AusCID

Submission to the Productivity Commission's inquiry into Road and Rail Freight Infrastructure Pricing

The Australian Council for Infrastructure Development

May 2006

Introduction

What is infrastructure? In undertaking a review of the pricing of transport infrastructure it would be instructive to differentiate the various stages at which the pricing of infrastructure will be considered, for what purpose and by whom. For instance, the pricing of transport infrastructure is an essential consideration in assessing:

- The provision/construction of infrastructure and assessment processes as to whether:

  (1) pricing is sufficient to cover the economic costs of provision to ensure investment is viable and;

  (2) public or private sector would be best placed to deliver a particular infrastructure project

- Ongoing maintenance

- Use of transport infrastructure or more specifically, the pricing of transport services relating more to capacity utilisation.

Any recommendations made by the Productivity Commission (the Commission), particularly in relation to the **USE** of transport infrastructure, should not adversely affect infrastructure considerations at other stages without specifically articulating the policy objectives to be pursued.

In the following submission, AusCID will focus primarily of the **PROVISION** of transport infrastructure and identify any responses that relate to maintenance issues or **USE** of transport services where appropriate.

Scope of the inquiry

AusCID recognises the scope and scale of the task that has been asked of the Commission in conducting this review and the difficulties it is likely to face due to the inadequacy of available information and data.

That said, AusCID encourages the Commission to take a wide ranging approach to identifying possible areas for reform and to utilise existing and ongoing research sources (including international jurisdictions) where possible. Areas for policy reform consideration should include:

- The relationship between freight and passenger transport requirements, particularly in urban areas

- Road user charging including congestion charging, taxation settings (e.g. Fringe Benefits Tax provisions on the user of private cars versus public transport options), fuel excise and the potential for hypothecation.

Omission of fiscal implications – The omission of fiscal implications from this inquiry is disappointing. Fiscal implications, both Government expenditure and taxation settings should be a central consideration. While there is strong potential

for greater private sector involvement in the construction, operation, maintenance and financing of Australia's public infrastructure, in reality the majority of infrastructure continues to be provided through direct budget allocations of governments.

As the fiscal impact is the determining factor in whether any recommendations can be practically implemented in Australia, it is essential that they be openly and transparently discussed and the implications of prioritising between policy options clearly understood.

The inclusion of fiscal implications need not (and should not) limit the Commission's ability to articulate policy options and recommendations.

"National pricing regime"

The terms of reference for the inquiry states that:

> "The review will estimate the full financial costs of providing and maintaining freight transport infrastructure on major road and rail networks".

And, in so doing it:

> "… should be based on the principle that prices charged should reflect all costs in each mode and that **there are benefits in a national pricing regime**" (*emphasis added*).

Consistent with previous Commission recommendations (on access matters), AusCID has strongly advocated for the inclusion of pricing **principles** directly into the National Access Regime provisions of the *Trade Practices Act 1974* (TPA). Pricing principles should provide clear, transparent, consistent (and in relation to access regulation, enforceable) direction to all parties.

The pricing principles set out in Section 44ZZA(3)(a) of the TPA will require the Australian Competition and Consumer Commission (ACCC) to have regard to the following:

> *(a) that regulated access prices should:*
>
> *(i) be set so as to generate expected revenue for a regulated service or services that is at least sufficient to meet the efficient costs of providing access to the regulated service or services; and*
>
> *(ii) include a return on investment commensurate with the regulatory and commercial risks involved.*
>
> *(b) that the access price structures should:*
>
> *(i) allow multi-part pricing and price discrimination when it aids efficiency; and*
>
> *(ii) not allow a vertically integrated access provider to set terms and conditions that discriminate in favour of its downstream operations, except to the extent that the cost of providing access to other operators is higher.*
>
> *(c) that access pricing regimes should provide incentives to reduce costs or otherwise improve productivity.'*

The inclusion of pricing principles into the TPA has been endorsed by a Senate Committee inquiry considering amendments to that legislation. Indeed, the Council of Australian Governments (CoAG) recently agreed to amend the Competition Principles Agreement to incorporate the following principles:

- "all third-party access regimes will include objects clauses that promote economically efficient use of, operation and investment in significant infrastructure;
- "all access regimes will include consistent principles for determining access prices …" (*CoAG Communiqué* 10 February 2006, p 6)

These pricing principles appear sufficiently general and with sound economic basis that they could be interpreted as a "national pricing regime" as required by the terms of reference and applied more widely than the TPA. AusCID would support such a recommendation.

It should also be emphasised that in both cases, the principles specifically highlight the objective of promoting "economically efficient use of, operation and investment in significant infrastructure". In AusCID's view, this is not the case in relation to the setting of rail track access in Australia where, in general, access prices are set below efficient levels hindering investment in those jurisdictions where the private sector is responsible for below rail provision.

Before developing anything more prescriptive in nature than the pricing principles outlined above, careful consideration should be given to the intended policy objectives, to whom a "national pricing regime" should be applied, the purpose and the potential for unintended consequences, particularly in relation other policy frameworks.

AusCID would NOT support any "national pricing regime" that:

- hindered infrastructure providers' ability to tender for private sector delivery of infrastructure or associated contracting processes; or,
- is inconsistent with established (or developing) arrangements affecting pricing decisions for the provision of infrastructure. Examples include:
    - the various state-based arrangements for private sector involvement in public infrastructure e.g. *Partnerships Victoria* (Victoria), *Working with Government* (NSW)
    - Australian Transport Council (2004) *National Guidelines for Transport System Management in Australia*.

Data and information sources

AusCID has long been an advocate for improved data and information sources upon which to base policy decisions and set project priorities in infrastructure. AusCID welcomes CoAG's decision to provide 5-yearly infrastructure reports (*to CoAG*).

In developing these reports, we hope that the private sector is recognised for the increasing role it plays as infrastructure owners and operators. As such, important information and data is now held by the private sector. Open consultation should be undertaken between public and private sector parties regarding the availability of appropriate data and the purpose of developing such reports.

AusCID also calls on CoAG to make the infrastructure reports publicly available in a timely fashion.

Purpose of data

AusCID is conscious that the mere collection of data without appropriate consideration of the purpose for which it is collected will provide little insight into policy options and priorities for decision.

Faced with similar deficiencies in available data, AusCID undertook its own research, looking more closely at individual data sets, in an attempt to better understand infrastructure investment in Australia. *AusCID's research and a related presentation the Committee for Economic Development in Australia (CEDA) are attached.*

This research reinforced AusCID's view that fundamental deficiencies in data availability exist and accordingly, has called for all Australian governments to formally address these inadequacies by developing an agreed framework for analysis and presentation of spending trends which reflects current market realities and ownership structures. It will require identification of infrastructure expenditure:

- By and within infrastructure sectors
- By the public and private sectors
- Geographically
- Differentiating between capital and maintenance expenditures.

Other studies

The Commission may also wish to consider:

- Australian Transport Council (2004) *National Transport Data Framework* http://www.atcouncil.gov.au/documents/NTDF.aspx
- New Zealand Ministry of Economic Development – *Infrastructure Audit* http://www.med.govt.nz/templates/ContentTopicSummary____5541.aspx
- CEDA (2004) *Infrastructure: Getting on with the job*

- Business Council of Australia (2005) *BCA's Infrastructure Action Plan for Future prosperity* http://www.bca.com.au/upload/BCA_Infrastructure_Action_Plan_for_Future_Prosperity.pdf

- Engineers Australia (various) Australian Infrastructure Report Card publications *http://www.ieaust.org.au/policy/pub_area5.html*

Impediments to efficient pricing and operation of transport infrastructure

There are numerous impediments to the efficient pricing of infrastructure; some theoretical, some practical. However, here again we need to differentiate whether we are considering the **PROVISION** of infrastructure *or* its **USE** and in so doing, whether pricing issues are the main determinant in delivering efficient outcomes.

The discussion paper states:

> "… the current disconnect between infrastructure charges and investment decisions, especially for road infrastructure, may be a fundamental constraint on efficient infrastructure provision".

This statement implies that the failure to make appropriate investment decisions is simply the result of a market failure. It may be possible to enhance market outcomes in the market for transport services (the USE of transport infrastructure) through removing impediments. This is NOT the case in the **PROVISION** of infrastructure – decisions to investment in public infrastructure (whether funded by government budget allocations or through private sector financing options such as public private partnerships (PPPs)) are NOT market-driven; they are essentially political or institutional decisions.

Where possible, AusCID supports the development of improved market mechanisms for the **PROVISION** of transport infrastructure to improve the transparency and consistency of infrastructure investment decisions.

In the absence of such a market, AusCID calls on the Commission to prioritise options to reduce the costs associated with the **PROVISION** of infrastructure that directly affect efficient pricing of the transport services that use the infrastructure. Such measures include:

- Streamlining of planning approvals such as implementing the "one-stop shops" in each jurisdiction for project facilitation and approvals as agreed by CoAG on 3 June 2005.

- Developing a National 'market' for PPPs and standardising approaches across jurisdictions where possible.

- Any moves to improve the transparency of infrastructure policy and project priorities and the consistency of associated assessment priorities. In this regard, the decision by CoAG to fully adopt the Australian Transport Council investment guidelines, *Transport System Management in Australia*, by December 2006 is welcomed by AusCID. We hope the Guidelines will

improve the consistency of approaches to infrastructure investment decisions:

- Across jurisdictions
- Between public sector and private sector project delivery options*
  (* *with the proviso that they are **NOT** inconsistent with the established state-based guidelines for private sector infrastructure delivery nor result in duplicated or additional assessment processes*)
- Between modes of transport.

Conclusion

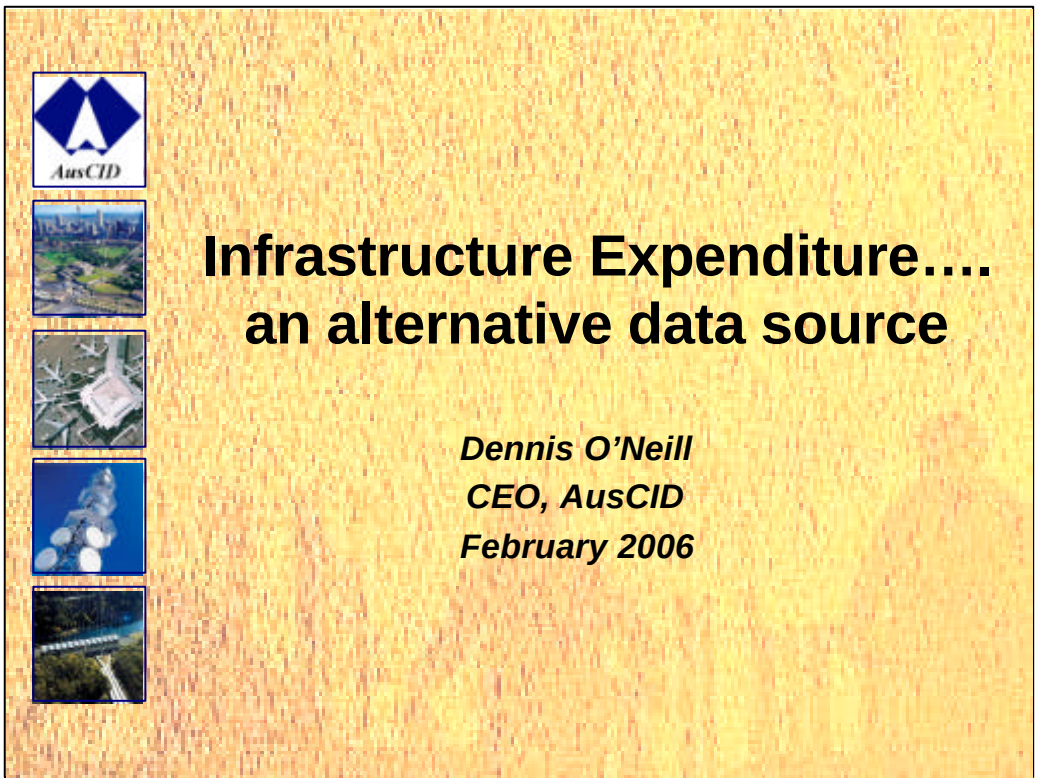
Infrastructure pricing is a complex area particularly when, public and private sector interests are applied in a federal system of government.

This inquiry provides an opportunity to draw together the plethora of research being undertaken on related issues across jurisdictions, between portfolios, regulators, government departments and working groups. It also provides an opportunity to look closely at international developments.

Although the inquiry targets road and rail freight infrastructure it is appropriate to consider a wide range of policy areas for potential reform including:

- Constitutional and institutional arrangements
- Balancing freight and passenger requirements
- Taxation settings
- Road pricing (in its broadest sense).

'Pricing' issues relating to the **PROVISION** of transport infrastructure differ greatly from those relating to the **USE** of transport infrastructure. AusCID calls on the Commission to consider and clearly articulate these differences, the intended policy objectives of any recommendations and minimise the potential for unintended consequences that may result.



I must apologise up front for hitting you with a dry statistical presentation and spoil;ing a great lunch but then CEDA has been very smart in placing it as first cab off the rank in 2006 - it's just got to get better from here. So look out for those CEDA notices for future events.

AusCID, formed in 1993, is the principal industry association for private infrastructure investors, operators, constructors, financiers and service providers.

AusCID undertook this body of research after several years of dealings with the ABS over identification of a suitable measure for infrastructure investment, by sector and within sectors, public versus private. We wanted to understand capital and maintenance expenditures, geographically and by sector. When we identified deficiencies in existing data ABS assured us that their hands were tied due to observance of international standards for budget sector reporting.

So we took a closer look at what might be gleaned from the available datasets.

Changed Infrastructure Economy

- Pre-National Competition Policy (early 1990's)
  - Virtually 100% Budget sector in all states
- Post-National Competition Policy (2005)
  - Mixed Budget and Private sector investment
- Going Forward
  - Private sector to grow?

• First let's look at how the infrastructure investment world has changed in the ten years of NCP.

•Very small private sector role in public infrastructure pre-NCP, (eg AGL)

• Public Works Departments designed, built and maintained using Budget sector funding or, in case of utilities, this was done by monopoly GBE's.

• Remember this was the era of government owned and operated airlines, water, electricity, post and telephones

• Rapid change driven by post-NCP brownfield privatisations and opportunities for new greenfield contestable supply

• Now a mixed infrastructure economy but varies from state to state

• Flight from sovereign debt suggests that role for private investment will grow - but watch this space should debt return to favour

• AusCID's proposition is that unless we measure infrastructure expenditure - capital ad maintenance - we cannot have an adequate understanding of where we are let alone in what direction future infrastructure priorities should head.

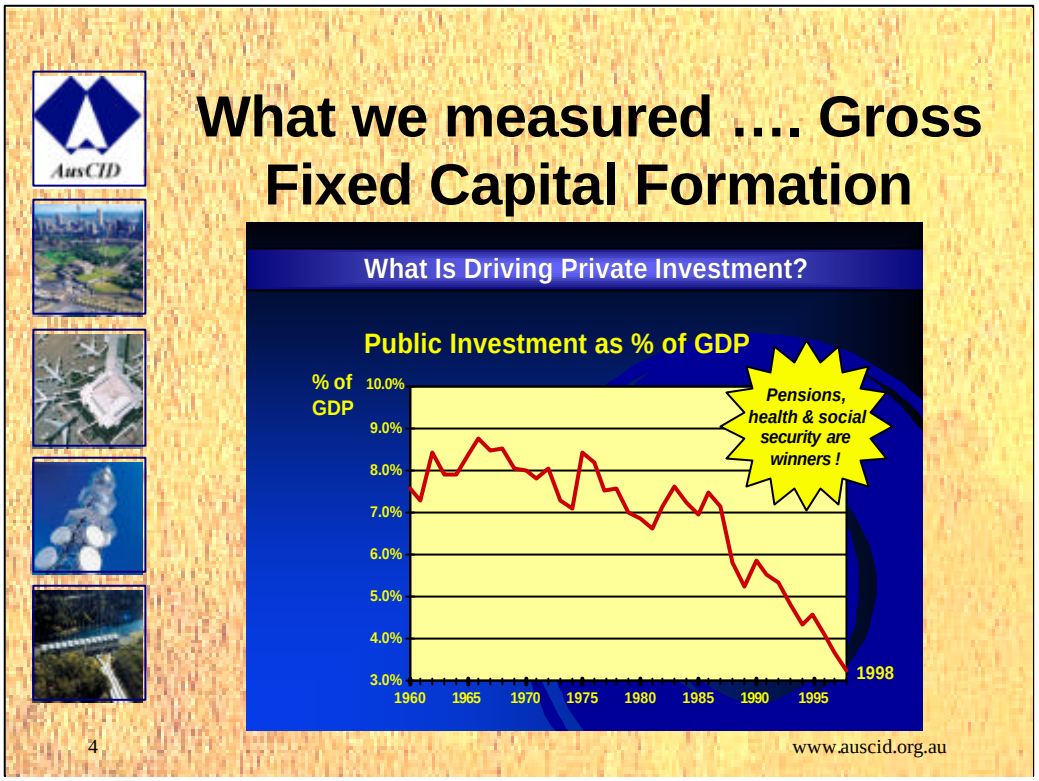
• So I will briefly outline just what we are currently measuring and explain the shortcomings.

• With the changes investment and expenditure patterns since inception of NCP, it is more important that we understand more completely the role of private sector expenditures.

• Poor measurement and reporting risks inappropriate policy responses - these can be expensive - either white elephants, delayed projects and economic performance which could be even better.

• Australia needs an agreed framework for analysis and presentation of infrastructure spending trends which reflects current market realities.

• We need an improved proxy for infrastructure investment, by sector, geographically and by public or private source.



• Many of you will recall this type of chart which used Gross Fixed Capital Formation data (uncorrected) as a proportion of GDP to identify broad trends.

• Note that is exactly what we got - broad trends. EPAC in 1996 challenged the use of this data, particularly against GDP as a measure of infrastructure investment adequacy but did not volunteer a replacement.

Gross Fixed Capital Formation…..defects

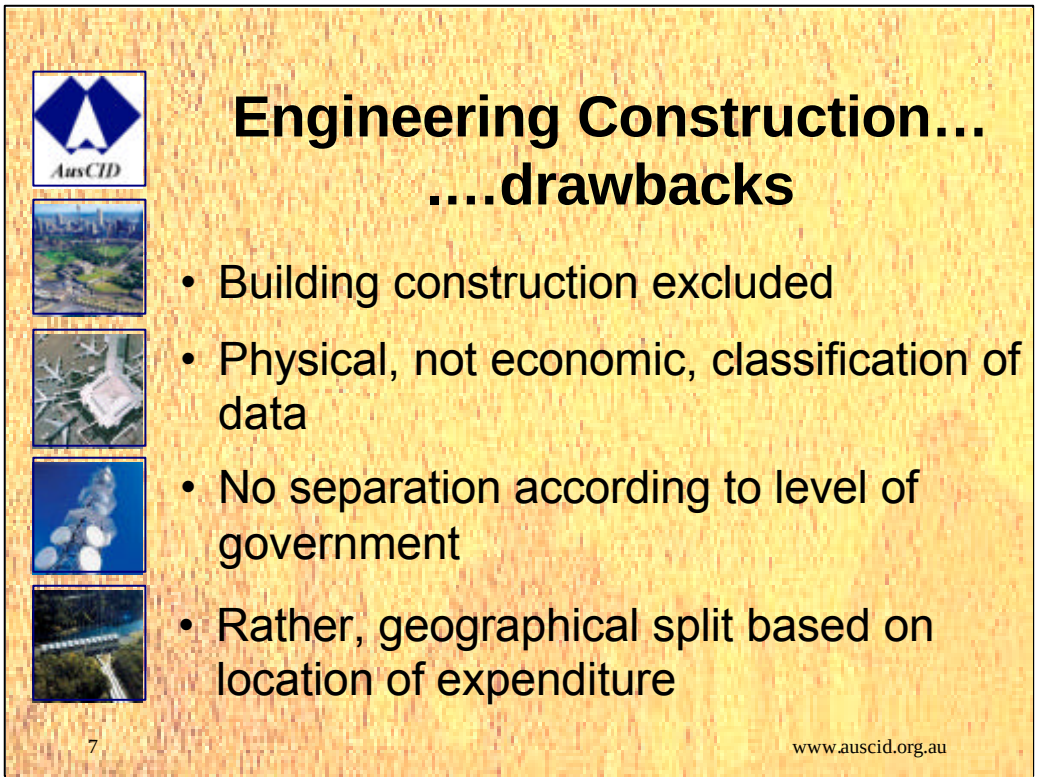
- Does not reveal commercial/market relationships
- Meaningful disaggregation hard
- Does not include maintenance

• Gross Fixed Capital Formation from the National Accounts has generally been the favoured statistic in the policy debate but this measure has a number of drawbacks primarily related to the fact that it does not reveal the market nature of infrastructure provision (such as outsourcing and public-private partnerships) and it is also difficult to get meaningful disaggregation at a sectoral level. In focussing on the creation of new assets, it does not include maintenance expenditures.

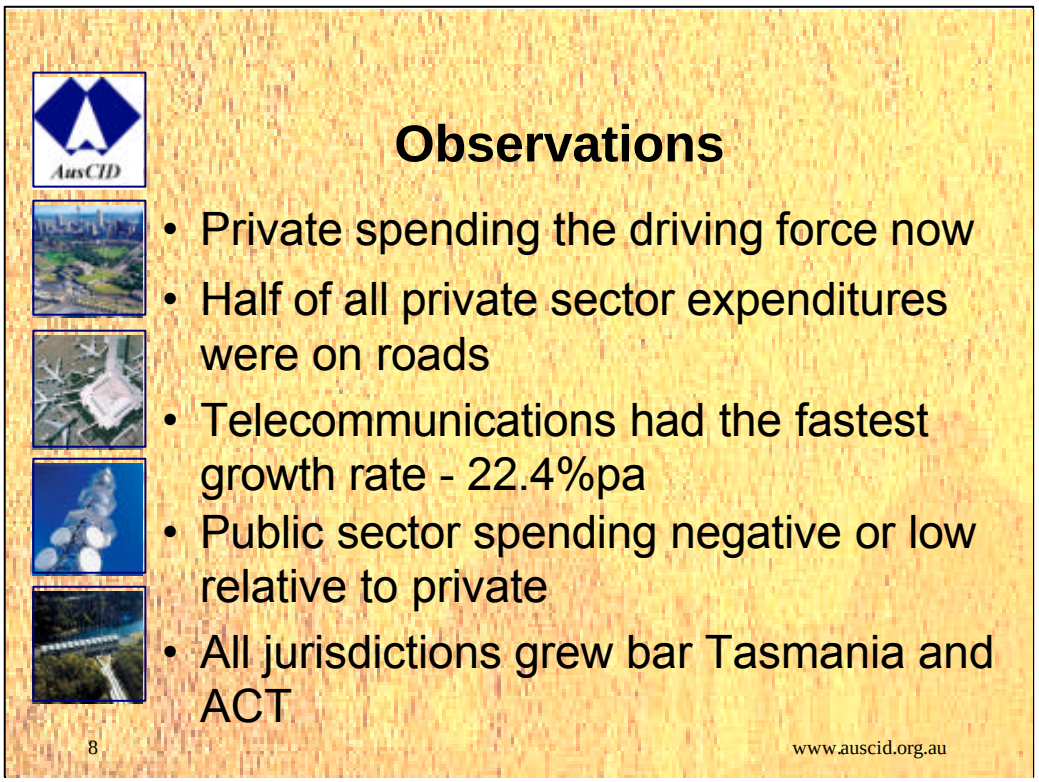
What we measure…. Engineering Construction

- Additional expenditure insights …..
- …. but not value of stock of assets
- Greater disaggregation
- Some light on commercial relationships
- Maintenance included

• Engineering Construction Actvity data provides additional insights to current infrastructure expenditure (but not the value of the stock of infrastructure assets) and is the measure has been chosen for this study. It provides a greater level of disaggregation (although this is still inadequate) and throws some light on the commercial relationships underpinning infrastructure provision by identifying those activities undertaken by the private sector for public sector infrastructure providers. It also includes maintenance expenditures.



• However it too has its drawbacks. For example it does not include building construction which at certain times can be significant for some infrastructure sectors (such as airports), it classifies data on the basis of physical rather than economic characteristics (runways are classified with roads) and does not provide a segregation of expenditure on the basis of the level of government, rather it provides a geographical split on the basis of the location of the expenditure.

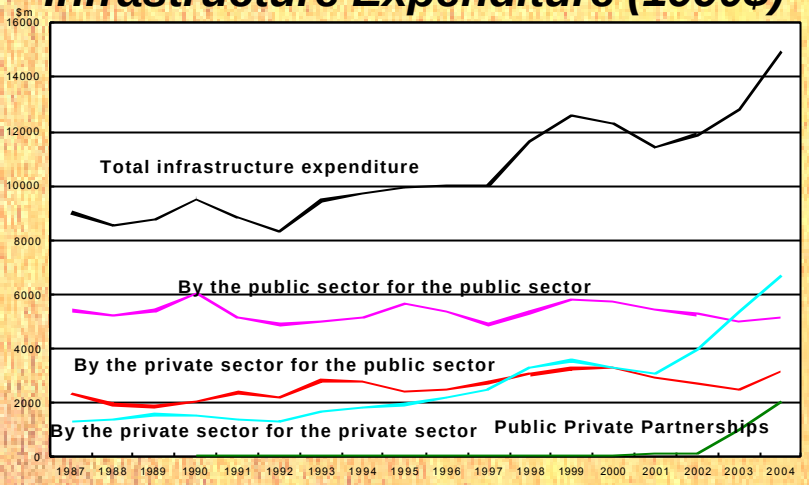


• Using engineering construction data infrastructure economic expenditure rose by an average of 3% per annum in real terms between 1987 and 2004, increasing from $9 billion in 1987 to $14.9 billion in 2004. Private spending was the driving force behind this increase, growing by over 10% per annum between 1987 and 2004 from $1.3 billion to $6.7 billion. This growth resulted in the share of private expenditure in total economic infrastructure outlays rising from 14.5% to 44.9% between 1987 and 2004.

> Expenditure aggregates in this paper are in constant 1990 dollars. Where reference is made to specific projects or programs (such as Auslink) amounts are in current prices at the time the project was announced.

• By contrast, annual public sector economic infrastructure outlays grew by just 0.4% per annum between 1987 and 2004, rising from $7.7 billion to $8.2 billion. It is interesting to note that outsourcing expenditures (referred to as private for public in this paper) have actually fallen from 26% of total spending in 1987 to 21% in 2004.

Public and Private Economic Infrastructure Expenditure (1990$)



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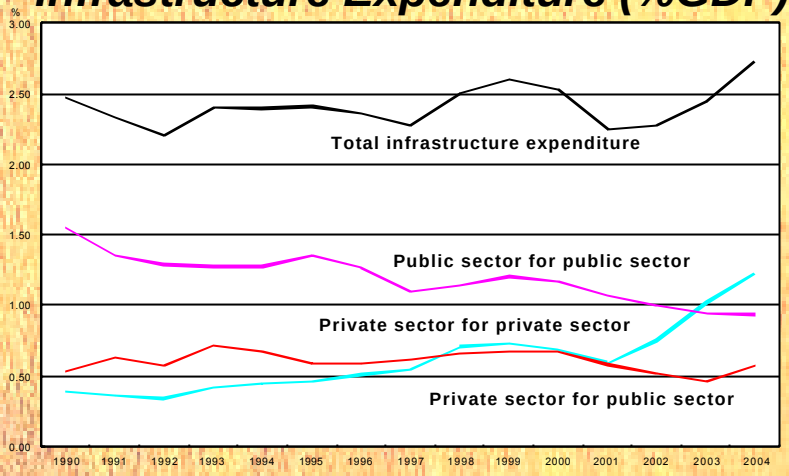
Public and Private Economic Infrastructure Expenditure (%GDP)



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Share of total economic infrastructure outlays by the public and private sectors

	Private for private	Private for public	Public for public	Total for public
1987	14.5%	25.8%	59.7%	85.5%
2004	44.9%	20.8%	34.3%	55.1%

•

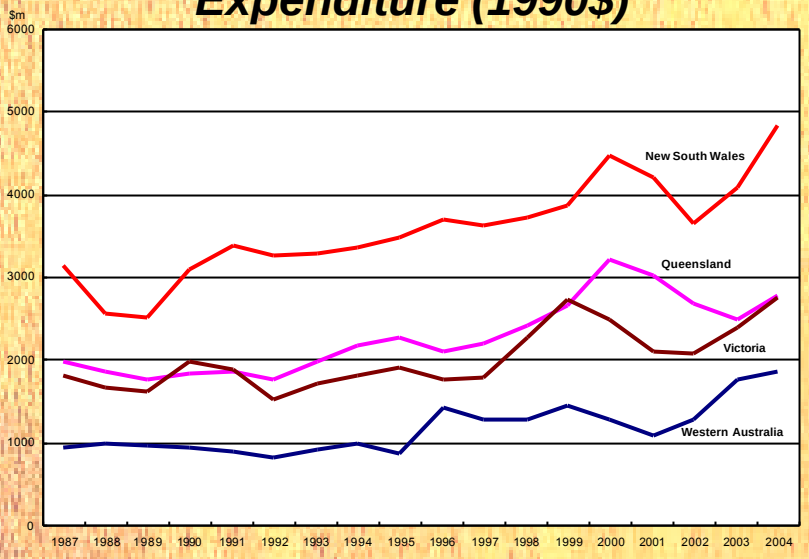
Cumulative Average Growth Rates by Sector 1987-2004

	Private Sector	Public Sector	Total	Real GDP
Roads	9.8%	1.1%	4.2%	
Water	7.6%	-0.9%	0.6%	
Telecommunications	22.4%	-1.2%	0.5%	
Bridges, railways and harbours	5.0%	3.1%	3.7%	
Energy	12.8%	0.5%	4.3%	
Total	*10.1%*	*0.4%*	*3.0%*	*2.1%*

• The shifts in the sectoral distribution for infrastructure are clearer when viewed in terms of cumulative average growth rates (CAGR). This table shows total infrastructure outlays increased by 3% between 1987 and 2004, compared to an average GDP growth rate of 2.1% per annum over the same period.

Total State Economic Infrastructure Expenditure (1990$)



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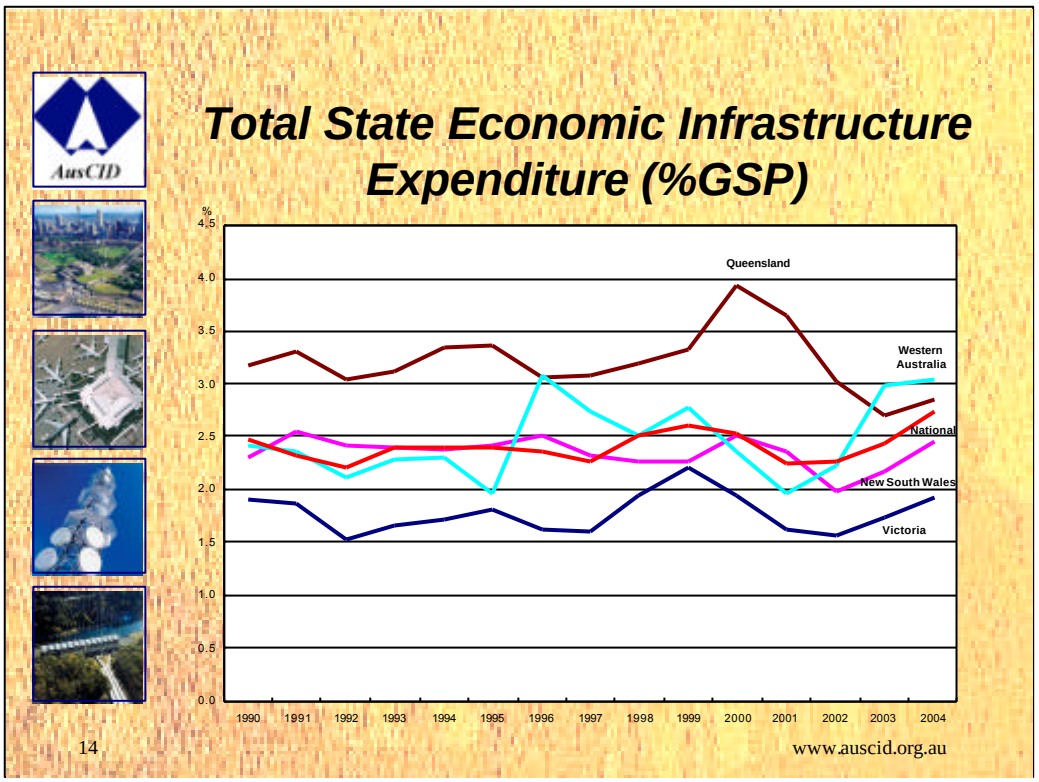
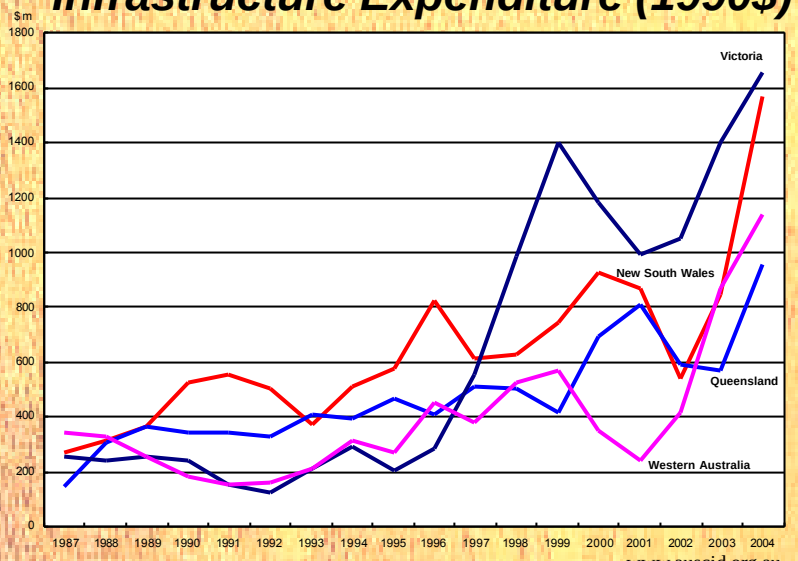


• This is for those of you not yet weaned from the old way of looking at GFCF data but what does it really mean? Resource oriented states cf large and small states by area - how to really measure comparative performance?

State Private Economic Infrastructure Expenditure (1990$)



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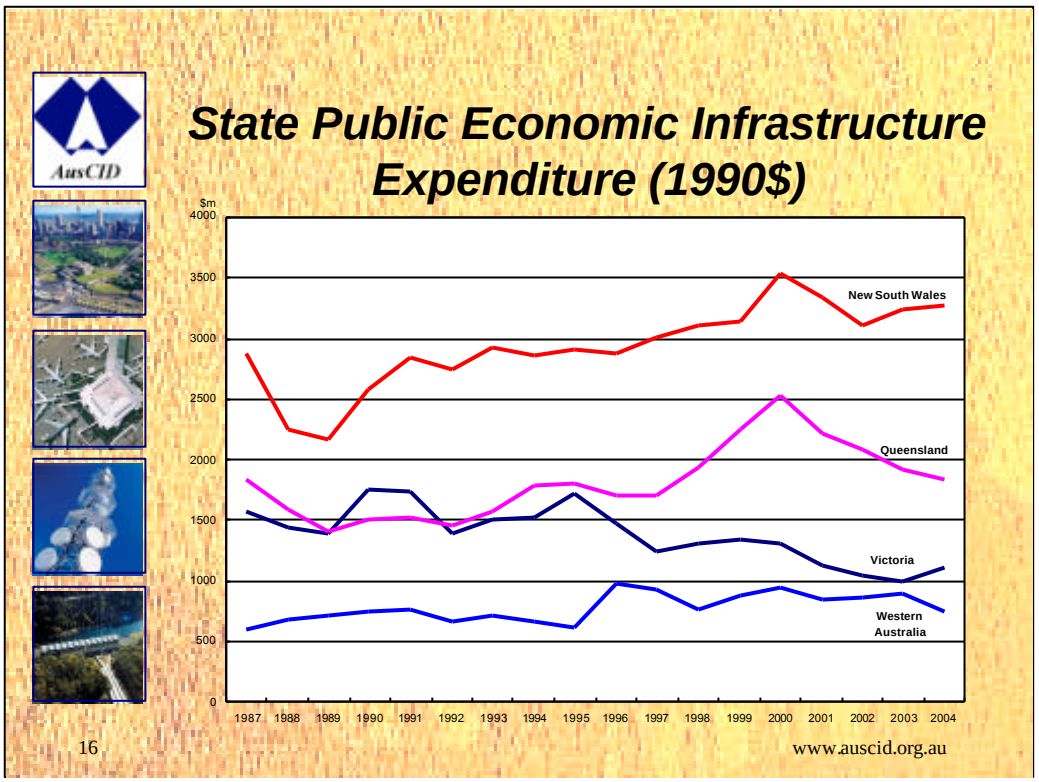
AusCID
State Public Economic Infrastructure Expenditure (1990$)
$m
4000
3500
3000
2500
2000
1500
1000
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0
1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004
New South Wales
Queensland
Victoria
Western Australia
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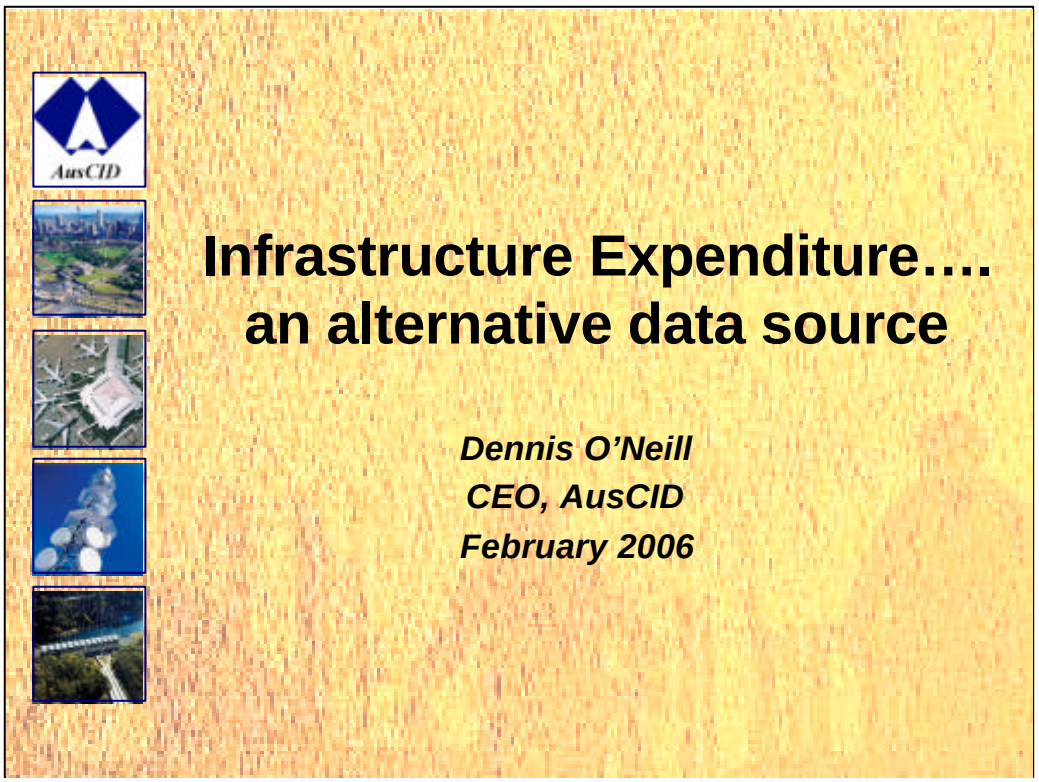

So what does this really tell us - that all Australian governments formally need to address the inadequacy of infrastructure data treatment and to develop an agreed framework for analysis and presentation of spending trends which reflects current market realities. This will require identification of public and private expenditure, for capital and maintenance, by sector and by geographic and political region.

AusCID

Infrastructure expenditure in Australia …

a state based compendium

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February 2006

Introduction

As noted in this paper's companion piece *Infrastructure expenditure in Australia … a look at an alternative data source,* the economic characteristics of infrastructure and the political economy of its delivery in Australia means that a proper understanding of expenditure trends, and more obviously policy, is not possible without understanding expenditure trends at a state level.

Section 4 of the companion paper provides a comparison of the main characteristics of the infrastructure expenditure performance of the Australian states and territories and a framework for understanding these trends. Using the same data set this compendium seeks to document and explain those expenditure trends for each state and territory.

New South Wales

Generally New South Wales has experienced steady but unspectacular growth in both private and public outlays. Unlike Victoria there has not been a major structural shift between public and private spending as a result of privatisation although private investment in highways has been more extensive than in other states. Given its size and industrial composition New South Wales' expenditure patterns have not been impacted by individual projects in the same ways as Tasmania and the Northern Territory.

Figures 2.1 and 2.2 show private and public infrastructure spending for NSW between 1987 and 2004. Figure 2.1 shows that public infrastructure expenditure in NSW rose from a low of $2.1b in 1989 to peak at $3.5b in 2000. By 2002 public infrastructure expenditure had returned to pre-Olympic levels at $3.1b before levelling at $3.3b in 2004. Private infrastructure outlays in NSW steadily increased up until 2002, where outlays more than tripled from $500m to $1.6b in 2004, increasing the GSP ratio from 0.29 percent to 0.80 percent.

Figure 2.1 Public and Private Economic Infrastructure Expenditure, New South Wales (1990$)

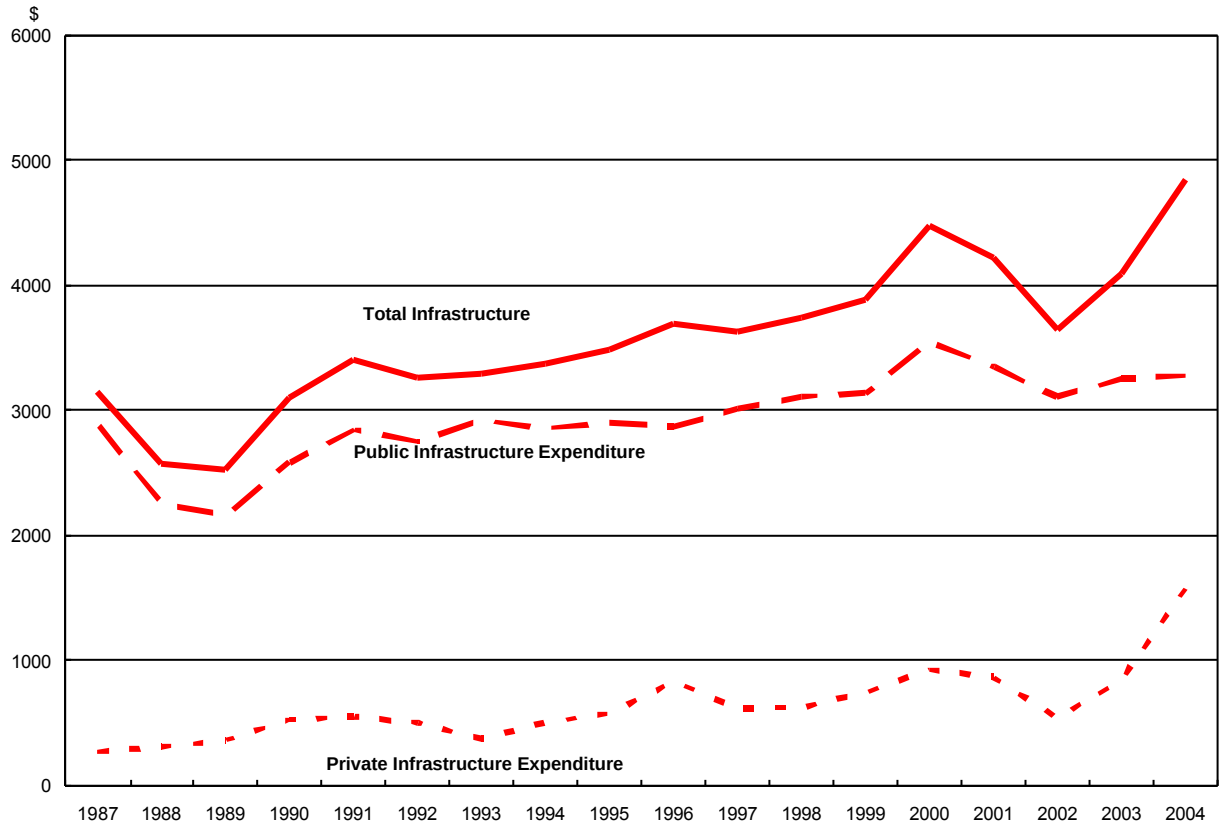


Figure 2.2 Public and Private Economic Infrastructure Expenditure, New South Wales (%GSP)

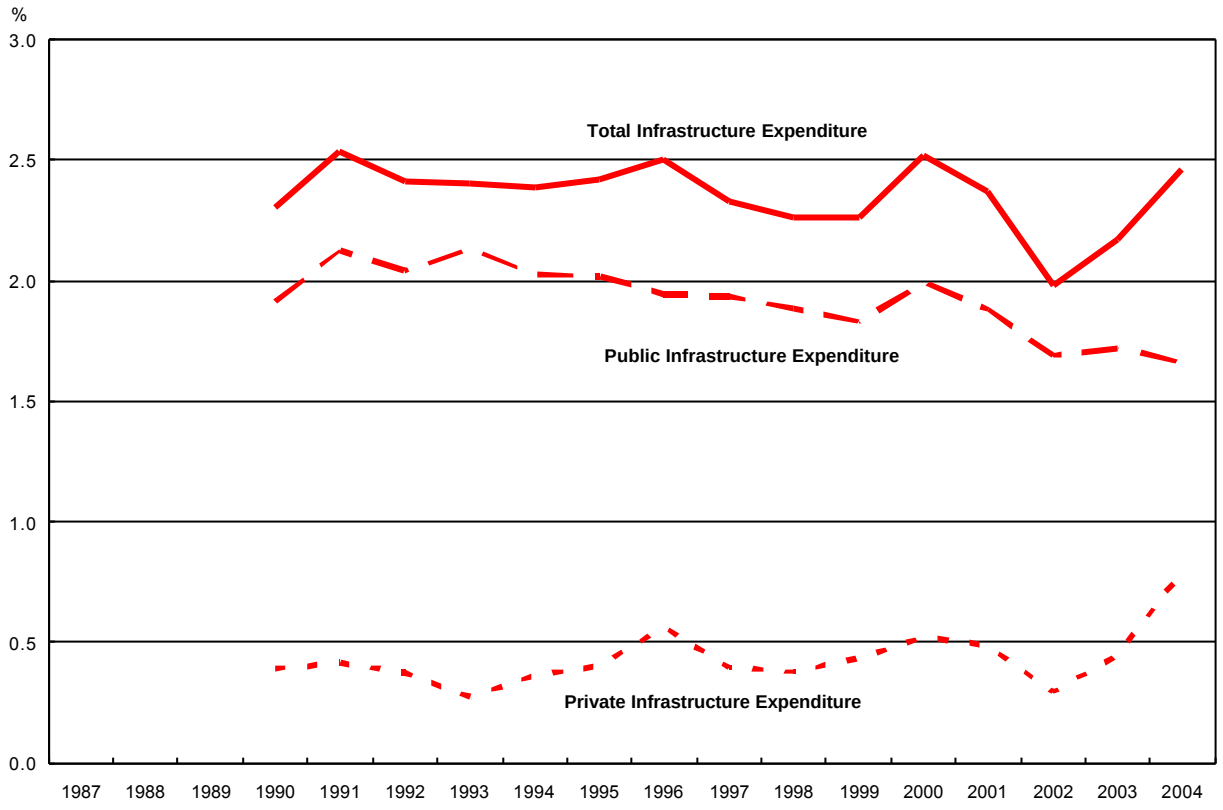


Figure 2.3 shows private infrastructure expenditure in New South Wales was concentrated in roads, rising from $804m in 1987 to $1.1b in 2004. Most of the increase in private road infrastructure outlays in New South Wales relates to the construction of toll roads, such as the $780m Sydney Harbour Tunnel (completed in 1992), the $740m Eastern Distributor (completed in 1999), and the $680m Cross City Tunnel (completed in 2005).

By 2004 telecommunications were the second highest private infrastructure outlay, rising from $5m in 1987 to $240m in 2004. This was due to the general increase in competition that arose from deregulating the telecommunications industry in the 1990s with Telstra's competitors investing in their own infrastructure.

Private water infrastructure outlays accounted for the third highest share by 2004, with a steady increase to $178m although down from a peak of $244m in 1996. The spike in 1995-96 was attributed to projects such as the Prospect, Macarthur, Woronora and Illawarra Water Treatment plants which were built in 1995-96 at a combined cost of $520m. The boost in 2004 was due to projects such as the $70m Eastern Creek Alternative Waste Technology Facility, which was completed in September 2004.

Private energy infrastructure outlays peaked in 2000 at $300m due to projects such as the $450m Eastern gas pipeline between New South Wales and Victoria that was completed in 2000. While private energy infrastructure expenditures had declined to $100m between 2002 and 2004, it is likely to increase in upcoming years with the

announcement that two new power stations will be built with private sector funds in late 2004.[1]

Figure 2.3 also shows that private expenditure on bridges, railways and harbours accounted for a relatively low share of total private infrastructure outlays between 1987 and 2004, falling from $90m in 1987 to $31m in 2004.

Figure 2.3 Private Economic Infrastructure Expenditure, New South Wales (1990$)

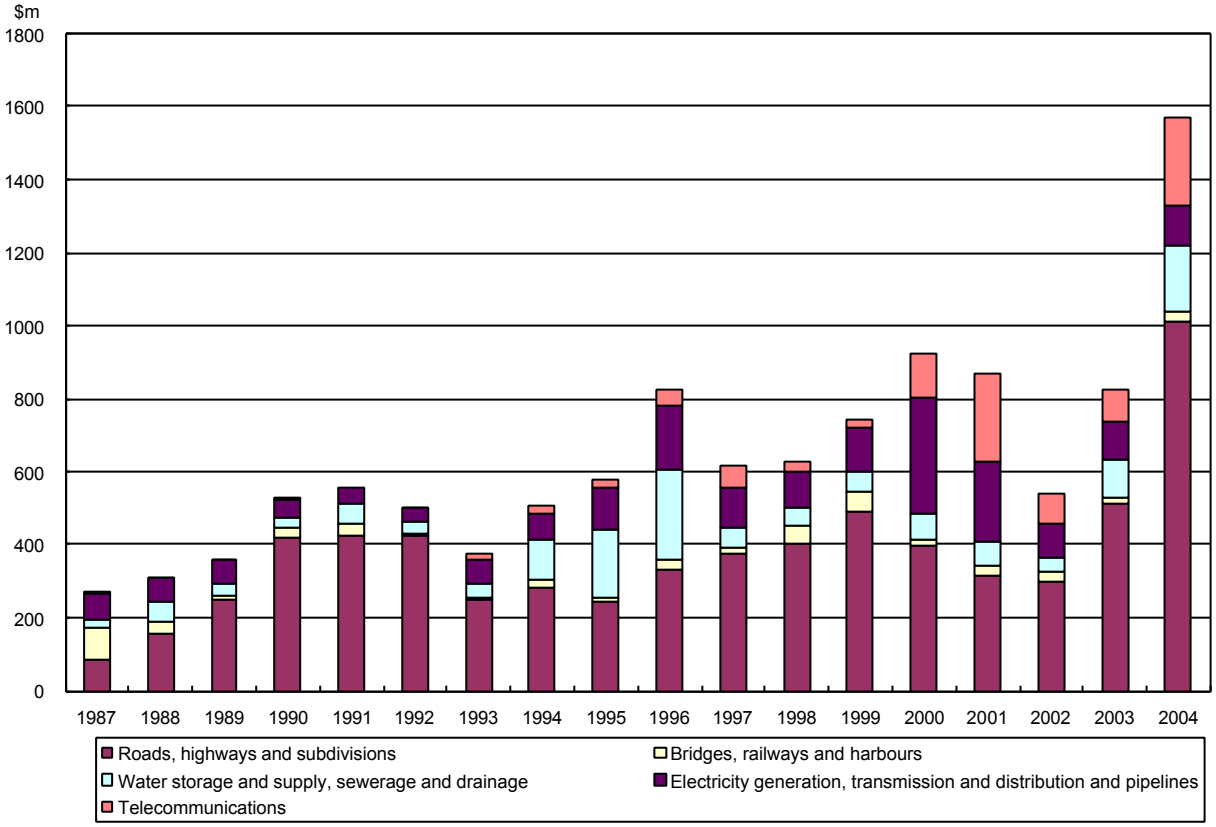


Figure 2.4 shows that roads obtained the highest share of public infrastructure expenditures in NSW between 1987 and 2004, rising from $804m to $1.1b. The increase reflects measures to upgrade both regional and metropolitan roadways, such as the 10 year $2.2b program to upgrade the Pacific Highway introduced in 1996 and the jointly funded $1.5 billion Westlink M7 development. Outlays on public road infrastructure outlays will continue to rise after 2004-05 with a total of $3.8b in AusLink funds to be spent on New South Wales transport infrastructure until 2008-09.[2] In addition, a total of $1.2b will be contributed by the New South Wales government in 2005-06 towards transport infrastructure although part of this will be spent on railways.

Public energy infrastructure outlays showed a steady increase, particularly after 1998, rising from $219m to $736m in 2004. The increase in recent years is associated with re-investment in electricity distribution and transmission assets. Public infrastructure

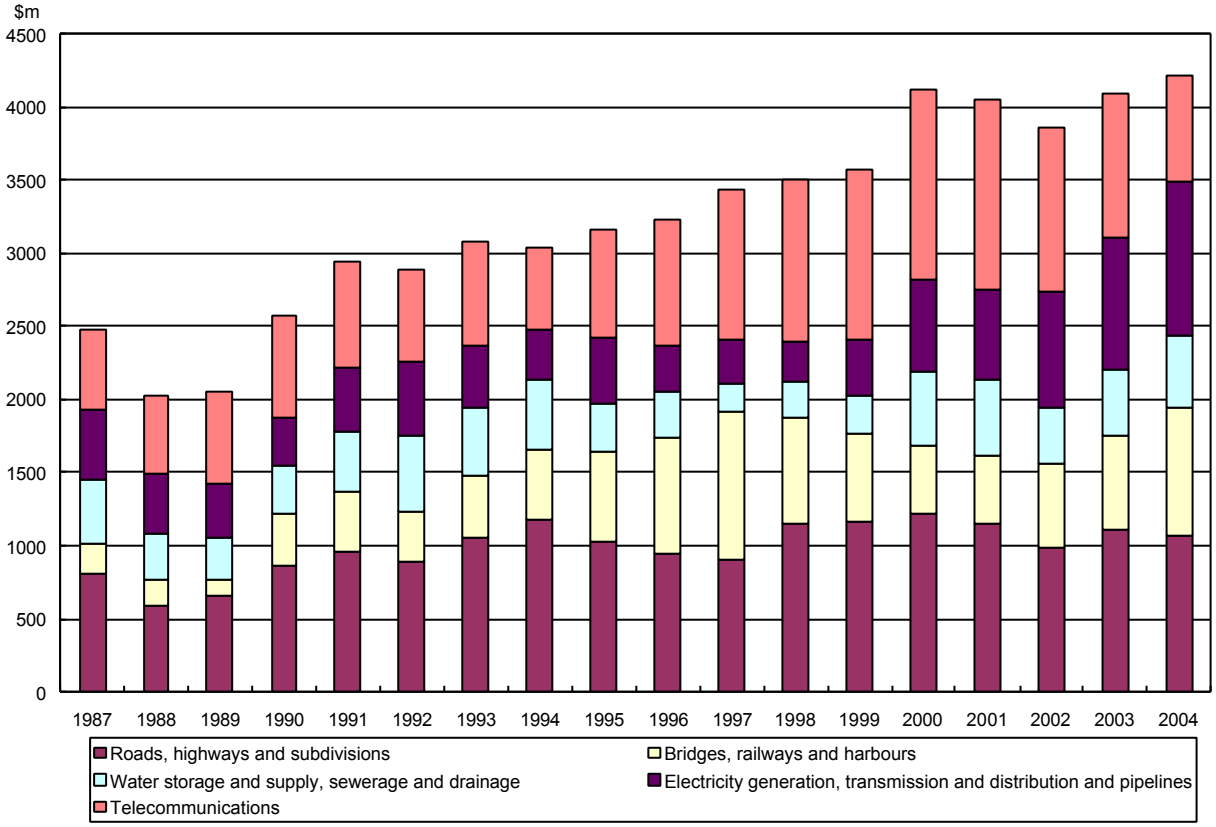
[1] 'NSW looks to private sector for power', Davies, A. and Noonan, G., *Sydney Morning Herald*, December 7, 2004, http://www.smh.com.au/news/Business/NSW-looks-to-private-sector-for-power/2004/12/06/1102182226312.html.

[2] See http://www.ministers.dotars.gov.au/wtr/releases/2005/September/027WT_2005.htm

outlays on energy continue with an estimated $1.7b to be spent on capital expenditure in financial year 2005-06.[3] Public telecommunications outlays in New South Wales fell to $500m in 2004 from a peak of $1.04b in 2000. This was due to factors such as increased competition as well as an overall decline in capital expenditures by Telstra.

Public outlays on bridges, railways and harbours showed a marked increase between 1987 and 2004, rising from $260m to $609m respectively. The rise in expenditure includes railway upgrades and extensions such as the Parramatta to Chatswood rail link and the Sydney-Newcastle rail upgrade and a general response to the degraded condition of the state's rail infrastructure.

Figure 2.4 Public Economic Infrastructure Expenditure, New South Wales (1990$)



Water outlays showed signs of recovering to the peak level achieved in 2001 of $400m, rising to $340m in 2004. The recovery represents measures such as the renewal of water mains and pumping stations, and the development of new sewage treatment plants as well as upgrades to existing plants. Water infrastructure expenditures will continue to rise as the NSW Government plans to spend $406m on water capital expenditures in 2005-06[4]

[3] Infrastructure Statement, NSW Budget Papers 2005-06, Budget Paper No. 4, New South Wales Government, p.40.

[4] Infrastructure Statement, NSW Budget Papers 2005-06, Budget Paper No. 4, New South Wales Government, p. 45.

Victoria

Victoria has experienced the most profound structural change between public and private provision of any state largely as a result of the policies of the Kennett Government. Within those sectors that have remained in public control there has been little change in the real levels of expenditure over the period considered by this paper. This is probably a reflection of significant surplus capacity created in the immediate post-war period, relatively low population growth and an industrial base that has relatively low infrastructure intensity.

Figures 3.1 and 3.2 show Victorian private and public infrastructure expenditure between 1987 and 2004. Figure 3.1 indicates a long term trend decline in public infrastructure expenditure from a peak of $1.7b in 1995 to under $1b in 2003, reducing the GSP share from 1.6 percent to 0.76 percent, with a slight improvement to $1.1b in 2004. In contrast, private infrastructure expenditure exceeded public infrastructure outlays by 2002 (this was also the case in 1999 albeit temporarily), rising from $252m in 1987 to $1.7b and increasing the GSP share from 0.23 percent to 1.15 percent. The jump in private infrastructure outlays was the main driver behind the boost to total infrastructure expenditures after 2002, returning to the 1999 peak at $2.7b in 2004.

Figure 3.1 Public and Private Economic Infrastructure Expenditure, Victoria, (1990$)

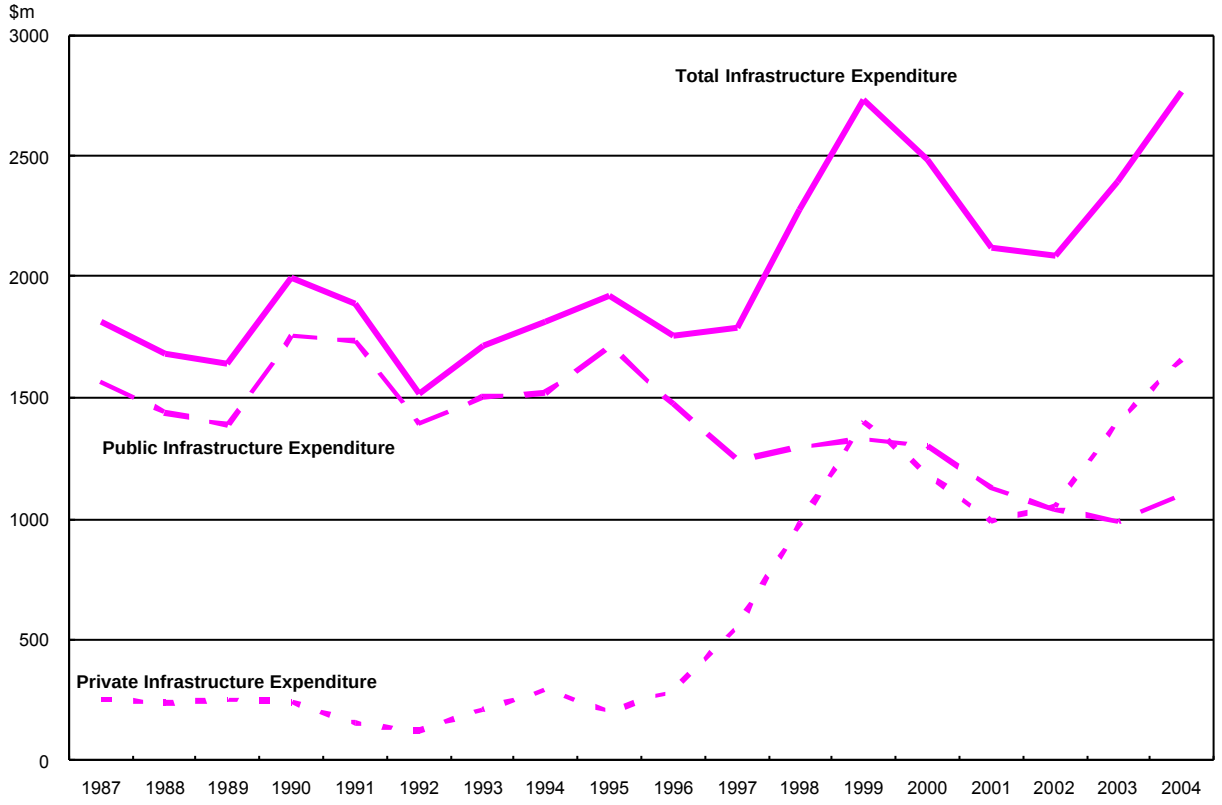
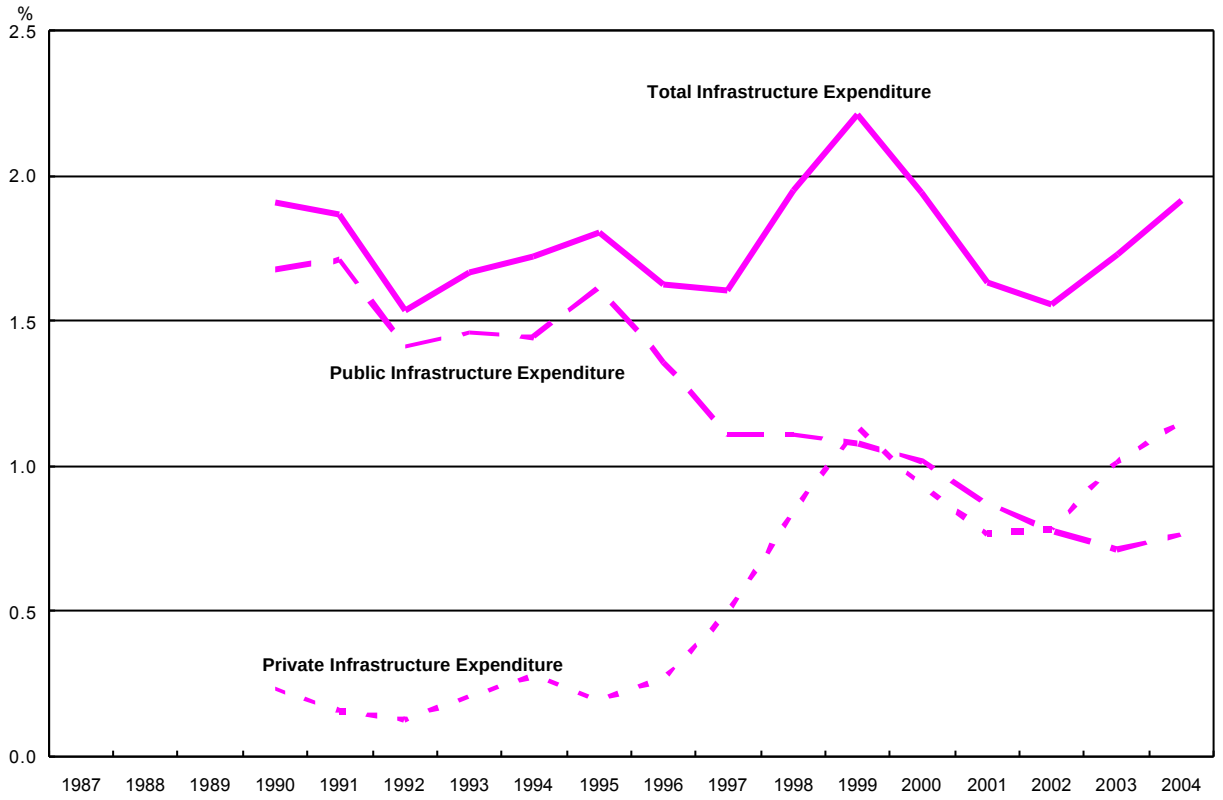


Figure 3.2 Public and Private Economic Infrastructure Expenditure, Victoria, (%GSP)



In figure 3.3, energy infrastructure outlays clearly dominated private infrastructure expenditures, particularly in the late 1990s following the privatisation of Victoria's state energy assets. By 2004, nearly half of total private infrastructure outlays in Victoria were spent on energy, rising to $757m, compared to $5m in 1987. Notably in 2004 private energy expenditures greatly exceeded pre-privatisation public energy expenditure levels, indicating that factors other than privatisation were behind the increase in private energy outlays, such as a more accommodative policy stance.

Figure 3.3 shows that private road infrastructure outlays peaked in 1998 and 1999 at $635m and $783m respectively. The construction of the $1.8b CityLink freeway between 1998 and 2000 contributed to this increase, with the growth in subsequent years reflecting significant new urban development.

Figure 3.3 also shows growing expenditures on water and bridges, railways and harbours to $135m and $110m respectively in 2004. The growth in water infrastructure outlays after 2000 reflects the development of projects such as the $80m Aqua 2000 development (comprising water treatment plants at Bendigo, Kyneton & Castlemaine), the $50m Ballarat Water Treatment Project (completed in 2000) and the $40m Echuca/Rochester Wastewater Treatment Plant (completed in 2004).

Private infrastructure outlays on telecommunications increased from $3m in 1987 to $130m in 2004 due to measures such as the expansion of networks by mobile phone companies and infrastructure based competition in the CBD of Melbourne.

Figure 3.3 Private Economic Infrastructure Expenditure, Victoria (1990$)

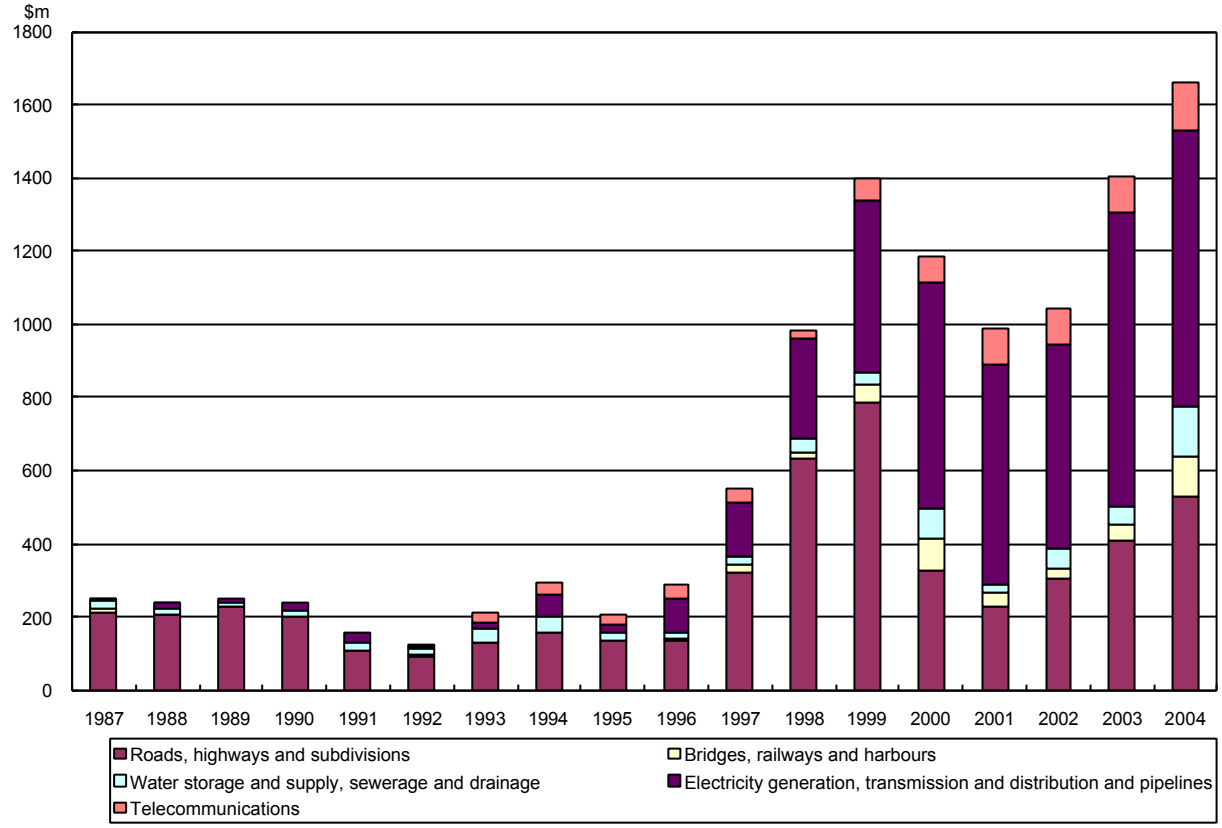


Figure 3.4 shows that telecommunications held the highest share of public infrastructure expenditures in Victoria at $379m in 2004, although this was below levels seen in the early 1990s, rising to a peak of $687m in 1991.

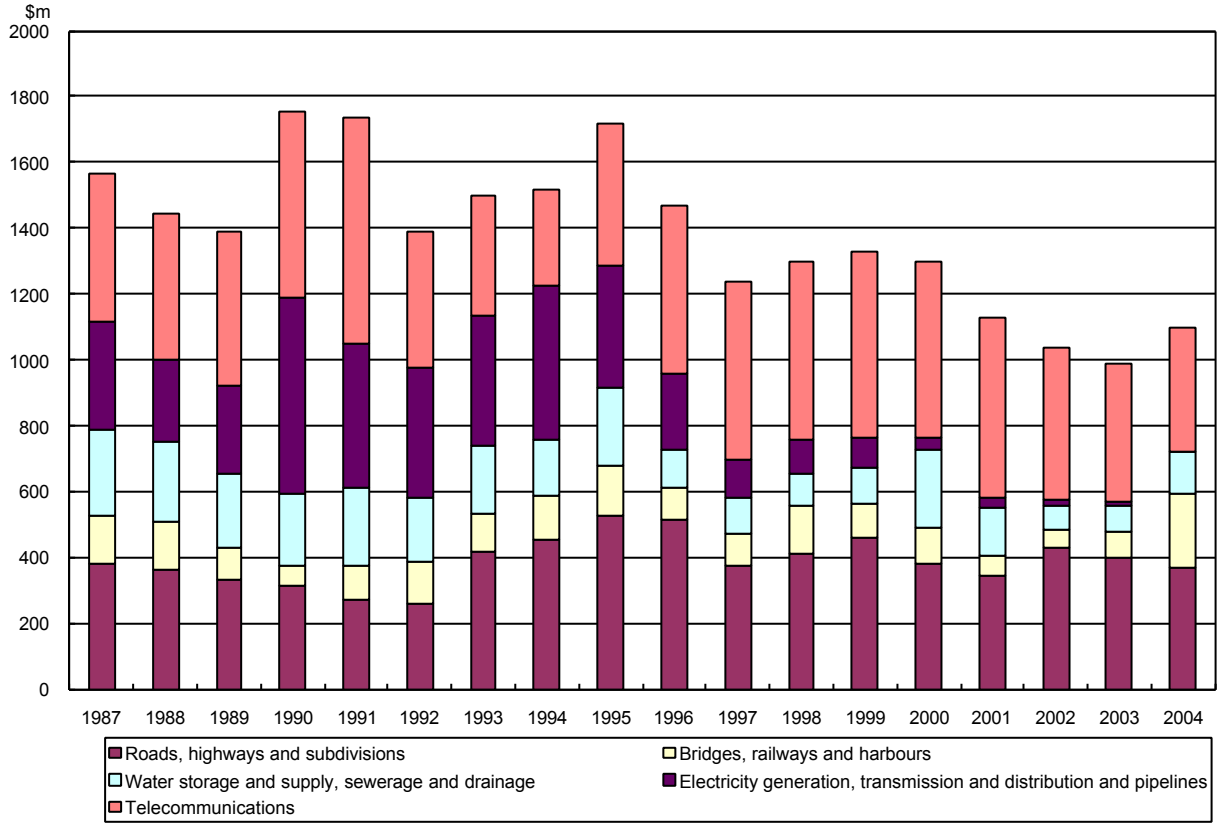
Roads were the second highest outlay for public infrastructure spending in 2004 for Victoria at $367m. As was the case for telecommunications, road outlays were below levels in previous years, particularly in 1995 where road outlays reached $529m, largely due to major Commonwealth road projects. Despite this decline in recent years, the introduction of major initiatives in 2003 will see a rise in road outlays in upcoming years. For example, the State Government's $5bn *Linking Victoria* transport strategy outlines plans to upgrade Victoria's roads, railways and ports. The strategy includes road projects such as the $306m Craigieburn Bypass which is due for completion in late 2005, and $180m towards the Mitcham-Frankston Freeway (Eastlink) (due for completion in 2008).

In contrast, public outlays on bridges, railways and harbours in Victoria increased their share from $147m in 1987 to $228m in 2004. Programs such as *Revitalising Victorian Rail* which involves the rebuilding of key infrastructure in both regional and metropolitan Victoria, such as new tracks, signalling systems and rolling stock, have been a key reason behind the increase. The program includes projects such as the $750m Regional Fast Rail project which commenced construction in October 2002 and is due for completion at the end of 2005 and a $300m contribution towards the Spencer Street Station Redevelopment, to be completed in early 2006. The deepening of the Port Phillip Channels and other work in the Port of Melbourne will support expenditure in this category in the coming years.

Public water outlays in Victoria had improved from the falls seen in 2002 and 2003 to reach $124m in 2004. Public water outlays will continue to increase due to schemes such as the $500m Wimmera Mallee pipeline project, with the state and federal governments each contributing $167m. Upgrades to waste water treatment infrastructure through measures such as the $20.8m Venus Bay and Sandy Point sewerage schemes and the $20m Werribee Irrigation District Recycled Water Scheme (completed in January 2005) will also contribute to growth in state public water infrastructure expenditures.

Figure 3.4 also reveals the sharp fall in Victorian public outlays on energy particularly after the mid 1990s. Public energy outlays fell from $326m in 1987 to $3m in 2004 as a result of the energy privatisation process in the mid to late 1990s.

Figure 3.4 Private Economic Infrastructure Expenditure, Victoria (1990$)



Queensland

Queensland infrastructure expenditure has been surprisingly weak given its geography, resource base and population growth. Little progress has been made in private expenditure which is also surprising given the role that resource development has played in promoting private expenditure in Western Australia and at the same time, public expenditure has also fallen as a share of GSP.

Figures 4.1 and 4.2 show the differential between public and private infrastructure outlays narrowed substantially between 1987 and 2004. Public infrastructure outlays in Queensland had fallen by $690m from its peak of $2.5b in 2000 to $1.8b in 2004, reducing the GSP share from 3% to 1.8%. In contrast private infrastructure expenditure was relatively stable between 1987 and 1999 before jumping to $812m in 2001. Despite a drop in private infrastructure outlays in 2002 and 2003 to $570m, a rebound was evident in 2004, rising to $955m and a GSP share of 1 percent.

Figure 4.1 Public and Private Economic Infrastructure Expenditure, Queensland (1990$)

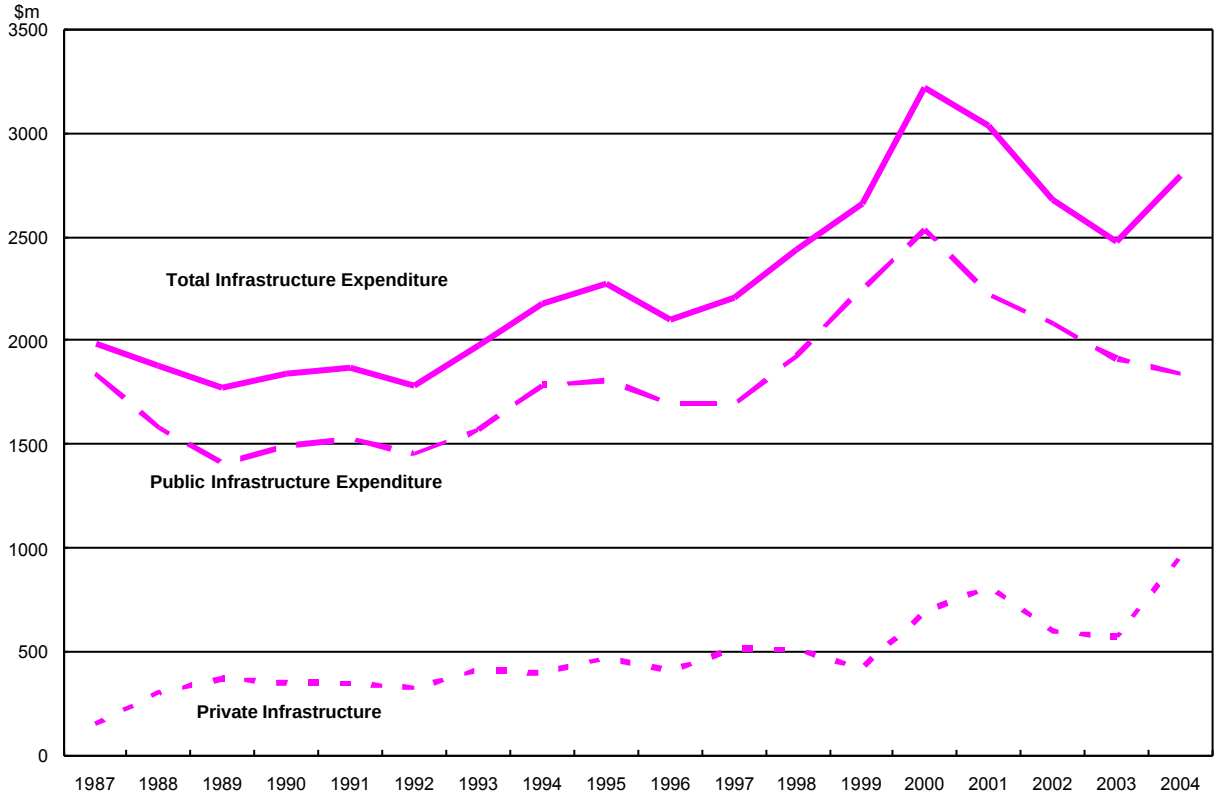


Figure 4.2 Public and Private Economic Infrastructure Expenditure, Queensland (%GSP)

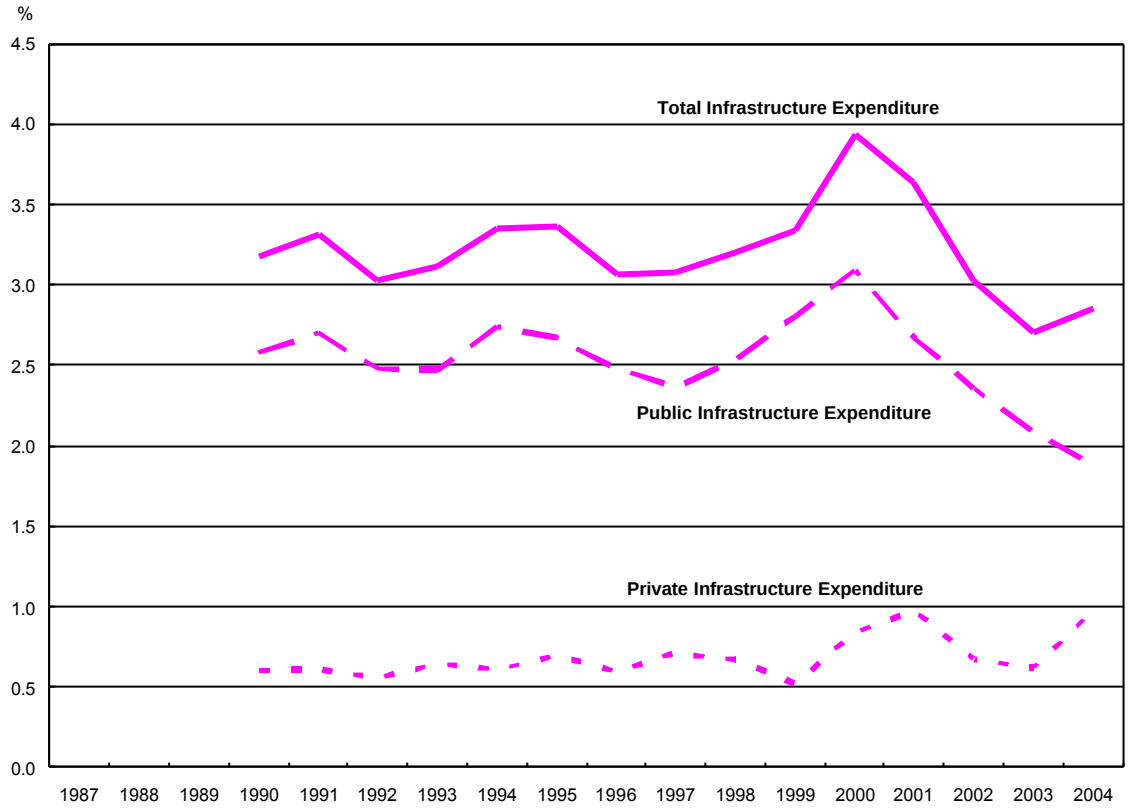


Figure 4.3 shows that as was the case for New South Wales, Queensland's private infrastructure outlays were dominated by roads between 1987 and 2004. Road expenditures increased from $91m in 1987 to a top of $660m in 2004, with most of the increase taking place after 2001. The rise in private road expenditures during this period was likely to be due to factors such as rapid growth in South East Queensland. Private road expenditures in Queensland will continue to remain high for the next few years with the construction of Brisbane's $1.3b North South Bypass Tunnel PPP between 2006 and 2009 and the need to continue to support strong population growth.

Private infrastructure outlays in energy increased sharply in 2001 and 2002 from $7.6m in 1987 to $320m in 2001 and $230m in 2002. This was due to large scale projects such as the development of the $1.5b 840MW Millmerran Power Station between 2000 and 2002. In 2003 private energy outlays fell to $23m before rising to $80m by 2004 as projects such as the Townsville Power Station commenced development.

Private infrastructure outlays on water increased from $21m in 1987 to $85m in 2004 as a result of an increased number of private providers of water and wastewater treatment, such as the Noosa Coastal Wastewater Treatment Plant. The recent approval of the $42m Carbon Neutral Water Recycling Project (Townsville Industrial Recycling Opportunities Project) to be completed in 2007 will continue to result in growth for Queensland's private water outlays.

Expenditure on private telecommunications infrastructure increased from $5.6m in 1987 to $56m in 2004 as private providers expanded their broadband networks, particularly in South East Queensland. Expenditures on bridges, railways and harbours increased from $21m in 1987 to $41m in 2004.

Figure 4.3 Private Economic Infrastructure Expenditure, Queensland (1990$)

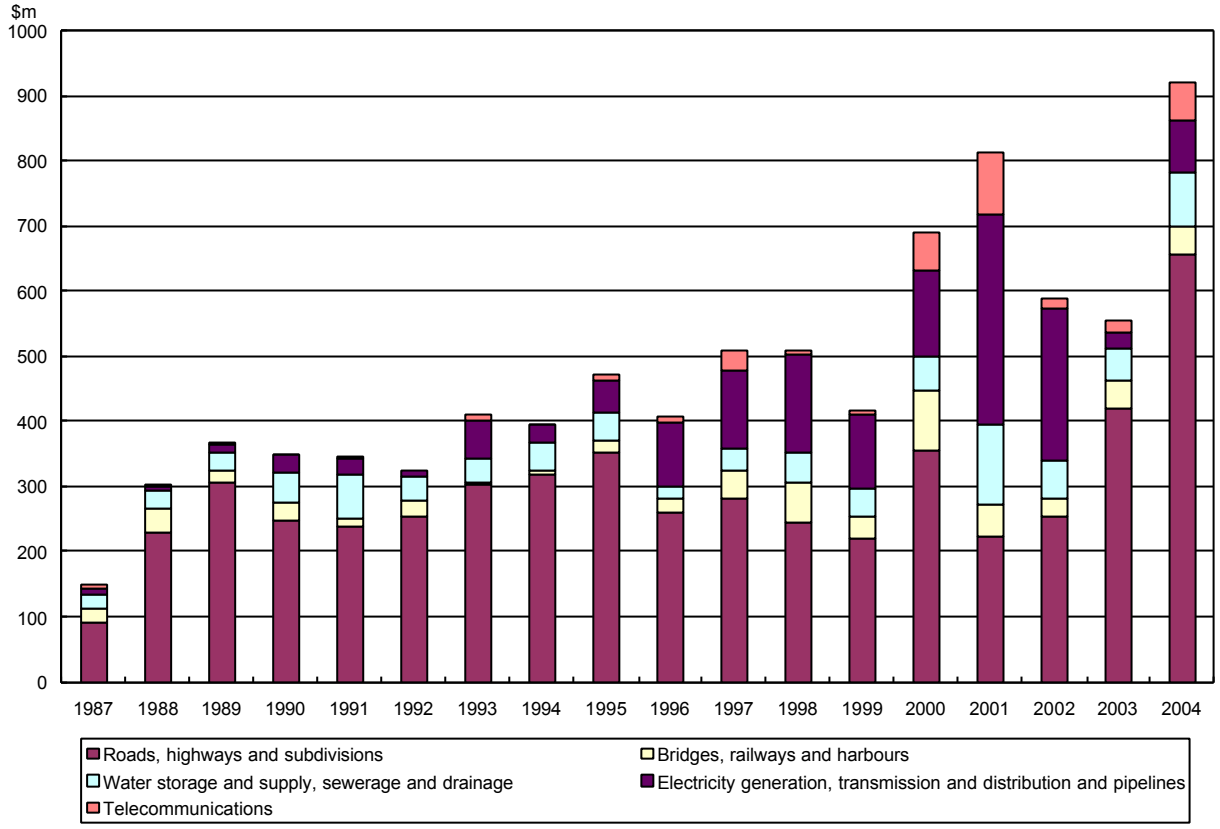


Figure 4.4 shows that roads received the highest share of Queensland's public infrastructure outlays at $543m in 2004, although this was below the peak of $915m achieved in 2000. The outlays represent major projects such as the federally funded upgrade of the Pacific Highway in Queensland ($150 million over 10 years to 2005-06) and more generally the geography of the state itself. Public road outlays should reveal an upward trend over the next five years, with the announcement that the Queensland government plans to spend $1.7b in road funding over the next five years to accommodate rapid growth in South East Queensland.

Energy received the second largest share of public infrastructure outlays in 2004 at $508m, although this was down on the 2001 level of $610m. Despite the fall in recent years, the government has several infrastructure projects currently underway to increase both generation and transmission capacity. This is in response to the growing energy demands from the resources sector, an expanding population base and major renewal of historically under-maintained assets, particularly in South East Queensland. For example, development of the $1.2b Kogan Creek power station commenced in 2004 and is expected to be completed in 2007, while the *South East Queensland Infrastructure Plan* details plans to spend $3.4 billion spending on energy networks over the next five years.[5]

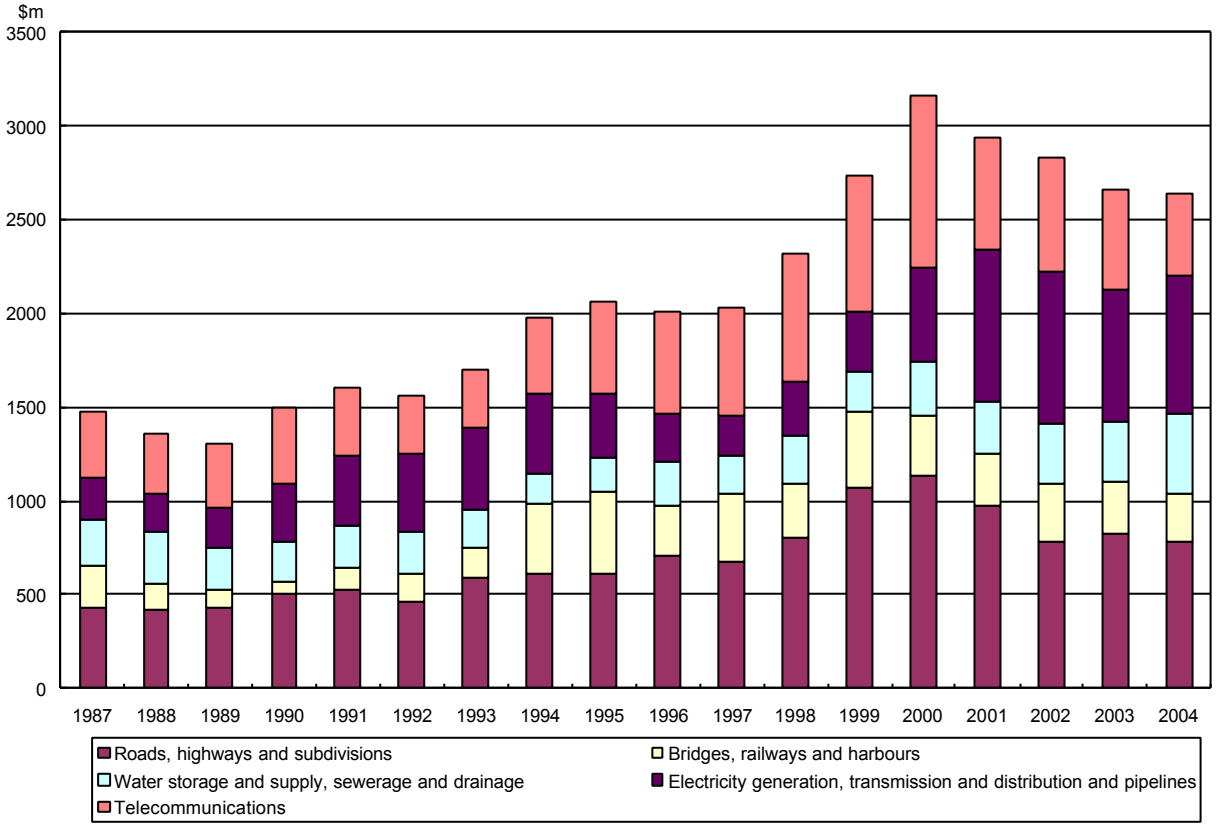
Public expenditures on bridges, railways and harbours were also lower in 2004 compared to levels in previous years. Public expenditures on bridges, railways and

[5] See http://www.oum.qld.gov.au/?id=359

harbours in 2004 were $181m, compared to $383m in 1995. Despite the recent falls, outlays in this category will increase substantially over the next five years, with Queensland Rail planning to spend $800m upgrading track infrastructure and $1.2b on train telecommunications systems and rolling stock over the next five years although not all of this would qualify as infrastructure expenditure under the definitions used in this paper..

Figure 4.4 also showed an increase in public water outlays in Queensland continued up to 2004, rising to $298m in 2004. Public outlays on water will continue to rise with the announcement in the *South East Queensland Infrastructure Plan* that $2.3b will be spent on water infrastructure projects.

Figure 4.4 Public Economic Infrastructure Expenditure, Queensland (1990$)



South Australia

Whilst exhibiting quite violent swings expenditure in South Australia has grown over time but has been relatively constant as a share of GSP. Where public expenditure has fallen it has been the result of privatisation and replaced by private expenditure.

Figures 5.1 and 5.2 show that total infrastructure outlays peaked in 2000 to $950m as public and private infrastructure spending surged to $600m and $350m respectively. But by 2004 public infrastructure expenditure had fallen to its lowest level over the 17 year period to $376m, with a fall in the GSP share to 1%. Despite a drop in 2001 to $173m, private infrastructure showed a strong recovery and was close to surpassing public infrastructure outlays in 2004, rising to $360m as a result of projects such as the $260m Adelaide Airport redevelopment. These trends were mirrored in the GSP shares, with both public and private infrastructure expenditures at 1% of GSP by 2004.

Figure 5.1 Public and Private Economic Infrastructure Expenditure, South Australia (1990$)

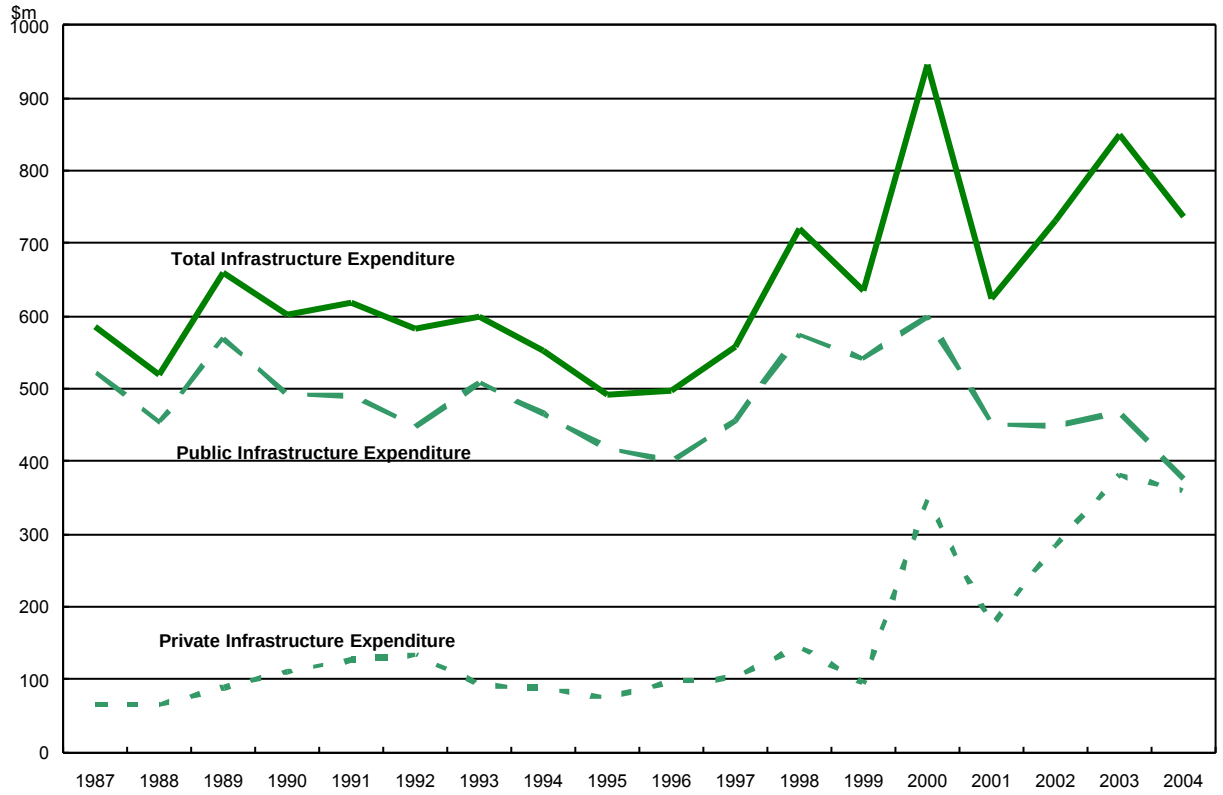
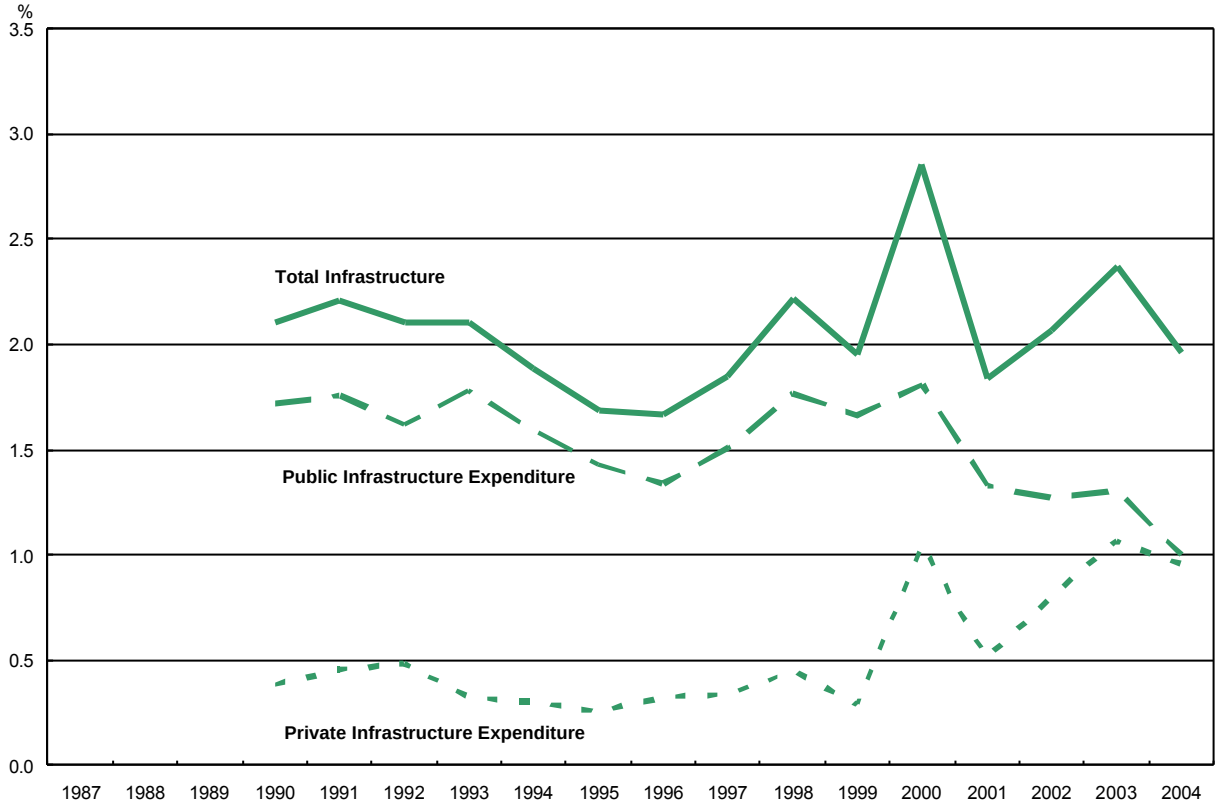


Figure 5.2 Public and Private Economic Infrastructure Expenditure, South Australia (%GSP)



As shown in figure 5.3 energy dominated private infrastructure expenditure after 2000 due to the privatisation of electricity assets by the South Australian government in 1999. The increase in private energy outlays reflects the completion of several major energy projects during this period, such as the $300 million 630 kilometre SEA gas pipeline interconnection between Port Campbell to Adelaide and the $400m Pelican point gas power plant completed in 2001.

Figure 5.4 also shows that private outlays on roads had increased steadily to $80m while private bridge, railway and harbour expenditures rose to $20m in 2004. Further opportunities to increase private road and rail outlays are expected due to the recent announcement of a $40m partnership between the private sector and the state and federal governments to upgrade the road and rail networks for grain exports from Eyre Peninsula.[6]

Private water outlays increased from $7.8m in 1987 to $21.3m in 2004. Private water outlays in 1998 and 1999 were given a boost with the $115m Riverland Water BOOT Project (completed in 1999), while the increase in 2004 was due to projects such as the $33m Victor Harbour Wastewater Treatment Plant (completed in 2004).

[6] See http://www.infrastructure.sa.gov.au/projects.asp

Figure 5.3 Private Economic Infrastructure Expenditure, South Australia (1990$)

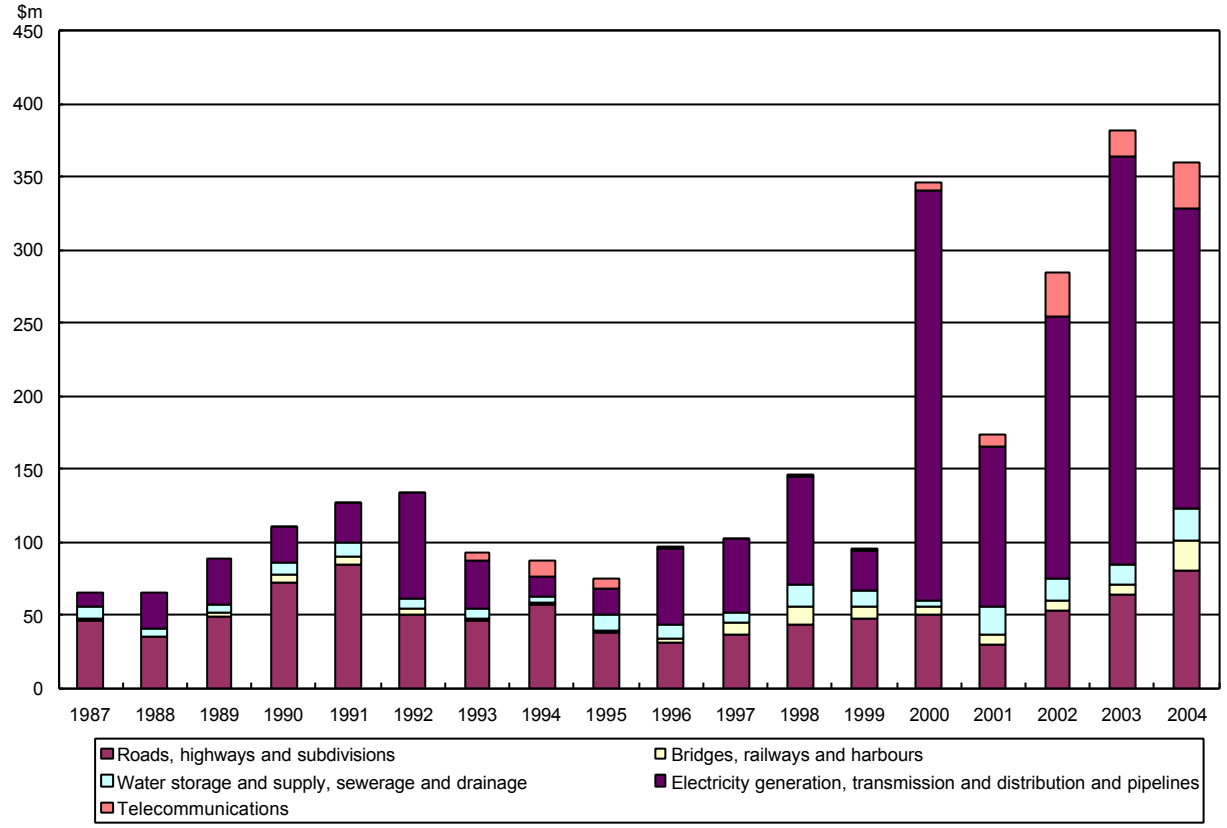


Figure 5.4 shows that public infrastructure expenditure was highest in roads, reaching $260m in 1998 and 2000 before falling to $177m in 2004. Despite the fall roads remain the most important sector for public outlays in South Australia and will increase over the next few years. For example, the South Australian *Strategic Infrastructure Plan*, released in April 2005 outlined a $187m initiative to relieve road congestion on South Road, Adelaide's primary north-south corridor. Other recent initiatives include the completion of the $91.5m stage one of the Port River Expressway, creating a link between the Port of Adelaide and the National Highway to Perth and Darwin. The $178m stage 2 and 3 of the project, to be completed by 2007, will be jointly funded by the South Australian and Federal Governments under AusLink.[7]

While expenditures on bridges, railways and harbours fell markedly after 2001, falling from a peak of $70m in 1998 (associated with the Keating Government's One Nation Infrastructure Package) to $6.1m in 2004, there have been some recent expenditure rises, most notably the $120m development of Outer Harbour's grain wharf, terminal and associated infrastructure. The *Strategic Infrastructure Plan* also recently outlined plans for a $45m deepening of the Outer Harbour shipping channel, with a $72m plan to upgrade the light rail infrastructure with new 'super trams'.[8]

[7] See http://www.transport.sa.gov.au/transport_network/projects/port_xpress/about.asp#project

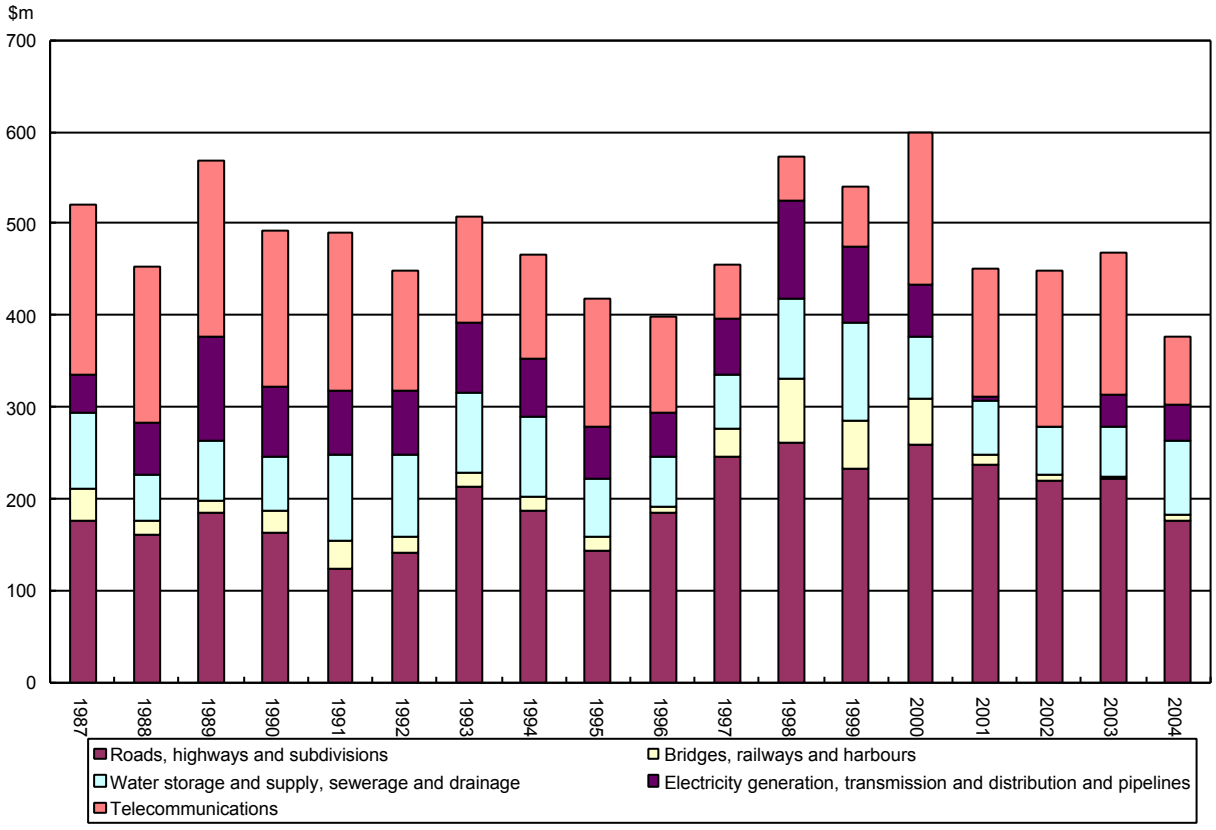
[8] See http://www.infrastructure.sa.gov.au/pressreleases.asp

Energy outlays fell from a high of $114m in 1989 to $38.9m in 2004. The collapse of public sector energy expenditure is due primarily to the previous government's privatization program.

Public telecommunication outlays had also fallen, from a high of $170m in 2003 to $74m by 2004. This is most likely due to a slowing in the rollout of fibre optic cables in both metropolitan and regional South Australia.

Public outlays on water had increased to $80m by 2004 from $48m in 1987. The increase reflects the recent upgrade to the Bolivar Wastewater Treatment Plant ($100m), as well as the $98m project to relocate the Port Adelaide Wastewater Treatment Plant, which includes a new high salinity treatment plant and a 17-kilometre pipeline to transfer saline wastewater to the plant.[9]

Figure 5.4 Public Economic Infrastructure Expenditure, South Australia (1990$)



9 See http://www.sawater.com.au/SAWater/Education/OurWastewaterSystems/Adelaide+Wastewater+Treatment+Plants.htm#portadelaide

Western Australia

Whilst quite volatile, Western Australia has exhibited strong infrastructure expenditure growth. Whilst public expenditure has fallen as a share of GSP it has been more than replaced by private sector expenditure dominated by infrastructure that supports the mining and resources sectors.

Figures 6.1 and 6.2 reveal the surge in private infrastructure outlays after 2001 provided the impetus for the growth in total infrastructure outlays although public infrastructure outlays declined. Private infrastructure expenditure grew from $344m in 1987 to $1.1b in 2004, with outlays doubling each year between 2001 and 2004 and increasing the GSP share to 1.84 percent. Public infrastructure outlays in Western Australia gradually declined after peaking in 1996, falling from $976m to $740m by 2004 and reducing the GSP share to 1.2% over the same period.

Figure 6.1 Public and Private Economic Infrastructure Expenditure, Western Australia (1990$)

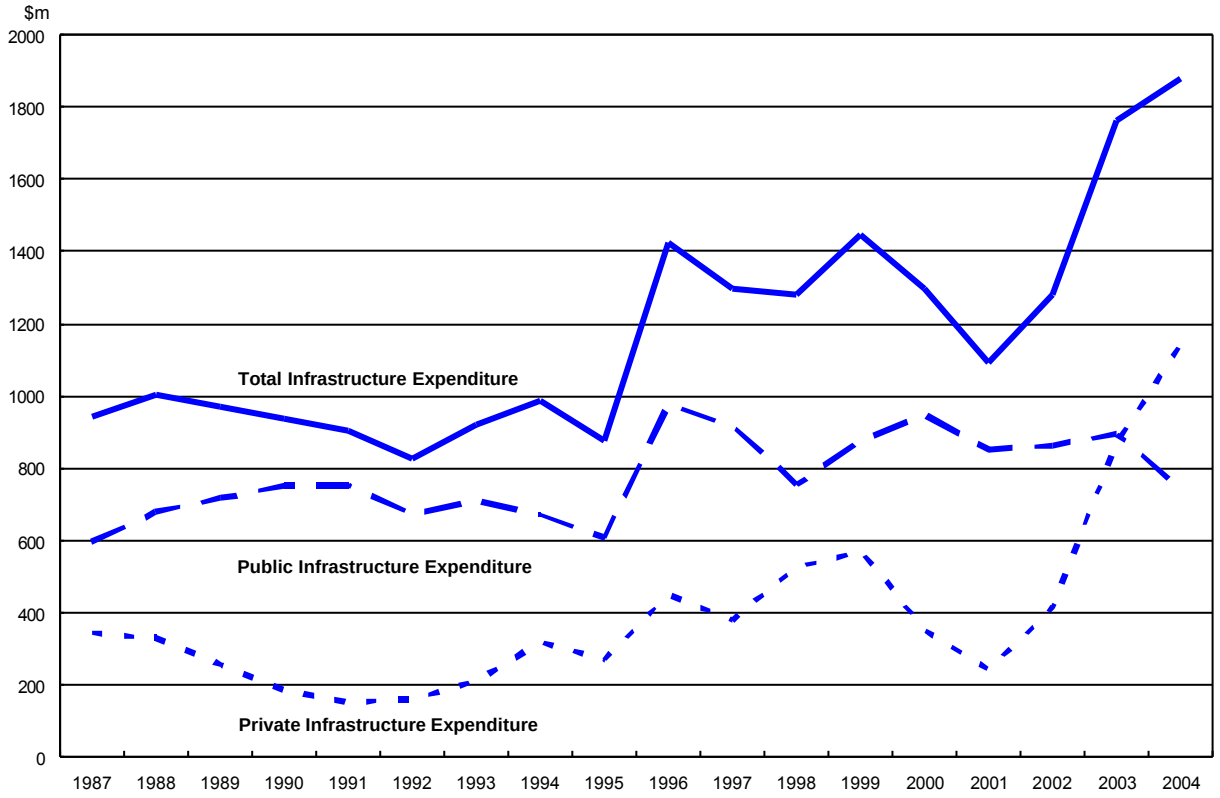


Figure 6.2 Public and Private Economic Infrastructure Expenditure, Western Australia (%GSP)

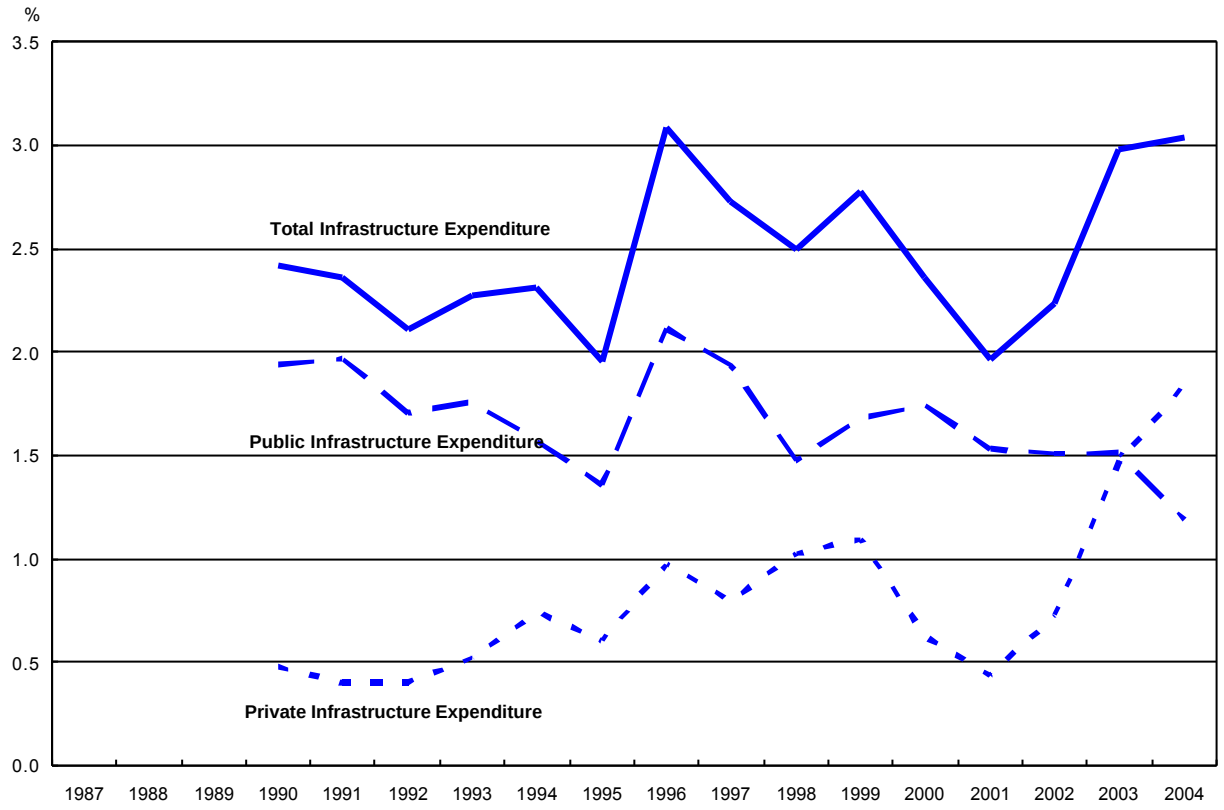
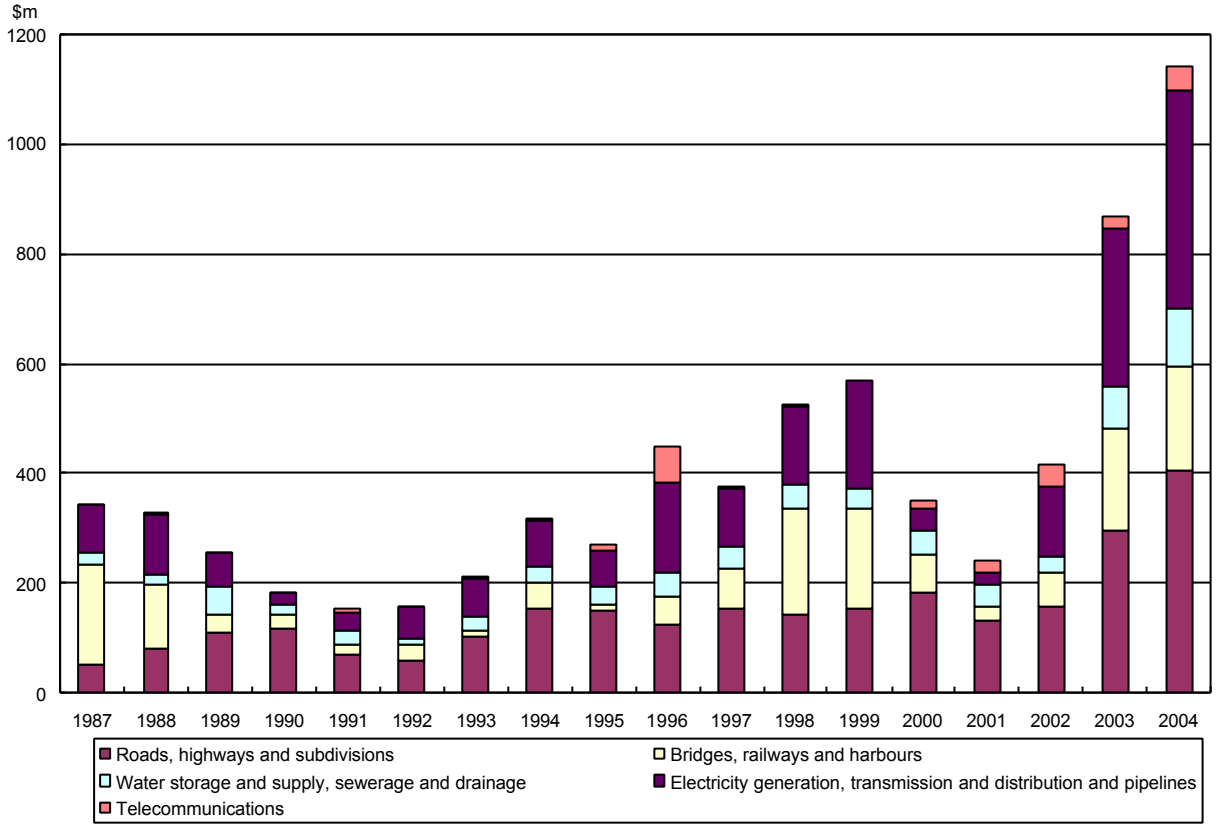


Figure 6.3 shows strong private road and energy expenditures. Private road outlays increased from $51m in 1987 to $405m in 2004. This is most likely attributed to privately built roads for the mining and mineral processing sectors, particularly in the Pilbara region. Energy outlays increased from $88m to $395m over the same period. The separation and partial sale of the State Energy Commission of WA's gas and energy assets gave a boost to private energy spending after 1996. It should be noted that there has been a long history of the mining sector providing small scale energy assets for its own purposes and to support mining communities. Major private energy projects that took place after the deregulation include the $76m Ord River Hydro Project (completed in 1997), the $120m Midwest Pipeline (completed in 1999) project, the $87m Esperance power plant (completed in 2004) and the $216m Geraldton Wind Farm (completed in 2005). The rise in energy outlays also includes electricity generating plants that were built to supply privately owned mining or mineral processing projects.

Private outlays on bridges, railways and harbours increased to $191m by 2004, primarily due to the increase in private railways in the North West of Western Australia and to a lesser extent port facilities.

The figure also shows that private expenditure on water increased from $18m in 1987 to $105m in 2004. Private water outlays will continue to rise with the Western Australian government announcing in 2004 a $387m seawater desalination plant will be built as a private public partnership. The plant, to be located in Perth, will be completed in late 2006 and operated by the private sector over a 25 year period.

Figure 6.3 Private Economic Infrastructure Expenditure, Western Australia (1990$)



In figure 6.4, roads accounted for the largest share of public infrastructure outlays in Western Australia, increasing to $467m in 1999 before falling to $295m in 2004. Despite the recent fall there are a number of important road projects in the pipeline, such as the $450m Perth Bunbury Highway which will commence construction in late 2006 as well as the upgrade of the Great Northern, Roe and Eyre Highways by 2006.

Public outlays on bridges, railways and harbours increased from $42m in 1987 to $67m in 2004. The rise in public rail expenditures was primarily due to the commencement of the New MetroRail project, which is the largest public transport infrastructure project undertaken in Western Australia.[10] The $1.5b New MetroRail project, which includes the construction of the Southern Suburbs Railway through Perth City and extending the Northern Suburbs Railway, commenced construction in May 2001 and will be completed in late 2007 – the initial development of the Northern Suburbs railway and urban electrification contributed to the increase in rail expenditure in the early 1990s.

Public outlays on telecommunications reached a peak of $260m in 2002 before declining to $188m in 2004. The peak in 2002 represented the rollout of fibre optic networks in metropolitan areas and the high cost of providing telecommunications infrastructure in remote areas.

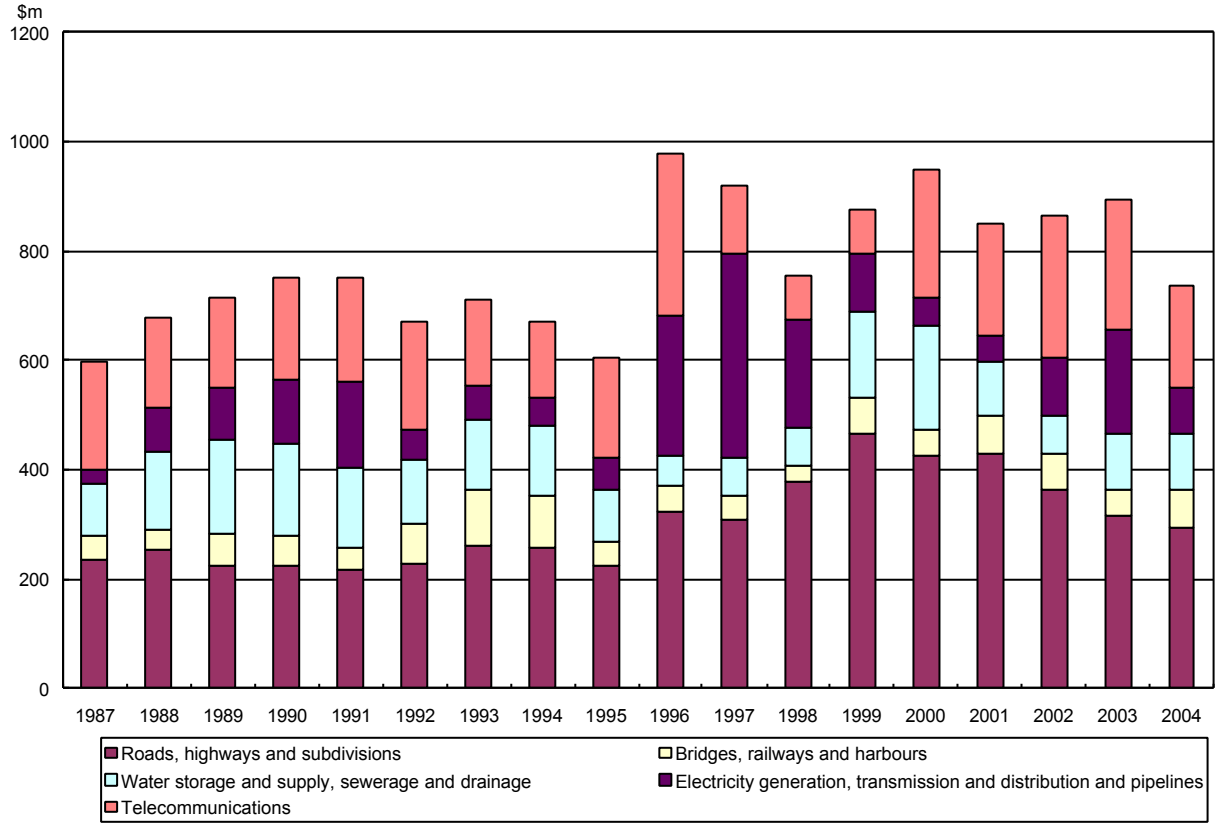
Public energy outlays in Western Australia rose from $25m in 1987 to $81m in 2004, although this was down from $187m in 2003. The increase in public energy outlays in

[10] See http://www.mainroads.wa.gov.au/NR/mrwa/run/start.asp

2003 reflects projects such as the $240m Cockburn Power Station as well as smaller projects such as the $10m Nine Mile Beach Wind Farm project and the $3m Hopetoun wind farm project, all of which were completed in 2003. Despite the decline in public energy outlays to $80m in 2004, the State Government has allocated $1.8b towards network investment over the next four years. This is in addition to the $48m Rural Power Improvement Program (RPIP) to improve power reliability in country areas of Western Australia over the next four years.

Figure 6.4 also shows that public water outlays increased from $95m in 1987 to $105m in 2004, down from a peak of $192m in 2000. According to the Western Australian Water Corporation, capital outlays on water were at record levels in 2000, particularly in the treatment of wastewater such as the Woodman Point wastewater treatment plant which was built in 2000-01.

Figure 6.4 Public Economic Infrastructure Expenditure, Western Australia (1990$)



Tasmania

The size of the Tasmanian economy means that major projects such as the Tasmanian Gas Pipeline and Basslink can mask long term trends. It seems that after a decline in the early 1990s expenditure has been steady and absent the two projects mentioned above, there is very little private provision of infrastructure.

Despite having low infrastructure outlays relative to other jurisdictions, Tasmania has embarked on several major projects recently which has increased both private and public infrastructure outlays. Figure 7.1 shows that while the decline in outlays between 1987 and 2001 was driven by falling public outlays, rising private outlays in 2002 propelled total infrastructure outlays back to 1987 levels at $320m. By 2004, public outlays were the main impetus behind the rise in total infrastructure outlays, rising to $217m or 2.2% of GSP, while private outlays fell back to $97m or 1% of GSP.

Figure 7.1 Public and Private Economic Infrastructure Expenditure, Tasmania (1990$)

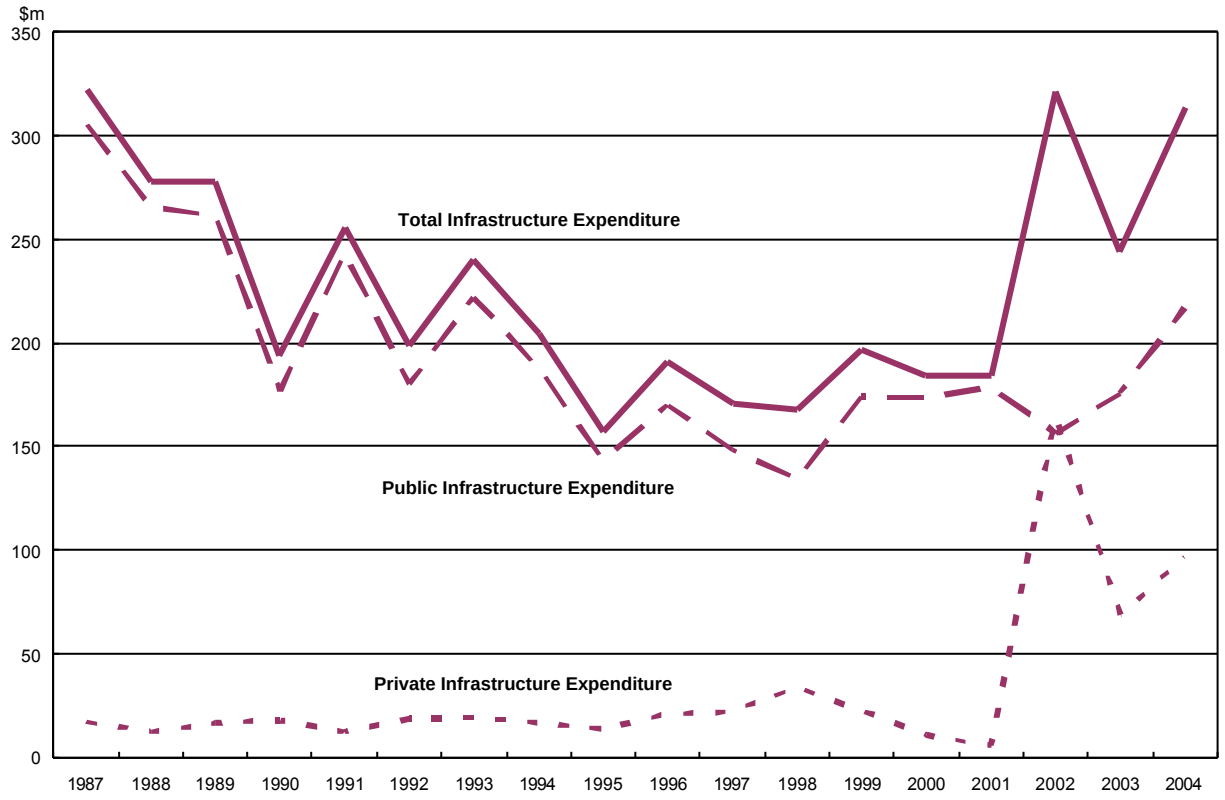


Figure 7.2 Public and Private Economic Infrastructure Expenditure, Tasmania (%GSP)

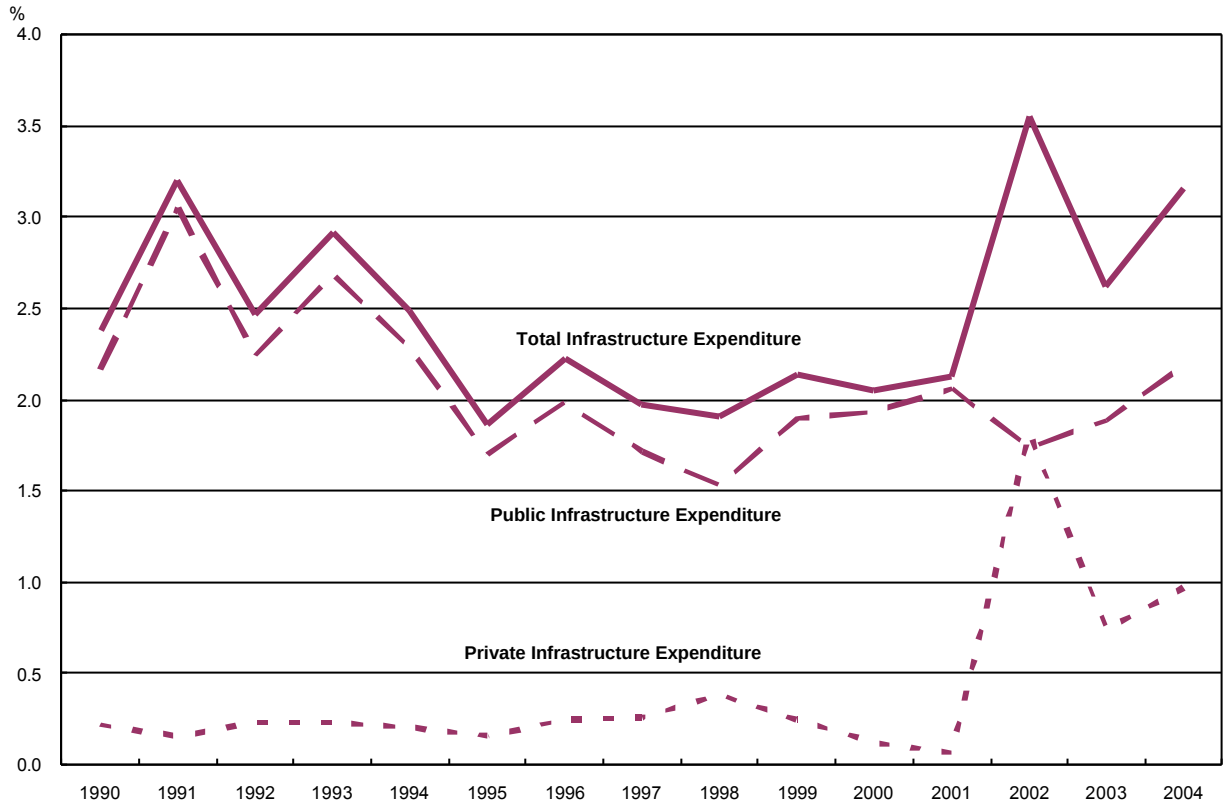


Figure 7.3 shows that most of the increase in private infrastructure outlays between 2002 and 2004 was attributed to the energy sector, rising from $0.1m in 1987 to a peak of $154m in 2002 before falling to $64m in 2004. The sharp increase in private energy outlays reflects the construction of the $350m Tasmanian Gas Pipeline, which began in mid-2001 and was completed in late 2002. The construction of BassLink, an electricity interconnector that will create a link between 600 MW of Tasmanian wind and hydro-based energy with the National Electricity Market (NEM) in April 2006, would have contributed to the relatively high private energy outlays in 2003 and 2004. Other projects such as the current $100m construction of a 700km distribution network development will continue to result in relatively high private energy outlays for the next few years.

Figure 7.4 shows that public energy outlays in Tasmania increased sharply in 2004 following relatively low outlays for most of the 17 year period (except for 1987-88). The rise was mainly due to the development of wind power projects, such as the $270m Mussleroe wind farm which commenced construction in late 2003.[11] Other wind farm projects such as the $180m Waterloo wind farm and the $100m Cathedral Rocks wind farm (due for completion in January 2006 and September 2005 respectively) will continue to increase the share of public energy outlays in 2005 and 2006.

[11] Stage 2 of Australia's largest wind farm at Woolnorth was completed in September 2004 at a cost of $100m, with stage 3 to by completed by 2006.

Figure 7.3 Private Economic Infrastructure Expenditure, Tasmania (1990$)

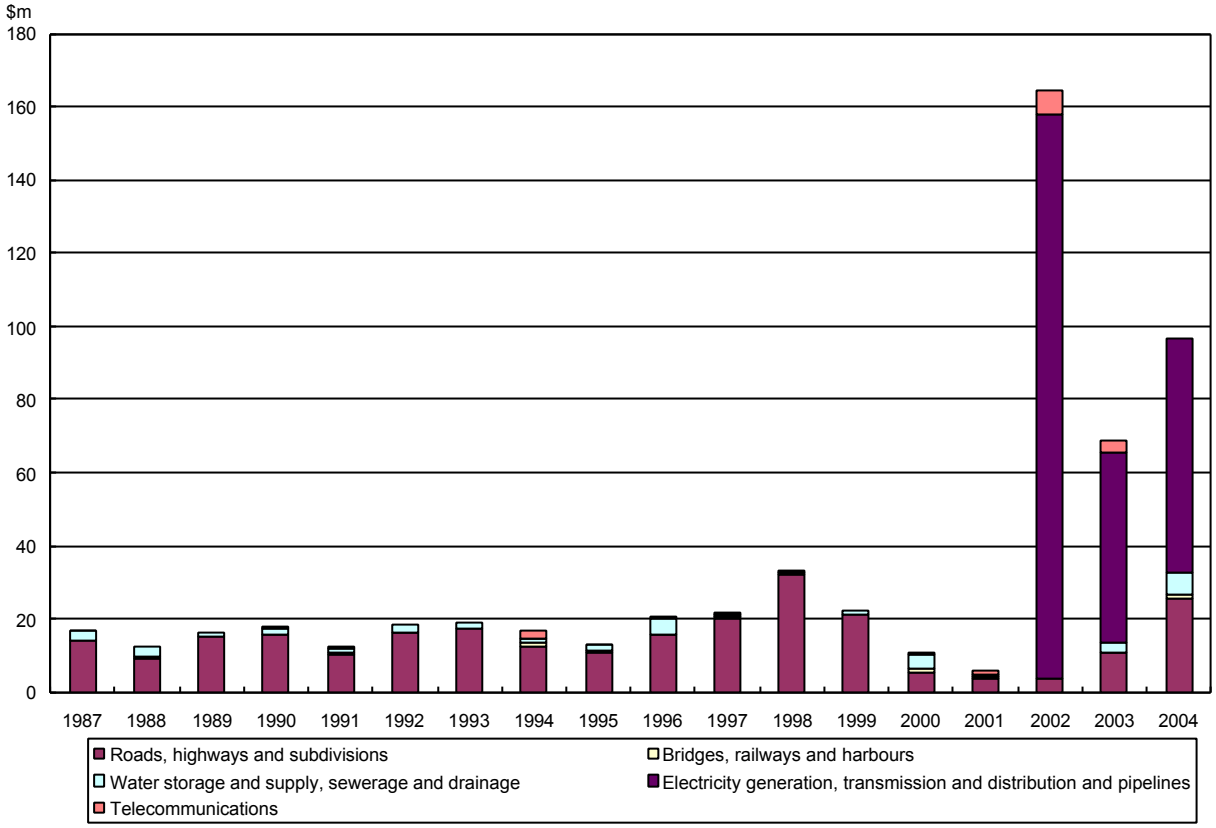
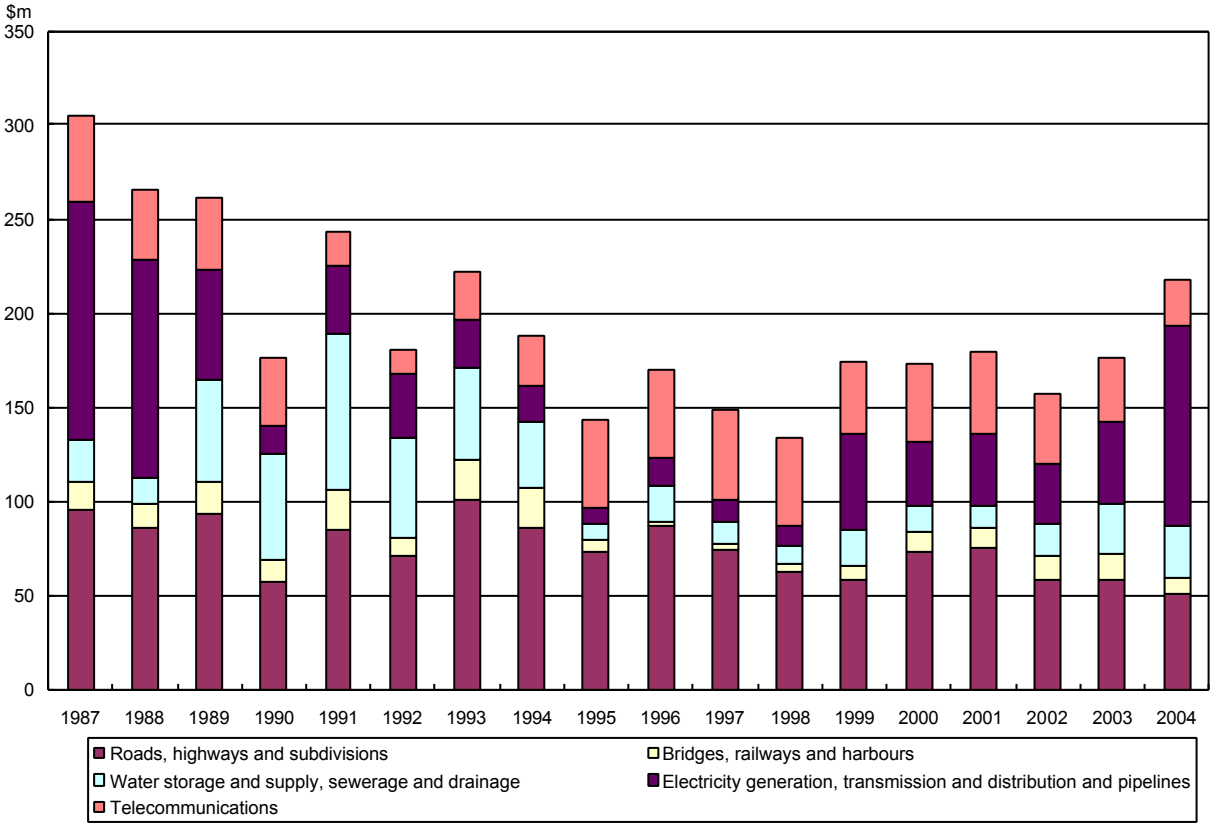


Figure 7.4 Public Economic Infrastructure Expenditure, Tasmania (1990$)



Australian Capital Territory

It is difficult to determine long term trends in infrastructure expenditure in the Australian Capital Territory. It is important to remember it is really the story about the provision of infrastructure for a relatively small city. Given that, patterns are surprising volatile and there does appear to be a decline as a share of GSP since the early 1990s. Private expenditure is responding to privatisation initiatives.

Figures 8.1 and 8.2 show that public infrastructure expenditure in the ACT fell substantially between 1987 and 2004, dropping from $213m to $90m, with the largest fall recorded after 2000. Most of the fall was generated by the public sector, halving its contribution to GSP from 1.6 percent in 1987 to 0.8 percent in 2004. Figure 8.1 also showed that private infrastructure expenditure was helping to fill the void created by the public sector, rising from $7.2m to $72m from 1987 to 2004. This corresponded to an increase in the GSP share from 0.43 percent to 0.64 percent of GSP over the same period.

Figure 8.1 Public and Private Economic Infrastructure Expenditure, Australian Capital Territory (1990$)

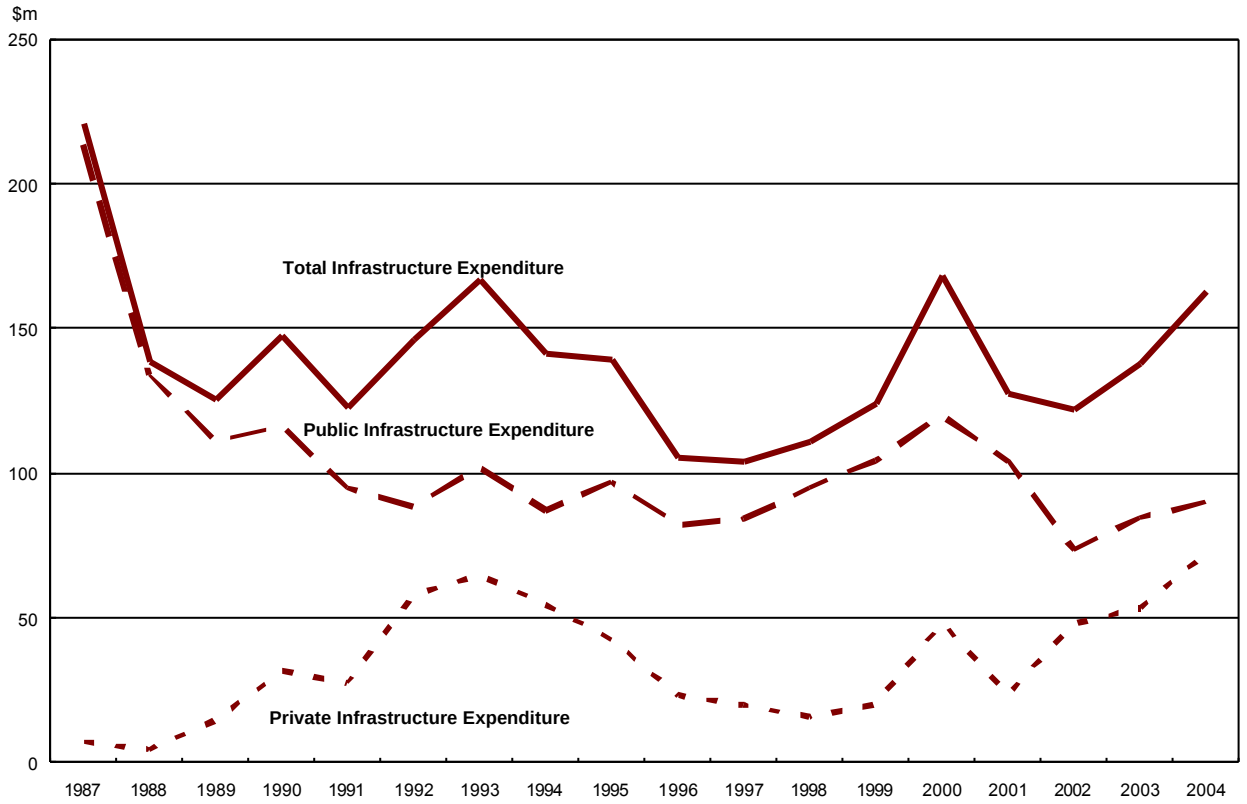


Figure 8.2 Public and Private Economic Infrastructure Expenditure, Australian Capital Territory (%GSP)

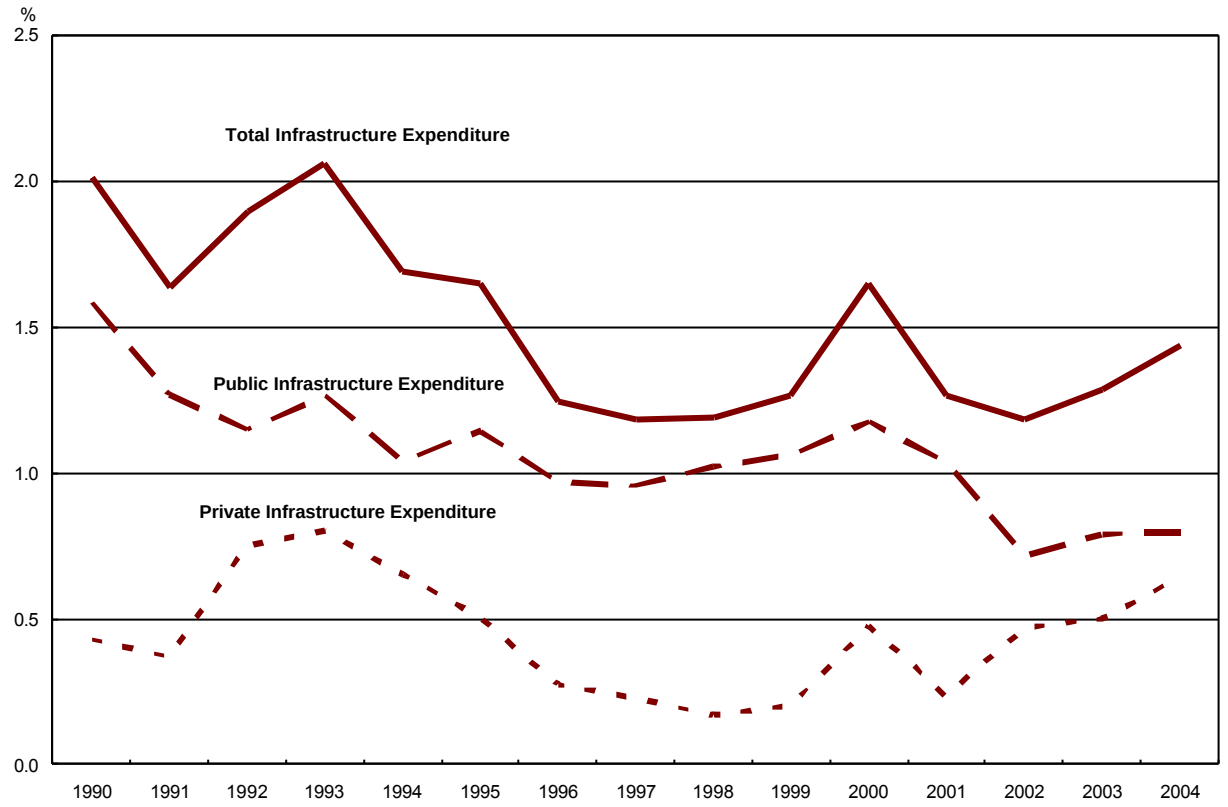


Figure 8.3 shows that private infrastructure outlays were concentrated in roads throughout the 17 year period except for 2003, where energy expenditures were the most important private infrastructure outlay. Private expenditure on roads increased from $2.9m in 1987 to $26.6m in 2004, reaching a peak of $58m in 1992.

Private telecommunication outlays in the Australian Capital Territory rose sharply in 2004, rising from $3.1m in 2003 to $18.1m in 2004. This reflects the strong IT presence in Canberra and the rollout of fibre optic networks by private telecommunications providers.

The sharp increase in energy expenditures in 2001 followed the establishment of a joint venture of private company AGL with ACTEW (becoming ActewAGL) in 2000. The joint venture resulted in the merger of ACTEW Corporation's ACT electricity network and retail operations and AGL's ACT and Queanbeyan gas network and retail operations. The jump in 2003 and 2004 represents spending related to restoring electricity distribution networks that were damaged in the January 2003 bushfires.

Private water expenditures in the Australian Capital Territory jumped sharply in recent years, rising to $38m in 2004 from $6m in 2001.

Figure 8.3 Private Economic Infrastructure Expenditure, Australian Capital Territory (1990$)

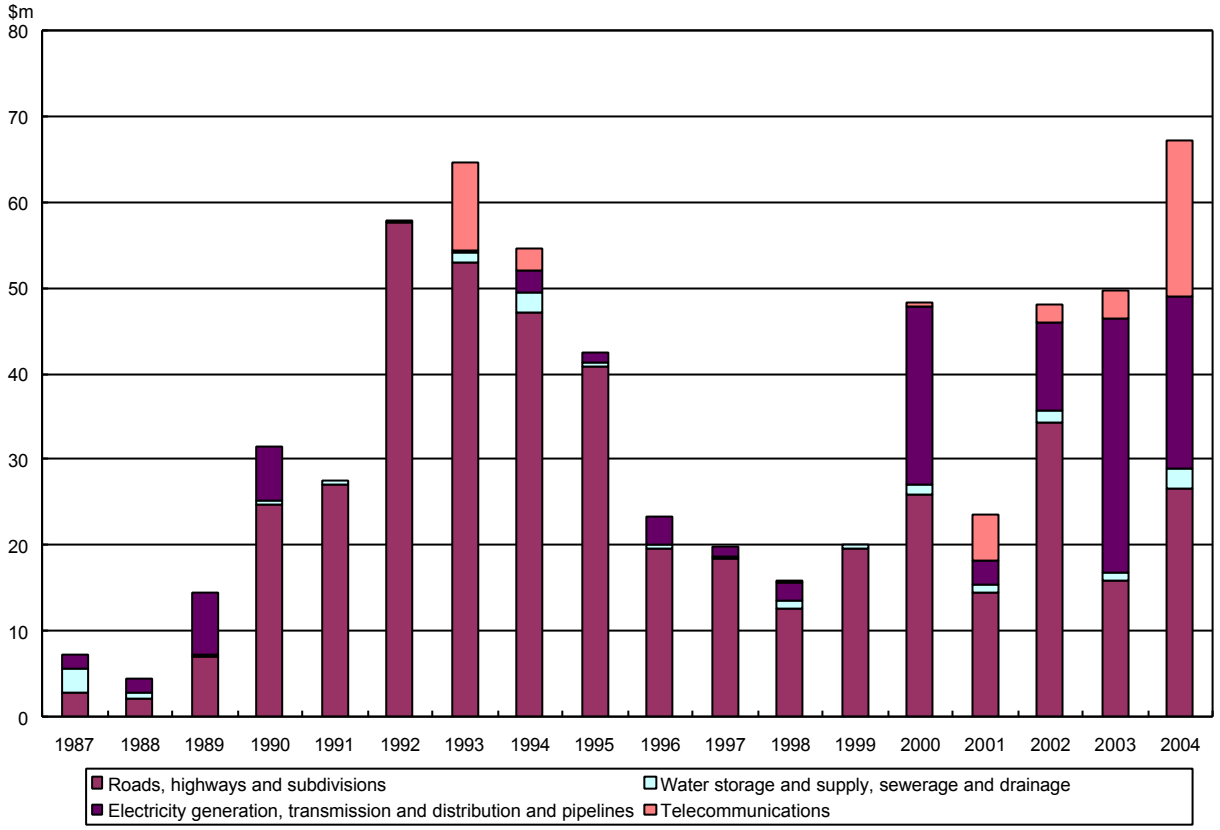


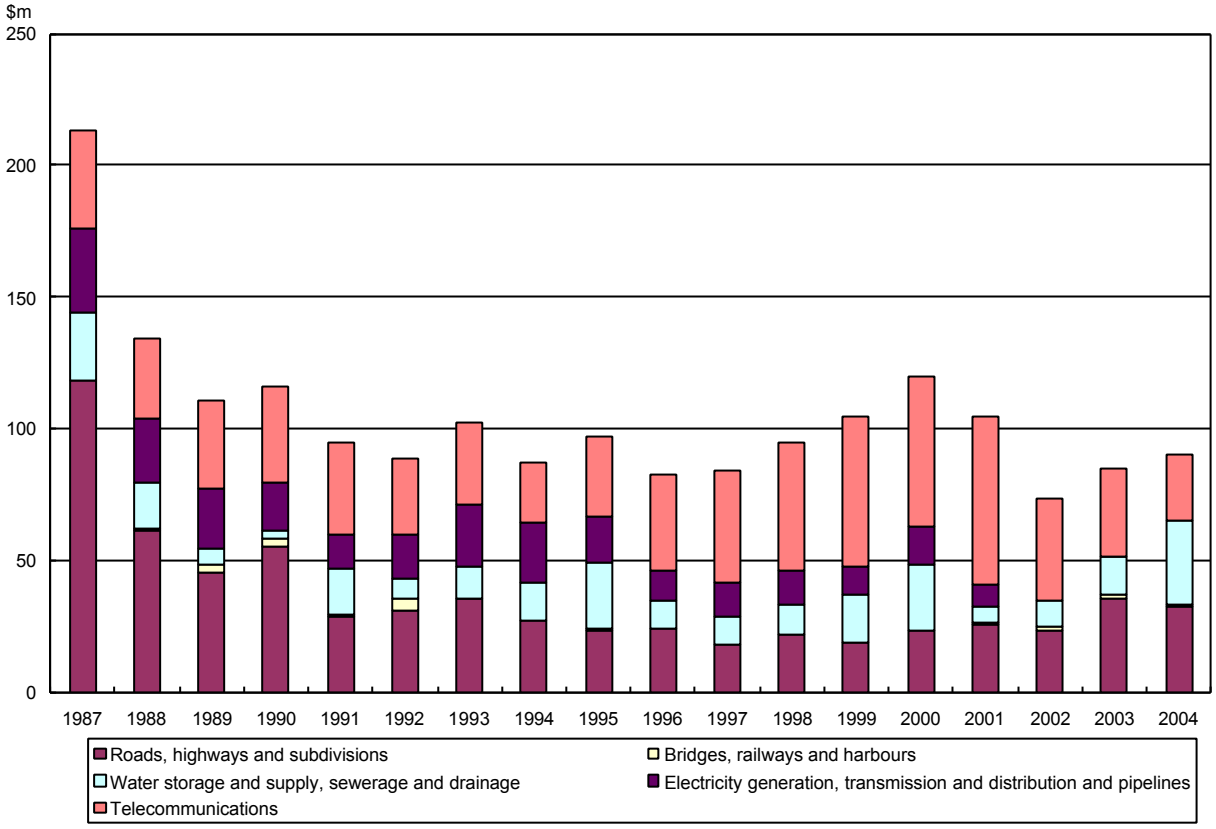
Figure 8.4 reveals public infrastructure expenditure on roads fell markedly after the ACT gained self-government in 1989, relative to the contributions received under Commonwealth funding. Road expenditures fell from $118m in 1987 to $33m in 2004.

Public expenditures on telecommunications rose from $37m in 1987 to a peak of $64m in 2001 before falling to $25m in 2004.

The rise in public water outlays from $14m in 2003 to $31m in 2004 represents the development of projects such as the $39m Mount Stromlo water treatment plant and a $20m upgrade of the Googong water treatment facility. The new plants will allow uninterrupted potable water delivery as the ACT's catchment areas recover from the January 2003 bushfires.[12]

[12] ActewAGL 2003-04 Annual Report, p.6 and p.25.

Figure 8.4 Public Economic Infrastructure Expenditure, Australian Capital Territory (1990$)



Northern Territory

Like Tasmania, the size of the Northern Territories economy means major projects can mask long term trends. Absent major energy and rail projects infrastructure spending in the Northern Territory has been fairly static and declining as a share of GSP. Expenditure is almost entirely undertaken by the public sector.

Figures 9.1 and 9.2 show that after 2001 private infrastructure expenditure in the Northern Territory surged to a record high, rising approximately $100m in each of the last three years to $414m in 2004. This led to a sharp increase in total infrastructure expenditures from $93m in 2001 to $543m in 2004. Public infrastructure expenditure remained largely flat for the period between 1991 and 2003 at $100m (with the exception of rises in 1995 and 2000 and falls in 1993 and 2001) before rising to $130m in 2004. As a share of GSP, total infrastructure expenditure rose from 1.4% in 2001 to 8.2% in 2004, with private infrastructure outlays increasing from 0.4% to 6.3% of GSP.

Figure 9.1 Public and Private Economic Infrastructure Expenditure, Northern Territory (1990$)

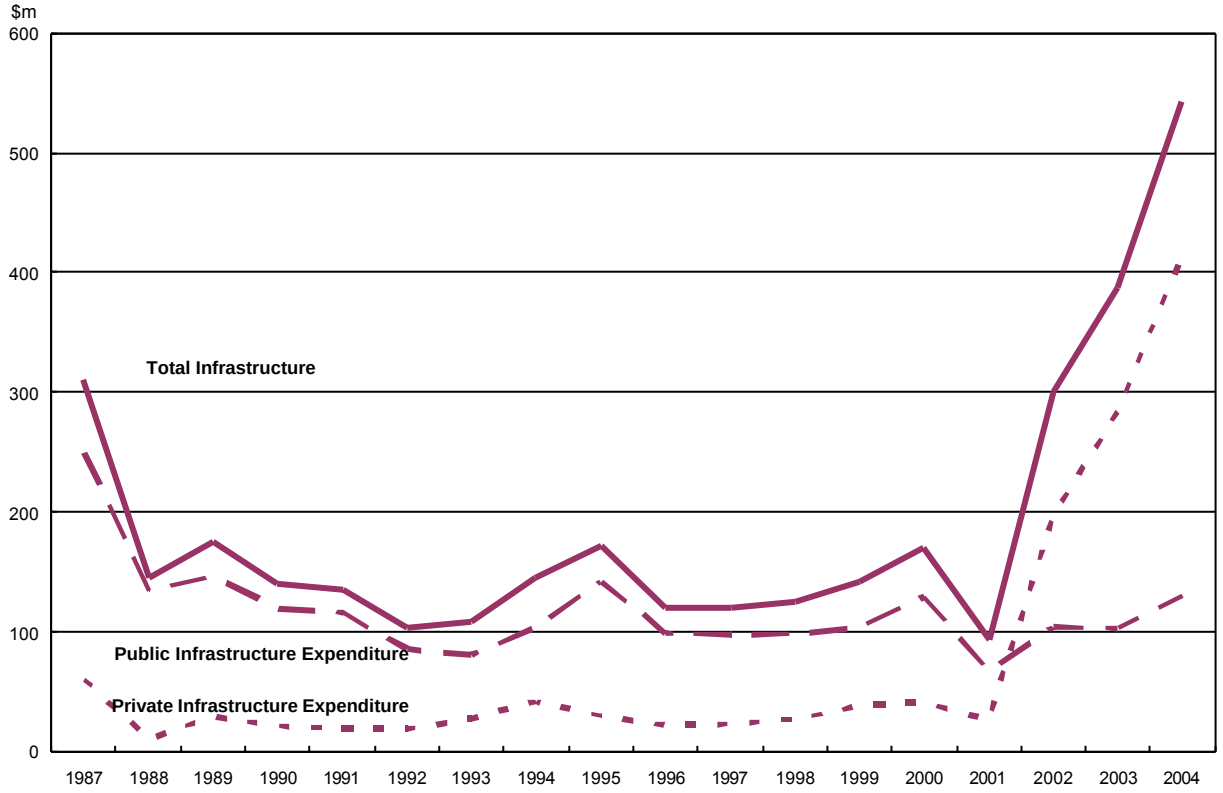


Figure 9.2 Public and Private Economic Infrastructure Expenditure, Northern Territory (%GSP)

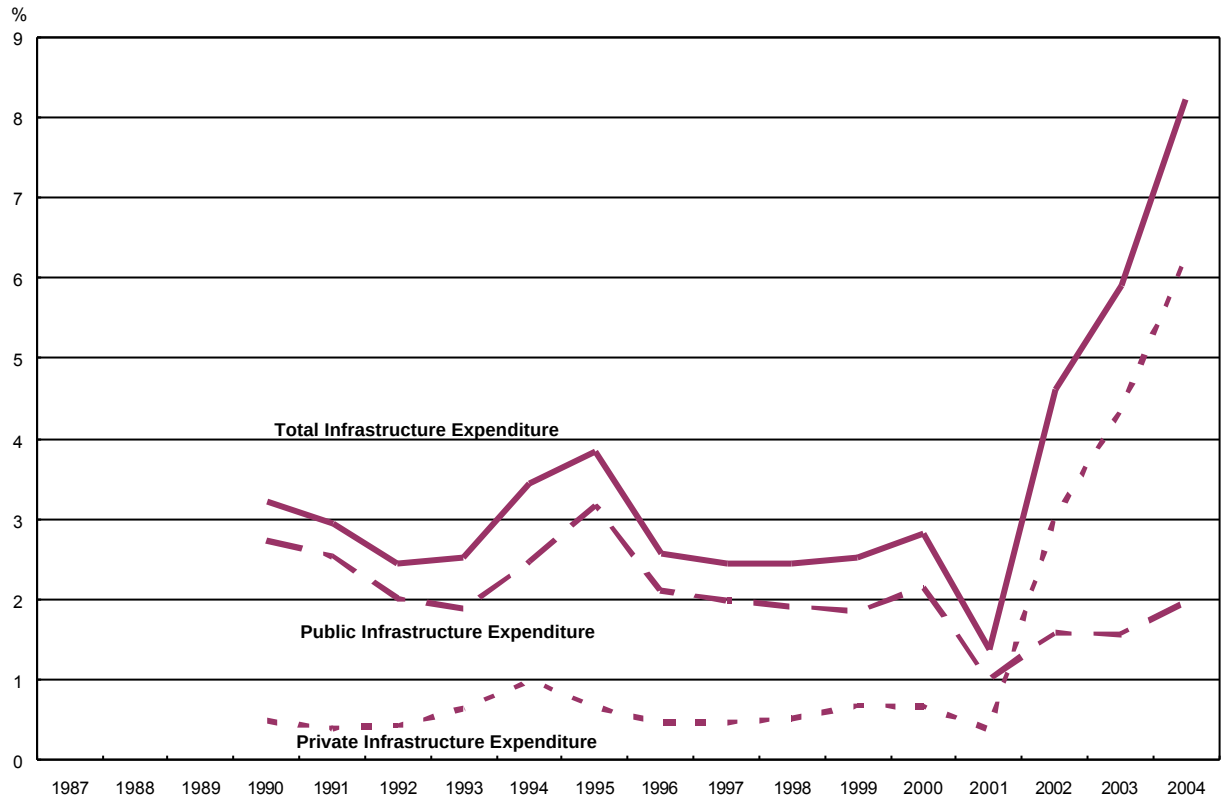


Figure 9.3 shows that the jump in both private and bridge, railway and harbour outlays was driven by the construction of the Darwin to Alice Springs Railway between 2001 and late 2003. The total cost of the project was $1.3b, with $191m and $368m funded respectively from the Federal and Northern Territory Governments and the remainder by the private sector. Public and private outlays on bridges, railways and harbours will continue to increase with the $1.1b Darwin Harbour waterfront commencing development in October 2005. Stage one of the waterfront development is expected to be completed by 2008.

By 2004, the dominant share of private infrastructure outlays had shifted from railway expenditures to energy, with a jump from $4.6m in 2003 to $360m in 2004. This may have been attributed to the $750 million underwater pipeline from the Bayu-Undan field to Wickham Point near Darwin, with first delivery scheduled for 2006.

The relatively high level of public telecommunications shown in Figure 9.4 reflects the high cost of delivering telecommunications infrastructure to remote areas of the Northern Territory.

Figure 9.3 Private Economic Infrastructure Expenditure, Northern Territory (1990$)

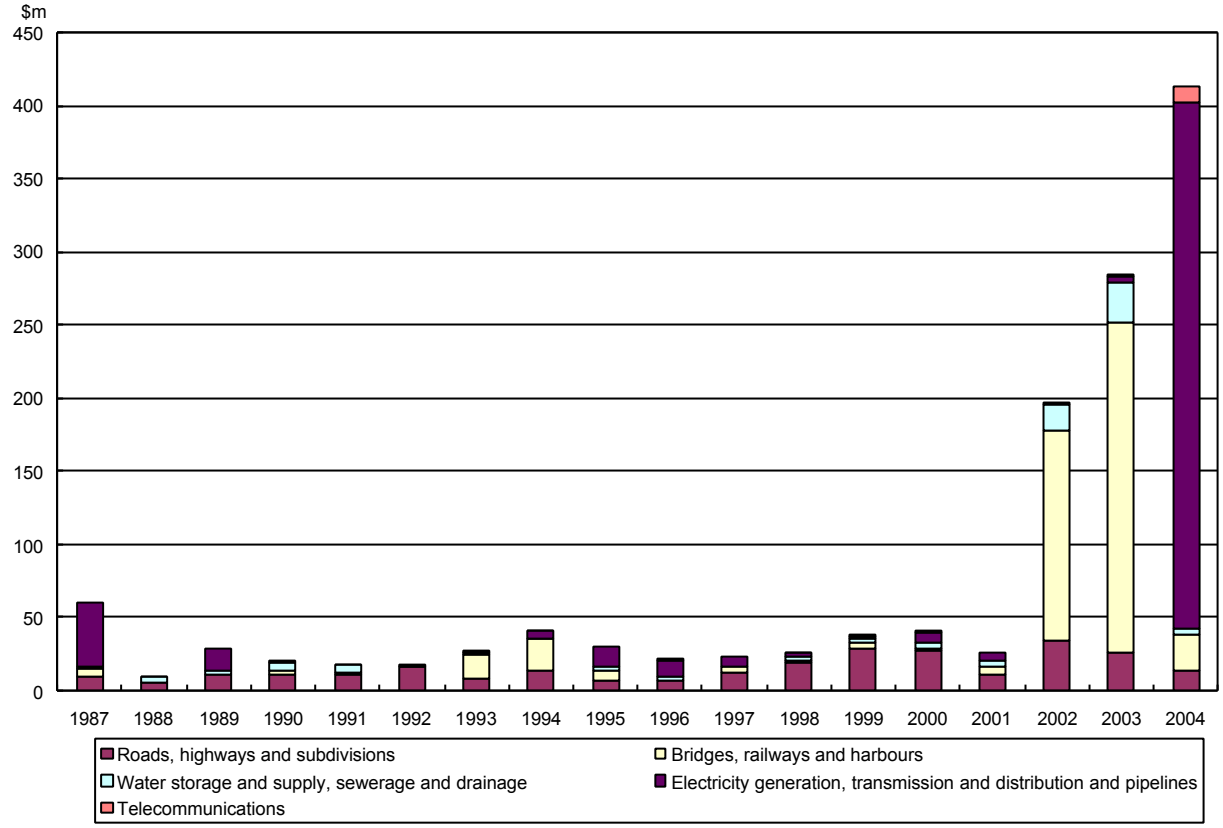


Figure 9.4 Public Economic Infrastructure Expenditure, Northern Territory (1990$)