | (2) |
| Qld | 22.6 | 10.0 | (3) |
| WA | 19.0 | 10.9 | (4) |
| SA | 11.6 | 4.8 | (5) |
| Tas | 2.2 | 2.0 | (6) |
| Total | 97.3 | 72.9 | |
| Australia (estimated) | 100 | 75 | |

Notes:

- (1) NSW Department of Local Government 2001-02 council annual reports.
- (2) Victoria's Auditor General's Report Management of roads by local government June 2002 p3-4.
- (3) Local Government Association of Queensland Road and Transport Inquiry final report p11.
- (4) Western Australian Local Government Association 2000-01 Assets and Expenditure Report p1.
- (5) South Australia A Wealth of Opportunities Report page ii and p9.
- (6) Tasmanian Auditor General Special Report No 26 Capitalisation and Reporting of Road Assets in Tasmania.

The Bureau of Transport and Regional Economics (BTRE) estimated the total Council spending on local roads (including Commonwealth and State grants and contribution from the private sector) at \$2.7 billion in 1997-98⁸. Data collected from Councils as part of this review provided data on the breakdown of Council's normal expenditure in the following categories.

⁸ Spending on Local Roads. Bureau of Transport Economic Working Paper 44 (2001)

Table – Breakdown of Council’s Normal Expenditure (pre R2R)

| <i>Expenditure on</i> | <i>Rural</i> | <i>Urban</i> |
|-----------------------|--------------|--------------|
| Maintenance | 35% | 30% |
| Renewal | 35% | 40% |
| Upgrade | 25% | 26% |
| New Assets | 5% | 4% |
| <i>Total</i> | <i>100%</i> | <i>100%</i> |

The maintenance expenditure is essentially an operating expense for the road asset while the renewal and a significant proportion of the upgrade expenditure offsets the deterioration (or consumption) of the asset due to traffic loading over time. Approximately 50% of the total expenditure would be a reasonable estimate of the total funding allocated to the renewal of the existing asset.

The level of expenditure prior to the *Roads to Recovery* Programme would equate to an average renewal cycle of the road asset of 55 years. The review of the *Roads to Recovery* Programme showed that most of the *Roads to Recovery* funding was spent on the existing asset with approximately half being allocated to renewal and the other half to upgrading the existing road to a higher standard.

This would increase the BTRE estimate of total Council annual spending to \$3.0 billion (ie the \$2.7 billion plus the \$300 million annual *Roads to Recovery* funding) and the total expenditure on renewal to approximately \$1.6 billion. This has the effect of reducing the average renewal cycle required of the local road asset to 47 years. While this may be still too high for many Councils it shows that the *Roads to Recovery* Programme has for the period of the programme made a significant contribution to assist Councils manage their assets in a long term sustainable way.

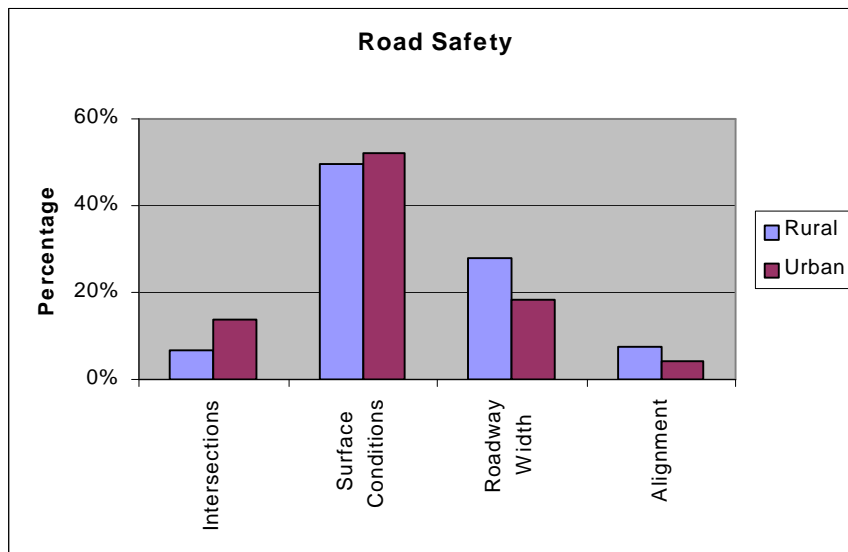
Nature of the Problem

The problem for local government is two fold, characterised by a shortfall in funding to:

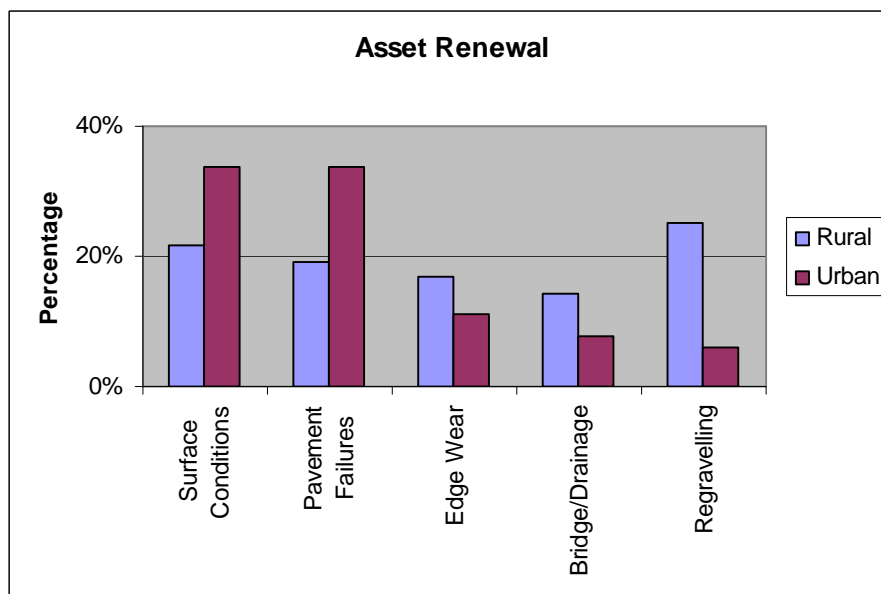
- Extend the existing sealed road network to meet increasing community expectations, and
- Maintain and renew the existing road network.

It became clear from the information provided by Councils that the *Roads to Recovery* funding was used primarily to address the second shortfall as this is where they saw the backlog of works.

This backlog manifested itself in a number of ways. Councils recognised road safety and asset management as the two areas of greatest need and the following two figures show their view on how this translates into deficiencies on the road.



For road safety, both rural and urban Councils saw deficiencies in surface condition as the main concern. These are symptoms of an ageing network and reflect insufficient expenditure on maintenance and renewal. The second area of concern was deficiencies in road width, which reflect the standards of the past. Deficiencies at intersections and in alignment were also concerns.



With respect to asset management, surface condition and pavement failures were the primary areas of concern for both rural and urban Councils. The maintenance of poor gravel surfaces was also a major issue for rural Councils.

5. Projects Funded from the Programme

All Councils were asked to complete a survey requesting basic details of their *Roads to Recovery* projects. This complemented data held by the Commonwealth on Councils' work schedules.

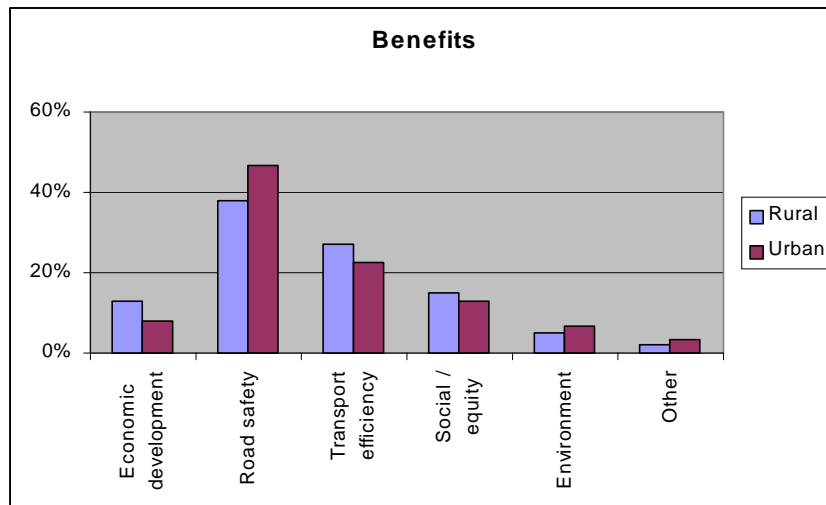
These details included number, length and value of projects, expenditure on asset category (sealed, unsealed, bridges, other) and activity (maintenance, capital renewal, capital upgrade and capital expansion), assessment of benefits and risks treated, accident savings, projects on school bus routes, renewal symptoms treated, employment and other benefits.

The results of the survey are summarised below.

The National Survey

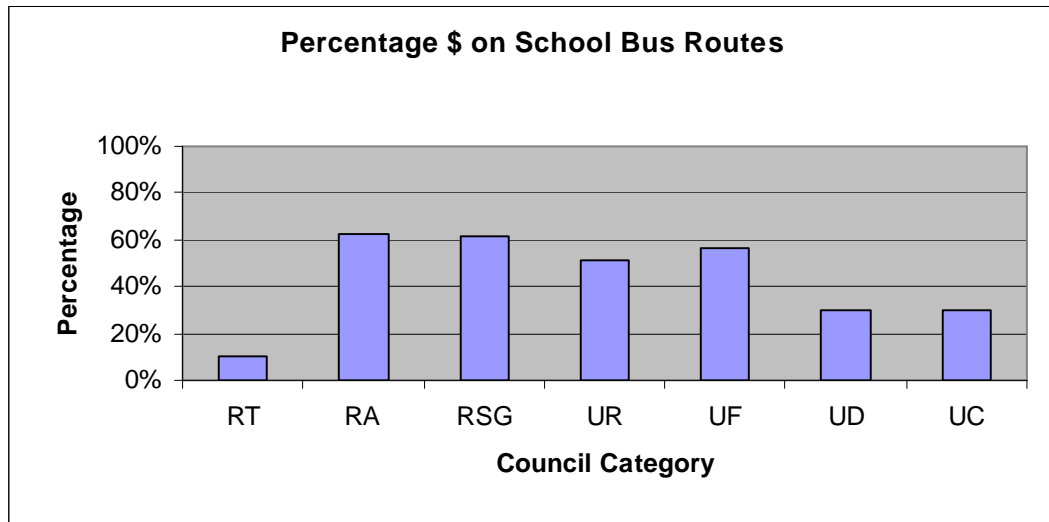
Council Priorities

This table sets out the benefits from the programme as assessed by Councils. Overall, both urban and rural Councils considered that the largest single benefit was enhanced safety (about 40% of the total benefits) with transport efficiency (about 25%) second.



Focus on School Bus Routes

There was also a strong focus on school bus routes as shown in the following figure. School bus services are very important to most communities and Councils were able to use *Roads to Recovery* funds to address this very real need. The low figure in rural remote Councils may reflect the relative absence of these services in these communities.

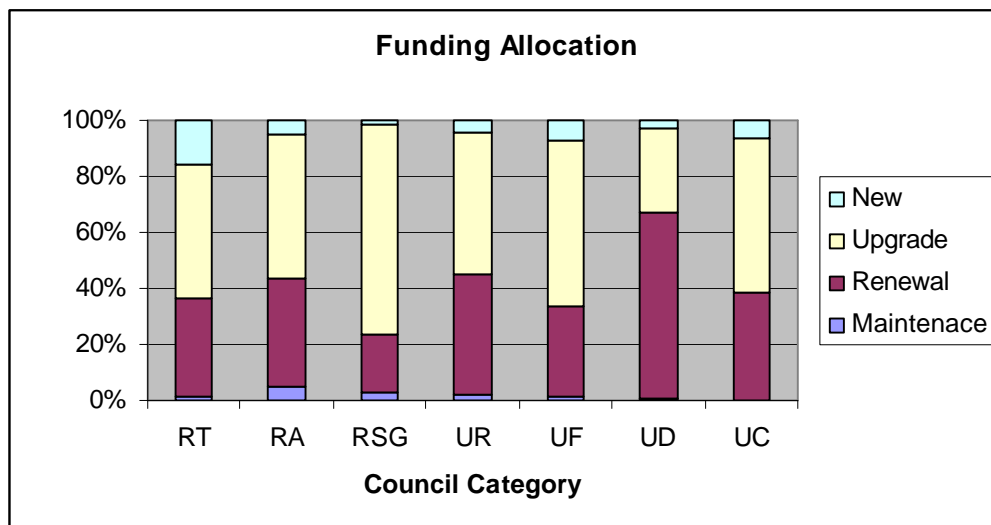


Focus on Renewal and Upgrade Projects

The survey showed that almost all of the expenditure was spent on renewing and upgrading the existing road network. There was little focus on new roads except in rural remote communities where nearly 20% of the funds went on new roads.

Maintenance is narrowly defined (eg filling potholes, clearing roadside vegetation) so that the small expenditure in this category is not surprising.

The percentage of funds spent on upgrading versus renewal undoubtedly reflects the needs of the Council. The proportion of funds used for upgrading is highest where there is greatest growth (75% for rural significant growth (RSG) Councils over 50% for urban fringe (UF) Councils) and least in urban developed Councils (UD), where infrastructure has been in place for many years. Again, the use of funds reflects their particular needs.



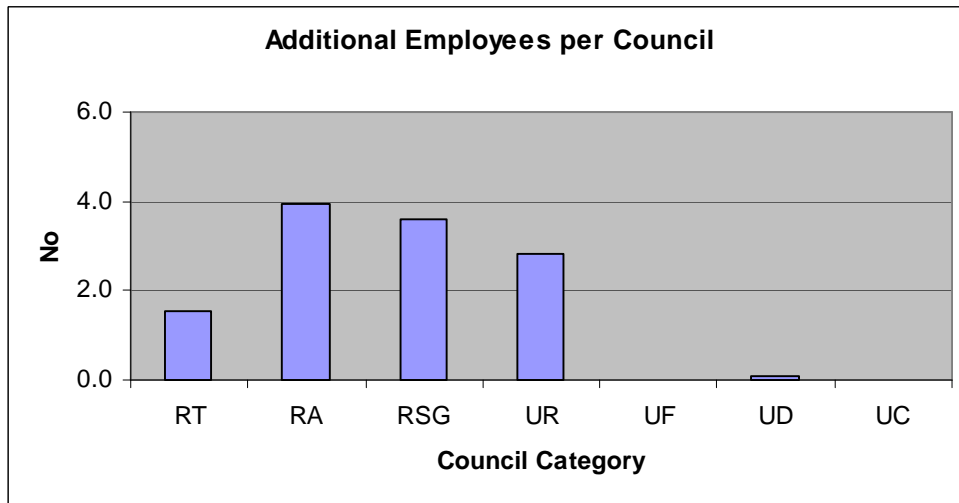
This focus on the existing road system also allowed Councils to respond quickly to the availability of funding resulting in an almost immediate financial stimulation to the economy across the country.

Contribution to Local Employment

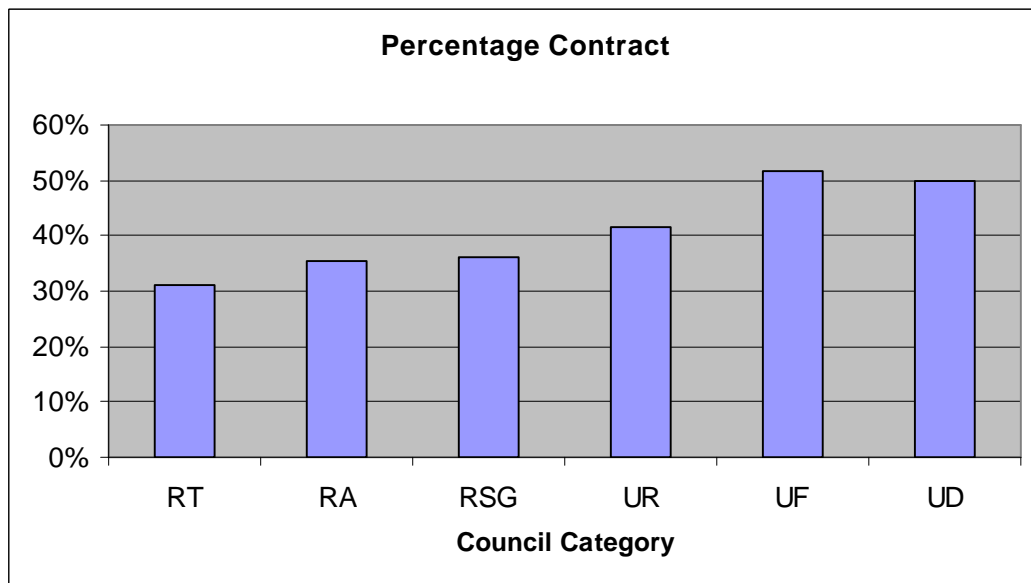
The programme stimulated Council employment particularly in the rural areas. The total employment effect was hard to measure because Councils, which provided the data, could give their own figures but could not do so for employment by contractors whom they might have used.

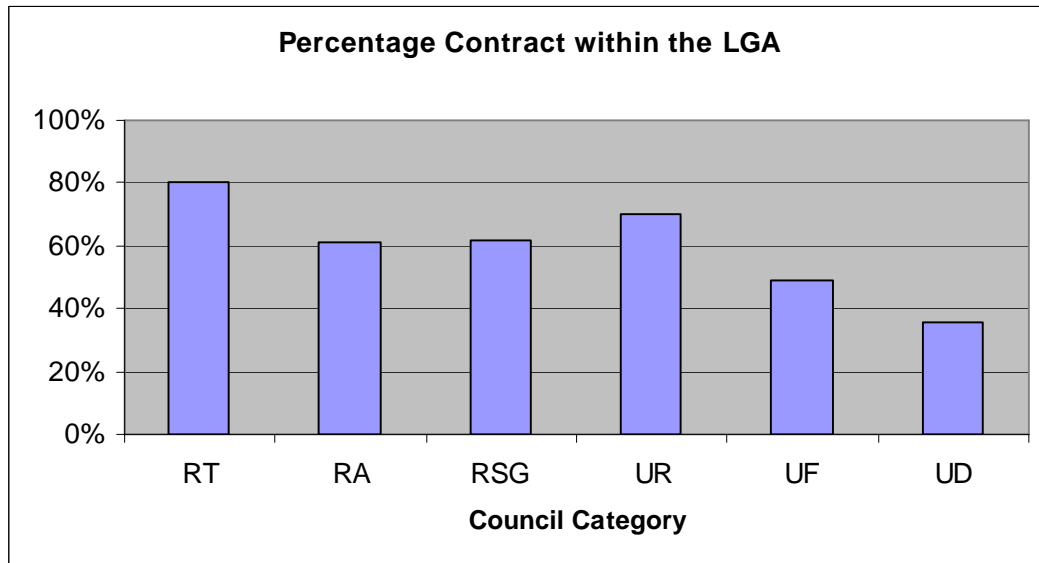
The following graph shows that the rural Councils (ie RA, RSG and UR categories) on average directly employed an additional three to four employees as a result of the programme. With a third of the work going to contract, the total employment effect in these areas might have been four to five. The survey did not include cases where people were retained in employment where they might otherwise have been retrenched, which, from anecdotal evidence, could be a large group.

Councils in urban areas employed few additional staff on *Roads to Recovery* projects. However, this could partly be explained by the fact that a larger proportion of work was put out to contract.



The following two figures show that less than 50% of the work was undertaken by contract but, of the work undertaken by contract, 60% was undertaken by local contractors in rural areas and 40% in urban areas. It is clear from these results that the programme had a major stimulation to local firms.





Impact on Aboriginal Employment

Some Councils took the opportunity to link the *Roads to Recovery* Programme to the Indigenous Employment Policy (IEP) to obtain additional funds. For example, the Umbakumba Community Council in the Northern Territory leveraged the *Roads to Recovery* funds with Community Development Employment Programme (CDEP) funds and \$51,000 of its own funds to develop the skills and capacity of its isolated community in drainage, kerb and road construction.

The programme resulted in the community being fully kerbed with the construction of over 5.2 km of kerbing. The skills developed by people in the programme are now being used to create a local construction business.

Other Councils have utilised funds from other sources such as from ATSIC in conjunction with its *Roads to Recovery* projects.

Type of Projects

The distribution of projects by project category was obtained from the information provided by Councils in their work schedules as provided to the Department. The average cost for the various categories of projects are presented in the following table:

| <i>Project Category</i> | <i>No of Projects</i> | <i>Average Cost</i> | <i>% of Total</i> |
|--|-----------------------|---------------------|-------------------|
| General maintenance | 202 | \$45,269 | 1.1% |
| Constructing a new road | 193 | \$246,000 | 5.9% |
| Reconstruction, rehabilitation, widening (on existing roads) | 2697 | \$138,734 | 46.3% |
| Sheeting / Resheeting | 1203 | \$49,564 | 7.4% |
| Sealing | 1100 | \$97,413 | 13.3% |
| Resealing | 1731 | \$46,457 | 10.0% |
| Bridges and tunnels | 382 | \$149,616 | 7.1% |
| Drainage structures | 562 | \$67,481 | 4.7% |
| Traffic Improvement | 298 | \$61,072 | 2.3% |
| Bicycle paths / Footpaths | 301 | \$43,453 | 1.6% |
| Studies | 28 | \$70,583 | 0.2% |
| Other | 26 | \$44,257 | 0.1% |

By far the most significant project category was the reconstruction, rehabilitation and widening (on existing roads). This category represented 31% of the total number of projects and 46% of the total value. This is consistent with the results of the national survey.

Another interesting observation is that resealing projects represented 20% of the total number of projects and 10% of the value. While Councils used the funding for significant projects, many took the opportunity to undertake long overdue resealing work. This is fully consistent with the objective of the programme.

Co-funding

In addition to the co-funding from the Indigenous Employment Policy (IEP) mentioned above, some Councils leveraged funding from other agencies, particularly state agencies. While no figures are available, the review team was made aware of such instances in the workshops and they are reflected in the case studies (eg 3, 11, 12 and 26).

6. Case Studies

Many Councils provided case studies of projects in their areas as part of the national survey. These have been used in two ways in the report. Firstly, a selection of the case studies is included as Appendix D to illustrate the variety of projects undertaken by Councils and the range of outcomes that they have achieved. These are listed below with a description and any special features that they might have.

Secondly, case studies from 237 Councils were analysed to establish the reasons why the projects were given priority. This is not always the same as looking at the outcomes achieved from the projects as there are often several outcomes per project but one of these might be the reason why the project was given priority.

Judgements were often needed as to where projects would be listed eg there is a lot of overlap between economic and transport efficiency. Generally, in these cases, the emphasis was on transport efficiency but this is not to say that economic development was not important.

The breakdown of reasons for giving projects priority were as follows (noting that more than one reason might apply to any one project):

| <i>Reason</i> | <i>Number</i> |
|----------------------|---------------|
| Safety | 113 |
| Transport efficiency | 86 |
| Economic development | 30 |
| Social/equity | 59 |
| Asset management | 55 |

Safety is the most common reason given for undertaking projects and it is also most common in cases where there is one reason for doing the project (though in the end, there may have been several outcomes from it).

Two other interesting aspects to emerge were the number of instances where the extra funding from *Roads to Recovery* enabled councils to combine two or more projects into one and complete the whole job more cheaply and where additional funds were leveraged from other Government or private organisations.

Below is a table listing the councils whose case studies are given in Appendix D.

Table – Case Studies

| <i>No</i> | <i>Council</i> | <i>Description</i> |
|-----------|--|---|
| 1 | Mt Remarkable Rural SA | Sealing road improved safety and enhanced opportunities for regional tourism by improving access to National Park. |
| 2 | Central Highlands Rural Tasmania | Road improvements supported the local logging industry and improved safety, including for school buses. |
| 3 | Hurstville Urban NSW | Shared funding arrangements with RTA to widen bridge over railway to eliminate a bad bottleneck. Improved transport efficiency and safety. |
| 4 | Herberton Rural Queensland | Improved access for the Innot Hot Springs community by building a causeway over the Herbert River. Previously cut off for months at a time. |
| 5 | Melton Urban fringe Victoria | Widen seal on road built for much lower traffic volumes but which had become an important through route. Improve safety and transport efficiency. |
| 6 | Barossa Urban fringe SA | Accelerated sealing of connector road. Improved safety and eliminated dust nuisance. |
| 7 | Light Rural SA | Replaced three tonne load limited bridge to accommodate higher mass vehicles including B-doubles to service rural industry. |
| 8 | Campbelltown Urban SA | Constructed roundabouts and turning lanes on urban through road to reduce speeding and improve road safety. |
| 9 | Brisbane Urban Queensland | Constructed road to improve access to the Centenary Village retirement home, including cycle and pedestrian access. Upgrading nearby through route had hampered access. |
| 10 | Armadale Urban WA | Council upgraded a road and bridge in response to the fast tracking by the State of the extension of the Tonkin Highway. Improved and safer access to an industrial park. Substantial long term savings by constructing one major project instead of by stages. |
| 11 | Local Government Association of NT Remote NT | Built a formed gravel road across 15km of black soil to improve access to remote community by two months a year. \$ for \$ funding with ACCAP (ATSIC Army Community Assistance Programme). |

| | | |
|----|------------------------------------|---|
| 12 | Marnngarr Remote NT | Build 3km gravel road with drainage to reduce dust (reduces eye and respiratory problems) and upgrade access in wet season. Shared funding with NT Government and ATSIC. |
| 13 | Tara Rural Queensland | Seal road to upgrade through route for heavy traffic serving local industry eg beef, sheep and cotton. Improve safety and local access. Saved jobs of three or four people. |
| 14 | Northern Midland Rural Tasmania | Road had previously been a service road for farms but had become a logging route. Road was upgraded to carry the much heavier traffic ie avoided having to impose a load limit to protect the asset. |
| 15 | Balranald Rural NSW | Sealed 38km and regavelled 15km to improve safety (school bus routes) and heavy traffic routes. |
| 16 | Blacktown Urban NSW | Constructed two roundabouts to improve safety. |
| 17 | Darebin Urban Victoria | Reconstruction of very old (1929) road on timeframe that avoided protracted impact on residents. |
| 18 | Brimbank Urban Victoria | Allowed Council to fund rehabilitation works, which were identified as high safety risks before road failed, savings were considerable. |
| 19 | Bourke Rural NSW | The worst sections of the Paka Tank–Tilpa Rd were upgraded to a gravel standard to improve accessibility in wet weather for locals and the cotton industry. Previously impassable in wet. |
| 20 | Cairns Regional Queensland | Upgrade and widen local tourist and recreation road (previously one lane seal) to improve safety an enhance opportunities for regional tourism access to Josephine Falls). |
| 21 | Copmanhurst Rural NSW | Replaced a high maintenance timber bridge which had a five tonne load limit with a concrete structure to improve safety and access for heavy vehicles. Heavy traffic previously subject to 80km detour. |
| 22 | Junea Rural NSW | Seal, widen and straighten major shire road to improve safety and efficiency. Previously winding and single lane. Reduced grades. |
| 23 | Warrnambool Regional Victoria | Reconstruct through route in town to improve safety and access. |
| 24 | Wyndham Urban fringe Victoria | Reconstruct major through road to improve efficiency and safety. |

| | | |
|----|--------------------------------------|--|
| 25 | Winton Rural Queensland | Seal town bypass to improve access to unloading zone for cattle. Eliminate serious dust problem in town arising from heavy vehicle movements and improve safety by upgrading cattle loading area. |
| 26 | Yarrowlumla Rural NSW | Upgrade road to improve access and safety. Shared funding <i>Roads to Recovery</i> -council-landholders. |
| 27 | Frankston Urban Victoria | Rehabilitation of major urban through road to improve safety. |
| 28 | Golden Plains Rural Victoria | Widening and straightening of road serving rural residential development. Was possible with <i>Roads to Recovery</i> funds to do the whole project more cheaply than would have been possible had it been done piecemeal with council funds alone. |
| 29 | Hepburn Rural Victoria | Install a culvert over a river, which previously had to be crossed at a ford which was dangerous and often impassable after heavy rain. |
| 30 | Lower Eyre Peninsula Rural SA | Sealing what had been a rough and dangerous road catering for a large volume of heavy traffic, mainly grain, and tourists. Eliminate a dust nuisance for residents. |
| 31 | Mareeba Rural Queensland | Construction of a culvert to provide all weather access on a crossing normally impassable for four months a year and under water by 200mm for much of the rest of the year. Route serves grazing properties in lower Cape York Peninsula and is a tourist route up the Cape. |
| 32 | Playford Rural SA | Elimination of dust is critical to production and transport of export vegetables and cut flowers. Council is gradually sealing roads in the growing areas. <i>Roads to Recovery</i> has greatly accelerated the programme. |
| 33 | Marion Urban SA | Resealing of old urban road to improve safety. |
| 34 | Greater Bendigo Regional Victoria | Upgrading road to be used for haulage of ore from reopened gold mine. Economic and safety issues. |
| 35 | Brome Regional/rural WA | Sealing the access road to rubbish disposal facility to provide all weather access and reduce dust nuisance. |
| 36 | Wanneroo Urban fringe Perth | Upgrade a road from rural to urban standard as city spreads |

7. Comparison with Council's Normal Roads Programme

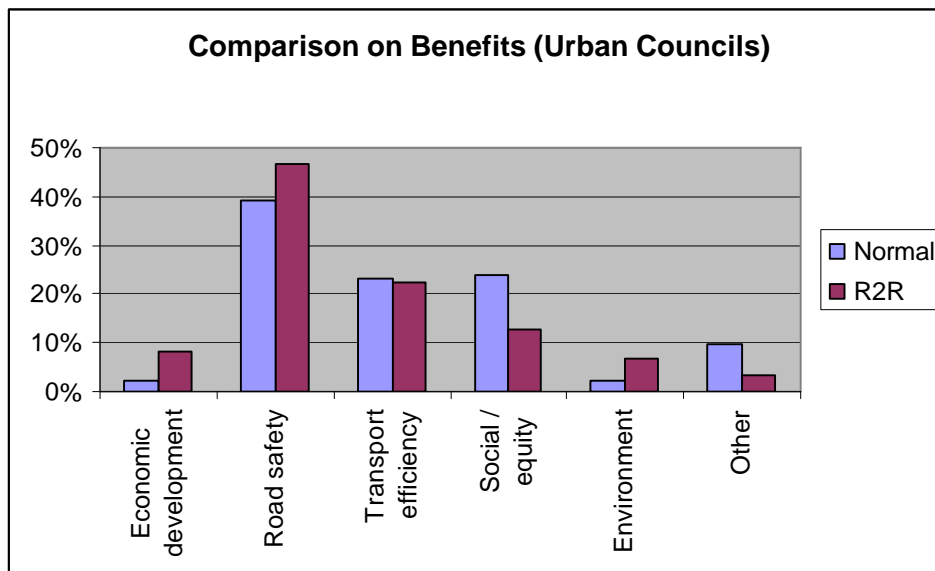
The Councils participating in the regional workshops were asked to provide information on their normal road programme. This provided the background and context for projects nominated for the *Roads to Recovery* Programme.

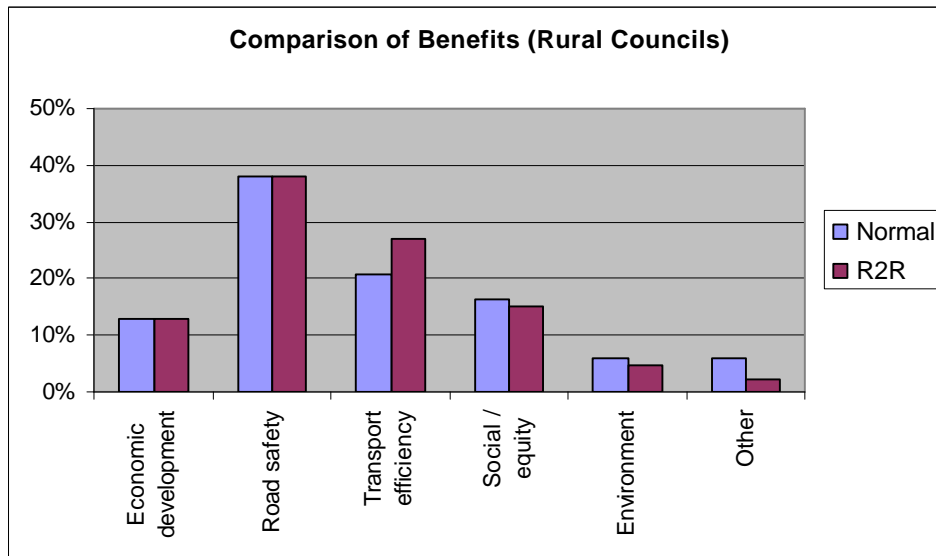
The results from the national survey of all Councils' *Roads to Recovery* projects were compared with the equivalent results from the workshop survey which dealt with the Council's normal ie non-*Roads to Recovery* projects.

Two comparisons are made in the Chapter. The first provides an insight into whether the *Roads to Recovery* Programme was used as an extension of Councils' normal roads programme or whether the additional funding enabled them to pursue a different focus. The second area was in the method of delivery where an insight is gained in the response of Councils to deliver the programme in the prescribed time. Both these comparisons are made for rural and urban Councils.

Comparison of Perceived Benefits

The first comparison made was in terms of the benefits that accrue from their normal Programme. The following figures show that at the broadest level, the *Roads to Recovery* funds were used in a pattern similar to that for the use of normal road funds.

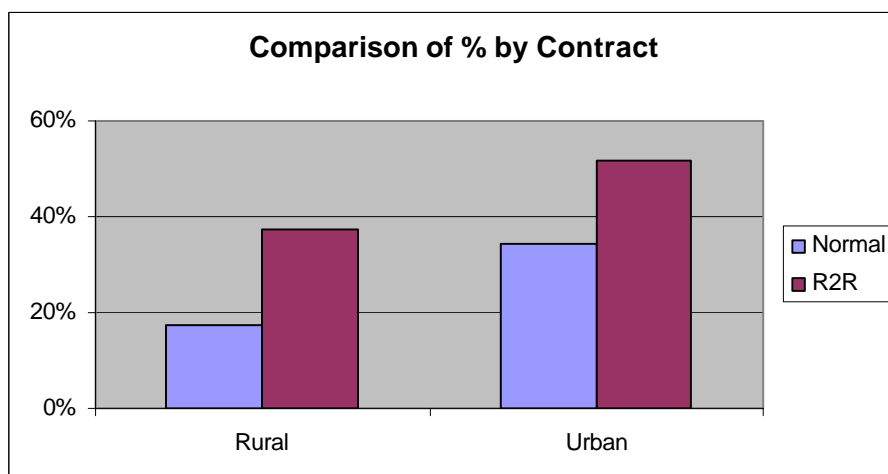


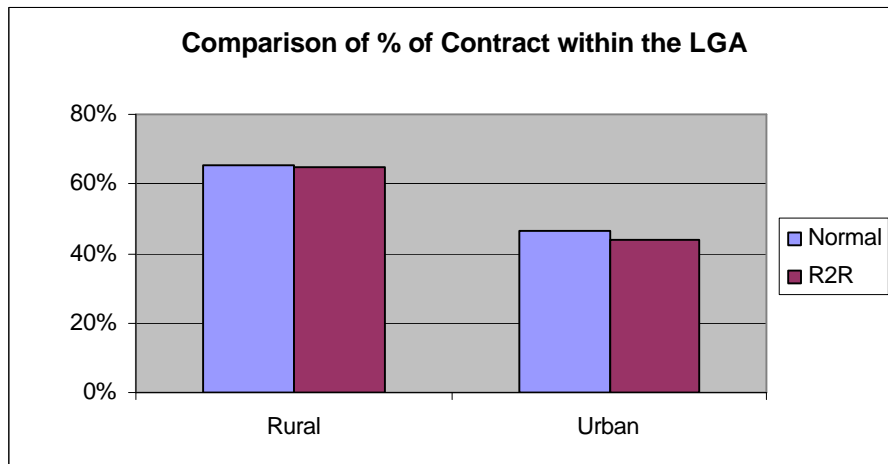


Road safety is the highest priority for both rural and urban Councils and the *Roads to Recovery* Programme usefully extended their capacity to address this issue. The figures also show an emphasis on transport efficiency and economic development.

Comparison on the Method of Delivery

The following two figures show that a greater percentage of *Roads to Recovery* work was undertaken by contract than was the case for other road works. This probably shows how Councils maximised their benefit from the programme given the short lead times for projects in the early stages and may also reflect the limited life of the programme. Local companies were able to win about the same proportion of *Roads to Recovery* contracts as they normally do of normal road works, with benefits to local economies.





8. Asset Management Implications

One measure of the impact of the *Roads to Recovery* Programme is to estimate its effect on the rate of consumption of the road asset. The Written Down Current Replacement Cost (WDCRC) is a financial measure of the current condition of a Council's assets. Where the increase in the value of part of a network due to renewal exceeds the loss in value from the deterioration (or consumption) of the rest of the network due to traffic loading, the network WDCRC will increase. Otherwise the WDCRC will decrease each year and result in a reduction in the level of service of the road network. The change in WDCRC is in effect a measure of the long term level of service that can be provided by the road network.

Councils at the regional workshops were asked for financial information to estimate the WDCRC prior to and following the introduction of the *Roads to Recovery* Programme. 39 Councils provided data, which were aggregated for the purposes of the following analysis.

Estimates were made of the WDCRC of the Councils' sealed and unsealed roads and bridges for the end of 1999-2000 and 2000-01 (ie prior to the *Roads to Recovery* Programme) and for the end of 2001-02 (ie the first full year of *Roads to Recovery* funding).

The estimate is based on data provided by the participating Councils and has several limitations.

1. Currency of road valuations. Some road valuations may be up to five years old, not reflect current road condition or valuation and hence understate the rate of asset consumption reported as a depreciation expense.
2. Accuracy of economic life estimates. There was a large variation in economic life data provided. Although weighted averages were used in the analysis, they may not

be fully representative of actual economic life for the total Australian local road network.

- Renewal and upgrade capital expenditure are combined for simplicity as nearly half the renewal projects include an upgrade component, eg reconstruction of centre sealed strip with kerbing and shoulder sealing.

The effect of the *Roads to Recovery* Programme was measured by the change in WDCRC for the years 1999-00/2000-01 and 2000-01/2001-02. The WDCRC is the sum of the WDCRC carried forward from the previous year, less the asset consumption, plus renewal and upgrade capital expenditure for the year.

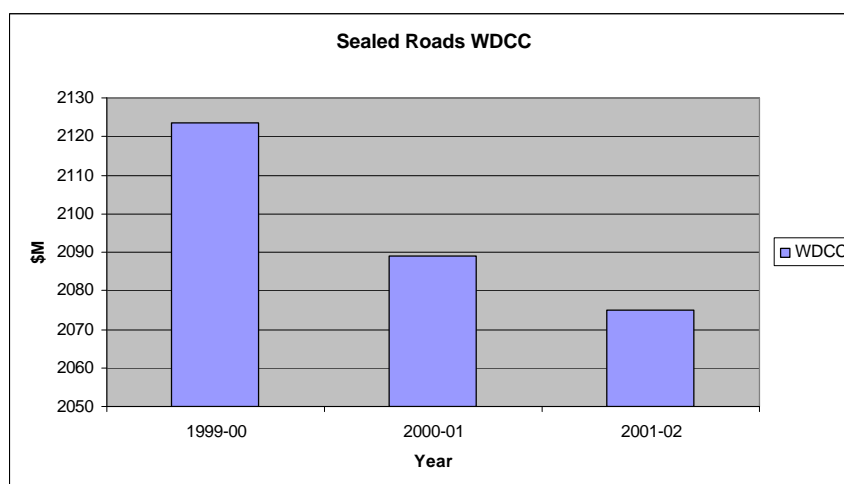
Details are presented for sealed and unsealed roads, bridges and the total road network in the following sections.

Sealed Roads

| Year | Carried Forward \$m | Asset Consumption \$m | Renewal & Upgrade Capital Expenditure, \$m | | WDCRC \$m |
|-------|---------------------|-----------------------|--|------|-----------|
| | | | Normal | R2R | |
| 99-00 | 2157.9 | - 118.0 | 83.5 | | 2123.4 |
| 00-01 | 2123.4 | - 118.0 | 83.5 | | 2088.9 |
| 01-02 | 2088.9 | - 118.0 | 83.5 | 20.7 | 2075.1 |

The following figure shows the Written Down Current Cost for sealed roads for the workshop Councils. From 1999-00 to 2000-01 the WDCRC of the Councils' sealed roads declined by \$34.5M. The effect of the *Roads to Recovery* Programme was to reduce the yearly decline in WDCRC to \$13.8M in 2001-02.

Figure - Sealed Roads Written Down Current Replacement Cost at year's end

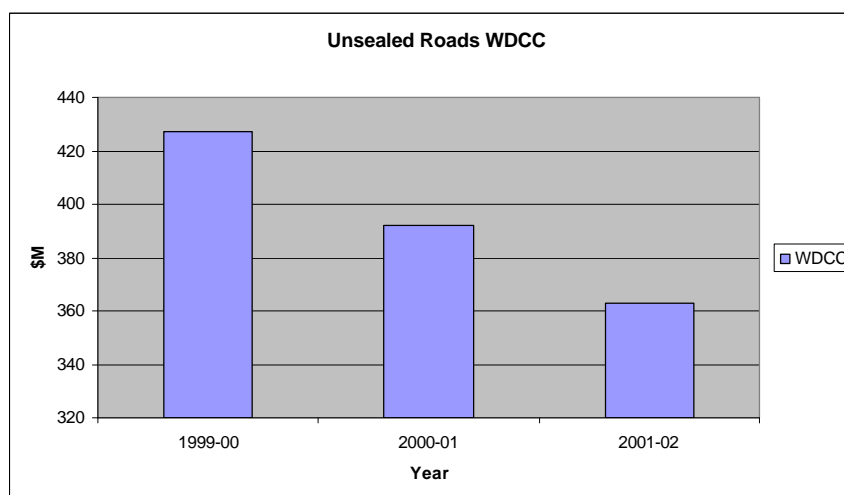


Unsealed Roads

| Year | Carried Forward \$m | Asset Consumption \$m | Renewal & Upgrade Capital Expenditure, \$m | | WDCRC \$m |
|-------|---------------------|-----------------------|--|-----|-----------|
| | | | Normal | R2R | |
| 99-00 | 462.2 | - 48.6 | 13.6 | | 427.2 |
| 00-01 | 427.2 | - 48.6 | 13.6 | | 392.2 |
| 01-02 | 392.2 | - 48.6 | 13.6 | 5.9 | 363.1 |

The following figure shows the estimates for the Councils' unsealed roads. With the 'normal' level of renewal and upgrade expenditure of \$13.6M, the WDCRC of sealed roads declined by \$35M in 2000-01. The *Roads to Recovery* Programme renewal and upgrade expenditure of \$5.9M in 2001-02 reduced this yearly decline in WDCRC for the Councils to \$29.1M.

Figure - Unsealed Roads Written Down Current Replacement Cost at year's end



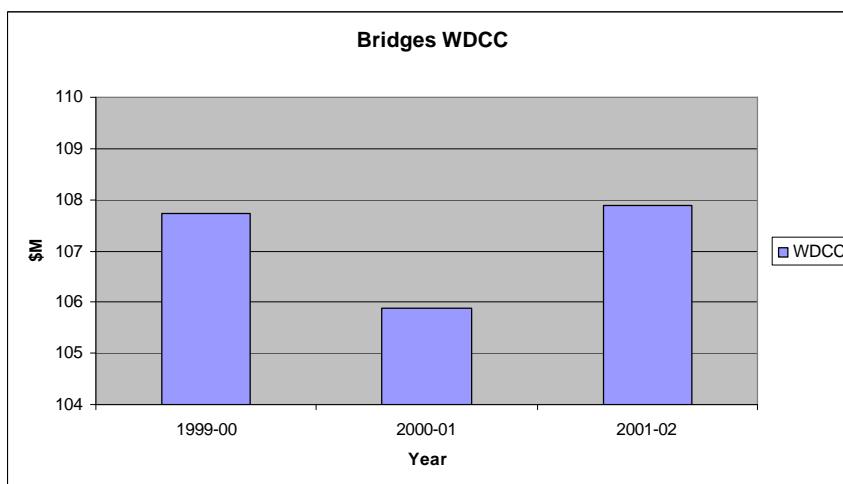
Bridges

| Year | Carried Forward \$m | Asset Consumption \$m | Renewal & Upgrade Capital Expenditure, \$m | | WDCRC \$m |
|-------|---------------------|-----------------------|--|-----|-----------|
| | | | Normal | R2R | |
| 99-00 | 109.7 | - 4.9 | 3.0 | | 107.8 |
| 00-01 | 107.8 | - 4.9 | 3.0 | | 105.9 |
| 01-02 | 105.9 | - 4.9 | 3.0 | 3.9 | 107.9 |

The following figure shows the estimates for bridges. With the 'normal' level of asset renewal and upgrade expenditure of \$3.0M, the WDCRC of bridges declined by \$1.9M in 2000-01. The *Roads to Recovery* Programme asset renewal and upgrade expenditure of

\$3.9M in 2001-02 reversed this yearly decline in WDCRC for the Councils to an increase of \$2.0M.

Figure - Bridges Written Down Current Replacement Cost at year's end



Impact on the Network

The following table shows the estimates for WDCRC of the total local road network of the sample Councils for the period 1999-2000 to 2005-2006 with the following assumptions:

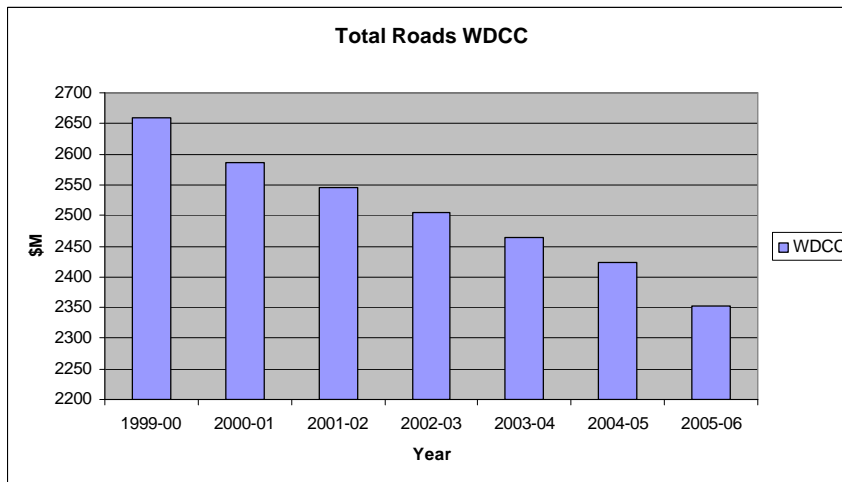
- all values are in 2002 dollars.
- the workshop Council's 2000-01 renewal and upgrade expenditure is representative of their 'normal' roads renewal and upgrade expenditure.
- their 2001-02 *Roads to Recovery* renewal and upgrade expenditure is representative of the four years of the *Roads to Recovery* Programme.
- all renewal and upgrade expenditure is applied to the renewal of the existing asset.
- no allowance is made for depreciation of new assets created in this period.

| Year | Carried Forward \$m | Asset Consumption \$m | Renewal & Upgrade Capital Expenditure, \$m | | WDCRC \$m |
|-------|---------------------|-----------------------|--|------|-----------|
| | | | Normal | R2R | |
| 99-00 | 2729.7 | - 171.5 | 100.0 | | 2658.3 |
| 00-01 | 2658.3 | - 171.5 | 100.0 | | 2586.9 |
| 01-02 | 2586.9 | - 171.5 | 100.0 | 30.5 | 2546.0 |
| 02-03 | 2546.0 | -171.5 | 100.0 | 30.5 | 2505.1 |
| 03-04 | 2505.1 | -171.5 | 100.0 | 30.5 | 2464.2 |
| 04-05 | 2464.2 | -171.5 | 100.0 | 30.5 | 2423.3 |
| 05-06 | 2423.3 | -171.5 | 100.0 | 0 | 2351.8 |

Note: Apparent errors in the table are due to rounding.

The following figure shows the estimated total roads WDCRC between 1999-2000 and 2005-2006.

Figure - Estimated Total Roads Written Down Current Replacement Cost at year's end for 1999-00 to 2005-06



The annual decline in WDCRC for the Councils is estimated at \$71.4M for 2000-01. The *Roads to Recovery* Programme reduced this yearly rate of decline to \$40.9M. To maintain the asset stock as measured by WDCRC, the *Roads to Recovery* funding would need to be more than twice its current level.

This analysis shows that the *Roads to Recovery* Programme has not overcome the local road backlog. It will however, slow the rate of decline in condition as measured by the WDCRC over the period of the programme. The condition of local roads is forecast to revert to its pre *Roads to Recovery* rate of decline at the end of the *Roads to Recovery* Programme in 2005.

This conclusion highlights how important it is for Councils to develop long term asset management strategies to be able to manage a road network that is declining in value, even with the additional level of Commonwealth funding provided by the *Roads to Recovery* Programme.

Although the sample of Councils may not be representative of the whole of local government, the analysis shows that the level of service of local roads could be maintained at its current level if the *Roads to Recovery* was continued and doubled. This is consistent with the National Office of Local Government's estimate of the local roads backlog of \$630 million per annum, outlined in Chapter 4.

The doubling of the *Roads to Recovery* funding level would further reduce the renewal cycle of the local road network from 47 to 40 years⁹, which is a credible estimate of that needed to maintain the current level of service.

9. Project Size

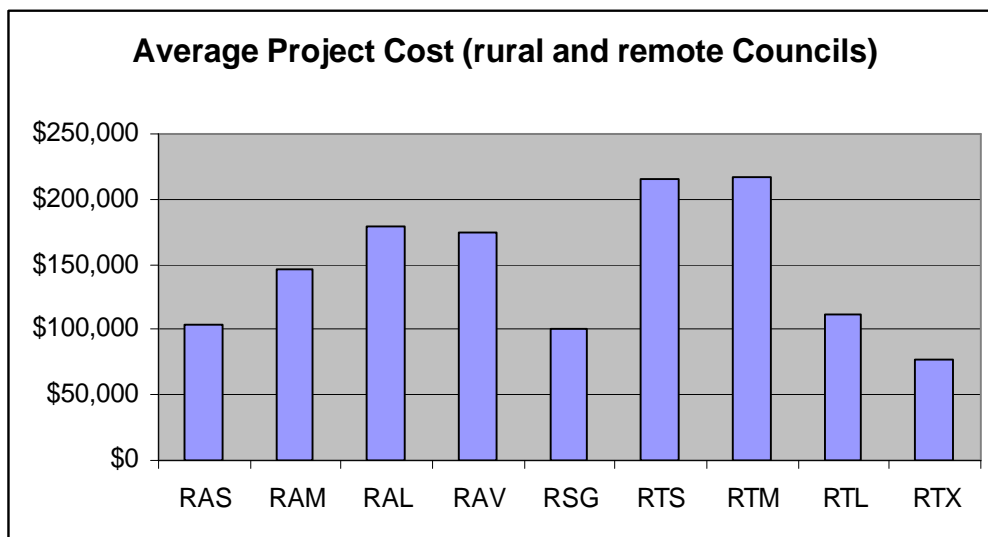
A total of 8,700 projects to a total value of \$807.5 million had been registered with the Department of Transport and Regional Services up until November 2002. This represents two thirds of the total value of the programme. This Chapter provides a picture of the size of projects funded under the programme and an insight into the way Councils responded to the programme.

Average Project Cost

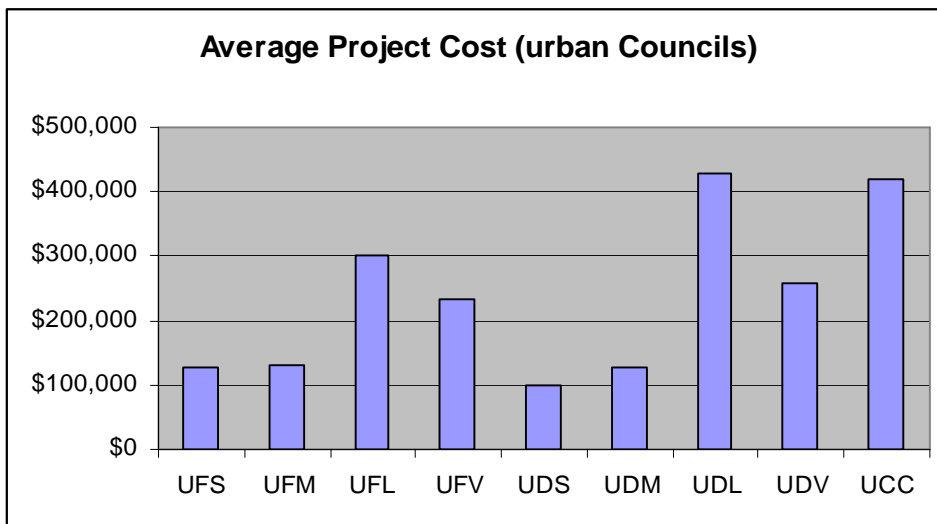
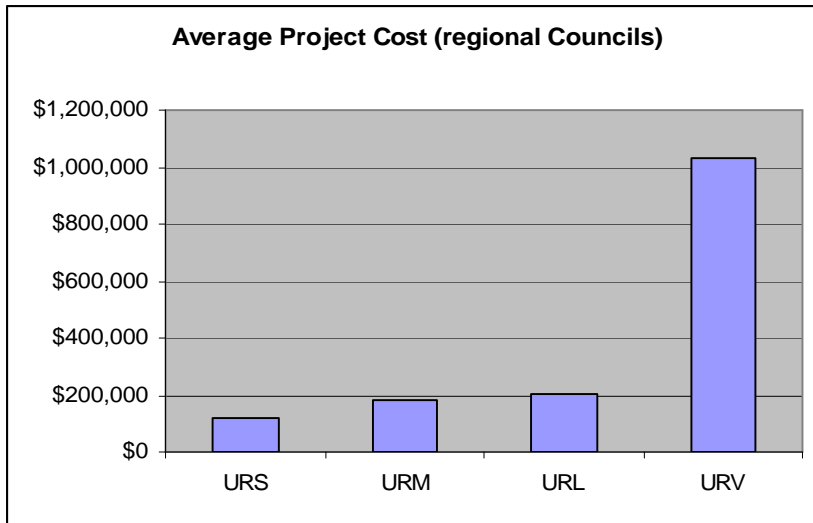
Each Council submitted a number of projects for which an average project cost was calculated. The following figures show the average for each category.

The following graphs show the average size of the projects funded from the programme to date. It shows that generally, except for the remote Councils, the larger the Council, the larger the average cost of the projects submitted. This is true for the rural, the regional and urban council categories.

The highest average project cost is in the URV category where the Gold Coast Council (Qld) submitted a number of large projects.



⁹ Refer to Chapter 4 analysis



Higher Cost Projects

60 projects out of 8,500 submitted to date have an estimated cost of over \$1,000,000. These 60 projects represent 0.7% of the total number of projects but total \$134 million out of a total of \$807.5 million or 16.5% of the total funding.

The 20 largest projects are listed in the following table. Even these 20 projects total \$82.4 million or 10% of the total funding. Some of these projects serve an arterial as well as a local function.

Table – List of Higher Cost Projects

| <i>State</i> | <i>Council</i> | <i>Category</i> | <i>Description</i> | <i>Estimate</i> |
|--------------|-----------------------|-----------------|---|---------------------|
| QLD | Gold Coast | URV | Gaven Arterial Road, Gaven | \$9,000,000 |
| ACT | ACT | UCC | The border between the Districts of Majura and Kowen. Upgrade Sutton Dr from Yass Rd to NSW border (incl on-road cycling) | \$7,900,000 |
| ACT | ACT | UCC | Duplication of Monaro Hwy across Dairy Flat (incl grade separation at Newcastle St) | \$7,700,000 |
| QLD | Gold Coast | URV | Somerset Dve Mudgeeraba between Swanton Dve/Leviathan Dve and Bonogin Rd | \$6,200,000 |
| QLD | Brisbane | UCC | Learoyd Road (Acacia Ridge) | \$5,000,000 |
| QLD | Brisbane | UCC | Progress Road, Archerfield | \$4,929,338 |
| QLD | Brisbane | UCC | Waterworks Rd, Transit Lane Project (Red Hill / The Gap) | \$4,700,000 |
| VIC | Manningham | UDL | Blackburn Road between Reynolds Road and Heidelberg/Warrandyte Road, Doncaster East | \$3,680,000 |
| QLD | Brisbane | UCC | Wynnum Road (Tingalpa) | \$3,500,000 |
| VIC | Manningham | UDL | Old Warrandyte Road between Mitcham Road and Mullum Mullum Creek, Donvale | \$3,364,000 |
| NSW | Hurstville | UDL | Belmore Road, Riverwood | \$3,200,200 |
| QLD | Brisbane | UCC | Blunder Road (Durack) | \$3,000,000 |
| TAS | Circular Head | RAL | Woolnorth Rd | \$3,000,000 |
| VIC | Moreland | UDV | O'Hea St, Sydney Rd to Sussex St, Coburg | \$2,650,000 |
| VIC | Mornington Peninsula | UFL | Bungower Road from Moorooduc Road to Coolart Road, Moorooduc | \$2,600,000 |
| SA | SA Grants Commission* | URV | Kangaroo Island Council - Cape Willoughby Road | \$2,580,000 |
| NSW | Central Darling | RTM | Main Road 435 from Wilcannia to White Cliffs | \$2,523,382 |
| VIC | Kingston | UDV | Wells Road, Chelsea Heights between Thames Promenade & Patterson River | \$2,400,000 |
| VIC | Wyndham | UFL | Palmers Road between Leakes Road and Boundary Road | \$2,300,000 |
| VIC | Mornington Peninsula | UFL | Eramosa Road West, from Coolart Road to Station Street, Somerville | \$2,200,000 |
| <i>Total</i> | | | | <i>\$82,400,000</i> |

Note:

* Funded from the pooled funds administered by the SA Grants Commission

Lower Cost Projects

5% of all projects were below \$5,000 in value and included very small items such as suppressing dust, repairing failed pavements and regravelling shoulders. This reflects the diversity of measures taken by Councils to address the backlog of works while consistent with the programme objectives.

The number of very small projects may also reflect the fact that the programme was introduced quickly and with minimum guidelines as to the selection of projects. While this resulted in a quick take up of available funding by many Councils, many delayed commencement of their programmes until the second half of 2001 to develop a more considered programme.

10. Economic Analysis

Data was obtained from 41 local governments for 98 road infrastructure improvement projects. About 82 percent of the projects enumerated in the survey related to the sealing of unsealed roads (Category 1), and the rehabilitation, reconstruction or widening of sealed roads (Category 2). There was sufficient data available to conduct an indicative economic cost benefit analysis of 80 projects.

An economic analysis was undertaken by applying the parameter values provided by the participating Councils (eg model road state, roughness and annual average daily traffic) to specific road stereotypes (eg reconstructing a formed 4 metre gravel road to a 7 metre sealed standard). The underlying assumptions for the analysis are shown in Appendix E.

Indicative cost benefit analysis could not be conducted for a small number of projects, as they required specific detailed research. They included bridge replacement, gravel resheeting, causeway construction and interchange improvement projects.

The results of the cost benefit analysis are summarised in the following table and detailed for each project in Appendix E.

For the 80 projects evaluated, there was a total expenditure of \$22.1 million (before discounting), yielding an overall Net Present Value (NPV) of \$36.9 million at a 7 percent real rate of discount and a Benefit Cost Ratio of 1.8. Approximately 49 percent of the projects evaluated yielded positive NPVs at this rate of discount.

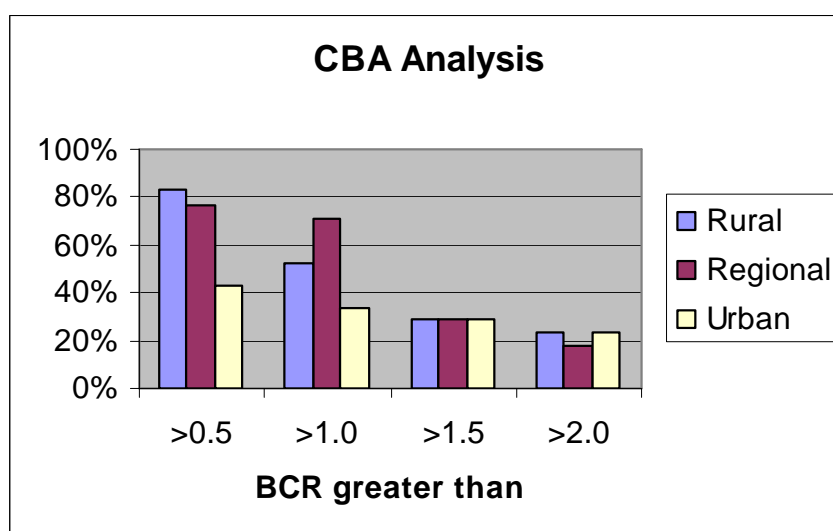
The projects funded from the *Roads to Recovery* Programme varied widely according to many factors resulting in a range of economic outcomes.

The following table reflects the range in traffic volumes and economic outcomes for the rural, regional and urban Councils. The figure shows the distribution of Benefit Cost Ratios (BCR) for the three classes of Councils.

Table – Summary of CBA Analysis

| <i>Class¹⁰</i> | | <i>Traffic, vpd</i> | <i>Net Present Value (NPV)</i> | <i>BCR</i> |
|---------------------------|-------------------|------------------------|--|------------------|
| Rural (41 projects) | Range Average* | 20 to 3900 540 | -\$493,300 to \$3,699,000 \$153,400 | 0 to 7.5 1.4 |
| Regional (12 projects) | Range Average* | 50 to 12,000 1,400 | -\$231,300 to \$1,727,000 \$115,900 | 0 to 16.4 2.1 |
| Urban (27 projects) | Range Average* | 250 to 21,800 4,100 | -\$528,700 to \$8,871,000 \$318,200 | 0 to 12.8 1.7 |
| All 80 projects | Average | | \$203,000 | 1.8 |

* arithmetic averages



This figure shows that 45% of the projects in the sample had a Benefit Cost Ratio exceeding 1.0, 30% greater than a Benefit Cost Ratio of 1.5 and 20% greater than 2.0. The average Benefit Cost Ratio for all 80 projects was 1.8 and the average Net Present Value was \$203,000.

This means that for the sample of Councils, the *Roads to Recovery* Programme achieved a positive return on investment with the benefits being 1.8 times the cost of the projects.

Overall rural and regional projects yielded a higher proportion of economically viable projects than urban projects. This partly reflected the relatively high construction costs of urban road works, which also encompassed other works such as kerbing, channelling and drainage works.

¹⁰ Rural include RA, RT and RS classes; Regional includes RU classes and Urban includes UC, UD and UF classes

11. Features of the Funding Distribution

Regional Issues

The *Roads to Recovery* programme makes payments directly to Councils and not via any State agency except in the case of 15% of the funds provided to South Australia. This approach of direct funding to Councils has been universally well received by local government and is seen by them as one of the programme's strengths. It is also simple and easy to manage at the Commonwealth level. The only criticism has been from State Road Authorities, particularly those working closely with local government, who believe the direct funding undermines the co-operation between State and local government that has been built up through State programmes.

The allocation of funding within each state follows the allocations used under the Financial Assistance Grants Scheme (FAGS). Consequently in South Australia, 15% of the *Roads to Recovery* funds are pooled for regionally significant projects and these funds are provided to the State Grants Commission for distribution to Councils. This is discussed in the next section.

Also consistent with the approach taken with the FAGS, 7% of the Western Australian *Roads to Recovery* funds are allocated to a programme of bridge works and aboriginal access roads. This aspect of the WA programme is well accepted by local government in that State and was not addressed in any detail by the review team.

Even though West Australia has a regional road group arrangement with the State Department of Main Roads for identifying priorities for State funding, none of the *Roads to Recovery* funding was pooled and allocated to regional priorities using these groups. Nevertheless, there is a separate study underway reviewing the role of these groups within a broader transport context and the benefits of pooling funding for local roads is being considered in that process.

Should the programme be renewed with a focus on local links of regional significance, consideration should be given to State Main Roads Departments being involved in identifying projects that will best serve the regional network.

The Commonwealth can facilitate more effective regional planning by encouraging inter-government co-operation with the State. The nature of this co-operation differs between States and the Northern Territory and the Commonwealth should ensure that while a national approach is needed, it should be sufficiently flexible to allow the best arrangements to emerge in each State and the Northern Territory.

Distribution by State / Territory and Council Category

Council entitlements under the *Roads to Recovery* Programme were determined in a two-step process. The first step was to determine the allocation to each State. This was based on a modification of the current relativities between the States in the roads Financial Assistance Grants. The second step involved the determination of allocations to each Council within each State. The *Roads to Recovery* allocations within each State are in the same proportions as the Financial Assistance Grants for 2000/01, the financial year in which they were determined.

There have been concerns that the proportion of funding to South Australia for local roads under the Financial Assistance Grants Scheme has historically been low. In recognition of this, the Government gave South Australian Councils a 112 per cent increase in funding under the *Roads to Recovery* Programme, well above the national average increase of 75 per cent. As a result, South Australia is receiving 8.3 per cent of the *Roads to Recovery* funds compared with 5.5 per cent under the Financial Assistance Grants Scheme.

Most of the Northern Territory is unincorporated and most local government bodies are indigenous. The responsibility for maintaining local roads in remote areas is shared between the local government bodies, the NT Government and to a limited extent the Local Government Association of the NT. Only the local government bodies and LGANT received funding from the *Roads to Recovery* Programme. These unique circumstances will need separate consideration in any future programme.

The classification system used throughout this review provides a means of comparing the funding allocation to Councils across all States and Territories on a consistent basis. Appendix F compares the average allocation between class of Council on a per capita and per local road length basis.

12. An Overview of the SA Approach

In SA, 15 per cent of the *Roads to Recovery* funding (as well as 15% of the roads Financial Assistance Grants) is pooled at the state level for funding projects of regional significance. The approach has been in use as part of the distribution of the FAGS since the mid-1980s.

A key feature of the approach is the preparation of a strategic plan by each of the six regional Local Government Associations (LGA) in the State. Three of these plans have been completed and three are in the final stages of preparation. Regional priorities are discussed as part of the planning process.

Councils submit regional projects to a Local Road Advisory Committee (LRAC), chaired by the Immediate Past President of the State LGA, for a state overview of priorities before being submitted to the State Grants Commission for funding from the pooled fund.

While the strategic plans establish an agreed hierarchy of roads, the actual assessment of whether a proposal was on a regionally significant road is established through the multi-criteria evaluation framework used by the LRAC. All projects are ranked in order of priority and those at the top of the list represent the roads of regional significance. In this way, the contentious issue of road classification while part of the planning process is not part of the funding process.

The approach has widespread support. At the regional workshop held in Adelaide, attended by 15 councils, it received almost unanimous support. However one Council made the point that with their amalgamation, the objectives of the regional approach are now effectively met within their own council.

Some Councils said that they do not receive their share of the pooled funding and that the LRAC in some cases selected a lower order priority to that agreed at the regional level. The Grants Commission responded by saying that a detailed analysis showed that the relative priority of projects did move around the State but over the last 10 year period of FAGS distribution, they evened themselves out.

The Commission also said that the LRAC always preferred projects that enhanced regional connectivity and on some occasions a Council's highest priority project may not be a priority for their neighbouring Councils. The fact that there were at times differences between local and regional priorities underlined the merits of a state-wide view of funding allocation.

In SA, the current involvement of the Grants Commission is welcomed. However, should a more regional approach be extended nationally in a future programme, an alternative approach might be for Councils to pool their funding at the regional level and administer it through their regional LGAs rather than the State Grants Commission.

13. Summary of Discussion at the Workshops

In early August, a *Roads to Recovery* circular was sent to all Councils in Australia to advise them of the review process and to seek their interest in participating in a workshop session to obtain data for the review. 220 Councils indicated their interest.

In the event, fourteen workshops were held around Australia, three in Queensland (due to its size), three in SA (due to the specific interest in its regional programme), two in each other mainland State and one each in Tasmania and the NT. 83 Councils were selected by the State Local Government Associations and ALGA to participate in the workshops on the basis of their stated desire to be involved, geographical distribution and council category.

The workshops provided an opportunity:

1. to detail the additional data (to the national survey) that was to be collected from a selection of Councils and to ensure that those involved knew what was required; and
2. for a general discussion of a issues about the *Roads to Recovery* Programme.

The following is a summary of the discussion, structured about the headings used at the workshops.

Strategic emphasis for the Councils road works programme

Councils were asked whether they had asset management programmes and/or pavement management systems in place and if so, their nature. They were also asked whether any other strategic planning was in place.

The responses from most Councils at most workshops was that they did have asset management systems. The exceptions were often the very small and remote Councils. Almost all Councils have a forward works programme.

Strategic planning on a wider level was reported to be underway in a number of areas, particularly in SA where considerable regional planning is done, frequently in conjunction with the SA Local Government Grants Commission work.

Other Funding Sources

This discussion addressed sources of funds other than normal Government sources. The most common other funding source was from industry, including:

- developers and industries receiving sole benefit from road works often contribute.
- in NSW, a levy can be imposed for the transport of grain to rail silos.
- some Councils impose a levy on material transported from mines and quarries and one for the transport of waste to a local facility.
- in Victoria, it is quite common for Councils to seek a contribution from landholders (generally individuals) who will benefit from road works.

The general view nevertheless was that it was difficult to gain road funding from private industry and it was not likely to be a viable alternative source of substantial road funds for local government. Furthermore, it was indicated that special arrangements made by the State Government for some industries limit Councils' capacity to recover money from them eg in Tasmania, Council road charges on the logging industry were replaced by increased heavy vehicle registration charges by the State but local government sees little of the money.

On the level of funding, many Councils felt that they were keeping up with needs (with *Roads to Recovery* funding) but as many or more still believed that they were falling behind in their ability to maintain their road network.

Regional Funding Approach

There was a general uniformity of view across States but there were variations that reflected local conditions. In the main, it was considered that the National Highway and State Main Roads provided the inter-regional roads. There were exceptions where an inter-regional road was a series of contiguous local roads but this was uncommon. It was felt that regional issues were generally best dealt with by liaison between adjacent Councils, as happens now.

In NSW regional roads, although owned by Councils, are largely State Government funded. Block grants are provided to Councils for the maintenance of these roads and projects are funded on a regional priority and 50/50 basis with Councils.

The State Government in WA runs a regional road programme involving regional groups of Councils and in Queensland, the Department of Main Roads-Local Government Association of Queensland Alliance will also be addressing this issue. It was felt that there was no need for an additional Commonwealth programme that replicated this approach.

There was some support for a programme that would enable individual Councils to undertake major projects eg bridges but only if this was done on a rotating basis.

An issue in Victoria related to the amalgamation of Councils during the 1990s. Local regional roads that previously traversed several council areas are now often largely confined within the one, larger council area. Thus there was general hostility to the idea of transferring any substantial amount of funding from individual Councils to pools for regional roads. While some Councils could think of instances of regional roads needing attention, the only way to spend any substantial amount of regional money in most places would be to artificially link together a series of roads that needed work.

In SA, the smaller council size and the lack of significant State funding has encouraged Councils to pool a share of their Commonwealth funding. By agreement with local government, the State Local Government Grants Commission runs a regional programme using 15% of the roads Financial Assistance Grants and *Roads to Recovery* funds. It was judged that the amount was about right and that one necessary condition for the programme's success was that local government was party to the decision making. There

was however, concern that some regions did not get their share of the pooled funds although this is disputed by the Grants Commission.

Intermodal Issues

There was widespread recognition that the transfer of heavy freight from road to rail was good for the road system even though, as rail was most commercially competitive on long hauls, the bulk of the benefits would be on the National Highways.

However there were concerns in two States. In SA, there is the threat of local rail closures, and in the sugar growing areas of Queensland, tramways have historically been used to haul much of the cane to the mills and there is pressure from the mills to move this freight by road.

Structure of a Future Roads to Recovery Programme

Broadly speaking, most Councils would prefer continuing the arrangements of the current programme. In particular, Councils support:

- (a) the local decision making,
- (b) the simplicity of the reporting requirements and other administrative arrangements, and
- (c) direct funding to Councils without State Government involvement in the programme.

They indicated that they wished to be involved in the decision as to whether there would be a regional programme in each state, its nature and the amount of funding to be pooled. If a regional programme is to be introduced in a future *Roads to Recovery Programme*, it must:

- (a) recognise that one size does not fit all,
- (b) take into account and not duplicate the existing arrangements in each jurisdiction,
- (c) be an appropriate size. 15% was considered appropriate in SA but may not be appropriate in other States due to the size of the Councils and the degree of State government responsibility for regional roads, and
- (d) involve Local Government in the process of selecting roads and projects.

A full listing of Councils that participated in the workshops is given in Appendix B.

14. Evaluation of the Programme

The programme was evaluated against ten criteria and outcomes, as shown below. Many individual projects contribute to several of the outcomes. In short, *Roads to Recovery* has made the roads safer, improved the ease with which goods and people can use them, enhanced economic development and improved the amenity of living in many places.

| <i>Criteria</i> | <i>Comment</i> |
|---|---|
| Safety | <p>Projects in both rural and urban areas have a strong safety focus and Councils attributed about 40% of the programme's benefits to this outcome. For rural/regional Councils, this is roughly the same as for normal road works but urban Councils have placed a slightly higher emphasis on safety than is seen in their normal programmes.</p> <p>446 councils of the 508 that had submitted 2001/02 annual reports as at 6 February 2003 have at least one project on their 2001/02 <i>Roads to Recovery</i> programme which has safety among its objectives. The all-pervasive nature of safety as a programme outcome can be seen by a perusal of the case studies.</p> |
| Transport efficiency (especially freight) | <p>25% of the benefits attributed by councils to the programme come from improved transport efficiency. Rural Councils placed more emphasis on this outcome than did urban Councils and also placed more emphasis on this outcome than they did on their normal road programmes.</p> <p>307 Councils of the 508 have at least one project on their 2001/02 programmes, which included transport efficiency among its objectives.</p> |
| Economic development | <p>Economic development was a common objective for <i>Roads to Recovery</i> projects. 247 Councils of the 508 show this as an objective in at least one of their projects. There is a substantially greater emphasis on economic development objectives in rural areas than in urban ones (about 12% of the identified benefits versus 8%). See, for example, case studies 2, 14, 32 and 34.</p> |

| <i>Criteria</i> | <i>Comment</i> |
|---|---|
| Social/equity | <p>Many Councils used their funds to improve all weather access to areas affected by wet weather, not just in remote northern areas where the wet can deny access to an area for weeks or months at a time, but also in more settled areas where sealing works, bridgework and other treatments such as lifting the level of roads were common.</p> <p>In some cases, sealing works had major social implications eg in Aboriginal communities reducing dust levels improves the comfort and amenity of living and reduces respiratory and eye problems. However, dust suppression issues were not limited to Aboriginal communities.</p> <p>There was a strong emphasis on projects on school bus routes in rural and urban fringe areas where reliable access to schools is a high priority. Many other projects involved generally better access to schools, in some cases hospitals and in at least one case to a retirement village.</p> |
| Connectivity and access to regional centres | <p>All road projects improve connectivity. A number of rural Councils used the R2R Programme to upgrade regional roads and a small proportion funded projects on State roads where this was a council priority and not a state priority. Several urban Councils used their funding to upgrade connections from freeway on/off ramps. In SA 15% of the funding was pooled for regionally significant projects which provided a consistent and structured approach to achieving regional connectivity.</p> |
| Asset management | <p>The review revealed a very strong emphasis on the renewal of the road surfacing and pavements, with some 80% of all expenditure on this type of work. The case studies show a strong interest in care for the road asset. Councils have used R2R to address the backlog in these works. However, the level of funding will only arrest the decline in asset value and the impact of the programme will be short-lived if it is not continued beyond 2005.</p> |
| Fiscal stimulation | <p>All the funds provided represented a fiscal stimulation. Generally speaking there was a very quick take up of the programme by Councils and funding flowed very quickly to projects across Australia. Although some Councils were slow to register, the accelerated funding programme in the first half of 2001 compensated for this.</p> |
| Efficiency of administration | <p>The Programme is very efficiency administratively. Decision making at the local level and direct funding to Councils minimised the programme's delivery costs. The requirements of the programme are readily and generally well understood by Councils. The programme is managed by only three full time staff in Canberra.</p> |

| <i>Criteria</i> | <i>Comment</i> |
|----------------------|--|
| Employment | <p>The programme created employment in rural areas. As Councils day labour forces do most of the work for rural Councils, R2R funding resulted in an average additional 3-4 people being employed per council by them. The programme also allowed other staff to be retained in employment. Of the work done by contract, a substantial proportion went to local contractors, which would also assist local employment.</p> <p>Urban Councils normally do more work by contract than do rural Councils and the R2R Programme involved even more contract work than usual. However the proportion of work given to local contractors was the same as under the normal roads programmes.</p> |
| Return on investment | <p>As expected, the economic return on investment varied from council to council reflecting the range of traffic volumes and costs of construction. Overall there was a net positive effect with an average benefit cost ratio of 1.4 for rural Councils, 2.1 for regional Councils in rural areas and 1.7 for urban Councils. The average benefit cost ratio for all projects evaluated was 1.8 with an average net present value of \$203,000.</p> <p>Many Councils were able to gain economies of scale by combining other projects with R2R works. In many other cases, it was possible to leverage additional funds from other Government agencies, the private sector and local landowners. In both these cases, there was a better effective return on the funds spent.</p> |

A number of these criteria have wide as well as local implications. For instance, road safety, freight efficiency and economic efficiency outcomes on the local road network cascade into a national outcome when combined with state and national roads. Connectivity and access to regional centres also has a regional outcome.

| <i>Criteria</i> | <i>Outcome Levels</i> |
|--|------------------------------|
| Safety | National, regional and local |
| Transport efficiency | National, regional and local |
| Economic development | National, regional and local |
| Social/equity | Regional and local |
| Connectivity/access to regional services | Regional, local |
| Asset management | Local |
| Fiscal stimulation | National |
| Efficiency of administration | National |
| Employment | Local |
| Return on investment | Local |

15. Conclusions

The key finding of the review was that the *Roads to Recovery* funds have generally been well used in ways consistent with the intention of the programme ie to address the backlog of works on the local road system that have built up over time. However, notwithstanding the contribution that the *Roads to Recovery* funding has made, there remain deficiencies both in terms of the maintenance of the existing road system and the need to upgrade and in some cases to extend it.

A number of themes emerged from the review. They are listed as follows.

1. *The Roads to Recovery Programme did not eliminate the backlog of works on local roads.*

The *Roads to Recovery* Programme reduced the rate of decline in the condition of local roads. To maintain the asset at its current level of service the *Roads to Recovery* funding would need to be not only continued but twice its current level. Local roads will revert to their pre- *Roads to Recovery* rate of decline at the end of the programme in 2005, if the programme is not continued.

2. *Roads to Recovery met a need for additional local roads funds.*

Councils allocated their funds to their highest local priority in accordance with their local road plans and programmes, which varied with local conditions. Local priorities for roads ranged from upgrading and sealing the only access road to a remote community, maintenance and regravelling of gravel roads, replacement of bridges, resealing sealed roads to construction of arterial roads for Councils with major traffic issues.

3. *The programme as delivered by Councils had a strong safety focus with a secondary focus on transport efficiency and economic development.*

There was almost universal agreement that road safety was a major outcome for the programme. It was identified as comprising 40% of the benefits from rural, regional and urban Councils. Commonwealth and State Governments have both had a strong focus on road safety in recent times and it is not surprising that Councils have identified their backlog of needs within a safety context.

4. *Most of the expenditure was on existing roads, split about equally between renewal and upgrading capital expenditure.*

Councils focused their projects on the existing road system. There was most emphasis on upgrading in Councils where development is rapid ie in rural significant growth councils and urban fringe councils while the greatest emphasis on renewal of the existing assets was in the stable urban developed category. The expenditure on the building of new roads was less than 10% of the whole.

This focus on the existing road system allowed Councils to respond quickly to the availability of funding resulting in an almost immediate financial stimulation to the economy across the country.

5. *The programme had strong employment benefits.*

In rural areas, the programme resulted in on average, the employment of an additional 3-4 people per Council. In addition local contractors undertook a significant amount of the work. Both these effects would have stimulated the local rural economies.

In urban areas, contractors provided the additional capacity needed to implement the programme and a significant proportion was local. Although the employment impacts of the contractors were not measured, it would have had a significant impact on the private sector in the urban areas.

6. *The programme brought economic benefits for all classes of Councils.*

An economic analysis done on a sample of projects showed that 20% of all projects had a benefit cost ratio exceeding 2.0, nearly 30% exceeding 1.5 and 45% exceeding 1. The average overall benefit cost ratio of the analysed projects was 1.8.

7. *The Programme maximised the available funding for road works.*

The simple administrative and reporting procedures and the direct funding of Councils kept the Commonwealth and local Council overheads to a minimum. This maximised the funding available for Councils to spend on roadworks.

8. *The SA regional approach has worked well.*

The SA approach of pooling 15% of the *Roads to Recovery* funding has merit as a means of Councils joint funding projects of regional significance. One key to its success has been the level of co-operation between State and local government and between Councils. Other key elements include a culture of asset management and a project approval process (at the state level) that was separate from the regional planning and the ability to fund regional planning studies.

9. *The SA approach has limited support outside SA.*

There was evidence that Councils in other States would not voluntarily adopt a similar approach, although mechanisms being developed in some States could facilitate such an approach. Councils generally prefer to receive their full entitlements directly.

10. *The NT has unique circumstances that will need separate consideration in a future programme.*

Most of the Northern Territory is unincorporated and most local government bodies are indigenous. The responsibility for maintaining local roads in remote areas is shared between the local government bodies, the NT Government and to a limited extent the Local Government Association of the NT. Only the local government bodies and LGANT received funding from the *Roads to Recovery* Programme.

There were issues relating to the size of the grants to Councils, the fact that the NT Government did not receive any funding and the lack of a strategic approach at the local level, that diminished the benefits from the programme in the Northern Territory. These issues will need to be addressed in a future programme.

11. *Asset management was perceived to be very important.*

There was almost universal agreement that good asset management was important to Council engineers and a large number of Councils have asset management systems in operation. The need to renew roads at an optimal stage of the pavement life and to restrain from upgrading the road asset to a standard that could not be maintained in the future were both recognised.

12. *A future Roads to Recovery Programme.*

Councils were asked their views on a future *Roads to Recovery* Programme. They indicated that three elements of the existing programme should be retained:

- local decision making on project priorities,
- simple reporting requirements and other administrative arrangements, and
- direct funding to Councils without State Government involvement.

If a regional approach is adopted, it should be tailored to the circumstances in each jurisdiction as the role of the State governments in the provision of local and arterial roads varied between jurisdictions. Local government would also wish to be involved in the decision as to whether there would be a regional programme in each state, its nature and the amount of funding to be pooled.

Appendix A – Glossary of Terms

A number of terms have been used in the report that may not be familiar to all readers of this report. Below is a description of the most common terms used.

| <i>Term</i> | <i>Description</i> |
|-----------------------------------|--|
| R2R | An acronym for <i>Roads to Recovery</i> . |
| Renewal expenditure | Expenditure on renewing an existing road or bridge asset to its existing standard in order to extend its service life, e.g. resurfacing a sealed road, pavement rehabilitation, resheeting a gravelled road, etc. |
| Upgrading expenditure | Expenditure on upgrading the standard of an existing road or bridge asset to provide a higher level of service, e.g. rehabilitating and widening a section of road, sealing an existing gravelled road, replacing an existing bridge with one having a greater carrying capacity, etc. |
| Benefit cost ratio | The ratio of total economic benefits from a project accruing over its service life and discounted to present value, divided by the initial capital cost. |
| Net present value (NPV) | The net difference between the discounted benefits accruing from a project and the initial capital cost. |
| Asset management | The discipline of managing a road asset throughout its entire service life, ensuring that the asset delivers its required level of service at any time for least cost to the community. |
| Current replacement cost | The cost to replace an asset to its current service standard. |
| Written down current cost (WDCRC) | The depreciated value of an asset at any particular time. The WDCRC is essentially the asset replacement cost minus the asset consumption. |
| Asset consumption | The wearing out or loss of service potential of an asset whether arising from use, passing of time or obsolescence. This is measured by changes in condition and/or WDCRC and reported in financial reports as depreciation expenses. |
| Renewal cycle | The service life of an asset before renewal is required. It is typically 10-15 years for the surfacing of a local road and 40-60 years for a local road pavement. |

Appendix B – Councils Who Participated in the Regional Workshops

| <i>Date of Workshop</i> | <i>Location</i> | <i>Participating Councils</i> |
|-------------------------|-----------------|---|
| 15 August 2002 | Parkes (NSW) | Parkes, Forbes, Lachlan, Orange, Cabonne, Wellington, Narrabri, Wellington, Dubbo, Coonabarabran, Mudgee, Coolah |
| 17 September | Melbourne (Vic) | Bayside, Brimbank, Greater Dandenong, Knox, Monash, Warrnambool, Wellington, Moira, Moyne, Hepburn, Casey, Greater Geelong, Towong |
| 18 September | Bendigo (Vic) | Corangamite, Macedon Ranges |
| 23 September | Adelaide (SA) | Adelaide Hills, Adelaide, Alexandrina, Barossa, Campbelltown, Clare and Gilbert Valleys, Copper Coast, Loxton Waikerie, Mt Barker, Murray Bridge, Northern Payneham St Peters, Salisbury, Onkaparinga, Holdfast Bay, Northern Areas |
| 24 September | Mt Gambier (SA) | Mount Gambier, Wattle Range, Grant, Tatiara, Robe |
| 25 September | Whyalla (SA) | Franklin Harbour, Elliston, Whyalla, Ceduna, Orroroo/Carrieton, Kimba, Mt Remarkable, Peterborough, Federation of NE Councils, Transport SA |
| 27 September | Darwin (NT) | Katherine, Darwin, Palmerston, Tiwi Island, Umbakumba, Gunbalanya |
| 1 October | Perth (WA) | Greenough, Coolgardie, Cambridge, Wanneroo, Belmont, Armadale, Subiaco, Perenjori, Goomalling, Mandurah, Swan, Roebourne, Harvey |
| 2 October | Katanning (WA) | Kojonup, Gnowangerup, Kent, Dumbleyung, Woodanilling, Tambellup, Katanning, Albany, Plantagenet, Cranbrook |
| 8 October | Hobart (Tas) | Break O’Day, Clarence, Derwent Valley, Launceston, Latrobe, Northern Midlands |
| 11 October | Sydney (NSW) | Auburn, Blacktown, Randwick, Ryde, Strathfield |

| | | |
|------------|------------------|--|
| 14 October | Brisbane (Qld) | Mundubbera, Caboolture, Jondaryan, Murilla, Wambo, Kilkivan, Taroom, Gatton, Redland, Rosalie, Herberton, Boonah, Toowoomba, Mt Isa, Tara, Maroochy, |
| 15 October | Emerald (Qld) | Banana, Belyando, Emerald, George Bourne & Associates (representing 11 Councils), Blackall, Rockhampton, Longreach |
| 18 October | Townsville (Qld) | Bowen, Burdekin, Cairns, Townsville, Thuringowa |

Appendix C – Classification System for Councils

The full classification of Councils is summarised as follows:

| Description | Category | Description | Population |
|-----------------------------------|---|--|------------------|
| URBAN | LGA with a population of >20,000 or population density >30 persons per sq km or where >= 90% of population is urban | | |
| Capital City | UCC | Capital City | |
| Metropolitan Developed Small | UDS | Part of an urban centre of >1,000,000 people and population density of > 600 persons per sq km | Up - 30,000 |
| Metropolitan Developed Medium | UDM | | 30,001 - 70,000 |
| Metropolitan Developed Large | UDL | | 70,001 - 120,000 |
| Metropolitan Developed Very Large | UDV | | >120,000 |
| Regional Town/City Small | URS | Part of an urban centre with population <1,000,000 and predominantly urban in nature | Up - 30,000 |
| Regional Town/City Medium | URM | | 30,001 - 70,000 |
| Regional Town/City Large | URL | | 70,001 - 120,000 |
| Regional Town/City Very Large | URV | | >120,000 |
| Fringe Small | UFS | A developing LGA on the margin of a developed or regional urban centre | Up - 30,000 |
| Fringe Medium | UFM | | 30,001 - 70,000 |
| Fringe Large | UFL | | 70,001 - 120,000 |
| Fringe Very Large | UFV | | >120,000 |

| Description | Category | Description | Population |
|-------------------------|---|---|-------------------|
| RURAL | LGA with a population of <20,000 and population density <30 persons per sq km and where <90% of population is urban | | |
| Significant Growth | RSG | Average annual population growth >3% pa, population >5,000 and not remote | >5,000 |
| Agricultural Small | RAS | Agricultural | Up to 2,000 |
| Agricultural Medium | RAM | | 2,001 - 5,000 |
| Agricultural Large | RAL | | 5,001 - 10,000 |
| Agricultural Very Large | RAV | | 10,001 - 20,000 |
| Remote Extra Small | RTX | Situated in remote location | Up to 400 |
| Remote Small | RTS | | 401 - 1,000 |
| Remote Medium | RTM | | 1,001 - 3,000 |
| Remote Large | RTL | | 3,001 - 20,000 |

Appendix D – Case Studies

This Appendix summarises a selection of case studies provided to the review team.

Case study 1 - Mt Remarkable Council, SA

Type: A small rural council in SA

Population: 3,200

Area: 3,422 sq km

The Problem Identified

The 'Top Track' runs 15km from the Pirie Shire boundary to the Port Germein Gorge Access Road along the western edge of the Southern Flinders Ranges. It was sealed in the Pirie Council area but not in the Mt Remarkable Council area. It carries more traffic than any other district road in the Council area (160 vehicles per day) and services 60 local properties. Produce from the area (grazing, cropping, some horticulture) is taken by road to Port Pirie for sale/despatch. Residents require better access to Port Pirie.

The road provides access to Telowie Gorge Conservation Park and is a designated tourist drive through the Southern Flinders Tourist Area. The Conservation Area has about 7,000 visitors per year, most of whom use this road. Tourists driving north often turn around when they hit the dirt road on the Shire boundary. There have been two fatal accidents on this road during the past five years.

Why Was This Project Given Priority?

The volume of traffic and its tourist potential. The Top Track is a school bus route for a distance of 7km including the 2km sealed under the *Roads to Recovery* programme.

The Solution Adopted

The Council took advantage of the accelerated funding programme under *Roads to Recovery* in 2001 to seal 2km of the road. It is intended to complete the sealing as funds become available. Local contractors and a lot of local material were used.

Costs Involved

\$246,269

The Outcome

Improved road safety, economic development, transport efficiency, social access and equity.

Case study 2 - Central Highlands Council, Tasmania

Type: A rural council in central Tasmania

Population: 2,800

Area: 8,348 sq km

The Problem Identified

Hollow Tree Road is the main road between the Council's two largest towns of Hamilton and Bothwell. It is 34km long and carries over 150 vehicles per day, 13% trucks, mostly log trucks, but there is also some traffic to farms.

Most of the log traffic travels from the forests on the western side of the shire north to the wood chipping facility at George Town, near Launceston and to Triabunna on the east coast via the Hollow Tree Road and the state controlled Highland Lakes Road. Use of this route rather than the alternative via New Norfolk saves log traffic 16km.

A school bus also uses the road between Hollow Tree and Bothwell. The road is also a tourist route to the Central Highland Lakes area.

The road's construction and alignment is not suited to the traffic of today. Inadequate sight distances create safety problems in some places. Council has previously had to close the road to loaded log trucks because of damage to the pavement on occasion. Some 29km needs to be upgraded.

Why was This Project Given Priority?

Largely because of the economic importance of the log traffic to the local area. Without the *Roads to Recovery* money, Council would not have been in a position to do any more than pothole patching with the occasional failure reconstruction.

The Solution Adopted

3km of the road has been realigned, sight distances and drainage has been improved and the pavement reconstructed and sealed. The work uses council work crews and local contractors and materials. All the funds involved will go into the local community.

Costs Involved

\$1,200,000.

The Outcome

Improved safety, economic development and transport efficiency.

Case study 3 - Hurstville City Council, NSW

Type: A mid-sized urban Council just south west of Sydney airport

Area: 24.6sq km

Population: 72,000

The Problem Identified

Belmore Road is a major through route between Henry Lawson Drive and Canterbury Road, with traffic in the range of 16,000 to 22,000 vehicles per day. It was four lanes apart from the railway overbridge near Riverwood Station, which was only two lanes. This causes traffic to bank up for up to two blocks in either direction. The existing footbridges are too narrow (only 1.2m wide) for pedestrian safety.

Access to the Riverwood station and shopping centre was a problem, especially for buses. The railway line splits the shopping centre and it could take 15 minutes to drive 200 metres from one side to the other in peak periods. There were also access problems in regard to the M5, north bound vehicles heading to the M5 are delayed at the bridge in the morning peak.

The work had to be done quickly to minimise disruption.

Why This Project Was Given Priority?

It was a very bad traffic bottleneck. The widening of this bridge was identified in the RTA's 1998 Route Development Study.

The Solution Adopted

The bridge is being widened to four lanes. It will ease traffic congestion, decrease travel times and eliminate traffic queues. It will also improve access to the Riverwood station and shopping centre, especially for buses. The pedestrian footway will be widened to a minimum of 3m to improve pedestrian access and safety. It will also provide better access to the on and off ramps to the M5. Access and safety will be improved for pedestrians wishing to cross the railway line.

Funding is from three sources, as indicated below. The availability of *Roads to Recovery* funds made it possible to leverage funds from the NSW RTA.

Costs Involved

\$1.8m made up of \$1.033m from *Roads to Recovery*, \$500,000 from the NSW Roads and Traffic Authority and \$300,000 from the Council.

The Outcome

Improved safety, transport efficiency and social access and equity.

Case study 4 - Herberton Shire Council, Queensland

Type: A small council in far north Queensland

Area: 9,575 sq km

Population: 5,200

The Problem Identified

A crossing of the Herbert River near Innot Hot Springs used to routinely flood during the wet season, often for months at a time, isolating up to 20 residents. As the causeway could be under water for much of the year, it was difficult and expensive to maintain and was deteriorating.

The only other access to the area was a 50 km detour along a secondary road. It was not built for heavy vehicles and can sustain heavy damage when used by them, thereby making it difficult to move livestock and produce. This route also contains six gate crossings.

Why Was This Project Given Priority?

Principally to provide reasonable access for the people served by the crossing.

The Solution Adopted

Using accelerated funding under the *Roads to Recovery* Programme, Council built a new causeway about 1.5 meters higher than its predecessor utilising corrugated steel arches. The causeway itself is over 450 meters long. Residents can now expect to be cut off for no more than a few weeks a year rather than months at a time during the wet season. There will be savings in maintenance as well as prolonging the useful life of the alternate route.

The Cost

\$771,743

The Outcome

Improved access and equity and transport efficiency, reduced maintenance.

Case study 5 - Melton Shire Council, Victoria

Type: A large council on the western fringe of Melbourne

Population: 58,000

Area: 528 sq km

The Problem Identified

Exford Road is a major through road between Melton and Geelong and is a route to Melbourne Airport. It is a declared over dimensional route for heavy vehicles and agricultural machinery. A section of Exford Road between Telephone Road and Exford Primary School was only 4m wide, so that passing vehicles had to use an unsealed shoulder. Safety was also affected by extensive pavement failures and large increases in traffic (16% pa growth in traffic). Travel times between Geelong and Melton were increasing.

Why Was This Project Given Priority?

A large increase in accidents and vehicle damage on this section of road could be directly attributed to the narrow seal and the large increase in traffic. The road needed excessive maintenance to make it safe. Upgrading of the road was required immediately. With *Roads to Recovery* funding, this project could be done in one stage instead of being staged over four or five years.

The Solution Adopted

Widen and reconstruct 3.4km of road and realign the “Fiveways” intersection.

Costs Involved

Total cost of the project \$744,000.

The Outcome

Improved safety and transport efficiency.

Case study 6 - Barossa District Council, SA

Type: A rural council in SA

Population: 18,700

Area: 912 sq km

The Problem Identified

Balmoral Road is the local connector to Gawler for residents of Williamstown, Mount Pleasant and Springton and areas beyond. The 5km between Goldfields Road and Kalbeeba Road was unsealed.

Traffic volumes had increased to between 350 to 400 vehicles per day. Council had received many complaints from motorists about the surface condition and residents complained about dust. The number of road accidents increased with traffic. Maintenance was in the order of \$40,000 per annum.

Why This Project Was Given Priority?

Traffic volumes, dust nuisance, safety and cost.

The Solution Adopted

Council had allocated funds for the work but with *Roads to Recovery* funding, the last section (1.5km) was sealed 18 months ahead of the previous schedule. After the project was completed, traffic increased to 1,550 vehicles per day.

Costs Involved

Total cost was \$172,032

The Outcome

Improved safety, transport efficiency and social access and equity, reduced maintenance.

Case study 7 - Light District Council, SA

Type: A rural council in SA

Population: 18,700

Area: 912sq km

The Problem Identified

Seppeltsfield Bridge was a one-lane structure on Seppeltsfield Road, Seppeltsfield, with a three tonne load limit. The road is important and needed upgrading to accommodate higher traffic volumes and heavy trucks.

State Heritage had identified the cobblestone ford as a rare example of a relatively intact early ford. It was inappropriate for the replacement structure to cover the remnant fabric of the ford or cause damage to, or deterioration of the ford. Meeting these requirements limited the methods that could be used to build the new bridge.

Why Was This Project Given Priority?

In conjunction with the Barossa Access Study, Council identified a strategic freight network, of which the Seppeltsfield Bridge forms a part. Due to the load bearing deficiencies and overall structural problems, school bus, emergency services and general freight movements could not use this bridge.

The Solution Adopted

The existing structure was demolished and pre-stressed concrete spans were put in place to cater for higher mass limits and B-double transport on a two-lane, two-way structure. The spans were chosen due to the heritage issues associated with the cobblestone ford crossing under the span. The pre-stressed decks were utilised to ensure the bridge construction did not interfere with the cobblestone ford.

The result is an upgraded concrete two-lane bridge, with load bearing strengths suitable for higher mass limits and B-double freight movements. With the retention of a significant heritage feature, it complements the heritage of the Seppeltsfield area and surrounding wine and tourism facilities.

Costs Involved

\$300,000, of which *Roads to Recovery* provided \$175,000. The rest was from Council.

The Outcome

Improved safety, transport efficiency and retention of heritage features.

Case study 8 - Campbelltown City Council, SA

Type: A council in Adelaide

Population: 44,032

Area: 23 sq km

The Problem Identified

1. There were extensive traffic delays at intersections along Lower North East Rd especially at peak periods due to vehicles waiting to turn right. This results in driver frustration and dangerous turns being made. The road needed widening and turning lanes.
2. At the junction of Hambledon Rd and Acacia Ave North, vehicles were speeding, cutting corners and failing to wait for vehicles turning. The available sight distance required traffic to be slowed and separated, and have clearly defined obligations to give way.
3. Elsewhere on Hambledon Rd, speeding was a major concern near shops and an adjacent kindergarten where many elderly people and young children cross the road. The sight distance along the road is limited by bends, which also limit the placement of traffic management devices.

Why Was This Project Given Priority?

Safety concerns.

The Solution Adopted

1. Turning lanes installed in Lower North East Road reduced the delays and eliminated the need for risky right turns.
2. A roundabout was installed at the Hambledon Rd/Acacia Ave North intersection which has a 35 km/h design speed through this intersection, prevents drivers cutting the corner into Hambledon Road, and defines the turning movement and rights of way for vehicles moving between Hambledon Road and Acacia Avenue North.
3. The installation of a roundabouts at two places on Ballater Avenue has reduced speeds.

Costs Involved

\$91,740

The Outcome

Improved road safety and transport efficiency. Average speeds have reduced (85th percentile reduced by 10km/hr) and the maximum speeds recorded being reduced by up to 30 km/hr.

Case study 9 – Brisbane City Council, Queensland

Type: A large capital city council

Population: 850,000

Area: 1,350 sq km

The Problem Identified

Until 1990, traffic from the Ipswich Road and the Centenary Highway could readily access the Centenary Village housing estate. Since then, acoustic barriers erected along the Ipswich Road boundary of the Village and an interchange at the intersection of the Ipswich Motorway and the Centenary Highway have severely hampered access to the Village.

Since these changes, up to 2,000 motorists, cyclists and pedestrians per day have been using a road link under the Centenary Highway between Sanananda Street and Warrender Street, Darra. This is the only possible route to and from Centenary Village for walking and cycling and the only convenient route for motorists.

The existing road had been poorly built resulting in rapid deterioration and poor safety. There were no street lights along the road. As it was not classified as a dedicated road, adequate maintenance was not done.

Why Was This Project Given Priority?

Recent changes to the arterial road network around the Centenary Village have severed the community and decreased the safety and livability of the local area. The Centenary Village community had petitioned for this project, which had wide public support.

The Solution Adopted

The solution adopted included the construction of a dedicated road link between Strathaird Street and Sanananda Street (Warrender Street extension). The project involved the construction of on-road bike lanes and a formal pedestrian footpath with street lighting along the corridor and signage in the Centenary Village area. It also involved the construction of a 12 metre wide culvert to improve storm water drainage and provide flood immunity along Sanananda and Warrender Streets and nearby properties.

Cost Involved

Total cost: \$759,000

The Outcome

Improved safety, social access and equity and transport efficiency.

Case study 10 - Armadale City Council, WA

Type: A council on the south east fringe of Perth

Population: 54,000

Area: 545 sq km

The Problem Identified

Lake Road is being upgraded to dual carriageway between the Albany Highway and Ranford Road, with the last stage due to terminate at Ranford Road in a channellised intersection. This intersection was only interim; it was planned later to reposition the Ranford Road/Lake Road intersection 100m further west as a dual carriageway roundabout to coordinate with the development of a major industrial park just west of the intersection.

Two major issues were encountered in planning the final stage:

1. Just east of the Ranford Road/Lake Road intersection, Lake Road crosses the Southern River on a culvert which was to have been duplicated to carry the second carriageway. However, it became clear (a) that the existing bridge was too small and that (b) a second bridge had the potential to increase flooding
2. The State Government proposes to fast track the extension of the Tonkin Highway to within less than 2km of the Ranford Road/Lake Road intersection, which will mean earlier development of the Industrial Park. As a result, the interim upgrading of this intersection at its existing location could not be justified as the development of the business park would necessitate the relocation of the intersection to its final position within five years.

Why Was This Project Given Priority?

Because it is the most economically responsible long term solution. It also emphasises the importance, which Council was giving the industrial park project. Safety will improve as the proposed roundabout will substantially improve the safety for right turning traffic from Ranford Road onto Lake Road.

The Solution Adopted

The Southern River culverts will be upgraded and the Lake Road/Ranford Road intersection built to its full standard and in its ultimate position.

Costs Involved

\$1,000,000 ? \$776,000 from *Roads to Recovery* and the rest from Council.

The Outcome

Improved safety, economic development and transport efficiency.

Case study 11 – Local Government Association of the Northern Territory

The Local Government Association of the Northern Territory (LGANT) is the peak representative body for the Local Government in the Northern Territory with 65 local governing bodies as members. LGANT manages 1,800km of remote roads.

Community Profile

Mialuni Community has a population of 100 people on Amanbidji land (2,830sqkm). It is serviced by a 62km formed dirt road to the Victoria Highway. From the junction, it is 142km to Kununurra.

The Problem Identified

Access is difficult in the wet due to extensive black soil plains north of the community. It is isolated for up to five months per year. Food and medical services must be flown in.

The ATSIC Army Community Assistance Program (AACAP) involves the building of eight new homes (30 bedrooms), construction of a sewer system, upgrade of the airstrip and communities water supply over two years. This would increase traffic on the road and lead to further deterioration without the upgrade.

Why Was This Project Given Priority?

To improve wet season access.

The Solution Adopted

Through ACCAP, there was a commitment to upgrade the access road on a \$ for \$ basis. Using accelerated funding under the *Roads to Recovery* programme and ACCAP funds, LGANT has built a formed gravel road across 15km of black soil. Three concrete culverts have been installed in a water soak 200 metres long, three creek crossings upgraded and a cattle grid built on the community boundary. The access road is also being resheeted to bring it to a formed gravel standard to complement the ACCAP project.

The Cost

\$224,000 (50/50 *Roads to Recovery*/ACCAP).

The Outcome

Access has been extended by about two months per annum and maintenance costs reduced. There have also been savings in the delivery of the ACCAP program due to the better road network servicing the Mialuni Community.

Case study 12 – Marngarr Community Government Council, NT

Type: Aboriginal community

Population: 230

The Problem Identified

Marngarr is on Melville Bay, 15kms north east of Nhulunbuy, next to the alumina plant. The Drimmic Head access road is the only access to Marngarr from Melville Bay Road and is a formed gravel road. It becomes very slippery in the wet and rough and dusty in the dry. The maintenance cost is high relative to the resources of this council.

Dust from the road is a factor in respiratory and eye problems in this community. The dust also impacts on the clinic and electronic equipment in the council offices.

There is a conflict between users of the road, vehicles and pedestrians. The road provides pedestrian access to beach recreational areas and the Yacht Club. There is an increased risk of accidents because of the state of the road.

Why Was This Project Given Priority?

The need to address the dust nuisance and to improve the standard of access to both residential and business areas of the community.

The Solution Adopted

Form, compact and seal 3km of gravel road with the appropriate drainage.

The Cost

\$294,000 tripartite funding:

- NT Government \$100,000;
- Marngarr Community Government Council \$40,000 (Roads to Recovery); and
- ATSIC \$154,000.

The Outcome

A sealed road has been built, the dust nuisance reduced. Maintenance costs have been reduced. .

Case study 13 - Tara Shire Council, Queensland

Type: A rural council in western Queensland

Population: 4,100

Area: 11,176 sq km

The Problem Identified

Three major gravel roads in the shire are at the end of their useful lives. These roads are part of major traffic routes between state controlled roads with some of the highest traffic levels in the shire. They are used by heavy vehicles including road trains and B-doubles, mainly serving industries such as beef cattle, sheep, grain and cotton. They provide access to services such as health and education in Tara and further east. All three roads are school bus routes.

The existing gravel roads required resheeting just to maintain them in all weather condition. There is little suitable gravel in the shire, making resheeting expensive. Sub-standard gravels have often been used in the past, leading to safety problems such as slippery surfaces or corrugations. Often, the combination of poor materials and high traffic volumes creates a ridge of larger stones alongside the wheelpath, which can substantially reduce safe travelling speeds.

Why Was This Project Given Priority?

To ensure amenity and the safety of the travelling public, and to reduce the cost of maintenance and renewal with suitable materials.

The Solution Adopted

| | |
|-----------------|---------------------------------------|
| Old Moonie Road | 6.0km gravel resheet and bitumen seal |
| Hannaford Road | 6.0km bitumen seal of existing gravel |
| Roaches Road | 5.3km gravel resheet and bitumen seal |

Costs Involved

| | |
|-----------------|-----------|
| Old Moonie Road | \$400,000 |
| Hannaford Road | \$113,000 |
| Roaches Road | \$320,000 |

The Outcome

Improved safety and social access and equity. The work has been a major factor in the shire's ability to continue to employ its existing workforce with a construction crew of about nine men employed for five to six months of the year. Council estimates that *Roads to Recovery* has probably saved the jobs of three or four people.

Case study 14 - Northern Midlands Shire Council, Tasmania

Type: A rural council in north central Tasmania

Population: 11,850

Area: 5,130 sq km

The Problem Identified

Lake River Road is sealed for 9.8kms and is unsealed for a further 12.2kms. It services six rural properties. For the four years to October 1999, maintenance of the sealed road cost about \$25,000 pa. During this period a new logging coup was opened and the only practical access was Lake River Road. Logging traffic increased and at the end of 1999, it was costing \$1,000 per week to do pot hole patching alone.

The road had been quite suitable for the loads applied by the farmers so the logging companies were approached for contributions to the reconstruction of the road since this was only necessary for their use. The companies declined except for a token gesture of contributing to the replacement of one bridge. They argued that there had recently been significant increases in registration fees and that the increases were to be applied to road maintenance. However, the Council's share of the increased fees only amounted to \$180,000 (1998) reducing to \$45,000 (2006) per annum.

Why Was This Project Given Priority?

The road required major upgrading due to increased use when a new industry, logging, began to use it.

Without *Roads to Recovery* funding, the Council could not have justified the allocation of over \$1 million to an activity of no direct benefit to the council area. However, faced with protecting its assets, the Council would have had to apply load limits on the road.

The Solution Adopted

Sinclair Knight Merz was engaged to provide advice. They said that 2.6km (\$520,000) needed immediate reconstruction and a further 3.7km (\$746,000), would need reconstruction within five years. Also, one bridge required immediate replacement (\$30,000) and another three would only last until late 2002.

Costs Involved

Over \$1,000,000

The Outcome

The road has been upgraded which has generated economic development, transport efficiency and improved access and equity.

Case study 15 - Balranald Shire Council, NSW

Type: A small rural council in south western NSW

Population: 2,900

Area: 21,417 sq km

The Problem Identified

Balranald Shire Council identified problems such as failed pavements, pavement rutting and poor surfaces on most of its gravel roads. Some of these roads are school bus routes and the others are commercial, farming and community access roads. There have been accidents on these roads. Being flat, the area often floods, exacerbating these problems.

Why Was This Project Given Priority?

It was decided to upgrade 53km on nine roads. Six of these are school bus routes and community consultation suggested that safety of school children should have priority. The remaining three roads were chosen in order to provide safety for commercial vehicles and farming community and for economic reasons.

The Solution Adopted

It was decided to seal 38km and resheet the rest.

Costs Involved

Estimated at \$2,023,000.

The Outcome

Improved safety, transport efficiency and social access and equity.

Case study 16 - Blacktown City Council, NSW

Type: A large council in western Sydney

Population: 170,000

Area: 78 sq km

The Problem Identified

Concern had been raised about the safety of the intersection of Freeman Street with Northcott Road and nearby areas.

Why Was This Project Given Priority?

Safety.

The Solution Adopted

A roundabout was built at the intersection of Northcott Road and Freeman Street to improve safety at the intersection and reduce speeds on Northcott Road. To further slow traffic, another roundabout was built at the intersection of Heffron Road and Northcott Road along with a bus bay in Northcott Road and adjustment to the shopping centre access.

Costs Involved

\$296,478.

The Outcome

The construction of the two roundabouts in Northcott Road and the other adjustments have improved safety. Improvements to the intersection of Northcott Road and Freeman Street have made the shopping centre more attractive and the driving behaviour of parents picking up their children from the school at the corner of Northcott Road and Heffron Road has also improved.

Case study 17 - Brimbank City Council, Victoria

Type: A council in western Melbourne

Population: 156,000

Area: 123 sq km

The Problem Identified

Westmoreland Road is an important collector street abutting two primary schools and the Victoria University of Technology. Its severely distressed macadam pavement had effectively failed. The kerb and channel held water in numerous locations. Safety problems existed with the pavement surface breaking up under traffic. Large stones (25mm to 75 mm) were being thrown up by vehicles. Continued patching was not a viable option.

Why Was This Project Given Priority?

Council has a strategy of treating pavements before failure. When the pavement condition reaches failure, the only treatment available is high cost reconstruction.

The Solution Adopted

Reconstruction of pavement and kerbing

Costs Involved

\$532,500

The Outcome

Improved safety and reduced maintenance costs for Council.

Case study 18 - Darebin City Council, Victoria

Type: A council in northern Melbourne

Population: 125,000

Area: 55 sq km

The Problem Identified

Victoria Road was last reconstructed in 1929. The concrete surface is badly cracked and shows considerable displacement at the joints. It carries a substantial amount of traffic including buses and is an identified bicycle route. Current parking arrangements are inadequate. A substantial length of road was involved and would have required funding over several years using council funds alone.

Why Was This Project Given Priority?

There are many issues, involving the need for a separate bike path, the road's use by buses, the adequacy of pedestrian crossings and need for a general pavement upgrade.

The Solution Adopted

After consultation with residents, Council prepared a solution, which addresses most of the resident's comments. The road was widened to accommodate indented parking, a bicycle path and a clear lane for through road traffic. Indented parking allowed some significant trees to be saved. Pedestrian operated signals will be installed on several pedestrian crossings.

Costs Involved

\$337,000

The Outcome

Improved safety and social equity.

Case study 19 - Bourke Shire Council

Type: A rural council in north western NSW

Population: 3,800

Area: 43,117 sq km

The Problem Identified

The Paka Tank - Tilpa Road (RLR 10) connects Bourke, Louth and Tilpa and traverses black soil country, which is impassable in wet weather. Residents need all weather access and the road also carries heavy vehicles from neighbouring cotton farms to gins in Bourke.

Why Was This Project Given Priority?

All weather access for residents and transport for farm produce.

The Solution Adopted

The worst sections of road were reconstructed to lift the subgrade above the existing natural surface and 200mm of gravel was placed on the surface to ensure the road is all weather.

Costs Involved

\$613,686

The Outcome

Improved transport efficiency, social access and equity and employment. This project enabled Council to employ staff using six graders and three gravel trucks, which would not otherwise have been possible.

Case study 20 - Cairns Shire Council, Queensland

Type: A large regional city council in far north Queensland

Population: 130,000

Area: 1,681 sq km

The Problem Identified

Biggs Road and Josephine Falls Road are single lane sealed roads in Bartle Frere, Far North Queensland. These roads give local and tourist traffic access to Josephine Falls, a popular recreation area on Josephine Creek, and to white-water rafting sites. The roads are narrow and traffic travelling in opposite directions must leave the sealed surface to pass, which can be unsafe.

Why Was This Project Given Priority?

Council assessed projects nominated for the *Roads to Recovery* Program against Asset Management and Regional Development criterion, as recommended by ALGA. The project scored well for both the Asset Management and Regional Development criteria. Council also considered the requirement to maintain an appropriate funding balance between rural and urban projects.

The Solution Adopted

Upgrade and widen a 1.7 kilometre section of road to provide adequate width for a two-lane sealed road.

Costs Involved

\$200,164, fully funded by the *Roads to Recovery* Programme.

The Outcome

Improved safety and economic development.

Case study 21 - Copmanhurst Shire Council, New South Wales

Type: A rural council in coastal NSW

Population: 4,250

Area: 3,144 sq km

The Problem Identified

The timber bridge over Dulgigin Creek on Kimbin Pikapene Road was built in the mid 1950s. Early in its life, a flood caused its structure to move to the point that it was known as the 'Marilyn Monroe Bridge' (due to the curves). It had since deteriorated and had a five tonne load limit.

Heavy vehicles (farmers and timber) were subject to an 80km detour around this location. However, Council knew that heavy vehicles were still using the bridge and there would have been a serious accident had a vehicle gone through the decking. The bridge was also costly to maintain.

Why Was This Project Given Priority?

Reasons of safety and access.

The Solution Adopted

To replace the high maintenance timber structure with a low maintenance single lane concrete structure.

Costs Involved

\$380,000, of which \$265,382 is *Roads to Recovery* and the balance from Council funds.

The Outcome

There is now a safe, reliable and very low maintenance bridge without load limits.

Without the *Roads to Recovery* programme, Council could not have addressed this problem. Council still has about 50 timber bridges and had it replaced this bridge using its own money, funds would not have been available to replace another bridge for at least three years.

Case study 22 – Junee Shire Council, NSW

Type: A rural council in south west NSW

Population: 5,900

Area: 2,045 sq km

The Problem Identified

Dirnaseer Road, which links the northern part of Junee Shire to Cootamundra, is used to transport stock to the Cootamundra saleyards, for grain haulage and for general access. It is 17.8km long, and has a narrow 4m seal built in the late 1950s. The shoulder was too narrow for two vehicles to pass and it was dangerous especially for heavy vehicles. The road surface had deteriorated very badly and was out of shape as it was built to carry the much lower traffic volumes of the 1950s. Although a significant feeder road, it was in a worse condition than any other sealed road in the Shire.

Why Was This Project Given Priority?

Safety, social equity and transport efficiency.

The Solution Adopted

5km of the road was widened and rehabilitated and the shoulders were widened on another 5km. Gravel shoulders were built along a further 3.8km, to be sealed later.

This has produced 10km of new, wide road, with a further 3.8km at least safe for passing. The pavement material was cut from a steep hill over which the road passes. As a result, the hill is now some 5m lower, which has reduced grades on the road.

Cost

\$359,000

The Outcome

Improved safety, transport efficiency and social equity.

Case study 23 – Warrnambool Shire Council, Victoria

Type: A regional council in western Victoria

Population: 28,500

Area: 121 sq km

The Problem Identified

Tooram Road is the main southern access to the town of Allansford used by heavy vehicles carrying quarry products, tourist buses and school buses as well as general traffic. The section south of Railway Crossing to Morgans Road is 350m long with a quite sharp (100m radius) curve in the centre and a narrow culvert at the north end of the curve. The road was built some 40 years ago. It had a 6m seal with narrow shoulders, poor drainage and was badly deformed especially around the bend.

Why Was This Project Given Priority?

Safety, social access and equity. The road was deteriorating badly and becoming quite dangerous especially around the bend due to the increasing number of heavy vehicles and the fact that the road is also a school bus route. Also, five residential properties have entrances on the inside of the bend.

The Solution Adopted

Replace the existing culvert with one with large diameter pipes and widen the road. Widen the seal to 7m and cover with aggregate. Construct drains and crossings to enable safe access.

Cost

\$184,000 estimated.

The Outcome

Safety, transport efficiency, social equity. The outcome will be a wider road safer for heavy vehicles, tourist buses and school buses with less traffic noise. The road pavement will be protected by properly constructed drains giving a longer life. Access for residents will be far safer due to the wider pavement and seal.

Case study 24 – Wyndham City Council, Victoria

Type: A large council on the western fringe of Melbourne

Population: 83,000

Area: 542 sq km

The Problem Identified

Palmers Road is a main route from the Melton municipal boundary into Wyndham. Between Boundary Road and Leakes Road, it had narrow pavements 3.7 metres wide with gravel shoulders. Traffic flows were over 2,500 vehicles per day on these sections, of which 5% to 8.5% were commercial vehicles. Accidents on these road sections could be attributed to the narrow road pavement; the accident types were 'head-ons' and 'run-off road/out of control'. Safety issues required an 80kph speed limit. The gravel shoulders required frequent maintenance.

Why Was This Project Given Priority?

It improved Palmers Road - Robinsons Road as the regional north-south link between Wyndham and the Western Highway at Deer Park and improved access for commercial vehicles between the Western Highway and the industrial area of Laverton North . VicRoads has agreed to take responsibility for the road once it was upgraded.

The Solution Adopted

The two sections of Palmers Road were widened from a 3.7m single lane road to a 7.4m sealed two lane road.

Cost

\$1,055,000

The Outcome

Safety, transport efficiency, social access and equity. The road is safer, provides a higher standard regional link to the Western Highway, a safer alternative route for commercial vehicles, travel times have fallen.

The speed limit will be increased to 100 kmh. Completion of the final section between Sayers Road and Leakes Road will provide a high standard link between Werribee and Deer Park and other regional areas. The road will improve access to the major development site at Westpoint Business Park (the former Laverton Airbase) from other urban regions to the north.

Case study 25 - Winton Shire Council, Queensland

Type: A rural shire in central western Queensland

Population: 1,600

Area: 53,797 sq km

The Problem Identified

Winton Alternative Town Bypass between the Refuse Pit and Sesbania Street and the Industrial estate had a gravel pavement. The road ran close to a cattle unloading area. As a result, the town was covered in dust in the early morning and in the late evening when stock or traffic movements were high and there was the potential for accidents when stock were being unloaded. The pavement needed high maintenance due to traffic volumes and the damage caused by triple road trains.

Why Was This Project Given Priority?

Safety, social access and equity.

The Solution Adopted

The road has been sealed and shifted away from the unloading zone for cattle.

Cost

\$127,000

The Outcome

Safety and social access/equity. Less dust over the town and the potential for incidents at the cattle unloading ramp has been much reduced. Reduced maintenance costs.

Case study 26 – Yarrawlumla Shire Council, NSW

Type: A rural council in NSW abutting the ACT

Population: 9,600

Area: 2,970 sq km

The Problem Identified

Mountain Creek Road is a back road between Canberra and Yass serving rural, rural residential and tourist traffic. It carries livestock, fodder, timber, road building materials, and buses and other tourist traffic to and from Wee Jasper and elsewhere. A 400m gravel section of this road was prone to potholing soon after each grading due to its flat grade and lack of roadside drainage. This made the road dangerous and hard on vehicles. Three residences near the road suffered badly from dust. The section also had a tight curve. The problems will get worse as traffic increases in time.

Why Was This Project Given Priority?

Safety, social access and equity. Furthermore, a local land owner gave \$20,000 and a small parcel of land to allow the road to be widened. This greatly improved the viability of the project.

The Solution Adopted

The road was reformed, widened, realigned and spray sealed over the intended 400 m and extended by a further 380 m to link with an existing length of bitumen sealed road. Soon after the project started another landowner from the neighbouring Yass Shire rang to offer the use of free gravel from a pit on his property on the condition that the project be extended the extra 380m to link with the existing seal.

Cost

\$69,000 made up of \$40,000 from *Roads to Recovery* and \$29,000 of council funds plus contributions in cash and kind from local landholders.

The Outcome

The project improved safety, transport efficiency, allowed for potential economic development and improved the amenity of the location. Maintenance was easier and less expensive. 780m of road was upgraded and sealed. This project valued at \$130,000 was built with only \$29,000 of Council funds.

Case study 27 – Frankston City Council, Victoria

Type: A council in south eastern Melbourne

Population: 112,000

Area: 130 sq km

The Problem Identified

McClelland Drive/McCormicks Road is a secondary arterial road running the entire north south length of Frankston City. 12,000 vehicles per day use McClelland Drive between Darnley Drive and Duiker Court including a substantial number of commercial vehicles, particularly trucks associated with quarrying. The formation is 10m wide (7m sealed pavement width 1.5 m unsealed shoulders), the vertical and horizontal alignment below standard and the pavement surface was deteriorating.

Why Was This Project Given Priority?

Safety. In the past five years, there have been 19 casualty accidents along this section of McClelland Drive, 60% caused by vehicles leaving the road. The sub-standard pavement width, alignment and surface condition were contributing factors to these accidents.

The Solution Adopted

Rehabilitation of the existing pavement and shoulder by in situ stabilisation and crushed rock overlay, sealing of the widened pavement and delineation of approximately 2.3 km of McClelland Drive, between Duiker Court and Darnley Drive. Drainage has been improved.

Cost

The estimate was \$614,600 (\$314,600 from VicRoads and \$300,000 from *Roads to Recovery*). In fact, the works were completed for \$552,200.

The Outcome

Safety and better asset management. The pavement has been rehabilitated, the alignment improved, the sealed pavement has been widened from 7m to 9m, and the uneven sealed surface has been replaced with smooth asphalt. These works have all significantly extended the road's useful life and improved safety.

Case study 28 – Golden Plains Shire Council, Victoria

Type: A rural council in western Victoria

Population: 14,100

Area: 2,706 sq km

The Problem Identified

Lloyds Lane, Napoleons is a narrow, winding sealed road through bushland to an area containing substantial rural residential development. Traffic on this road is quickly increasing as development occurs.

Why Was This Project Given Priority?

Safety, social access and equity. The road carries about 280 vehicles per day (vpd) and so met council's criteria of 250vpd to upgrade to a wider (6.2m) seal. Traffic was increasing rapidly.

The Solution Adopted

The road was widened to 6.2m and straightened in places.

Cost

\$83,172

The Outcome

A much safer road. This work was done in conjunction with the upgrading of the next section of the Lane using Council funds. This allowed the whole project to be completed more cheaply than could have been done had the work been done piecemeal with Council funds only.

Case study 29 - Hepburn Shire Council, Victoria

Type: A rural council in central Victoria

Population: 14,000

Area: 1,471 sq km

The Problem Identified

There was a need to replace a ford on Springhill-Glenlyon Road at Kangaroo Creek where, in October 2000, a vehicle was washed away while trying to cross. The ford is often too deep to be used and there are long detours when it is flooded.

Why Was This Project Given Priority?

Safety, transport efficiency and social access and equity.

The Solution Adopted

Install culverts on the crossing and raise the approach road.

Cost

\$117,494 (\$71,494 *Roads to Recovery* from Hepburn Shire and \$46,000 from Macedon Ranges Shire).

The Outcome

The low level crossing has been eliminated and residents can cross the creek safely during flooding. The work would not have been possible without *Roads to Recovery* funds.

Case study 30 – Lower Eyre Peninsula District Council, SA

Type: A rural council in SA

Population: 4,100

Area: 4,763 sq km

The Problem Identified

The Bratten Way is an unsealed road catering for large volumes of heavy traffic, largely to freight primary production products. The road completes a link between the east and west coast of Lower Eyre Peninsula and sealing will also provide a tourist benefit to the region.

Why Was This Project Given Priority?

Economic, transport efficiency, social equity and safety. Sealing the road provides critical infrastructure for expanding primary production, particularly grain growing. The road is dangerous in summer due to heavy usage combined with high levels of dust and corrugation of the surface. Tourism will also benefit from the east-west link. The road will also be safer for users, including school buses.

The Solution Adopted

Sealing the road using *Roads to Recovery* and State Government grants as well as contributions from Council, with the project to be completed over about five years.

Cost

\$4.67 million

The Outcome

Sealing of what had been a rough and dangerous road provided benefits to residents, industry and tourists. This funding enabled Council to access State Government funds for this project without either reduction of effort on other works or excessive borrowing.

Case study 31 – Mareeba Shire Council, Queensland

Type: A rural council in far north Queensland

Population: 19,000

Area: 53,457 sq km

The Problem Identified

The road crossing the Mitchell River at Mt Mulgrave (about 280km north-west of Mareeba) serves grazing properties in the Mareeba Shire and the south west of Cook Shire and is a tourist gateway to Cape York Peninsula. The crossing is impassable for up to four months a year during and after the wet season and is under water by at least 200mm for most of the rest of the year. When flood waters receded enough for vehicles to cross the river, they had to snake along the river bed on natural loose rock and some rock mattresses previously built by Council. The route was hazardous and many tourists in particular had come to grief.

Why Was This Project Given Priority?

For safety, economic and regional development reasons.

The Solution Adopted

Construction of 120m long x 4.1m wide x 1200mm high reinforced concrete culvert and realignment of unsealed approaches.

Cost

The project was completed for \$187,000 excluding the value of donated plant and labour hire from an adjacent property valued at \$56,800.

The Outcome

Improved safety, transport efficiency, economic and regional development. The new crossing will allow graziers to access eastern and southern markets two or three months earlier than in the past and the crossing should be unusable for no more than a month a year.

Case study 32 – Playford City Council, SA

Type: A council on the northern fringe of Adelaide

Population: 67,000

Area: 345 sq km

The Problem Identified

This area exports fresh vegetables (eg lettuce, cauliflower) and cut flowers mainly to Singapore. Control of dust during growing is critical as this affects the appearance of the product. Although much product is grown in greenhouses to avoid dust, much is still grown in the open. Council is sealing many roads throughout the growing areas to reduce the impact of dust on the quality of the produce. There are also dust problems during haulage and safety and environmental issues as a result of poor road surface and drainage. Maintenance costs are high.

Why Was This Project Given Priority?

Urgent need to assist the development of the rapidly growing horticultural export industry.

The Solution Adopted

Seal the road and upgrade the adjacent drainage.

Cost

\$110,000 per kilometre.

The Outcome

Economic development, improved safety and social equity. Improved export market access for high quality vegetables and cut flowers. Reduced road maintenance costs to the community. Improved living amenity in this rapidly developing rural district as a result of reduction of dust, noise and improved road drainage.

Case study 33 – Marion City Council, SA

Type: A council in Adelaide

Population: 78,000

Area: 56 sq km

The Problem Identified

Perry Barr Road is a major collector road (3,000 vehicles per day) servicing the suburb of Hallett Cove. Skid resistance was low due to the age of the road surface. 350m had no street lights and a cutting was eroding, depositing rocks and soil on to the adjacent roadway and footpath. The first 300m of Perry Barr Road from Lonsdale Road (in a 80km/h speed zone) had also become undulating due to the poor underlying soil conditions.

Why Was This Project Given Priority?

Safety

The Solution Adopted

A hotmix overlay was applied to replace the old surface and, where necessary, to remove the depressions/ undulations in the road surface. A 70m section of the road pavement was cement stabilised to improve the underlying pavement strength. A retaining wall is to be constructed to prevent loose material falling onto the road and additional street lights are to be installed in the 350m section of road between Fairhill Street and Quinvale Road.

Cost

\$341,106

The Outcome

Improved safety for vehicular and pedestrian traffic along this road. The construction of the retaining wall will also improve the appearance of the streetscape of Perry Barr Road between Fairhill Street and Quinvale Road.

Case study 34 – Greater Bendigo City Council, Victoria

Type: A large regional city council in Victoria

Population: 87,000

Area: 3000 sq km

The Problem Identified

Ham Street, between Allingham Street and MacDougall Road, Kangaroo Flat was identified as a particular problem because of its narrow sealed road width with sub-standard vertical and horizontal alignment and the need to assist the proposed expansion of the Bendigo Mining Limited operation, which proposes to transport ore along Ham Street.

Why Was This Project Given Priority?

This road has been a problem for some years due to its poor alignment and narrow seal. Traffic volumes have increased as industry has grown in the area and the road provides a popular route between Golden Square and Kangaroo Flat (local suburbs). Bendigo Mining has announced that it will proceed with mining and transport ore along Ham Street to a processing plant ie more heavy vehicles on Ham Street.

The Solution Adopted

The horizontal and vertical alignment of Ham Street was improved between Allingham Street and MacDougall Road, incorporating a wider sealed pavement, and improvements to the intersection at the Bendigo Mining site (the provision of right turn lanes and deceleration and acceleration lanes from the mine entry).

Cost

\$107,937

The Outcome

Ham Street now provides a consistent width of sealed pavement, with improved horizontal and vertical alignment and gives safer access to Bendigo Mining. The new alignment is safer and will assist in the efficient movement of freight to industries in the area.

Case study 35 - Broome, WA

Type: regional/rural council in WA

Population: 10,000

Area: 56,000 sq km

The Problem Identified

The access road to the council waste disposal depot was unsealed and often closed during the wet season for days on end. This caused major problems. All weather access was required. The road was rough and expensive to maintain. There were dust problems for employees at the dump.

Why Was This Project Given Priority?

Inability to properly and quickly dispose of rubbish imposed serious risks on the community.

The Solution Adopted

To reconstruct and seal the road.

Costs Involved

\$165,000

The Outcome

All year access is now available. There is reduced wear and tear on vehicles using the road, the dust problem has been reduced and there are lower maintenance costs to Council.

Case study 36 - Wanneroo, WA

Type: a council on the northern fringe of Perth

Population: 73,000

Area: 688 sq km

The Problem Identified

Rangeview Road is a regional distributor. It is potentially dangerous due to its narrow pavement combined with poor visibility at sharp crest. Traffic on the road is increasing due to the urbanisation of surrounding area and the road is deteriorating as this occurs. There were breaks in the road edges due to installation of underground services.

Why Was This Project Given Priority?

Safety and asset management reasons.

The Solution Adopted

The road was reconstructed and widened to urban standard (kerbed and drained) incorporating median traffic islands / pavement markings and street lighting.

Costs Involved

\$321,000

The Outcome

Improved safety and better traffic movement. Also asset preservation is better.

Appendix E – Economic Analysis Results

The cost benefit analysis for the individual projects is presented in the following table.

| <i>Council</i> | <i>Project No</i> | <i>Cost \$'000</i> | <i>Type of project</i> | <i>AADT</i> | <i>PV Cost \$'000</i> | <i>PV benefits \$'000</i> | <i>NPV \$'000</i> | <i>BCR</i> |
|-----------------------|-------------------|--------------------|------------------------|-------------|-----------------------|---------------------------|-------------------|------------|
| Rural Councils | | | | | | | | |
| Northern Midlands TAS | 70 | 147 | 2 | 3,900 | 137.4 | 1,035.2 | 897.8 | 7.5 |
| Grant SA | 54 | 400 | 1 | 300 | 373.8 | 1,575.9 | 1,202.1 | 4.2 |
| Orroroo Carrieton SA | 65 | 19 | 2 | 20 | 17.8 | 64.9 | 47.1 | 3.6 |
| Coonabarabran NSW** | 11 | 150 | 2 | 400 | 140.2 | 405.4 | 265.2 | 2.9 |
| Derwent Valley TAS | 68 | 36 | 2 | 1,500 | 33.6 | 94.8 | 61.1 | 2.8 |
| Kimba SA | 57 | 825 | 1 | 125 | 771.0 | 2,023.7 | 1,252.7 | 2.6 |
| Greenough WA** | 93 | 77 | 1 | 285 | 72.0 | 188.1 | 116.2 | 2.6 |
| Franklin Harbour SA | 53 | 2,820 | 1 | 120 | 2,635.5 | 6,334.5 | 3,699.0 | 2.4 |
| Grant SA | 55 | 30 | 2 | 200 | 28.0 | 64.4 | 36.4 | 2.3 |
| Orroroo Carrieton SA | 64 | 564 | 2 | 166 | 527.1 | 1,220.1 | 693.0 | 2.3 |
| Tara QLD | 47 | 108 | 1 | 75 | 100.9 | 179.4 | 78.5 | 1.8 |
| Forbes NSW | 17 | 153 | 2 | 250 | 143.0 | 222.1 | 79.1 | 1.6 |
| Forbes NSW | 18 | 279 | 2 | 300 | 260.7 | 377.8 | 117.1 | 1.4 |
| Moyne VIC | 83 | 147 | 2 | 196 | 137.4 | 193.3 | 55.9 | 1.4 |
| Coonabarabran NSW** | 12 | 100 | 1 | 150 | 93.5 | 132.2 | 38.7 | 1.4 |
| Cabonne NSW** | 9 | 384 | 1 | 150 | 358.9 | 421.9 | 63.0 | 1.2 |
| Bowen QLD | 33 | 198 | 2 | 3,000 | 185.0 | 214.2 | 29.2 | 1.2 |
| Lachlan NSW** | 19 | 750 | 1 | 98 | 700.9 | 796.5 | 95.5 | 1.1 |
| Derwent Valley TAS | 69 | 59 | 2 | 3,000 | 55.1 | 59.0 | 3.9 | 1.1 |
| Derwent Valley TAS | 67 | 42 | 2 | 2,200 | 39.3 | 39.6 | 0.4 | 1.0 |
| Tara QLD | 46 | 400 | 1 | 75 | 373.8 | 361.0 | -12.8 | 1.0 |
| Lachlan NSW** | 20 | 500 | 1 | 88 | 467.3 | 421.5 | -45.8 | 0.9 |
| Greenough WA** | 94 | 98 | 1 | 50 | 91.6 | 79.1 | -12.4 | 0.9 |
| Elliston SA | 52 | 241 | 1 | 48 | 225.2 | 186.6 | -38.6 | 0.8 |
| Mount Remarkable SA** | 59 | 237 | 1 | 140 | 221.5 | 187.1 | -34.4 | 0.8 |
| Cabonne NSW** | 8 | 420 | 2 | 280 | 392.5 | 294.0 | -98.5 | 0.7 |
| Mount Remarkable SA** | 60 | 228 | 1 | 85 | 213.1 | 133.0 | -80.0 | 0.6 |
| Boonah QLD** | 30 | 170 | 1 | 80 | 158.9 | 91.8 | -67.0 | 0.6 |
| Greenough WA** | 95 | 133 | 1 | 53 | 124.3 | 76.3 | -48.0 | 0.6 |
| Wellington NSW | 96 | 34 | 2 | 100 | 31.8 | 18.5 | -13.3 | 0.6 |
| Moyne VIC | 84 | 121 | 2 | 73 | 113.1 | 51.1 | -62.0 | 0.5 |
| Forbes NSW | 16 | 170 | 2 | 70 | 158.9 | 81.2 | -77.7 | 0.5 |
| Mount Remarkable SA** | 58 | 276 | 1 | 80 | 257.9 | 116.0 | -141.9 | 0.5 |
| Bowen QLD | 32 | 240 | 2 | 1,500 | 224.3 | 107.1 | -117.2 | 0.5 |
| Northern Midlands TAS | 71 | 198 | 2 | 200 | 185.0 | 70.2 | -114.8 | 0.4 |
| Moyne VIC | 82 | 206 | 2 | 74 | 192.5 | 63.6 | -128.9 | 0.3 |
| Lachlan NSW** | 21 | 100 | 1 | 23 | 93.5 | 25.6 | -67.9 | 0.3 |

| <i>Council</i> | <i>Project No</i> | <i>Cost \$'000</i> | <i>Type of project</i> | <i>AADT</i> | <i>PV Cost \$'000</i> | <i>PV benefits \$'000</i> | <i>NPV \$'000</i> | <i>BCR</i> |
|---------------------------------|-------------------|--------------------|------------------------|-------------|-----------------------|---------------------------|-------------------|------------|
| Bowen QLD | 31 | 240 | 2 | 2,500 | 224.3 | 49.6 | -174.7 | 0.2 |
| Northern Midlands TAS | 72 | 621 | 2 | 100 | 580.4 | 87.0 | -493.3 | 0.2 |
| Wellington NSW | 98 | 384 | 1 | 40 | 358.9 | 36.9 | -322.0 | 0.1 |
| Wellington NSW | 97 | 420 | 1 | 100 | 392.5 | 0.1 | -392.4 | 0 |
| Katherine NT# | 29 | 195 | 2 | 1,253 | 182.2 | | | |
| Wambo QLD# | 49 | 236 | 2 | 78 | 220.6 | | | |
| Wambo QLD# | 51 | 198 | 2 | 160 | 185.0 | | | |
| Wambo QLD# | 50 | 243 | 2 | 55 | 227.1 | | | |
| Cabonne NSW# | 7 | 34 | 3 | 50 | 31.8 | | | |
| Katherine NT# | 27 | 133 | 4 | 1,736 | 124.3 | | | |
| Katherine NT# | 28 | 200 | 4 | 1,736 | 186.9 | | | |
| Grant SA# | 56 | 70 | 4 | 100 | 65.4 | | | |
| Coonabarabran NSW# | 10 | 196 | 4 | 50 | 183.2 | | | |
| <i>Regional Councils</i> | | | | | | | | |
| Greater Geelong VIC | 80 | 120 | 1 | 2,500 | 112.2 | 1,839.8 | 1,727.7 | 16.4 |
| Greater Geelong VIC | 81 | 43 | 2 | 12,000 | 40.2 | 58.0 | 17.8 | 1.4 |
| Dubbo NSW | 15 | 202 | 2 | 600 | 188.8 | 225.5 | 36.7 | 1.2 |
| Albany WA | 88 | 323 | 1 | 110 | 301.9 | 348.2 | 46.3 | 1.2 |
| Mount Isa QLD** | 39 | 55 | 2 | 350 | 51.4 | 56.0 | 4.6 | 1.1 |
| Wellington VIC** | 87 | 208 | 1 | 108 | 194.4 | 197.4 | 3.0 | 1.0 |
| Albany WA | 89 | 566 | 1 | 176 | 529.0 | 502.6 | -26.3 | 1.0 |
| Dubbo NSW | 14 | 138 | 1 | 50 | 129.0 | 116.7 | -12.2 | 0.9 |
| Greater Geelong VIC | 79 | 381 | 2 | 550 | 356.1 | 124.8 | -231.3 | 0.4 |
| Mount Isa QLD** | 41 | 24 | 2 | 150 | 22.4 | 2.3 | -20.1 | 0.1 |
| Mount Isa QLD** | 40 | 70 | 2 | 150 | 65.4 | 0.8 | -64.6 | 0 |
| Toowoomba QLD** | 48 | 100 | 2 | 150 | 93.5 | 2.1 | -91.4 | 0 |
| Rockhampton QLD# | 45 | 350 | 2 | 800 | 327.1 | | | |
| Rockhampton QLD# | 43 | 251 | 2 | 1,800 | 234.6 | | | |
| Rockhampton QLD# | 44 | 234 | 2 | 150 | 218.7 | | | |
| Whyalla SA | 66 | 64 | 4 | 13,803 | 59.8 | | | |
| Wellington VIC# | 86 | 8,190 | 3 | 330 | 7,654.2 | | | |
| Wellington VIC# | 85 | 1,170 | 3 | 280 | 1,093.5 | | | |
| Dubbo NSW# | 13 | 173 | 3 | 40 | 161.7 | | | |
| <i>Urban Councils</i> | | | | | | | | |
| Casey VIC | 77 | 806 | 1 | 5,495 | 753.3 | 9,624.3 | 8,871.0 | 12.8 |
| Maroochy QLD | 38 | 74 | 2 | 10,000 | 69.2 | 315.6 | 246.5 | 4.6 |
| Cambridge WA** | 92 | 70 | 2 | 3,266 | 65.4 | 250.6 | 185.2 | 3.8 |
| Cambridge WA** | 90 | 32 | 2 | 5,080 | 29.9 | 97.5 | 67.6 | 3.3 |
| Casey VIC | 75 | 242 | 2 | 7,000 | 226.2 | 649.4 | 423.2 | 2.9 |
| Onkaparinga SA** | 61 | 163 | 1 | 580 | 152.3 | 412.7 | 260.3 | 2.7 |
| Redland QLD | 42 | 198 | 2 | 9,000 | 185.0 | 496.7 | 311.6 | 2.7 |
| Caboolture QLD** | 35 | 106 | 2 | 5,000 | 99.1 | 189.4 | 90.3 | 1.9 |
| Casey VIC | 76 | 679 | 2 | 9,500 | 634.6 | 1,112.7 | 478.1 | 1.8 |
| Maroochy QLD | 36 | 224 | 2 | 5,000 | 209.3 | 306.0 | 96.7 | 1.5 |

| <i>Council</i> | <i>Project No</i> | <i>Cost \$'000</i> | <i>Type of project</i> | <i>AADT</i> | <i>PV Cost \$'000</i> | <i>PV benefits \$'000</i> | <i>NPV \$'000</i> | <i>BCR</i> |
|--|-------------------|--------------------|------------------------|-------------|-----------------------|---------------------------|-------------------|------------|
| Onkaparinga SA** | 62 | 230 | 2 | 800 | 215.0 | 295.5 | 80.5 | 1.4 |
| Maroochy QLD | 37 | 110 | 2 | 500 | 102.8 | 146.7 | 43.9 | 1.4 |
| Greater Dandenong VIC** | 78 | 577 | 2 | 21,800 | 539.3 | 538.7 | -0.6 | 1.0 |
| Randwick NSW | 22 | 279 | 2 | 6,820 | 260.7 | 242.2 | -18.5 | 0.9 |
| Cambridge WA** | 91 | 65 | 2 | 536 | 60.7 | 32.9 | -27.8 | 0.5 |
| Randwick NSW | 23 | 332 | 2 | 4,500 | 310.3 | 132.5 | -177.8 | 0.4 |
| Auburn NSW | 3 | 346 | 2 | 4,150 | 323.4 | 121.1 | -202.2 | 0.4 |
| Auburn NSW | 1 | 259 | 2 | 3,500 | 242.1 | 78.7 | -163.4 | 0.3 |
| Brimbank VIC** | 73 | 532 | 2 | 2,400 | 497.2 | 147.3 | -349.8 | 0.3 |
| Auburn NSW | 2 | 173 | 2 | 2,700 | 161.7 | 40.1 | -121.6 | 0.2 |
| Blacktown NSW | 5 | 86 | 2 | 500 | 80.4 | 7.5 | -72.8 | 0.1 |
| Brimbank VIC** | 74 | 125 | 2 | 800 | 116.8 | 11.1 | -105.8 | 0.1 |
| Blacktown NSW | 6 | 263 | 2 | 500 | 245.8 | 5.9 | -239.9 | 0 |
| Ryde NSW | 25 | 321 | 2 | 750 | 300.0 | 11.0 | -289.0 | 0 |
| Ryde NSW | 24 | 585 | 2 | 500 | 546.7 | 18.0 | -528.7 | 0 |
| Ryde NSW | 26 | 210 | 2 | 500 | 196.3 | 2.1 | -194.1 | 0 |
| Blacktown NSW | 4 | 78 | 1 | 250 | 72.9 | 0.5 | -72.4 | 0 |
| Onkaparinga SA# | 63 | 44 | 4 | 150 | 41.1 | | | |
| Caboolture QLD# | 34 | 300 | 3 | 500 | 280.4 | | | |
| Total for all projects | | 34,401 | | | 32,151 | 36,941 | 4,791 | 1.1 |
| Total for all projects fully evaluated | | 22,120 | | | 20,673 | 36,941 | 16,268 | 1.8 |

Notes:

Type of project 1 - Sealing unsealed road; 2 - Rehabilitation, widening or reconstruction of a sealed road; 3 - Bridge construction or replacement; 4 - Other

AADT Annual average daily traffic.

PV Present value at a discount rate of 7% per annum.

BCR Benefit cost ratio.

** Inferred or amended roughness counts applied.

Not evaluated: requiring detailed analysis or missing data.

Table – Assumptions in Cost Benefit Analysis

| | <i>Category 1</i> | <i>Category 1</i> | <i>Category 2</i> | <i>Category 2</i> |
|--|-------------------|-------------------|-----------------------------|-----------------------------|
| | <i>Rural</i> | <i>Urban</i> | <i>Rural</i> | <i>Urban</i> |
| General assumptions | | | | |
| Evaluation period (years) | 30 | 30 | 30 | 30 |
| Construction period | Year 1 | Year 1 | Year 1 | Year 1 |
| Benefits begin in Year | 2 | 2 | 2 | 2 |
| Real economic discount rate % pa | 7 | 7 | 7 | 7 |
| Residual value at end of evaluation period | Nil | Nil | Nil | Nil |
| Average accident cost | \$70,000 | \$15,000 | \$70,000 | \$15,000 |
| Commercial cars % | 20% | 30% | 20% | 30% |
| Heavy vehicles: % Rigid trucks | 5% | 8% | 5% | 8% |
| Heavy vehicles: % Buses | 5% | 2% | 5% | 2% |
| Heavy vehicles: % semitrailers | 10% | 0% | 10% | 0% |
| Traffic growth rate % pa | 1.5 | 2.0 | 1.5 | 2.0 |
| Base case assumptions: | | | | |
| Model road state* | As advised | As advised | As advised | As advised |
| Pavement type | ** | ** | Flexible | Flexible |
| Surface type | Unsurfaced | Unsurfaced | Sprayed surface seal | Sprayed surface seal |
| Terrain**** | Flat | Flat | Flat | Flat |
| Sealed shoulders | na | na | Yes*** | Yes*** |
| Roughness# | As advised | As advised | As advised | As advised |
| Traffic | As advised | As advised | As advised | As advised |
| Curvature## | Straight | Straight | Straight | Straight |
| Posted speed limit kph### | 100 | 50 | 100 | 50 |
| Project case assumptions: | | | | |
| Model road state | As advised | As advised | As advised | As advised |
| Pavement type | ** | ** | Flexible | Flexible |
| Generated traffic | As advised | As advised | na | na |

Notes:

- * Table of Model Road States (MRS) is shown below.
- ** Unpaved for MRS 1 and 2, and paved for MRS 3 and 4.
- *** Yes for MRS 8 to 10. Otherwise not applicable.
- **** Flat unless advised of improvement to vertical alignment.
- # Roughness as advised. Otherwise 200 to 40 for complete reconstruction and 110 to 40 for rehabilitation.
- ## Straight unless advised of improvement to horizontal alignment
- ### Unless advised of different speed limits.

Table – Model Road States

| <i>MRS</i> | <i>Description</i> |
|-------------------|---|
| 1 | Unformed |
| 2 | Formed |
| 3 | Paved <= 4.5m |
| 4 | Paved > 4.5m |
| 5 | Sealed width <= 4.5 m 1 lane |
| 6 | Sealed width <= 5.2m 1 lane |
| 7 | Sealed width <= 5.8m 2 lanes |
| 8 | Sealed width <= 6.4m 2 lanes |
| 9 | Sealed width <= 7.2m 2 lanes |
| 10 | Sealed width <= 9.1m 2 lanes |
| 11 | Sealed width <=11.6m 3 lanes |
| 12 | Sealed width <=13.7m 4+ lanes |
| 13 | Sealed width > 13.7m 4+ lanes |
| 14 | Sealed width Dual carriageway (<= 9.2m each carriage way) total 4 lanes |
| 15 | Sealed width Dual carriageway (<= 9.2m per carriageway) limited access |
| 16 | Sealed width dual carriageway (<=11.6m per carriageway) total 6 lanes |
| 17 | Sealed width Dual carriageway (<= 11.6m per carriageway) limited access |
| 18 | Sealed width Dual carriageway (> 11.6m per carriageway) total 6+ lanes |
| 19 | Sealed width Dual carriageway (> 11.6m per carriageway) limited access |

The other parameter values obtained from the survey, which were used in the economic analysis, are shown in the following table.

| <i>Council</i> | <i>Project No</i> | <i>MRS before</i> | <i>MRS after</i> | <i>Gener-ated traffic %</i> | <i>Roughness before</i> | <i>Roughness after</i> | <i>Length before km</i> | <i>Length after km</i> | <i>Remarks</i> |
|-----------------------|-------------------|-------------------|------------------|-----------------------------|-------------------------|------------------------|-------------------------|------------------------|---|
| Rural Councils | | | | | | | | | |
| Bowen QLD | 31 | 10 | 10 | na | 100 | 50 | 0.8 | 0.8 | Reconstruct sealed pavement and cement stabilise |
| Bowen QLD | 32 | 10 | 10 | na | 150 | 40 | 1.2 | 1.2 | Reconstruct sealed pavement and cement stabilise |
| Bowen QLD | 33 | 10 | 10 | na | 150 | 40 | 1.2 | 1.2 | Reconstruct sealed pavement and cement stabilise |
| Boonah QLD** | 30 | 4 | 8 | 10% | na | na | 1.25 | 1.25 | Reconstruction of Road |
| Cabonne NSW | 7 | na | na | na | na | na | na | na | Replace single lane failed timber bridge with 2 lane prestressed concrete structure |
| Cabonne NSW** | 8 | 7 | 10 | na | 110 | 40 | 3 | 3 | Rehabilitate and widen deteriorated 5 to 6 metre wide sealed road |
| Cabonne NSW** | 9 | 4 | 9 | 30% | na | 40 | 2.5 | 2.4 | Seal & realign gravel road serving developing rural residential area and vineyard area |
| Coonabarabran NSW | 10 | na | na | na | na | na | 23 | 23 | Gravel Road Resheeting |
| Coonabarabran NSW** | 11 | 7 | 9 | na | 110 | 40 | 3 | 3 | Widening of Sealed Road |
| Coonabarabran NSW** | 12 | 4 | 9 | 10% | na | 40 | 1 | 1 | Reconstruct & Seal gravel road |
| Derwent Valley TAS | 68 | 5 | 10 | na | 150 | 80 | 0.5 | 0.5 | Widening Road parameters Ironstone Gully |
| Derwent Valley TAS | 67 | 8 | 10 | na | 130 | 60 | 0.3 | 0.3 | Stabilisation works Kensington Street |
| Derwent Valley TAS | 69 | 10 | 10 | na | 140 | 50 | 0.4 | 0.4 | Kerb & channel, stabilisation Fourth Avenue |
| Elliston SA | 52 | 2 | 9 | Nil | na | 30 | 3 | 3 | Sealing Tourist Road |
| Franklin Harbour SA | 53 | 4 | 9 | 10% | na | 40 | 47 | 46.3 | Seal gravel road |
| Grant SA | 54 | 2 | 9 | Nil | 120 | 40 | 4 | 4 | Reconstruction and realignment of road |
| Grant SA | 56 | 2 | 9 | Nil | 110 | 110 | 0.2 | 0.2 | Kerb and water channell - prevent flooding |
| Greenough WA** | 93 | 4 | 9 | Nil | na | 40 | 0.8 | 0.8 | Reconstruct & Bitumen Sealing of Tramway Rd. to connect New NWC Hwy to Special Rural Locality |
| Greenough WA** | 94 | 3 | 7 | Nil | na | 40 | 2 | 2 | Bitumen Sealing of Ellendale Pool Rd. being a Major Tourist Route |
| Greenough WA** | 95 | 4 | 8 | 50% | na | 40 | 1.3 | 1.3 | Construction of Concrete Floodway & Bitumen Sealing of Jandanol Rd. to connect up Special Rural Subdivision |
| Katherine NT# | 29 | | | na | | | 7 | 7 | Gorge Road |

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|-----------------------|-------------------|-------------------|------------------|-----------------------------|-------------------------|------------------------|-------------------------|------------------------|---|
| Kimba SA | 57 | 2 | 9 | 30% | na | 40 | 11 | 11 | Sealing of Kimba Cowell Road (involves 2 councils and state govt) |
| Lachlan NSW** | 19 | 4 | 10 | 10% | na | 40 | 5 | 5 | Vertical realignment and sealing of an existing gravel road |
| Lachlan NSW** | 20 | 4 | 10 | 10% | na | 40 | 5 | 5 | Seal of an existing gravel road |
| Lachlan NSW** | 21 | 4 | 10 | Nil | na | 40 | 1 | 1 | Reconstruct a narrow sealed gravel road and widen seal |
| Mount Remarkable SA** | 60 | 4 | 6 | 5% | na | 40 | 2.2 | 2.2 | 2.2 km of sealed roads extension |
| Mount Remarkable SA** | 58 | 4 | 6 | 5% | na | 40 | 2 | 2 | 2 km sealed roads extension |
| Mount Remarkable SA** | 59 | 4 | 6 | 5% | na | 40 | 2 | 2 | 2 km of sealed roads extension |
| Forbes NSW | 18 | 6 | 10 | na | 200 | 40 | 2.07 | 2.07 | Rehabilitate and widen failed pavement |
| Forbes NSW | 16 | 5 | 9 | na | 200 | 40 | 1.48 | 1.48 | Rehabilitate and widen failed pavement |
| Forbes NSW | 17 | 5 | 9 | na | 150 | 40 | 1.25 | 1.25 | Rehabilitate and widen failed pavement |
| Grant SA | 55 | 8 | 8 | na | 110 | 40 | 2 | 2 | Resealing of Existing |
| Katherine NT# | 27 | | | na | na | na | 0.5 | 0.5 | Rowlands Quarry Causeway - Florina Road |
| Katherine NT# | 28 | | | na | na | na | 0.8 | 0.8 | Watson's Crossing/Hickey's lake - Florina Road |
| Moyne VIC | 82 | 5 | 5 | na | 170 | 40 | 2.89 | 2.89 | Pavement resheet |
| Moyne VIC | 83 | 5 | 7 | na | 170 | 40 | 1.7 | 1.7 | Pavement widening & resheet |
| Moyne VIC | 84 | 5 | 6 | na | 170 | 40 | 1.27 | 1.27 | Pavement Resheet |
| Northern Midlands TAS | 70 | 11 | 11 | na | 80 | 50 | 4.52 | 4.52 | Hobart Road - Reseal |
| Northern Midlands TAS | 71 | 6 | 6 | na | 130 | 30 | 1.48 | 1.48 | Macquarie Road - Reconstruction |
| Northern Midlands TAS | 72 | 7 | 7 | na | 130 | 30 | 3.7 | 3.7 | Lake River Road - Reconstruction |
| Orroroo Carrieton SA | 64 | 2 | 10 | Nil | 200 | 30 | 5.5 | 5.5 | Reconstruction and sealed 2.4kms |
| Orroroo Carrieton SA | 65 | 2 | 2 | Nil | 200 | 200 | 1.4 | 1.4 | Re align and straighten very sharp corner. Open surface |
| Tara QLD | 46 | 3 | 8 | Nil | na | 80 | 6 | 6 | Old Moonie Road gravel resheet & bitumen seal |
| Tara QLD | 47 | 3 | 5 | Nil | na | 80 | 6 | 6 | Hannaford Road bitumen seal existing gravel |
| Wambo QLD# | 49 | | | na | | | 2 | 2 | Rehabilitation and strengthening pavement |
| Wambo QLD# | 50 | | | na | | | 2.5 | 2.5 | Pavement reshape and overlay. |
| Wambo QLD# | 51 | | | na | | | 3.8 | 3.8 | Rehabilitation and profile correction. |

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|---------------------------------|-------------------|-------------------|------------------|-----------------------------|-------------------------|------------------------|-------------------------|------------------------|--|
| Wellington NSW | 96 | 7 | 8 | na | 100 | 40 | 0.75 | 0.75 | Rehabilitation of a sealed road |
| Wellington NSW | 97 | 4 | 8 | Nil | na | 40 | 1 | 1 | Seal village streets-Geurie |
| Wellington NSW | 98 | 4 | 8 | Nil | na | 40 | 1 | 1 | Seal gravel road-dust prevention |
| <i>Regional Councils</i> | | | | | | | | | |
| Albany WA | 88 | 4 | 9 | 36% | na | 70 | 3.3 | 3.3 | Construct & Seal Rural road |
| Albany WA | 89 | 4 | 9 | 14% | na | 70 | 3.38 | 3.38 | Construct & Seal Rural road |
| Greater Geelong VIC | 80 | 3 | 7 | Nil | na | 44 | 0.5 | 0.5 | Construction including asphalt wearing course on previously rough, unsealed road. |
| Greater Geelong VIC | 81 | 12 | 12 | na | 76 | 49 | 0.4 | 0.4 | Place asphalt overlay on a very badly cracked, heavily trafficked road. |
| Greater Geelong VIC | 79 | 10 | 10 | na | 85 | 49 | 3.1 | 3.1 | Stabilisation of failed pavement and seal to bring road back to as constructed condition |
| Dubbo NSW | 14 | 2 | 9 | Nil | na | 30 | 1.8 | 1.8 | Initial seal of gravel road |
| Dubbo NSW | 13 | 3 | 6 | na | 150 | 30 | na | na | Replace timber bridge with concrete structure (Unit rates in \$/m2) |
| Dubbo NSW | 15 | 7 | 10 | na | 141 | 30 | 0.8 | 0.8 | Realignments and widening of curved section |
| Mount Isa QLD** | 39 | 13 | 13 | na | 110 | 40 | 1 | 1 | Pavement stab., re-sealing and asphalt re-surfacing |
| Mount Isa QLD** | 40 | 12 | 12 | na | 110 | 40 | 0.15 | 0.15 | Pavement stab., re-sealing and K&C work |
| Mount Isa QLD** | 41 | 10 | 10 | na | 110 | 40 | 0.09 | 0.09 | Pavement stabilisation and re-sealing |
| Rockhampton QLD# | 43 | | | na | | | 0.22 | 0.22 | Berserker Street reconstruction |
| Rockhampton QLD# | 44 | | | na | | | 0.3 | 0.3 | Beak Street reconstruction |
| Rockhampton QLD# | 45 | | | na | | | 0.4 | 0.4 | Edington Street reconstruction |
| Toowoomba QLD** | 48 | 10 | 10 | na | 200 | 60 | 0.2 | 0.2 | Reconstruction of failed pavement including sub soil drainage |
| Wellington VIC | 85 | 5 | 5 | na | na | na | na | na | Harkin's Bridge |
| Wellington VIC | 86 | 7 | 7 | na | na | na | na | na | Merriman's Creek Bridge |
| Wellington VIC** | 87 | 3 | 5 | 20% | na | 40 | 3.7 | 3.7 | Monaghan's Road |
| Whyalla SA | 66 | na | na | na | na | na | na | na | Construction of a roundabout at Essington/Elliott intersection |
| <i>Urban Councils</i> | | | | | | | | | |
| Auburn NSW | 1 | 12 | 12 | na | 200 | 45 | 0.3 | 0.3 | Road reconstruction |

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|-------------------------|-------------------|-------------------|------------------|-----------------------------|-------------------------|------------------------|-------------------------|------------------------|--|
| Auburn NSW | 2 | 12 | 12 | na | 200 | 47 | 0.2 | 0.2 | Road reconstruction |
| Auburn NSW | 3 | 12 | 12 | na | 200 | 50 | 0.4 | 0.4 | Road reconstruction |
| Blacktown NSW | 4 | 2 | 9 | na | na | 75 | 0.464 | 0.464 | Park Road, Marsden Park - Construction & Bitumen Sealing |
| Blacktown NSW | 5 | 9 | 9 | na | 110 | 60 | 0.567 | 0.567 | Weber Crescent, Emerton - Pavement Reconstruction |
| Blacktown NSW | 6 | 8 | 8 | na | 150 | 60 | 0.23 | 0.23 | Hartley Road, Seven Hills - Full Width Construction |
| Brimbank VIC** | 73 | 11 | 11 | na | 200 | 40 | 0.8 | 0.8 | Rehabilitation/ reconstruction of distressed macadam pavement and kerbing |
| Brimbank VIC** | 74 | 9 | 9 | na | 200 | 40 | 0.18 | 0.18 | Rehabilitation/ reconstruction of distressed macadam pavement and kerbing |
| Cambridge WA** | 90 | 12 | 12 | na | 200 | 40 | 0.25 | 0.25 | Salvado Road - pavement at end of economic life. Resurfaced. |
| Cambridge WA** | 91 | 10 | 10 | na | 200 | 40 | 0.8 | 0.8 | Holland Street - pavement at end of economic life. Resurfaced. |
| Cambridge WA** | 92 | 10 | 10 | na | 200 | 40 | 1 | 1 | Marlow Street - pavement at end of economic life. Resurfaced. |
| Casey VIC | 75 | 7 | 11 | na | 185 | 60 | 0.44 | 0.44 | Widening of road past school to meet increase traffic following closure of parallel road with freeway |
| Casey VIC | 76 | 8 | 11 | na | 185 | 60 | 0.73 | 0.73 | Widening of road to cater for increased traffic (+8000/day) as it links to interchange for new freeway |
| Casey VIC | 77 | 1 | 10 | Nil | na | 30 | 1.58 | 1.58 | New road link & construction of single carriageway with service road to link new suburbs & future function a secondary arterial road |
| Caboolture QLD | 34 | na | na | na | na | na | na | na | 30m bridge |
| Caboolture QLD** | 35 | 11 | 11 | na | 110 | 40 | 1.1 | 1.1 | asphalt overlay |
| Greater Dandenong VIC** | 78 | 12 | 12 | na | 106 | 40 | 0.77 | 0.77 | Reconstruction of Corrigan Rd - Heatherton Road to Allister Road |
| Maroochy QLD | 36 | 9 | 9 | na | 120 | 30 | 1.4 | 1.4 | foam bitumen stabilisation works to strengthen existing pavement |
| Maroochy QLD | 37 | 5 | 10 | na | 80 | 50 | 0.55 | 0.55 | road widening to improve safety and reduce mtce costs |
| Maroochy QLD | 38 | 9 | 9 | na | 100 | 30 | 0.99 | 0.99 | asphalt overlay to improve surface texture |
| Onkaparinga SA** | 61 | 4 | 9 | Nil | na | na | 0.88 | 0.88 | Construct & seal an unsealed paved road |
| Onkaparinga SA** | 62 | 9 | 9 | na | 110 | 40 | 2.3 | 2.3 | Rehabilitation of an existing sealed road |
| Onkaparinga SA | 63 | 4 | 4 | Nil | na | na | 1.5 | 1.5 | Re-sheeting and unsealed road |
| Randwick NSW | 22 | 11 | 11 | na | 151 | 50 | 0.625 | 0.625 | pavement rehabilitation |

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|----------------|-------------------|-------------------|------------------|-----------------------------|-------------------------|------------------------|-------------------------|------------------------|--|
| Randwick NSW | 23 | 12 | 12 | na | 126 | 50 | 0.732 | 0.732 | pavement rehabilitation |
| Redland QLD | 42 | 11 | 11 | na | 110 | 50 | 1.8 | 1.8 | Asphalt Overlay. Divided Road Total width=11.6 mts |
| Ryde NSW | 24 | 11 | 12 | na | 157 | 60 | 0.56 | 0.56 | Road pavement , kerb and drainage reconstruction |
| Ryde NSW | 25 | 9 | 10 | na | 171 | 60 | 0.217 | 0.217 | Road pavement , kerb and drainage reconstruction |
| Ryde NSW | 26 | 9 | 10 | na | 107 | 60 | 0.15 | 0.15 | Road pavement , kerb and drainage reconstruction |

Notes:

Roughness Range of roughness is between 30 - 200 NRM counts per km and applies only to sealed roads.

Appendix F – Funding Distribution by Council Category

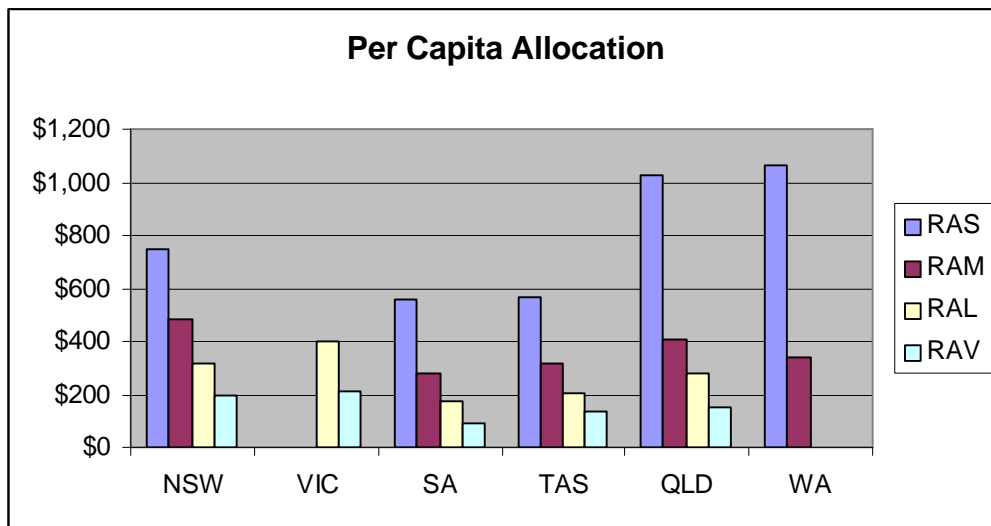
The classification system used throughout this review provides a means of comparing the funding allocation to Councils across all States and Territories on a consistent basis. This appendix compares the average allocation between class of Council on a per capita and per local road length basis.

As the size of Councils varies between States, not all States are represented in some of the figures. For instance, there are not many small rural Councils in Victoria and therefore Victoria is not represented in the distributions for small and medium rural agricultural (RAS and RAM) categories.

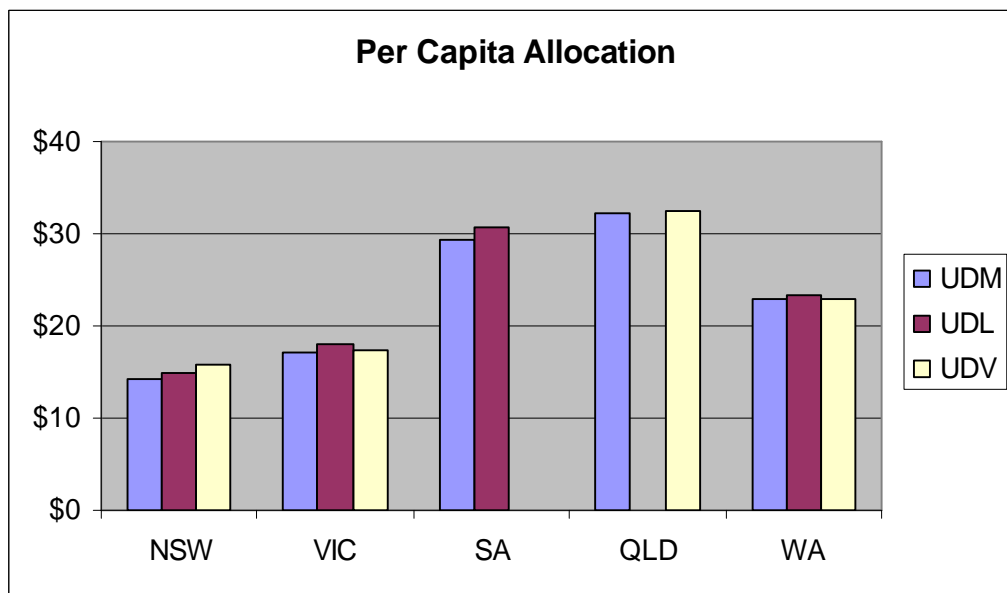
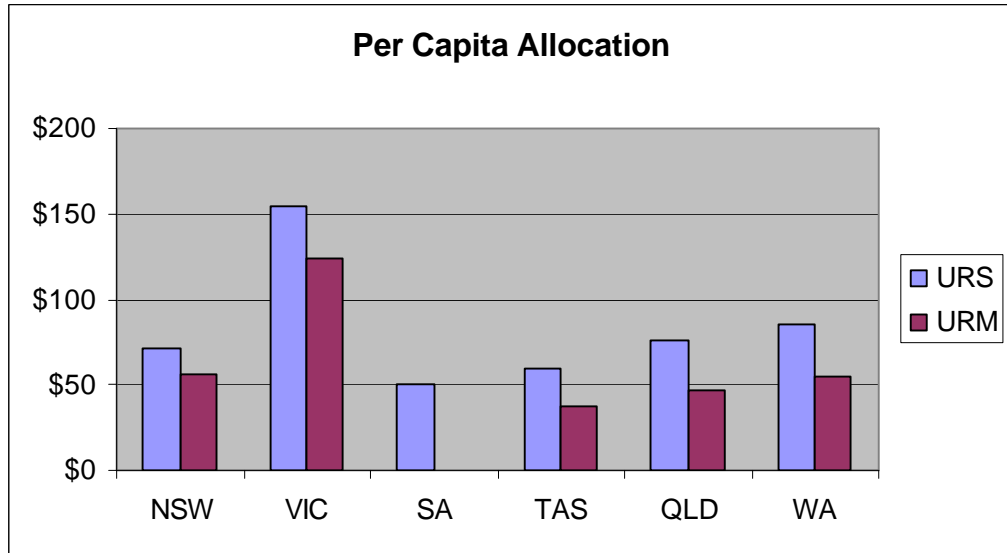
The figures in this appendix do not include Northern Territory Councils.

Per Capita Distribution

The allocation to the medium rural agricultural (RAM) Councils is reasonably consistent between States but the smaller Councils in Queensland and WA have a higher proportional allocation to compensate for the very low populations. For the larger rural agricultural (RAL) Councils, the highest allocation is in Victoria, while for the very large Councils, the lowest allocation is in SA.



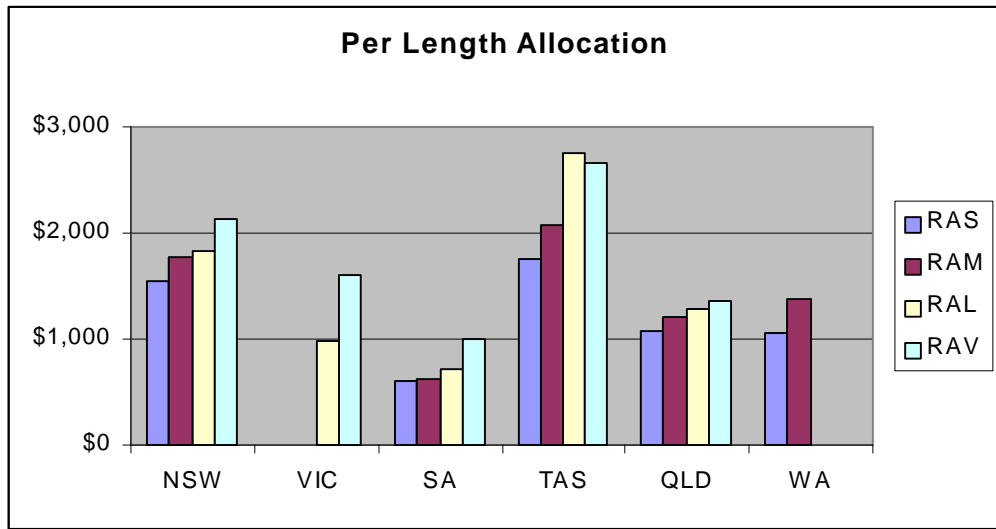
Victorian Councils also have the highest allocation for the small and medium urban regional (URS and URM) categories. The other States are relatively consistent. The NSW and Victorian Councils have a very consistent allocation for all the three main urban developed (UDM, UDL and UDV) categories. There is also consistency within each of the other States although the allocation is relatively higher.



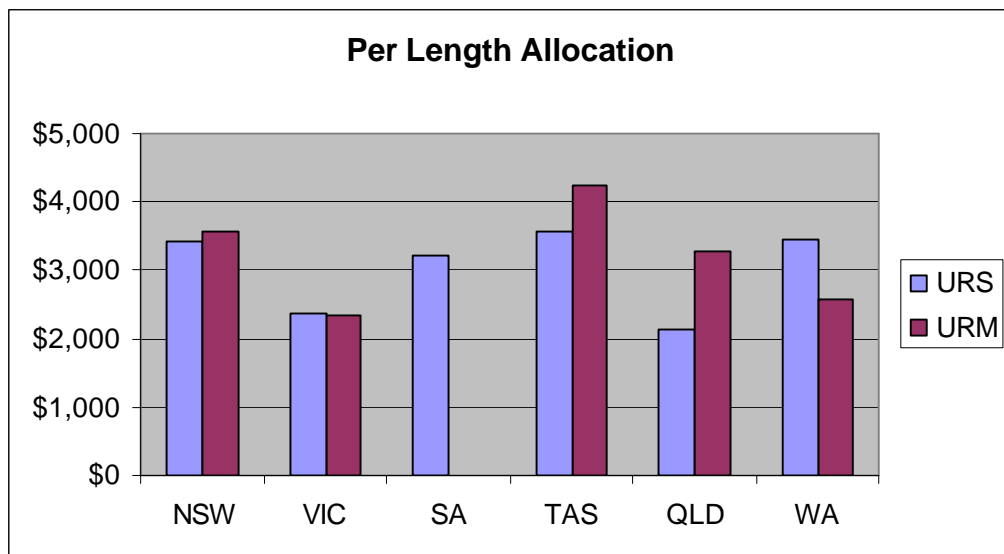
Per Length Distribution

SA has the lowest allocation per length for all rural categories while Tasmania has the highest. Queensland and WA are similar for the small and medium rural agricultural (RAS and RAM) categories. NSW tends to be higher than Queensland, which in turn is higher than Victoria.

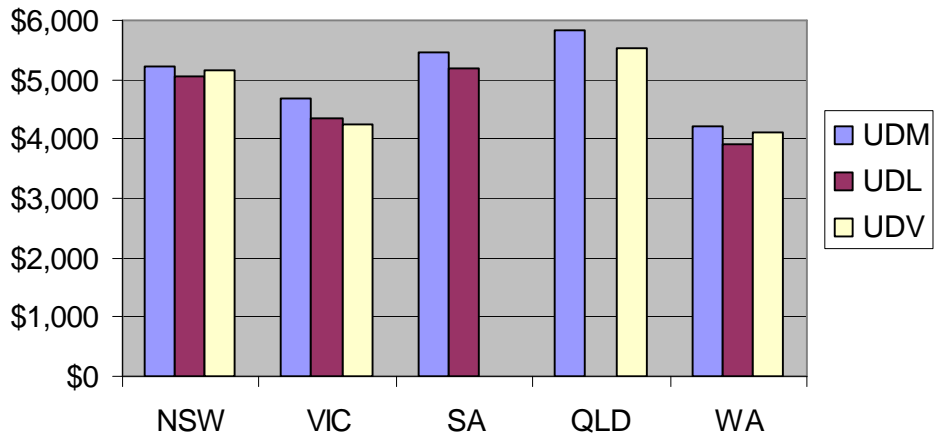
The larger the Council the higher is the per length allocation across all 4 rural categories. This would reflect the higher traffic volumes associated with the higher population.



The SA allocations are more comparable with the other States for the regional Councils and tend to be marginally higher than the other States for the urban Councils. Victorian Councils are consistently less than NSW Councils for the regional, urban and larger rural categories.



Per Length Allocation



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