



**INFRASTRUCTURE  
PARTNERSHIPS  
AUSTRALIA**

BUILDING AUSTRALIA TOGETHER

# Road Maintenance: Options for Reform



**SEPTEMBER 2011**

Infrastructure Partnerships Australia is a national forum, comprising public and private sector CEO Members, advocating the public policy interests of Australia's infrastructure industry.



**INFRASTRUCTURE  
PARTNERSHIPS  
AUSTRALIA**

**BUILDING AUSTRALIA TOGETHER**

**FOR MORE INFORMATION  
PLEASE CONTACT:**

**BRENDAN LYON**

CHIEF EXECUTIVE OFFICER  
INFRASTRUCTURE PARTNERSHIPS AUSTRALIA  
Level 8, 8-10 Loftus Street, Sydney NSW 2000  
PO Box R1804, Royal Exchange NSW 1225  
P | 02 9240 2050  
E | [brendan.lyon@infrastructure.org.au](mailto:brendan.lyon@infrastructure.org.au)

**ADRIAN DWYER**

NATIONAL MANAGER, POLICY  
INFRASTRUCTURE PARTNERSHIPS AUSTRALIA  
Level 8, 8-10 Loftus Street, Sydney NSW 2000  
PO Box R1804, Royal Exchange NSW 1225  
P | 02 9240 2056  
E | [adrian.dwyer@infrastructure.org.au](mailto:adrian.dwyer@infrastructure.org.au)

## Executive Summary

Efficiency in infrastructure investment must form a central focus for Australia's governments, as they seek to close the infrastructure gap. After all, each dollar saved by eliminating cost overruns and inefficiencies can be invested in new, productive infrastructure.

Australian governments spend more than \$7 billion maintaining and renewing the road estate every year<sup>1</sup>. States alone invest more than \$5.5 billion per annum on road maintenance and repairs, while local governments spend around \$1.5 billion<sup>2</sup>.

Global and domestic experience of competitive models of road maintenance has been shown to deliver efficiencies ranging between 10 and 40 per cent. For example, a limited programme of road maintenance outsourcing in New South Wales delivered cost reductions of between 20 and 30 per cent.<sup>3</sup> These figures suggest that the potential savings available to Australia's governments are in the order of at least \$700 million, but could range as high as \$2.8 billion per annum, if a uniform 40 per cent saving was achieved.

Using market incentives and benchmarking against world's best practice can drive investment, safety outcomes, whole-of-lifecycle management, innovation and availability in a way that traditional delivery methods have been unable to sustain. Competitive tendering for road maintenance services will also increase accountability in road network provision, with private sector providers held to account for poor performance.

Outside of cost savings, introducing competition to road maintenance operations has delivered positive benefits in lowering social costs. In New Zealand, Performance Specified Maintenance Contracts have been deployed to target road user safety by directly

---

<sup>1</sup> Commonwealth Grants Commission, 2011; BITRE, 2011; Australian Local Governments Association, *Study of local roads funding in Australia 1999-00 to 2019-20*, 2010.

<sup>2</sup> Commonwealth Grants Commission, 2011; Australian Local Governments Association, *Study of local roads funding in Australia 1999-00 to 2019-20*, 2010.

<sup>3</sup> World Bank, 2009.

incentivising private sector providers to improve safety features on the road network. By focussing the road maintenance provider on safety outcomes, with specific incentives for strong performance and sanctions for failures, innovation and investment has been funnelled into making roads safer for users, in turn reducing the social and economic cost posed by motor vehicle accidents.

Opponents have argued against previous road maintenance reform efforts, arguing that a competitive outsourcing model poses a risk to employment, particularly in regional areas. This argument is not borne out by experience, given that private sector asset managers are as reliant on local labour as their public sector equivalents. Where road maintenance has been outsourced, employees have typically transferred to the private sector operator and benefitted from renewed investment, updated work practices and the latest technology.

The current suite of models for private sector engagement in road asset management range from a simple “schedule of rates” for a private sector contractor, through to Alliancing contracts where a private sector service provider is embedded in a roads agency and risks shared between government and supplier. Models have evolved to meet the challenge of potentially unscopeable risks and the political sensitivity of road availability. But further evolution is critical to ensuring the right balance and allocation of risk is achieved. This paper explores some of the options for further reform, suggesting changes to outsourcing models that would see improved identification and allocation of risk.

Bundling local government road maintenance responsibilities and combining them with state government contracts presents the most substantial opportunity for further efficiency in the sector. Bundling work packages and asset management contracts together – and tendering them competitively – means the private sector can deliver whole-of-network maintenance over a discreet geographical area more efficiently than multiple public sector providers working independently.

If in the immediate term, bundling state and local government maintenance activity is not practical, it should not stop state governments from pursuing reform opportunities; rather,

contracts should be structured to allow for later consolidation with local council contracts. Equally, local governments should be incentivised to seek opportunities to bundle their road maintenance programmes with adjacent local governments. Voluntary collaborations to allow for collective competitive tendering could deliver significant efficiencies for local governments and reduce the burden of road maintenance on tight council budgets.

Regardless of the degree of collaboration across agencies, it is imperative that contracts are of sufficient size and length to average out risk factors, giving the private sector confidence to invest in the network and realise economies of scale.

With the right contract settings, the private sector has the freedom to innovate in the provision of road maintenance, drive new outcomes and invest in new technologies. The private sector is also incentivised to deploy global talent and best practice – by engaging that experience, through competitive tendering, Australian road users will be able to benefit from the innovation, investment and efficiency of that accumulated global experience.

## Recommendations

To harness the efficiencies and improved service outcomes from greater competition in road asset management, this paper recommends a series of practical steps which state governments should take:

- 1. State governments should immediately investigate and pursue road maintenance outsourcing opportunities – delivering a process where all road maintenance is subject to competitive tendering.**
- 2. State governments should restructure their existing road maintenance functions to allow for a simpler transition to an outsourced model.** This process should include definition of road maintenance regions of sufficient size and scale to be suitable for a future tendering process. Governments should introduce comprehensive road asset management systems which accurately record the quantum and condition of their road assets, the maintenance effort and costs. This will provide the data for future maintenance procurement decisions.
- 3. State governments should establish collaborative road maintenance strategies with local councils to bundle road asset management to achieve efficiencies of scope and scale.** As the private sector becomes increasingly engaged in outsourcing, service providers should be participants in these strategic alliances.
- 4. State governments should assist local governments to align their road maintenance functions with new, clearly defined, state regions.** Local governments, assisted by state governments, should seek to collaborate with neighbouring councils to form road maintenance partnerships that align with these regions; this would unlock efficiencies of scale and act as a precursor to a competitive tendering that combines roads maintained by states and local councils into an integrated maintenance bundle.
- 5. State governments should, where existing outsourcing contracts are in place, continually seek improvements to the model, adopting best practice deployed in other jurisdictions.**

## Road Maintenance: Options for Reform

### Introduction

Australia's road network spans more than 800,000 kilometres, including 18,700 kilometres of National Highway and 260,000 kilometres of State Roads<sup>4</sup>. Responsibility for the maintenance of this network falls largely to Australia's state and local governments. It is estimated that around half of Australia's \$15.8 billion aggregated public roads budget is spent on maintenance and renewal<sup>5</sup>. Each year, Australia's state governments invest more than \$5.5 billion on road maintenance and repairs, while local governments spend around \$1.5 billion<sup>6</sup>. In 2010/11, the NSW Roads and Traffic Authority (RTA) alone invested more than \$1 billion on its core road maintenance programme<sup>7</sup>.

Global and domestic experience has shown that the competitive tendering of road maintenance programmes has achieved cost savings ranging between 10 and 40 per cent, compared to traditional "in-house" delivery models. Across an annual national road maintenance expenditure of around \$7 billion, efficiencies of this order offer significant potential savings that could be better invested in other productive infrastructure.

Competitive contracting out of road maintenance in Australia has been very positive; leading to renewed investment, enhanced innovation and improved service outcomes – as well as significant cost efficiencies.

Figure one, below, shows the significant and increasing investment required for new and renewed road infrastructure in Australia. The significant growth in the investment task is

---

<sup>4</sup> Austroads 2005, *RoadFacts*.

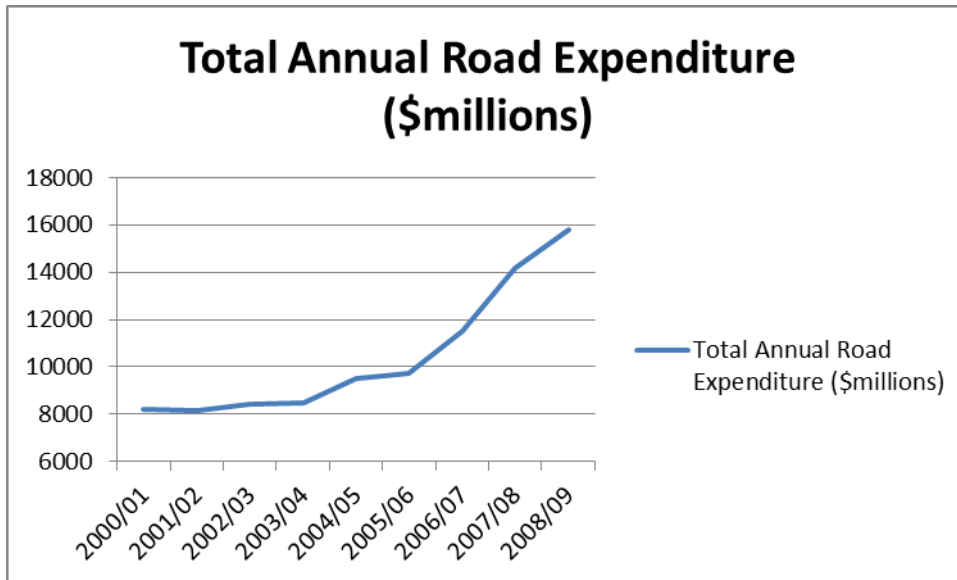
<sup>5</sup> BITRE 2011, *Public road-related expenditure and revenue in Australia*, ([http://www.bitre.gov.au/publications/90/Files/IS40\\_Public\\_Road\\_Related\\_Expenditure.pdf](http://www.bitre.gov.au/publications/90/Files/IS40_Public_Road_Related_Expenditure.pdf)) and M. Naidu, 'Overview of Australian Road access Charging Framework: Tax Review Team', National Transport Commission, Melbourne, April 2009 cited in Clarke and Prentice, *A Conceptual Framework for the Reform of Taxes Related to Roads and Transport*, Prepared for the Treasury, Canberra, June 2009.

<sup>6</sup> Commonwealth Grants Commission, 2011 and Australian Local Governments Association, *Study of local roads funding in Australia 1999-00 to 2019-20*, 2010.

<sup>7</sup> Budget papers 2010-2011, Budget paper No.3 – Volume 2.

driven by the requirement to increase the capacity of the road estate, as well as rising input costs such as labour and materials, and the increased maintenance required as the volume of freight carried across the network increases.

**Figure 1: Total Annual Road Related Expenses**

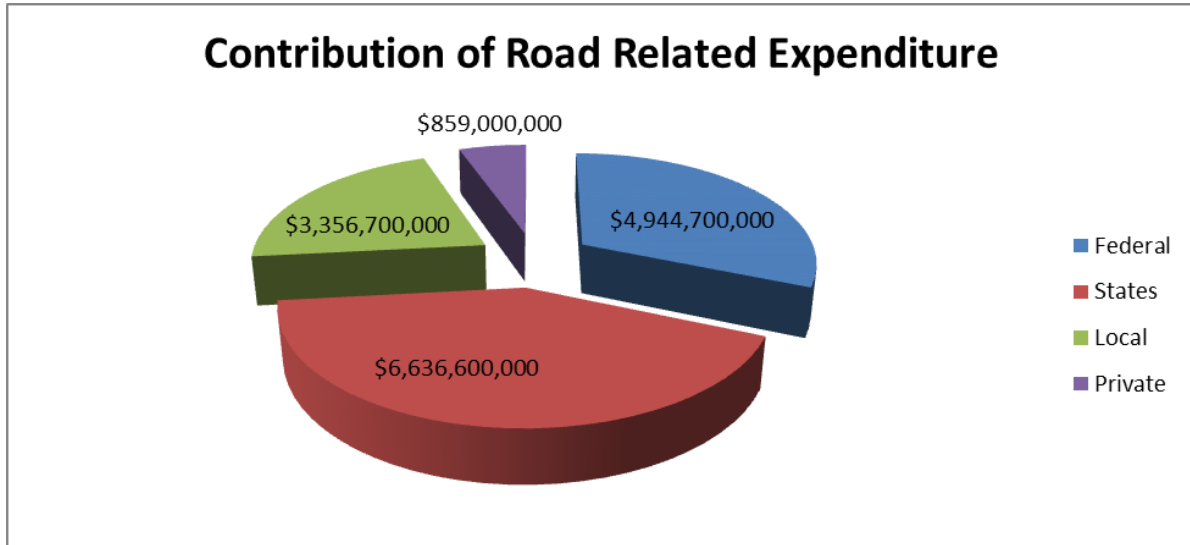


Source: BITRE – Working Paper 90, IPA Analysis.

Figure 2, below, shows the investment made by Federal, state and local governments and the private sector in road maintenance and construction in Australia. While the Federal Government neither owns nor directly manages road infrastructure, it contributes the second largest proportion of investment in the network, representing distribution from Fuel Excise Duty to road suppliers.



Figure 2: Contribution of Road Related Expenditure



Source: BITRE – Working Paper 90

Contracting out of road maintenance in Australia has a long but inconsistent history. At various times, governments across Australia have embarked on ambitious outsourcing programmes to drive down costs and increase allocative efficiencies. As circumstances and financial necessity has changed, these reforms have in many cases been wound back, with a return to traditional public delivery.

The experience of NSW is a case in point. Following two concurrent two-year pilot studies, the NSW Government tendered its first Performance Based Contract (PBC) covering 450 kilometres of urban roads in Sydney<sup>8</sup>. The contract commenced in October 1995 and achieved a 25 per cent lower bid price and actual cost reductions of between 20 and 30 per cent.

In 1999, midway through the first private sector contract, the NSW Government undertook an inquiry into outsourcing and competitive tendering of road maintenance. The *State Development Committee – ‘Road Maintenance and Competitive Road Maintenance Tendering Inquiry’* was established with terms of reference to investigate the role of competitive tendering to reduce the State’s road maintenance bill. However, the

<sup>8</sup> World Bank, [http://www-esd.worldbank.org/psc\\_resource\\_guide/Case-Australia.htm](http://www-esd.worldbank.org/psc_resource_guide/Case-Australia.htm), accessed 8/8/2011

Committee's terms of inquiry were adjusted after the then Minister chose to keep maintenance responsibility with the RTA<sup>9</sup> and instead implement a series of benchmarking criteria for road maintenance performance. The Government's decision was based on concerns that reform could lead to a loss of jobs in rural and regional communities.

In spite of the decision to halt further contracting out arrangements, there remains one example of a mature contract operating in NSW. The Performance Specified Maintenance Contract (PSMC) is worth around \$35 million over 10 years and covers the Sydney North East Sector. The second term of the contract commenced in October 2008.

The PSMC represents only a very small proportion of that State's \$1 billion road maintenance programme, highlighting the significant opportunities that exist to drive further contestability into the NSW road maintenance programme.

*Enhanced private sector involvement in road maintenance can be used to leverage the talents of industry to improve efficiency, cost-effectiveness and delivery for governments at all levels.*

In other jurisdictions in Australia, most notably in Western Australia and Victoria, outsourcing of road maintenance operates

successfully. Both a whole-of-state model (WA and Tasmania) and a partial outsourcing model (Victoria) have improved efficiency and delivered long-term savings for government.

In Victoria, the State road provider, VicRoads, employs a mixed approach that sees an in-house maintenance provider compete alongside the private sector for some maintenance services. This in-house capability is used to benchmark the performance of the private sector and represents a way to phase in broader application of outsourcing models.

---

<sup>9</sup> The NSW Roads and Traffic Authority (RTA) was integrated into the Transport for NSW structure and merged with NSW Maritime to become Roads and Maritime Services on 15 July 2011. This paper predominantly refers to the RTA as the NSW roads agency in place during the examples given.

The WA and Victorian approaches to road maintenance outsourcing are examined more closely below.

Driving contestability and competition into road maintenance programmes offers the opportunity to harness private sector expertise to improve efficiency, cost-effectiveness and service delivery for governments. Private sector involvement can also encourage investment in innovation and skills. Road outsourcing contracts have also been structured, particularly in New Zealand, to achieve other policy outcomes, such as road network safety. In these circumstances, private sector providers are incentivised to deliver safer roads; with safety outcomes directly influence contract performance.

Contracting out of road maintenance has been increasing in Australia and overseas because it offers considerable opportunities to improve efficiency and accountability. While models vary in the scope, depth and ambition, this paper details some conceptual and specific examples to demonstrate the extent to which contestability can be used to reduce cost and increase the quality of maintenance programmes.

## **Approaches to Road Maintenance Outsourcing**

Road maintenance outsourcing models broadly fall into three contract types –

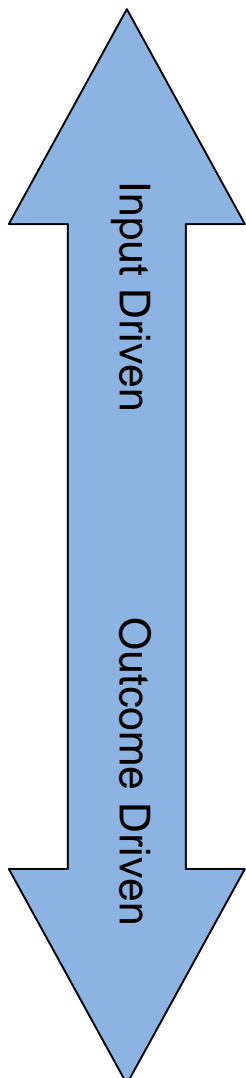
1. Input-driven;
2. Output-driven; and
3. Outcome-driven<sup>10</sup>.

In reality, this is a sliding scale of outsourcing ‘depth’ with Input-driven being the least encompassing and Outcome-driven the most<sup>11</sup>.

---

<sup>10</sup> Porter, ([http://www-esd.worldbank.org/abc\\_resource\\_guide/Docs-latest%20edition/Received%2027%20Feb%20-%20case%20studies,%20docs%20to%20link/Porter\\_trends\\_in\\_procurement.pdf](http://www-esd.worldbank.org/abc_resource_guide/Docs-latest%20edition/Received%2027%20Feb%20-%20case%20studies,%20docs%20to%20link/Porter_trends_in_procurement.pdf))

<sup>11</sup> Pekka Pakkala, in *International Overview of Innovative Contracting Practices For Roads*, 2007 breaks these definitions down into eight separate degrees of depth/type, detailing the nuances, ancillary benefits and challenges of each.



Maintenance Model	Description
<b>In-House</b>	The traditional road maintenance model, employed almost universally until the 1980s. Under these arrangements, each state’s road agency retains complete control over decisions relating to the management of the road network and bears all risks associated with those decisions. Capability to perform road maintenance procedures is limited to the road agency with no incentive for the private sector to develop the capabilities to perform these duties – further increasing the risk on the existing road agency.
<b>Schedule of Rates</b>	A simple and low-risk entry point to road maintenance outsourcing. The road agency retains control over decision-making, budgets and prioritisation of work, essentially leaving the service provider with a schedule of projects and only bearing the risk on quality control. This model has been widely used across Australia with most state agencies and many local governments employing this procurement model for at least part of their road network.
<b>Performance Specified Contracts</b>	The service provider plans, programs, designs and delivers work output in order to achieve contractually specified performance outcomes. These outcomes may include certain network management functions such as incident response and information management as well as asset management and maintenance. The shift from activity prescription to performance standards brings a shift in risk ownership to the service provider as well as a loss of control for the road agency.
<b>Alliance</b>	A very recent trend in maintenance outsourcing, the Alliance model seeks to more evenly share the risks and control between the road agency and one or more service providers. It requires a greater degree of integration between the road agency and service providers and a more complex payment schedule that reflects the risk and control-sharing nature of the relationship.

For example, an Input-driven contract might relate to a specific schedule of works on an individual asset (say a bridge or section of road) where the contractor charges for labour, plant hire and materials, where an Output-driven methodology may include the selection of assets (such as all roads in geographical area) and a set of performance criteria the service provider must adhere to over a long-term contract period - effectively operating under a service level agreement – with payments akin to an availability structure. Under this model, the contractor may not be required to undertake prescribed pieces of work, or

follow agency mandated work practices, but is required to meet maintenance and availability targets.

Evidence of the operation of outsourced models in the road maintenance space has shown those relationships tend to increase in scope and depth as the benefits are realised.<sup>12</sup> Contracts under an Outcome-driven model have evolved to include more than basic road maintenance, with components such as emergency response, traffic management, network operations, vegetation control and graffiti removal often included. For instance, under a performance-based contract, the contractor is incentivised to deliver maintenance solutions that will survive the contract period and they can be incentivised to identify and rectify other issues that impact the life of an asset. For example, drain maintenance is not normally a part of pavement resurfacing contract, but ultimately the pavement life depends on the adequacy of the drainage system. Under the NSW PSMC model, this interdependency was recognised, with responsibility for the condition of all assets within the road reserve transferred to the contractor.

A survey of worldwide road maintenance schemes identified eight models of outsourced asset management and road maintenance<sup>13</sup>. The models follow a similar range from traditional 'in-house', through to an 'integrated maintenance model' where all routine and periodic maintenance activities are bundled into one contract to a private sector service provider, while also including a number of innovations and variations. For example, a bundled model would see specialist contractors bid for network-wide contracts for discrete maintenance tasks, such as lighting, signage and verge management. While this model offers some upside in scale and specialisation, it may also serve to increase cost due to duplication in management structures and disruption to users and make coordination of maintenance programmes inefficient, or serve to increase interface risks.

In the UK, there has been some recent adoption of the 'framework' model. This model seeks to simplify the tendering process by pre-approving contractors through dummy or

---

<sup>12</sup> Porter

<sup>13</sup> Pakkala

indicative bidding, then engaging them on a rotational basis for non-routine maintenance activity. The UK Highways Agency has also recently adopted contracts under the Alliance model where the private sector is fused into the Agency and paid for actual work provided, plus a fixed rate of overhead and profit. This model has also become increasingly popular in Australia.

Programme alliances allow the government to retain greater control, while sharing risks with the private operator. Private sector operators have argued that the efficiency of the Alliance model is enhanced by the inclusion of some level of network traffic operations functions within the contract.



Critics of the Alliance model argue that it applies insufficient pressure to incentivise the contractor to significantly reduce costs. This stems from a contractual arrangement where the service provider benefits from below-quote cost savings by retaining a portion of the saving, but incurs a limited penalty for costs above the contract threshold<sup>14</sup>. There are a number of strategies to mitigate these risks and modify the model accordingly – many are mentioned in this briefing.

---

<sup>14</sup> An indicative example: A road agency allocates \$30 million to the agreed program of maintenance works in year 1 (including direct costs, overheads and profit components, and the alliance completes the program of works at a total cost of \$25 million, as well as satisfying all other performance measures (safety, environment, community). Additional works are programmed and completed to spend the balance of the budget, including a 'gainshare' payment to the contractor which is a factor of the profit margin. In year 2 the alliance is unable to complete all of the programmed works within the \$30 million budget, and the alliance is forced to reduce the quantum of work to be done to remain within budget and the contractor's margin is reduced or eliminated by a 'painshare' factor.

## Considerations in Road Maintenance Outsourcing

### *Tendering/Contract Structure*

As the global and domestic trend towards outsourced road maintenance contracts gathers

---

*The quantity and quality of potential tenderers has increased – many with demonstrable experience and success in the space.*

---

pace, the advantages of competition have also accelerated with a deep level of expertise within industry and government.

In seeking optimal outcomes, it is important that the contracting model creates incentives for innovation. Particularly in an Outcome-driven model, the contract needs to be of sufficient length to incentivise the contractor to invest, innovate and manage risk. Contracts can also be structured to allow for ‘automated’ extensions based on strong performance – meaning that if service levels are routinely exceeded, the contract has a clause to extend by a given number of years. It is obviously important for performance targets that trigger automatic extensions require significant outperformance, ensuring that contestability remains a feature of the contracting market. In this instance, the targets would need to be reset (at a higher level) once the contract was extended to ensure that performance is continually driven and not simply automatically renewed in perpetuity with inadequate targets<sup>15</sup>.

---

<sup>15</sup>This process is used in the latest evolution of the VicRoads model.

**Risk Allocation**

Allocation of risk between the public and private sector is as important in road maintenance outsourcing as any other form of partnership between the public and private sectors. A tendency to transfer inappropriate risks to the private sector on the one hand will lead to poor outcomes and dampen both appetite and competition for outsourcing contracts; while transferring too little risk to the private sector could reduce accountability for key contract outcomes. Contracts with adequate scope and length to average out risk exposure can allow a greater proportion of risk to be transferred to the private sector provider.

Taking a pragmatic approach to risk management, it is possible to identify the nature of risks and apportion each to the entity best able to manage it. Identifying risks at the concept stage and transparency throughout the tendering process is the best way of adequately balancing risks and increasing the stability of the long-term contract.

Figure 3: Developing Risk Profile of Outsourced Road Maintenance in Australia

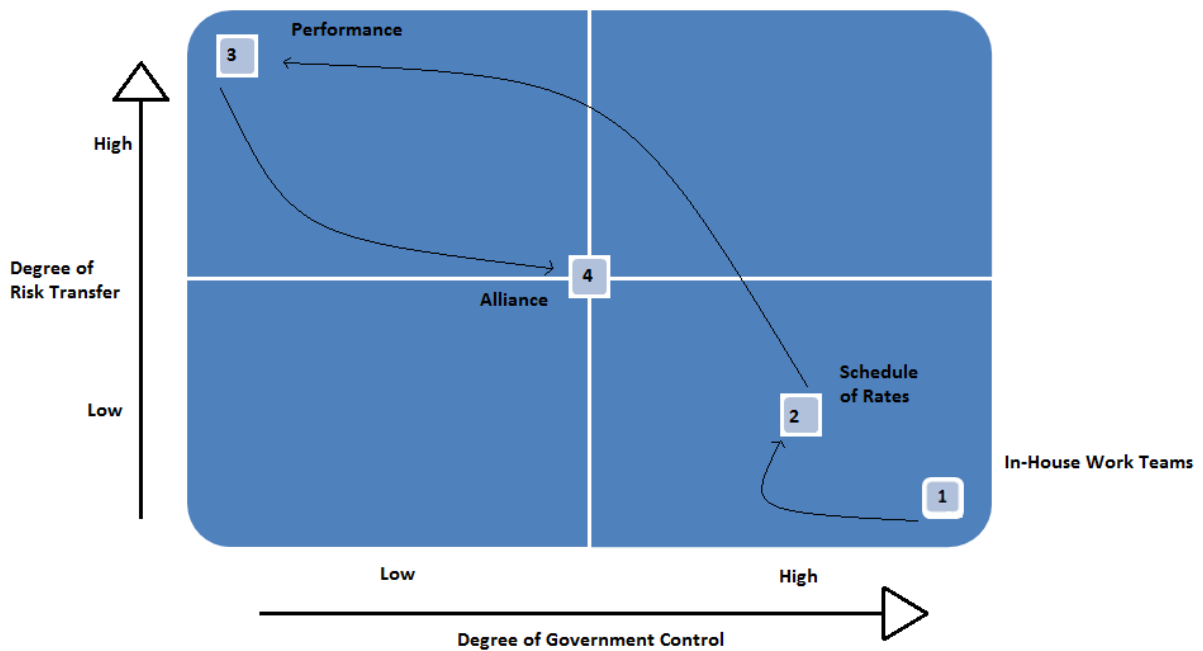




Figure 3, above, shows the evolution of risk sharing profiles as outsourcing arrangements have developed in Australia. Box 1 represents in-House delivery of road maintenance by public sector road supply agencies. The private sector became increasingly involved in the delivery asset management with “Schedule of Rates” or Input-Driven contracts, represented by Box 2. Performance based contracts (Box 3) saw a wholesale transfer of risk to the private sector maintenance supplier, while recent Alliance-style contracts (Box 4) have limited private sector exposure – returning a portion of risk to government. Figure 3 demonstrates the balance between risk transfer and the retention of control and flexibility over network maintenance by governments. Critics of the performance-based model cite a loss of control by governments as a weakness as it potentially limits their ability to respond to shifting priorities or changing community expectations.

### ***Payment Models***

For the simplest forms of outsourcing (towards the Input-driven end of the scale) payments tend to be made on a per-task or per-activity basis. At the other end of the scale a more complex interaction of upfront fees, periodic payments, performance bonuses and poor-performance penalties can be included in Outcome-driven outsourcing.



Using the correct pricing model to incentivise peak performance is critical to the success of any outsourcing model. Aligning contracts so proponents can benefit from economies of scale and extension of contracts for strong performance is also crucial to long-term success and to encourage industry investment. For example, the VicRoads outsourced model (an outcomes-driven Alliance-style contract) includes a three-year contract with options for two concurrent one-year extensions, contingent on meeting performance criteria in each year of the whole contract.

### ***Effective Auditing***

Disputes can arise between the infrastructure owner (a roads agency) and the selected proponent should the extent of maintenance tasks (or expectations) differ after the award of the contract. This risk can be mitigated in a number of ways, including through openness and transparency during the tendering process. Experience in other jurisdictions has also shown that a tendering period of sufficient length to allow proponents to adequately audit the maintenance task is critical to the success of any contract<sup>16</sup>.

### ***Effective Monitoring***

Monitoring progress against expectations is critical to the overall performance of the contracts; as is setting clear expectations from the outset. How performance is benchmarked and assessed throughout the contract is crucial, as is transparency and clarity. In an Outcome-driven model (or variations towards this end of the value chain) continuous monitoring is critical, particularly as contracts may define a condition standard for the entire network at set points during (or at the end of) the contract.

*Taking a pragmatic approach to risk management it is possible to identify the nature of risks and apportion each to the entity best able to manage it.*

---

<sup>16</sup> Porter

If the assessment task is adopted by the asset owning entity (roads agency) tensions could develop, as there is a logical incentive (or a perception of incentive) to make a negative assessment of network condition. The conflict of interest arises from the agency being both the assessor and the effective beneficiary of any punitive measure. To counter this potential tension, some outsourced road maintenance models have used an independent third-party to undertake condition checks and determine performance. In either scenario, transparent and comprehensive performance criteria are an essential prerequisite for avoiding disputes. Main Roads Western Australia, for example, retains an independent Performance Evaluation Group to monitor and review performance against target standards set in the contracts. The Performance Evaluation Group provides reports to governing body of the contract group on the performance of each private sector provider against this framework. These reports then contribute to the decision making process regarding extensions of the contract term.

Monitoring specified performance arrangements can be impacted by advances in data collection technology and standards reducing the repeatability of asset performance and condition assessments, limiting the ability to consistently monitor performance over the long term. Conversely, the PSMC model requires the contractor to self-monitor and report on the achievement of the specified outcomes. The Australian legal and insurance system also places responsibilities on road maintenance providers to maintain the assets to specified standards or risk being sanctioned if substandard conditions contribute to road incidents. This liability forces contractors to conduct a healthy degree of surveillance and reporting to provide protection against such claims. With robust self-monitoring in place, the road agency's role can move to random auditing, with a significantly reduced staffing burden.

### ***Potential Cost Savings and Value vs. Cost***

Quantifying and projecting potential cost savings from outsourcing road maintenance is challenging. Without a specific model in place, projecting the potential savings is somewhat speculative, given variations in risk transfer, competitive pressures and other drivers.

Nonetheless, an assessment of some 15 outsourced road maintenance contracts, including VicRoads, Main Roads WA and international examples found quoted savings of between 10 and 40 per cent<sup>17</sup>. Porter puts the savings made by Main Roads Western Australia under the Term Network Contract model (the evolution preceding the current Integrated Service Arrangement contracts) at around 25 per cent<sup>18</sup>.

Cost saving should not be considered in isolation from value. Outsourced road maintenance schemes, if structured successfully, also have the ability to increase price certainty, enhance delivery, improve standards and promote innovation. Value is perhaps a better indicator than price alone.

## **International Experience**

There is an observable trend worldwide towards outsourced highway management services. Several Scandinavian countries, Canada, New Zealand, Brazil, Argentina, South Africa, the UK and the US all have experience with varying systems of outsourced road maintenance.

In a survey of the experiences in each of these jurisdictions, several common trends emerged<sup>19</sup>. These include:

- Contract Scope – contracts are primarily awarded over geographical areas with a defined set of maintenance standards. The US agencies differ in this regard as they award corridor-based contracts rather than discreet areas;
- Selection Criteria – the contractor selection criterion is almost always dependent on price. Some jurisdictions do include elements of quality, past performance and other criteria but price is generally the most important determinant;

---

<sup>17</sup> Pakkala

<sup>18</sup> Porter

<sup>19</sup> Pakkala

- Contract Type – There is a common trend towards using a combination of lump-sum payments for standard or routine works with some allowance for unit prices on works that are unforeseen or irregular. The contract specifics will often depend on the length of contract;
- Contract Length – while there is a variation in the contract lengths across different models used in the countries listed above, a trend does exist in models toward the outcome-driven end of the scale to move to longer term contracts. Evidence of more mature schemes in Western Australia and Canada show a trend towards longer term contracts to allow for longer term planning and full life cycle maintenance. Second generation performance based contracts in British Columbia and Alberta both increased the length of contracts. In both cases, improvements in efficiency and increased savings have been reported.



### ***Case Study One – Main Roads Western Australia (Main Roads WA)***

In the late 1990s, WA began outsourcing its road asset management and maintenance services through outcome-driven, performance specified, Term Network Contracts (TNCs). Main Roads WA is currently undertaking a process of implementing the second generation of private sector contracts for road maintenance. The contracts – to be known as Integrated Service Arrangements (ISAs) – strengthen, deepen and refine interactions between the private and public sectors.

The change is an evolution of the asset management and road maintenance service arrangement in WA. Main

---

*Main Roads WA is currently undertaking a process of implementing their second generation of private sector contracts for road maintenance.*

---

Roads WA is building on the successes of the original Term Network Contracts (TNCs) and combining lessons learned with feedback from the public and

private sector contractors in order to improve the system. Implementation of a second generation of contracts demonstrates the success of the original TNCs, but also an acknowledgment of weaknesses and lessons from the original incarnation. Further to this, the scope of the system is being broadened to a more integrated asset management and road maintenance services relationship. It is intended that Main Roads and private sector contractors will work more collaboratively to provide a ‘best-for-network’ outcome.

Key features of the proposed ISAs include:

- Seven ISAs of varying sizes across WA’s \$36 billion road network;
- Initial five-year contract terms with five-year extensions available dependent upon performance standards, to encourage ‘whole-of-life-cycle’ planning and funding;

- Performance to be independently assessed by a 'Performance Evaluation Group';
- Integrated service providers (ISPs) in the ISAs will be paid direct costs they incur in providing the integrated services and a margin comprised of corporate overhead and profit. In addition, and to drive continuous improvement, a proportion of the ISP margin will be subject to a commercial incentivisation regime.

Summarising the ISAs, WA Transport Minister Troy Buswell said: "These new arrangements are more than just road maintenance contracts; they provide aspects of road network operations, operational asset management, maintenance delivery, some minor capital works (projects less than \$3 million in value), and project and contract management services."

The move to ISAs began in 2006 with a review of the existing TNCs. All existing contracts were allowed to run to expiry of their original term (although TNCs 5 and 6 were adjusted in July 2006 to move them more towards an Alliance model), with ISAs being procured in 2010 and 2011 to coincide with TNC expiration dates. The ISA contracts have been procured similarly to any public sector tender process with expressions of interest sought, preferred providers being short-listed and the declaration of the chosen ISP. The ISA models continued to develop the theme of the changes to TNC 5 & 6, moving Main Roads WA wholly into the Alliance model of road maintenance outsourcing.

### ***Case Study Two – VicRoads***

Victoria operates a series of different road maintenance models, with the most in-depth operating in the North Eastern Region (effectively the Hume corridor) under an Outcome-



driven, Alliance model. For routine maintenance, close to 100 per cent of roads in urban areas and 50 per cent in rural areas are maintained through an outsourced system. Much of this work is undertaken on a lump sum and schedule rates basis, with a recent trend towards a more integrated approach. The contract includes all periodic and routine maintenance for a given network area and components of rehabilitation, renewal and emergency work. The composition of the Alliance group (i.e. staff who fall under the Alliance) is split 50/50 between VicRoads originating and private contractor originating staff.

VicRoads, the Victorian road agency, maintains a component of the model not observed in other examples. VicRoads has an in-house quasi-private contractor which competes by invitation and tender with the private sector to deliver some maintenance services. The in-house business units also bids for work in other Australian jurisdictions and for local council contracts<sup>20</sup>.

---

<sup>20</sup> VicRoads.



The North Eastern Region network is maintained under a three-year contract with two consecutive one-year extension options with a schedule, plus overheads and profit payment model. Beyond a given point, the contract reverts to overheads only to discourage cost overruns. Critics of the pricing model suggest it can lead to inflation of the full contract price and overhead rate to lock in a profit margin. The performance and monitoring of the contract is by an Alliance board comprising two VicRoads and two contractor managers with targets designed to move to lock in higher performance standards and cost efficiencies.

### ***Case Study Three – Canada<sup>21</sup>***

Performance Based Contracts (PBCs) have been used in Canada for road maintenance since 1988. Currently 100 per cent of provincial highways are managed under PBCs in British Columbia and Alberta and approximately 60 per cent in Ontario. These road networks range from 71,000 kilometres to over 225,000 kilometres. In each case, the network has been divided into a number of areas on which contracts are awarded.

In British Columbia, there are 28 separate geographical areas for which 10-year contracts are awarded. The length of contract has grown from three years in the initial outsourcing to allow the contractors the scope of long term planning and the ability to amortise the costs of heavy machinery.

Payments are made on a monthly basis provided performance standards are met, with the set monthly amount adjusted based on index rises on fuel, labour costs, and so forth. The performance standards are set by the British Columbia Ministry of Transport (BC MoT). They are performance-based and customer service oriented with a clear set of objectives and general specifications. Methods of operation and inputs required are left solely to the contractor. BC MoT then assesses the contractor's performance against the standards using International Organisation of Standardisation measures.

Savings of approximately 10 per cent have been reported since inception and feedback from the public has been largely positive.

In Alberta, 30 Contract Maintenance Areas are awarded with five-year tenures with extensions up to a further four years available. This has evolved from the first set of contracts that had one to three year terms. The contracts are hybrid in nature with some lump sum payments and include all maintenance activities on the road and the roadside, including winter maintenance but excluding resurfacing and rehabilitation.

---

<sup>21</sup> Information in this section is drawn from reports by The World Bank Group

A set of technical criteria and a degree of intervention time are used to measure performance and penalties are applied for non-compliance. The second evolution of tenders placed a greater emphasis on price in the selection criteria. Directly or indirectly this also led to an increase in reported savings from approximately 5 per cent to 25 per cent.

## Opportunities for Road Maintenance Outsourcing in Australia

There are clear opportunities across Australia to broaden and deepen road maintenance outsourcing arrangements. The most immediate opportunities for expanded outsourcing lie in the maintenance currently undertaken in-house by state roads agencies. Where limited road maintenance outsourcing currently exists, such as in NSW, state governments have the opportunity to expand and intensify arrangements by competitively tendering new areas and revising existing contracts as they expire.

---

*“There is an observable trend worldwide towards outsourced highway management services.”*

---

International and domestic experience suggests outsourcing of road maintenance is most successful when the operating

company can benefit from economies of scale and scope through access to larger networks over longer periods of time. Local roads (those currently maintained by local councils) make up more than half the entire Australian road network and local government authorities currently manage approximately 85 per cent of the total network, spending in excess of \$3 billion a year in road related expenditure<sup>22</sup>. Bundling these roads presents a sizeable opportunity for efficiency gains. These gains can be derived both from combining adjacent local government maintenance functions and from bundling those responsibilities with state government controlled asset management.

---

<sup>22</sup> AustRoads and Australian Local Governments Association 2010, *Study of local roads funding in Australia 1999-00 to 2019-20*.

The current structure for roads management in Australia sees state agencies hold maintenance responsibility for National Highway and State Roads in their jurisdiction, along with some local roads. Local councils are predominantly responsible for local roads (urban and rural), but in a number of cases they also maintain some State roads<sup>23</sup>. Local Councils tend to retain in-house roads asset management functions and employ external contractors on a needs basis, restricting opportunities for maintenance efficiencies because of scale, scope and work practice limitations. For instance, Sutherland Shire Council, in Sydney's south, retains its own in-house road maintenance division, but still tenders contracts for some resurfacing and other maintenance projects as necessary<sup>24</sup>.



The current division of road network responsibilities between local governments is unlikely to provide the size and scope for private operators to achieve adequate efficiency gains to make outsourcing a viable and worthwhile proposition. This suggests that the current system of road asset management is sub-optimal and improvements can be made that provide savings to governments and net benefits to road users and taxpayers.

---

<sup>23</sup> For example, the current NSW RTA Road Maintenance Council Contracts (RMCC) and the Single Invitation Maintenance Contract (SIMC) which were utilised between July 2000 and September 2008. RMCC's (and SIMC's) effectively contract councils to undertake maintenance on State Roads.

<sup>24</sup> Sutherland Shire Council – Annual Report 2009/10

Dividing the road network into regions with state and local asset managers working together could present opportunities for resource and cost efficiency for all asset managers within the new boundaries. The ultimate goal of such a reform would be for the competitive tendering of road maintenance for entire regions – bundling state and local assets under a single outsourced contract for each region. As with any competitive tendering process, applications would be welcome from any realistic bidder with the expertise and resources to deliver cost efficiency and savings to governments, meaning local governments or state road providers could compete with private firms for contracts. There may be further opportunities for local councils to consolidate maintenance services with neighbouring jurisdictions in order to benefit from economies of scope and scale.

Integration across levels of governments may be unattainable in the immediate future without further acceptance of the outsourced approach to road maintenance. Potentially move achievable opportunities exist for state governments to introduce greater private sector involvement into their own road maintenance arrangements. State governments, particularly in NSW and Queensland, have the opportunity to offer contracts for significant parcels of road network maintenance that would enable private service providers the scope to deliver improvements and savings.

Continued involvement of existing state road providers is demonstrated by the Victorian model, where the in-house maintenance division (or a commercially operating enterprise of the State road agency) competes with private firms for the provision of some maintenance services. This model can not only increase competition for tenders, but also provide a benchmark that extracts consistent improvement and net benefit from outsourcing arrangements.

## Conclusion

Combining the experiences observed in Australia and in international examples it is clear there are significant opportunities for wider and deeper road maintenance outsourcing

*“...it is clear there are significant opportunities for wider and deeper road maintenance outsourcing domestically.”*

domestically. Across Australian jurisdictions there are significant variations in the reach, maturity and depth of the outsourcing

markets, indicating that considerable opportunities exist to expand private sector involvement in road maintenance. It is also consistent in the examples available that when outsourcing is employed, the relationship tends to embed over time. In Victoria, Western Australia, the UK, Canada, and (in a very limited scale) NSW, as contracting regimes have matured they have moved from Input-driven to Output-driven models, and more recently towards the Alliance model. Industry commitment to investing, innovating and applying international best practice is contingent on an appropriate level of confidence that the market will embed and grow sufficiently over time to justify its investment.

The Alliance model has the advantage of allowing the road owning agency to retain a greater level of control over operations and maintenance activity – but comes with the disadvantage of higher levels of retained risk. By adopting a hybrid model – akin to the Operate and Maintain components of a PPP – using innovative contract terms it may be possible to retain the benefits of an embedded alliance whilst gaining advantage from price certainty and incentivising the private contractor to continually innovate. Elements of this approach are evident in the Victorian and WA models where maintenance and condition targets (and thus the profit points for coming years) are retuned at the higher level of improved performance - i.e. when a given level is attained, that level becomes the high-water mark against which future performance is measured.

A further evolution of Alliancing in road maintenance could see a hybrid with the performance specified approach. Hybrid Alliances would see those parts of the maintenance task for which risks can be defined delivered on a performance specified basis, whilst maintenance needs for which risk cannot be adequately defined would be delivered on an Alliance basis. By combining performance specified tasks and the alliance approach under a single contract, risk can be transferred to the party with the greatest incentive to manage it, whilst continuing to benefit from the efficiencies of streamlined project management and co-ordination coupled with private sector innovation and investment.

This paper doesn't seek to recommend the best model, but to demonstrate that significant opportunities exist to increase quality of our roads and reduce the cost of maintaining them through greater private sector involvement.

The cost savings derived from road maintenance outsourcing can range from solid to dramatic, with estimates between 10 per cent and 40 per cent. In a maintenance budget such as the NSW RTA's \$1 billion 2010-11 spend or the overall Australia-wide spend of \$ 7 billion, even a 10 per cent annual saving would yield a significant efficiency dividend. That saving could be recycled into the asset management budget to address the existing maintenance backlog or invested in capital projects that enhance the road network.

It is also clear that governments are able to garner considerable ancillary benefits beyond simple cost reductions. For example, certainty of cost, private sector investment, knowledge and skills transfer, enhanced safety outcomes, innovations and benefits to traffic management and operation can be leveraged through increased involvement of the private sector.



**INFRASTRUCTURE  
PARTNERSHIPS  
AUSTRALIA**

BUILDING AUSTRALIA TOGETHER

**Infrastructure Partnerships Australia**

A division of Advocacy Services Australia Limited

Level 8, 8-10 Loftus Street, Sydney NSW 2000

T: 02 9240 2050 F: 02 9240 2055

E: [policy@infrastructure.org.au](mailto:policy@infrastructure.org.au)

[www.infrastructure.org.au](http://www.infrastructure.org.au)