



Institute of  
Public Works  
Engineering  
Australia  
(NSW Division)



# IPWEA (NSW) ROADS & TRANSPORT DIRECTORATE

Neil Aplin  
CRRP Directorate  
COAG Road Reform Plan  
Level 7, 121 Exhibition Street  
Melbourne VIC 300

Email: [crrp@transport.vic.gov.au](mailto:crrp@transport.vic.gov.au)

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Dear Sir / Madam,

## **COAG Road Reform Plan (CRRP) Submission**

The Institute of Public Works Engineering Australia (IPWEA) is a not for profit, membership based, professional organisation representing engineers and others involved in the provision of public works and services predominantly in the local government sphere.

The Roads & Transport Directorate has been set up by IPWEA (NSW) in conjunction with the Local Government and Shires Associations to provide support to its members working in local government across the state. It is supported financially by membership contributions from Local Councils in NSW.

The Roads & Transport Directorate's submission is based on data collected over the past four to five years and includes the impact of local roads and bridges, transport planning and other infrastructure on the communities they service. These issues are discussed in the sections below.

## **INTRODUCTION**

The Roads & Transport Directorate has been set up to meet the demand from members of IPWEA (NSW) over the past few years to act as a focus for research activities and to provide technical advice.

Its main purpose is to assist Local Government in NSW in the area of road infrastructure and transport related activities by:

- Assisting members in discharging their road management roles in the most effective manner consistent with current legal obligations and the most recent technical practices in the critical area of consistent and cost effective asset management and road safety;

- Assisting the IPWEA (NSW), the Local Government Association of NSW and the Shires Association of NSW, individual Councils and members in lobbying for a higher priority to be placed on road infrastructure provision and maintenance and for a more equitable share of resources and funding; and
- Providing for IPWEA members and Local Government a powerful technical and research resource on transport issues at regional, state and national level. The activities would be, as circumstances dictate, either proactive or reactive to achieve the optimum benefit for the region or state.

The Directorate commenced operation in October 2004 and has been involved in determining the needs of members and developing solutions to meet those needs. Over that period the Directorate has made submissions on a range of issues. Copies of these submissions<sup>1</sup> are available on the website at: [www.roadsdirectorate.org.au](http://www.roadsdirectorate.org.au).

## INFRASTRUCTURE FUNDING FOR NSW LOCAL ROADS

In 2005 and 2008 the Roads & Transport Directorate of the IPWEA NSW Division commissioned a Road Asset Benchmarking Project<sup>2</sup> to provide a snapshot of the current reported condition of Regional and Local Roads in NSW, an estimate of the shortfall in funding necessary to bring them to a satisfactory condition and specific recommendations about rectification of the problems identified. These reports can be accessed at: [http://www.ipwea.org.au/AM/Template.cfm?Section=Asset\\_Benchmarking\\_Project&Template=/CM/HTMLDisplay.cfm&ContentID=11080](http://www.ipwea.org.au/AM/Template.cfm?Section=Asset_Benchmarking_Project&Template=/CM/HTMLDisplay.cfm&ContentID=11080)

The findings of the 2008 report are summarised as follows:

1. 91% (138) of NSW councils responded to the IPWEA NSW Roads & Transport Directorate's Road Asset Benchmarking Survey and the Local Government Inquiry survey. Of these responses 89% (135 of 152) were assessed as valid for analysis.
2. Asset management practice and capability was limited with 33% (42) of responding councils reporting that they used the principles of the International Infrastructure Management Manual, the internationally recognised reference on infrastructure asset management, in full. 29% (38) of councils have an adopted Road Asset Management Plan. 76 (58%) of councils have joined IPWEA NAMS.PLUS Asset Management, the IPWEA's system to assist them in developing their road asset management plans
3. Road related risk was being addressed through a road asset management plan or within a corporate risk management plan in 46% (60) of the responding councils.

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<sup>1</sup> Copies of submissions are available at:

[www.ipwea.org.au/AM/Template.cfm?Section=Membership2&Template=/CM/HTMLDisplay.cfm&ContentID=5978](http://www.ipwea.org.au/AM/Template.cfm?Section=Membership2&Template=/CM/HTMLDisplay.cfm&ContentID=5978)

<sup>2</sup> Report available at:

<http://www.ipwea.org.au/AM/Template.cfm?Section=UPLOADS&Template=/CM/ContentDisplay.cfm&ContentID=11079>

4. 66% (84) of responding councils indicated they have a long term financial plan, 45% (57) of the responding councils' plans cover a period of at least 10 years.
5. 22% (28) of responding councils' long term financial plans recognise the effects of infrastructure including financing infrastructure renewal, and providing for growth and life cycle costs for new infrastructure.
6. The 135 responding councils are responsible for the management of 139,909 km of regional and local roads combined and 9,028 concrete/steel and timber bridges.
7. The responding councils' roads and bridges have a replacement value of \$40,775 million, which is being consumed at the rate of \$653 million per annum.
8. Road and bridge assets for the reporting councils are reported to have 67.7% of their service life remaining. The assets are being consumed at a rate of 1.7% of the depreciable amount. 2007/08 asset renewal is less than asset consumption for roads being 82% of consumption for sealed roads, 50% for unsealed roads and 54% for concrete/steel bridges. Timber bridge renewal is 542% of consumption recognising the investment priority given by councils to renewal of ageing timber bridges.
9. The road life cycle cost for the responding councils was estimated at \$1,226 million per annum. Funding in 2007/08 was reported at \$680 million leaving a funding gap of \$545 million per annum below the life cycle cost.
10. Sealed road resurfacing/resealing life cycle cost for the responding councils was estimated at \$302 million per annum. Funding of \$135 million in 2007/08 was \$166 million less than the annual life cycle cost.
11. Unsealed road resheeting life cycle cost for the responding councils was estimated at \$141 million per annum. 2007/08 funding was \$31 million which is \$110 million less than the annual life cycle cost.
12. The estimated apportionment of road life cycle cost to the three major road usage categories based on councils' best estimate of percentage traffic usage of roads was that residential use was responsible for 76% of the road life cycle cost, business and commercial usage 21% and high mass vehicles 3%.
13. The life cycle cost for the responding councils' concrete/steel bridges was estimated at \$15.1 million for regional roads and \$25.6 million for local roads per annum. Expenditure in 2007/08 of \$10.1 million for bridges on regional roads and \$8.7 million for bridges on local roads was \$5.0 million and \$16.9 million less than the life cycle cost.
14. The life cycle cost for the responding councils' timber bridges was estimated at \$3.1 million for regional roads and \$11.1 million for local roads per annum. Funding in 2007/08 of \$14.7 million for regional roads and \$17.9 million for local roads was \$11.6 million for regional roads and \$6.8 million per annum greater than the life cycle cost. This indicates the investment priority given to timber bridge renewal in 2007/08.
15. Survey data quality was variable with a few of the responding councils having good and reliable data and others lacking in both quantity and quality of data.

The critical data is that local road assets are estimated to have a renewal cost in excess of \$40.78billion and that asset renewal is substantially less than current asset consumption. The life cycle costs for road assets is estimated at \$1.226billion per annum with expenditure of \$680million per annum leaving a funding gap of \$545 million per annum.

This is a bleak picture for the regional and local roads situation. There is an obvious need for assistance to local councils to allow them to reverse this long term trend. Clearly the local roads network is in an unsatisfactory condition and is deteriorating year by year.

The Roads & Transport Directorate is currently undertaking a data collection project to update the Asset Benchmarking Project Reports released in 2008. Data collection is being carried out through the completion of a spreadsheet by each council in NSW. Supply of the necessary data is being carried out by Engineering Staff or Asset Managers in conjunction with Finance Managers. It is expected that every council in the state will provide data to this project.

The major aim of collecting this data is to provide support for Councils and for the Local Government and Shires Associations in better understanding the condition of the local road network and in determining a sustainable source of funding to return the network to a satisfactory condition.

In summary, Local Government in NSW has a funding shortfall of \$545million each year in budgeting to maintain the regional and local road network in its present condition. This is an important consideration in assessing road safety strategies that result in an increase in the level of service to be provided.

### **Submission Format**

The remainder of this submission will provide a brief response to each of the listed “*Issues for discussion*”

#### **Issues for discussion**

*What are the key issues with heavy vehicle use of local roads in your local government area?*

The key issues relating to heavy vehicle use of regional and local roads in NSW can be summarised as:

1. Insufficient funds are available to Local Government to maintain the local road network in its current condition (Estimated shortfall of \$500million per annum).
2. There is also a question about the ability of local pavements to carry additional axle loadings.
3. Local Government has insufficient staff resources with technical knowledge in assessing applications. The skills shortage is an industry wide issue (both within and outside of LG) and further enhancements across a range of educational options is required, including for existing workers, to deliver appropriately skilled practitioners throughout LG.

4. There are inadequate technical assessment guidelines available (Including horizontal pavement stress analysis). The basis for determining impacts of HML and suspension friendly vehicles on pavements is based on research of impacts on straight roads – this does not consider the horizontal stress issues on curvilinear road alignments typical of many local roads.
5. There is a lack of knowledge of the load carrying capacity of many structures and this varies with time depending on condition. Funding is needed to permit assessment of structures on a priority basis. This is likely to identify significant amount of upgrade works not included in the annual shortfall listed in (1) above
6. Lack of knowledge (Education) of benefits of higher productivity vehicles by both elected representatives (Councilors) and the general community.
7. LG is in favour of improving productivity, including in rural areas and assisting economic development. This includes supporting reasonable measures to facilitate higher production vehicles provided suitable funding is made available to meet the increasing demands for maintaining and providing the matching infrastructure.
8. The high cost of compliance and the long lead times associated with addressing environmental legislation is an impediment to the efficient delivery of infrastructure upgrades. Consideration should be given to making further concessions under the Infrastructure SEPP, especially in regard to works within existing road reserves.
9. There is a lack of regional strategic transport plans which identify key economic drivers, transport need and potential, alternate transport options, existing infrastructure capacity and gaps and priorities for work.

### **Issues for discussion**

*To what extent is lack of information an impediment to decisions to spend on roads to improve access for heavy vehicles by your local government?*

There is a perception by both elected representatives and the general public that heavy vehicles cause damage to regional and local roads, are less safe than other road users and add to environmental problems in the local area.

In the technical area there is a need for more comprehensive assessment guidelines. There is also a question about the effectiveness of road friendly suspensions at low speed as well as the effect of HML vehicles on the horizontal stresses induced in pavements particularly at curves, on grades and in stopping and acceleration areas.

There is also a lack of regional strategic transport plans which identify key economic drivers, transport need and potential, alternate transport options, existing infrastructure capacity and gaps and priorities for work. This work must address other user needs including tourist traffic (both in its own right and in regard to the interaction with HV/transport needs).

*To what extent are infrastructure constraints a factor in decisions to allow access for heavy vehicles by your local government?*

Infrastructure constraints are generally the major constraint on allowing access for heavy vehicles. Bridges in particular, are a major constraint in approving the use of some sections of the local road network by heavy vehicles.

In addition, the lack of funds available for maintenance and renewal of the local road network has resulted in the condition of many roads being below what the community considers to be a satisfactory condition. Councils are extremely reluctant to approve the use of these sections of the network by heavy vehicles.

Environmental impacts (noise, vehicle emissions, visual impact) are also a major consideration for local communities which result in pressure being directed at local government to exclude the use of the local and regional road networks by heavy vehicles. Many local roads have bitumen seals that the pavement strength will not support and the cost of providing asphalt is too great. The increased damage and impacts of heavy vehicles on surfacing on curved alignments is a concern. This is also a concern for safety on State roads due to the shear stress and subsequent ripping effect on the road surface.

*What factors currently influence your decisions about upgrade and maintenance of roads?*

The major considerations in planning for upgrading and maintenance of regional and local roads are:

1. Annual budget available for road maintenance and renewal;
2. Road segment condition contained in the pavement management system;
3. Levels of Service negotiated with the community through the budget process;
4. Issues raised by sections of the broader community supporting the upgrade or maintenance of part of the road network; and
5. Funding constraints eg grant funding provided to carry out specific works.
6. Decisions relating to significant works take account of many issues, not just HV. These might include general traffic volumes, current width/alignment, accident history, environmental constraints/costs, level of development, bus routes, current maintenance issues, major users, source of funding and strategic context.

*Are heavy vehicle needs specifically considered when make decisions about investment and maintenance of roads?*

Some councils have developed new industrial areas and have constructed the necessary transport links as part of this development. In general, however, councils see heavy vehicles as being an impediment to good asset management and therefore fail to adequately consider heavy vehicle access needs..

The lack of adequate regional transport plans also makes decision making more difficult.

Some Councils are considering the needs of HV through their asset management plans by identifying deficiencies in the current network (e.g. width, pavement strength, bridge capacity and the like). There is an opportunity to further improve asset management plans in the next cycle of asset management planning if sufficient information, training and data is available. This will however not address the funding required to obtain some information (eg load carrying capacity of high priority structural assets such as bridges). Government could accelerate outcomes by providing a targeted funding program.

*To what extent are amenity issues (eg: noise, community concern about heavy vehicle use) a key factor in your decisions about allowing access to roads and to what extent do these issues take precedence over factors such as promoting efficient freight movement?*

As noted above, environmental impacts (noise, vehicle emissions, visual impact) are a major consideration for local communities which result in pressure being directed at local government to exclude the use of the local and regional road networks by heavy vehicles. For many local roads through or adjacent to residential areas this may be the overriding consideration in making access decisions.

*What measures can be done to address amenity issues while still allowing heavy vehicle access?*

Local Government relies on national regulations to mitigate heavy vehicle noise and emission impacts on community amenity.

There are a number of measures that can be employed to accommodate heavy vehicles, including:

1. Transport planning in conjunction with land use planning to minimise transport impacts on residential areas;
2. The use of physical barriers to minimise vehicle impacts eg the construction of noise walls;
3. The introduction of usage restrictions to minimise impacts eg no heavy vehicle access between certain hours, or at the same time as the school bus or during peak periods.
4. Better planning into key destinations such as ports to permit use of alternate modes of transport where required (e.g. extra rail lines). This could produce subsequent savings in investment through the delay of road infrastructure in some cases. It could also divest employment opportunities to appropriate located regional locations (e.g. through intermodal hubs). A holistic view of transport solutions is required to facilitate more appropriate solutions, including resolution of access and other legal impediments to the use of rail where appropriate.

*To what extent are road costs a factor in determining access?*

As mentioned above, budget constraints are a major factor in determining access. Given that sufficient funds are not available to maintain the current network, any requirement to increase the level of service by upgrading a section of the network at the expense of others is difficult to justify. This is particularly true of bridge upgrades which require large capital expenditures.

Timing is also an important issue. If access is granted prior to the necessary general upgrades (e.g. width), then community concerns are difficult to defend on both a political and a technical level.

*Are there any other factors that influence heavy vehicle access?*

The views of individual councils to consciously encourage industry and to create jobs and other economic benefits for their local community can be a major factor in influencing heavy vehicle access. This approach includes strategic transport planning, land use planning and taking a holistic view of local economic wellbeing.

Some Councils are part of regional transport groups and/or ROCs. These groups tend to be active in pursuing opportunities to facilitate improved regional transport and may provide government with a source of information on needs and priorities.

*What specialist expertise, skills and equipment does your local government require to support future spending decisions on roads?*

Local government requires the engineering skills necessary to:

1. Carry out road condition assessment for use in an appropriate pavement management system;
2. Carry out assessment of bridges and other drainage structures for use in asset management systems;
3. Develop asset management plans for each infrastructure asset class, including long term strategic financial plans.

The skills shortage is an industry wide issue (both within and outside of LG) and further enhancements across a range of educational options is required, including existing workers, to deliver appropriately skilled practitioners throughout LG. There is significant capacity for LG to tackle this task with the right support systems in place.

*Which of these skills are not currently available to you?*

Many councils have limited skills in the preparation and use of asset management plans. In particular, the assessment and management of a council's bridge stock is limited in many areas.

The absence of strategic transport management plans linking the federal, state and local road systems is also a major impediment to the application of land use planning to assist in optimising transport outcomes.



*What can be done about this?*

Funding needs to be provided to allow councils to develop asset management planning skills and to collect asset condition data to allow basic asset management plans to be developed and implemented.

A programme to assess the condition and load capacity of bridges on regional and local roads needs to be initiated.

More generally a range of educational changes are needed from the content of new engineering degrees through to existing worker programs to add to the tradition focus of building new infrastructure to that of effectively managing existing infrastructure. Although significant works has been undertaken already in this area, led by IPWEA and its members in many areas, more work is needed.

*What arrangements to support investment decisions by local government need to be improved or modified in order to realise the potential benefits identified by CRRP?*

As stated above, a programme to assess the condition and load capacity of bridges on regional and local roads needs to be initiated. Such a programme could be staged over a period of time with initial investigations being focused on highest desire transport routes. This will require a strategic approach rather than an ad hoc approach.

Additionally, State government could fund an effective program through the regional road program by offering additional funding to ensure the regional road network was well understood in terms of capacity and condition. These roads have been identified as having regional significance. If this work was undertaken it could also be used a real case study to allow technology transfer from State to LG practitioners in a consistent manner. The use of regional contracts to deliver this program with an educational content could offer an effective and efficient means of delivering real information on the ability to handle HVs and to elevate understanding of the many variables by LG practitioners. IPWEA's regional groups could provide a vehicle for facilitating these outcomes in partnership with government.

### **Issues for discussion**

*How can revenue already recovered by your local government for spending linked to heavy vehicle use of local roads be identified (eg. developer contributions)?*

The restrictions placed on councils in NSW in charging developer contributions is severely limited. Councils are able to have some infrastructure provided as part of development approvals. Any contributions received by councils must be used for the purpose for which they were charged or they must be returned to the developer. This requires Council to provide information upon request and within their management plans as to the expenditure of funds.

*What issues does your local government see as arising from potentially linking road use charges to expenditure that improves heavy vehicle productivity?*

The major concern for local government is that road use charges are unlikely to provide the funding necessary to update heavy vehicle transport routes to a satisfactory standard in the short term.

There will also be a cost involved in developing new financial reporting systems to link heavy vehicle route expenditure with road use charges.

In many cases, identifying specific expenditure for the sole purpose of HVs is impracticable as road improvements are often undertaken for the whole of the traffic including light vehicles, cyclist, pedestrians and HV.

### **Issues for discussion**

*What road service standards and accountability frameworks does your local government use and why?*

The level of service for the majority of local government roads is currently set by budgetary constraints since funding does not meet the minimum level necessary to maintain the network in its current condition. Accountability for local government in NSW is provided by the recently introduced integrated planning and reporting framework, annual financial reporting and annual auditing.

*What costs and benefits does your local government see in applying agreed service level standards to local roads?*

There is a cost involved in carrying out the community consultation necessary to determine the level of service expected by local communities. There is also a significant cost in obtaining the necessary data across an entire network including estimates of costs for upgrades works.

The benefit in engaging the community in determining levels of service is that the community also becomes aware of the costs involved in varying the levels of service and the impact this has on allocation of the fixed budget resources available.

*What issues does such a service level based framework raise for your local government?*

Councils in NSW are currently going through this process in order to implement the Division of Local Government's Integrated Planning and Reporting requirements. The major issue in this process is the need for data collection and the resources necessary to develop, implement, monitor and review asset management plans.

*What costs and benefits does your local government see in adopting a uniform accountability framework across jurisdictions?*

As discussed above, councils in NSW have had a uniform planning and reporting framework. This framework covers the full range of local government services, not just the management of infrastructure assets.

### **Issues for discussion**

*What expenditure reporting requirements currently apply to your local government?*

Councils in NSW have a uniform integrated planning and reporting framework. This framework covers the full range of local government services, not just the management of infrastructure assets. The process includes adoption of the International Financial Reporting standards together with annual audit and financial reporting against the strategic plan.

*What costs and benefits can be identified in changing reporting requirements for your local government?*

There are costs involved in the development of strategic asset management plans and financial projections are significant.

The benefit to be gained is better resource allocation, better value for money for services provided by the asset portfolio and more transparent reporting on the achievement of strategic goals.

The separation of expenditure for HVs alone may prove problematic.

### **Issues for discussion**

*What existing oversight, if any, currently applies to your local government?*

Oversight of local government in NSW is carried out by the Division of Local Government and through the annual audit requirements.

*What changes to existing oversight arrangements does your local government consider would improve the provision of an economically efficient road network?*

A better understanding of asset management plans coupled with the development of some basic Key Performance Indicators will improve the economic efficiency of the road network.

The current arrangements for direct funding from the Federal government to LG (e.g. via the Roads to Recovery Program) is an effective means of delivering funding to on-ground works. This direct funding mechanism is to be encouraged.

### **Issues for discussion**

*What costs and benefits does your local government see in establishing independent oversight of heavy vehicle road expenditure decisions?*

The establishment of independent oversight of heavy vehicle road expenditure will simply remove local responsibility for asset management. Any independent oversight must also have responsibility for management of the infrastructure asset network.

Additionally, separation of expenditure on HV alone presents real practical issues and we would suggest will lead to duplication of oversight resources.

### **Issues for discussion**

*What aspects of current road investment does your local government consider could be defined as a CSO?*

As stated in the report many local roads cannot be justified in strict economic terms. Many of these roads are used by local communities for short periods of the year to transport produce to markets. They also provide links between communities and access to education and health services for those councils.

Adequate funding support is needed on an on-going basis to ensure this infrastructure is sustained and the related community not adversely impacted.

*How does your local government measure the CSO component of roads?*

There is currently no adopted measure used by councils to record the CSO component of roads.

### **Issues for discussion**

*What incentives currently exist for local governments to proactively invest efficiently for heavy vehicle traffic and in particular in relation to resolving last mile access issues?*

For the vast majority of councils there is no direct incentive to invest proactively for heavy vehicle traffic since there is no direct link between heavy vehicle usage and income for road improvements and maintenance. Nevertheless, most Council's are concerned to do what they are able to encourage improved productivity and increased economic growth (or to avoid negative growth). Many Councils are involved in regional transport or ROCs which are interested in working to improve economic and employment outcomes.

*What incentives could be provided to local government to encourage more efficient investment in response to forecast demand from heavy vehicles?*

A direct and transparent link between increased demand by heavy vehicles and funding to support the increase in the level of service required would allow councils to make better investment decisions in relation to heavy vehicle networks.

Those issues raised (above) relating to educational support/development for the future, knowledge transfer through the regional road program with appropriate State leadership, improved research into the impacts of HV on curvilinear alignments, production of regional transport plans, greater communication with regional transport groups and ROCs all provide mechanisms to facilitate improved decisions on transport.

The key issue that must be addressed however is to develop a new and permanent funding model to address the shortfall in funding needed to sustain the long length of local and regional road network maintained by LG. Firstly securing but also increasing the current Roads to Recovery Funding arrangements for LG. This should support decision making by local Council's as to the priorities for expenditure.

Secondly the introduction of an additional strategic component of the Roads to Recovery Program with decision making on priorities to be made on a regional basis, perhaps using similar regional arrangements in place for determination of regional repairs program funding. Thirdly, by re-introduction of a significant **minor development program** into the State road budgets (for use on State roads). These programs used to facilitate efficient decision making for minor improvements (up to \$10M) through integration with asset and safety programs based on a detailed route improvement plan. This has the potential to greatly improve the efficiency of progressive improvements to key State roads in regional areas. In recent years the focus on aggregating improvement funding into only very large (\$100M plus) projects has resulted in lost opportunities to address safety and improve efficiency for heavy transport users.

## CONCLUSIONS

Local Government in NSW is currently unable to meet the basic financial demands placed on its local and regional road networks. As discussed above, the major issues for most councils can be summarised as:

1. Insufficient funds are available to Local Government to maintain the local road network in its current condition (Estimated shortfall of \$500million per annum).
2. There is a question about the ability of local pavements to carry additional axle loadings.
3. Local Government has insufficient staff resources with technical knowledge in assessing applications.
4. There are inadequate technical assessment guidelines available (Including horizontal pavement stress analysis).
5. Lack of knowledge (Education) of benefits of higher productivity vehicles by both elected representatives (Councilors) and the general community.
6. Local Government owns and maintains over 9,000 bridges including over 2,350 timber bridges. Many of these structures were built long before the introduction of HML and road friendly suspensions and are unable to cope with increased load demands.

7. The introduction of a Mass -Distance - Location based model would seriously disadvantage small and remote councils that cannot rely on rate revenue alone to maintain their regional and local road networks.
8. The shortage of road funding detailed in the submission would be catastrophic if funding under the Roads to Recovery programme were to curtailed or ended. It is essential that this source of funding be enhanced and secured if further road access efficiencies are to be realised.
9. There needs to be a very clear linkage established between road usage and heavy vehicles and the level of funds that are returned directly to Councils.

IPWEA (NSW) and the Roads & Transport Directorate appreciate this opportunity to have input into the COAG Road Reform Plan (CRRP) and would value any opportunity to be involved in future aspects of this process.

For further information in relation to the submission please do not hesitate to contact the undersigned on:

Telephone: 8267 3000  
Mobile: 0418 808 085  
Fax: 9283 5255  
Email: [msavage@ipwea.org.au](mailto:msavage@ipwea.org.au)

A handwritten signature in blue ink, appearing to read 'Savage', with a stylized flourish at the end.

Mick Savage  
Manager Roads & Transport Directorate  
IPWEA (NSW)