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ACT Infrastructure Investment Update

2016

Engineers Australia ACT Infrastructure Investment Update 2016

Author: Mark Stewart

Engineers Australia
11 National Circuit, Barton ACT 2600
Tel: 02 6270 6555
Email: publicaffairs@engineersaustralia.org.au
www.engineersaustralia.org.au

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Infrastructure Investment Update 2016

Engineers Australia is the trusted voice of the engineering profession.

We are the global home for engineering professionals renowned as leaders in shaping a sustainable world.

Key points

The Australian Capital Territory (ACT) needs to keep an eye on current trends to ensure its infrastructure assets remain among the best in the country.

The pressure on ACT's infrastructure assets has increased over the last 25 years.

The economy has expanded by 85.5 per cent and the population has increased 35.5 per cent. At the same time, engineering construction on infrastructure has been particularly strong with an increase of 167.7 per cent.

Engineering construction on infrastructure assets has grown since the 2010 ACT Infrastructure Report Card.

Engineering construction on infrastructure in the years leading up to the Report Card was consistently between $300 and $450 million per annum. In 2009-10, engineering construction grew dramatically to $805 million, and in the three subsequent years the ACT recorded construction numbers of over $750 million. In 2014-15 construction on infrastructure assets dropped back slightly to $615 million.

Engineering construction on infrastructure assets has dropped in the last two years.

For the last five years, there has been average annual growth of 13.1 per cent per year. However, the majority of construction recorded was in 2010-11 and 2011-12, with numbers beginning to fall again in recent years. In the last two years, growth has fallen at an average of 8.5 per cent per year.

The 2010 ACT Infrastructure Report Card rated assets as good, with some minor changes required to enable infrastructure to be fit for its current and future purposes.

A large boost in construction on infrastructure followed in the next few years, signalling that improvements to infrastructure assets would maintain, or even better the 2010 rating. All asset components, except for bridges and railways, saw an increase in the year following the release of the report card. Although numbers have begun to slide again in recent years, they are still significantly better than the numbers recorded in the years leading up to 2010.

A large boost in construction on infrastructure followed in the next few years, signalling that improvements to infrastructure assets would maintain, or even better the 2010 rating.

The public sector needs to lead the way in new infrastructure development.

As the population in the ACT continues to rise, construction on infrastructure assets will be an important indicator of productivity growth in the region. In recent years, the private sector has been responsible for the majority of the engineering on construction assets, but it may be up to the public sector to continue to drive construction numbers up again to 2010-11 levels.

Engineers Australia believes that if the current engineering construction trends continue, the ACT may be at risk of having its infrastructure assets slip from a good rating, to just adequate, in the near future.

Introduction

Long term infrastructure planning and development is an enabler of productivity growth and this growth has, and will continue to be, responsible for much of the improvements in Australia's living standards, and this relationship is expected to continue into the future. Without productivity growth, Australian living standards will stagnate, and as the population ages, it is possible that our standard of living could fall.

Since the Global Financial Crisis, Australia's Gross Domestic Product (GDP) growth and growth in GDP per capita, have been at comparatively low levels and we've seen the nation's productivity growth fall below historical averages. At the same time, the ACT has consistently recorded GDP growth and GDP growth per person below the national average. To support and grow the territory's economy, and to meet its future economic and social goals, the ACT must have capable infrastructure assets.

The 2010 ACT Infrastructure Report Card (IRC) rated the infrastructure in the ACT as the highest in the country, with a 'good' rating, and stating that some minor changes were required to enable infrastructure to be fit for its current and anticipated future purposes. Funding must be found for new capital projects to replace or refurbish aging infrastructure assets to maintain an appropriate level for future needs. Most notably areas of key concern were:

- Increased road usage
- A lack of definition on the rationale of future rail
- Performance and improvement in wastewater and stormwater assets.

Five years on from that report and a number of infrastructure projects have been completed or are underway to directly address many of these issues. This includes the Majura parkway, the Ashley Drive duplication, the Gundaroo Drive duplication, and the Cotter Dam expansion. Currently, the biggest infrastructure project is the Canberra light rail project which has caught the attention of many living in the ACT and has been a hot topic of debate.

PUBLIC INVESTMENT NEEDS TO SET THE PACE

Private sector construction is usually biased towards infrastructure projects that are likely to service specific private service business activities. Much of the infrastructure construction completed by the private sector includes work which is in support of specific projects to suit the investing company, rather than the general population. For this reason, public sector infrastructure investment is a better gauge on progress.

If current growth trends are to be reversed, it will need to start with construction increases from the public sector.

The ACT does have an infrastructure plan which sets strategic infrastructure priorities for the ACT for 2011 to 20211[1]. This plan outlines the current state of infrastructure assets as well as the key drivers of demand in the ACT. The plan puts forward strategic infrastructure priorities in two, five and 10-year periods.

Engineers Australia acknowledges that this is a positive step towards long-term infrastructure planning, but is not yet convinced that the plan will be enough to lift the 2010 IRC rating for infrastructure assets.

While the plan is clear on its intentions to improve the city's infrastructure in a number of different areas, it only provides an overall indication of major works that support the delivery of this plan, rather than providing information about specific infrastructure projects. Engineers Australia accepts that it is unlikely that infrastructure will ever be perfect, but an emphasis on infrastructure policy that has a strong purpose towards productivity and economic growth will be key to the future prosperity of the ACT.

Political announcements often cheer the triumphs of the government's infrastructure achievements, but these announcements need to be matched with strong long term investment numbers. The investment necessary to produce positive growth outcomes for the territory requires a higher order of magnitude than has been allowed for in recent budgets and infrastructure announcements.

1 ACT Government, Chief Minister, Treasury and Economic Development Directorate, Infrastructure, www.cmd.act.gov.au

The state of infrastructure in the ACT

OUR APPROACH AND RESEARCH DATA

This report puts contemporary developments in the ACT into perspective by looking at Australian Bureau of Statistics (ABS) data on engineering construction[2]. These statistics provide reliable and objective measures for:

- On-the-ground progress of infrastructure projects
- How much engineering construction has been completed
- What remains in the system
- What new work has commenced.

This report also analyses trends in infrastructure construction in the ACT, and evaluates the current situation of the territory's infrastructure for the different areas of engineering construction.

These statistics relate to additions to the current stock of infrastructure through work completed on new infrastructure assets. The period examined in this report is from June 1990 to June 2015.

Although these statistics are not the most ideal for a comprehensive analysis, they are the best available. For almost a decade, Engineers Australia has advocated for governments to publish comprehensive statistics on the nation's infrastructure to inform community discussions and to provide the basis for new infrastructure decisions.

Historically, governments primarily developed Australia's infrastructure with nearly all work undertaken by public sector agencies. Gradually, more and more work was contracted to private sector businesses for implementation. Over time the situation has changed and there has been increasing private sector involvement in the development, ownership and delivery of infrastructure services through new financial arrangements. Some governments have chosen to privatise certain infrastructure assets along with the ongoing responsibility for new investment in these infrastructure assets. This means that it is no longer sufficient to look at only public sector engineering construction.

Historically, governments primarily developed Australia's infrastructure with nearly all work undertaken by public sector agencies. Gradually, more and more work was contracted to private sector businesses for implementation.

Unfortunately, ABS statistics do not delineate between cities in each state and territory, so this report will analyse the ACT as a whole. In this report we use Infrastructure Australia's definition of economic infrastructure. This includes roads, bridges, railways, harbours, the electricity sector, the water and sewerage sector, and telecommunications assets. Changes in engineering construction in heavy industry, recreation facilities, and other uncategorised activities are also analysed briefly, but separate from economic infrastructure. The asset classes are examined for trends in public and private sector, and all statistics have been deflated and expressed in constant 2012-13 prices.

2 ABS, Engineering Construction, Australia, Cat No 8762.0, electronic releases, www.abs.gov.au

ACT: the territory in context

The ACT population is expecting strong growth over the next 15 years. Based on medium level predictions from the ABS, the ACT population is forecast to reach 520,000 by 2031, which is 41 per cent higher than 2011 levels[3]. This population growth rate is expected to be higher than the national average. The ACT economy is also expected to grow over the next 15 years, although slightly slower than the expected national rate.

Table 1 shows how the ACT average annual growth has fared compared with Australia as a whole. The time periods examined are long term, 10-years, five-years and one-year averages. The ACT has consistently rated just slightly below the national average in all three categories, excluding the population growth in 2014-15. In the last 25 years, the ACT's real GDP grew from $19 billion to $35 billion which is an increase of 85.5 per cent. At the same time the ACT population grew from 289,320 people to 391,980 people at an increase of 35.5 per cent. During this time the standard of living for ACT residents grew from $65,942 per person to $89,975 per person, increasing 36.4 per cent, which is one of the highest recorded in Australia.

The long-term GDP growth recorded of 2.6 per cent is slightly below the national average of 3.2 per cent. Looking at the short-term average, this number is even lower at 2.0 per cent compared to the national growth of 2.7 per cent. For the ACT, the recent GDP growth figures are highly influenced by the higher population growth numbers. In the last five years the population growth is at 1.7 per cent, which is higher than the 25-year average, and the same as the national average. Although the ACT boasts one of the highest GDPs per person, its growth in recent years has slowed. For the last five years GDP growth per person is at 0.4 per cent, which is below the national average of 1.1 per cent. In 2015 the ACT made up 2.2 per cent of the national GDP, while only making up 1.6 per cent of the national population.

The ACT economy is also expected to grow over the next 15 years, although slightly slower than the expected national rate.

TABLE 1: BENCHMARK STATISTICS

Period	ACT average annual growth (per cent) in			Australia average annual growth (per cent) in		
	GDP	GDP per person	Population	GDP	GDP per person	Population
1990-91 to 2014-15	2.6	1.3	1.3	3.2	1.9	1.3
2005-06 to 2014-15	2.5	0.9	1.7	2.8	1.1	1.7
2010-11 to 2014-15	2.0	0.4	1.6	2.7	1.1	1.6
2014-15	1.4	0.3	1.7	2.4	1.0	1.4

3 Infrastructure Australia, Infrastructure Australia Audit, May 2015, www.infrastructureaustralia.gov.au

Engineers Australia's Principles for Infrastructure Development

Engineers Australia is committed to the view that infrastructure is the essential enabler of Australian productivity growth, vital to preserve Australia's current standard of living.

To be effective infrastructure must be fit for purpose, and the flow of infrastructure services needs to move ahead of population growth and economic growth. It should also use the best available technology to manage existing infrastructure assets and to develop new ones.

Any new infrastructure development should encompass the following principles:

- *Infrastructure must be managed to advance socio-economic goals, not political ones.*
- *Infrastructure planning without land use planning is not sensible.*
- *Infrastructure planning is not optional – it is an integral role of government.*
- *The private sector is a key player, which means infrastructure is not the exclusive preserve of governments.*
- *Infrastructure must be managed sustainably and over its full expected life.*
- *Infrastructure governance must be rigorous and removed from political agenda.*
- *ICT enabled infrastructure delivers more value for money, especially in coordinated systems.*
- *Short-term acquisition practices should be discarded in favour of whole of life considerations.*

Trends in engineering construction

The construction figures in Figure 1 primarily fall within Engineers Australia's definition of infrastructure and can be further broken down into the subcategories detailed in Table 2, including roads, bridges, electricity, water and telecommunications. The blue line below represents engineering construction completed by the private sector. The gap from the blue line to the red line represents engineering construction completed by the public sector. As demonstrated below, the public sector has been a major contributor to engineering construction, with the private sector increasing its contribution since the early 2000s.

In 1990-91, the public sector undertook the majority of engineering construction with $188 million in work completed, compared to $56 million by the private sector. Since then the private sector has become more prominent in construction, and in 2014-15 the private sector completed $376 million in engineering construction compared to $289 million completed by the public sector.

The peak of public sector engineering construction work completed was in 2010-11 when $557 million in work was completed. For the private sector, the peak was more recently in 2013-14 when $543 million in work was completed.

Detailed statistics for public sector engineering construction on the various types of infrastructure assets are shown in Table 2, with the biggest construction years being 2010-11 and 2011-12. Table 2 also breaks down the construction completed for the infrastructure sectors. Looking at Table 2 it is clear that the only sectors that have

FIGURE 1: CUMULATIVE PRIVATE AND PUBLIC SECTOR ENGINEERING CONSTRUCTION, ACT, 1990-91 TO 2014-15

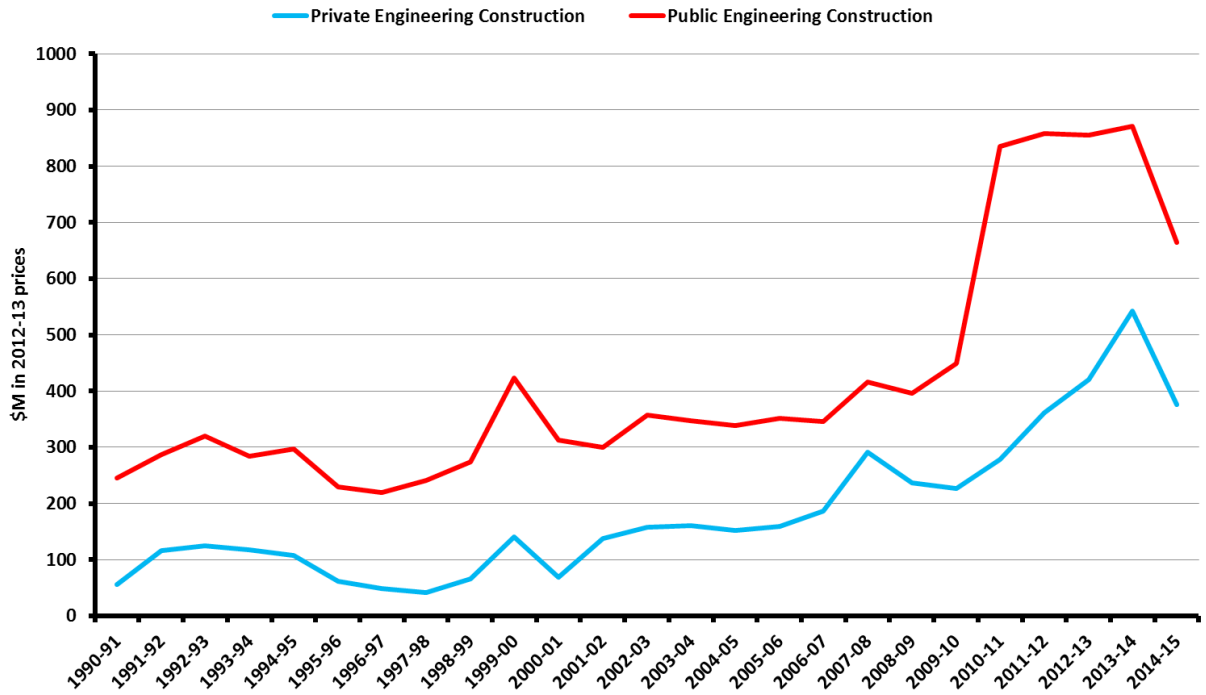


TABLE 2: PUBLIC SECTOR ENGINEERING CONSTRUCTION ON INFRASTRUCTURE, 1990-91 TO 2014-15, $M 2012-13 PRICES

Period	Roads	Bridges, Railways & Harbours	Electricity & Pipelines	Water & Sewerage	Telecommunications	Total Infrastructure
1990-91	53.9	1.5	24.6	31.7	66.3	178.0
1991-92	56.1	9.0	31.9	13.5	52.1	162.6
1992-93	64.9	0.7	43.9	21.4	57.2	188.1
1993-94	51.1	0.0	43.3	26.0	42.6	162.9
1994-95	44.6	1.6	33.7	46.4	57.8	184.1
1995-96	46.3	0.1	22.5	21.1	69.2	159.2
1996-97	35.2	0.0	24.7	20.1	83.3	163.4
1997-98	40.9	0.0	24.9	22.6	94.0	182.4
1998-99	36.4	0.0	21.2	34.9	110.3	202.7
1999-00	45.6	0.0	26.5	48.2	111.3	231.7
2000-01	50.3	1.1	17.4	11.9	126.0	206.8
2001-02	47.2	2.9	0.0	20.6	79.2	149.9
2002-03	72.1	3.3	0.8	29.5	67.6	173.3
2003-04	66.5	0.5	0.1	64.3	51.5	182.9
2004-05	63.3	2.0	0.2	61.2	58.9	185.6
2005-06	62.6	17.0	1.7	25.3	76.4	183.0
2006-07	69.0	29.6	0.3	26.8	30.8	156.5
2007-08	32.0	26.1	0.0	61.4	3.1	122.5
2008-09	34.7	8.3	0.0	105.2	0.8	149.0
2009-10	19.1	0.1	0.0	200.3	1.2	220.7
2010-11	209.4	0.1	0.0	334.7	0.3	544.4
2011-12	158.6	0.1	0.0	326.1	0.1	484.9
2012-13	190.1	1.2	19.1	184.7	20.2	415.3
2013-14	195.2	9.4	10.1	76.4	13.8	304.9
2014-15	187.5	17.0	2.8	44.8	22.1	274.2

TABLE 3: PRIVATE SECTOR ENGINEERING CONSTRUCTION ON INFRASTRUCTURE, 1990-91 TO 2014-15, $M 2012-13 PRICES

Period	Roads	Bridges, railways & harbours	Electricity & pipelines	Water & sewerage	Telecommunications	Total infrastructure
1990-91	50.5	0.0	0.1	1.3	0.0	51.9
1991-92	106.2	0.0	0.1	0.4	0.0	106.7
1992-93	97.7	0.0	0.4	2.0	19.0	119.2
1993-94	88.5	0.0	4.7	4.2	4.7	102.1
1994-95	77.9	0.0	2.8	0.7	0.1	81.4
1995-96	38.0	0.1	6.3	0.6	0.0	44.9
1996-97	35.8	0.0	2.4	0.8	0.0	39.0
1997-98	24.4	0.0	4.0	1.9	0.1	30.5
1998-99	38.5	0.0	0.1	0.4	0.0	38.9
1999-00	49.7	0.0	40.3	2.5	0.7	93.2
2000-01	28.9	0.0	5.6	1.9	10.5	46.9
2001-02	69.9	0.0	21.0	3.1	4.2	98.2
2002-03	32.4	0.0	60.2	2.3	7.0	101.9
2003-04	54.1	0.0	40.9	4.8	36.9	136.7
2004-05	23.6	0.1	52.8	4.2	48.1	128.8
2005-06	11.8	0.1	48.7	8.3	68.0	137.0
2006-07	21.9	0.1	46.0	5.1	93.3	166.5
2007-08	55.3	0.2	75.2	41.3	71.1	243.0
2008-09	55.0	0.1	69.0	4.8	71.9	200.9
2009-10	11.3	0.5	92.7	9.2	89.4	203.2
2010-11	38.8	0.0	123.9	13.7	84.6	261.1
2011-12	66.0	0.1	109.5	40.4	102.2	318.1
2012-13	95.8	0.0	133.5	14.9	87.0	331.2
2013-14	58.5	7.2	246.3	21.2	126.7	460.0
2014-15	73.3	1.5	130.7	7.1	128.4	341.2

recorded strong increases in constant terms are roads, and bridges, railways and harbours.

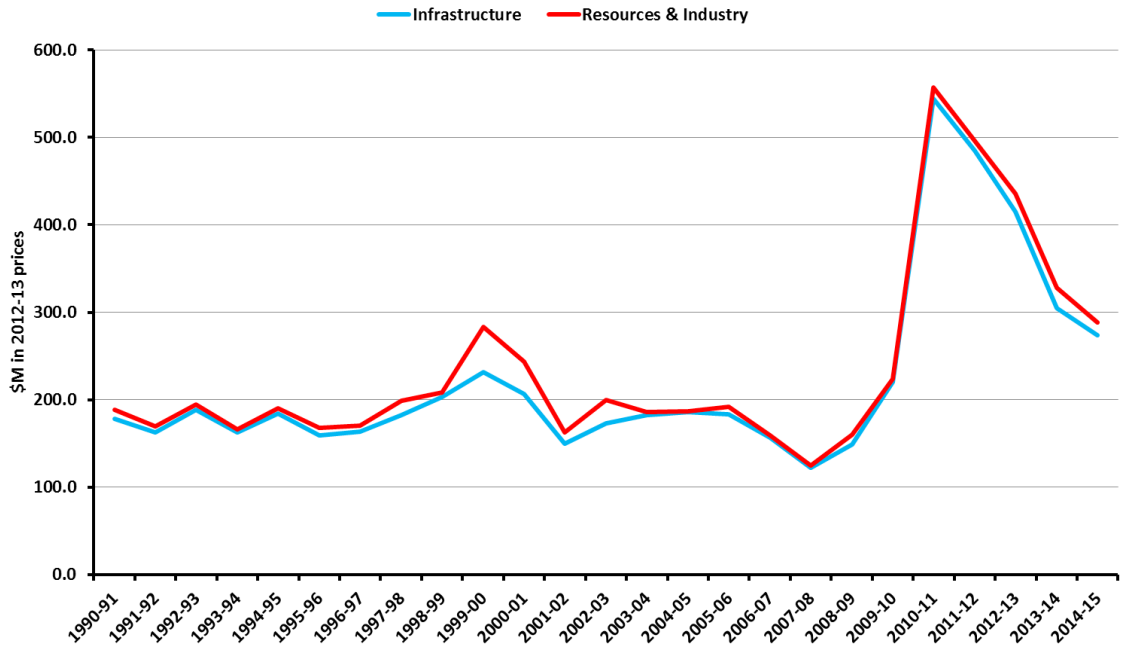
Table 3 demonstrates the detailed statistics for private sector engineering construction on the various types of infrastructure assets. Although the engineering construction on total infrastructure has improved, this has been mainly due to large increases in the electricity and pipelines sector, as well as the telecommunications sector.

Figure 2 demonstrates the differences between engineering construction on infrastructure, and engineering construction on recreation, heavy industry, and other engineering construction.

Public sector engineering construction is primarily on infrastructure. Most of the gap that is shown between the infrastructure and total engineering construction trends is accounted for by engineering construction on recreational facilities.

Figure 3 demonstrates private sector construction on infrastructure compared to construction on engineering construction on non-infrastructure assets. The primary difference between Figure 2 and Figure 3 is the more pronounced gap between the trends featured for the private sector, especially in the more recent years. It should be noted that private engineering construction on infrastructure facilities are specifically needed to support the private sector interests, and do not necessarily provide wider infrastructure benefits to the general public.

FIGURE 2: TRENDS IN THE MAIN COMPONENTS OF PUBLIC SECTOR ENGINEERING CONSTRUCTION, ACT, 1990-91 TO 2014-15



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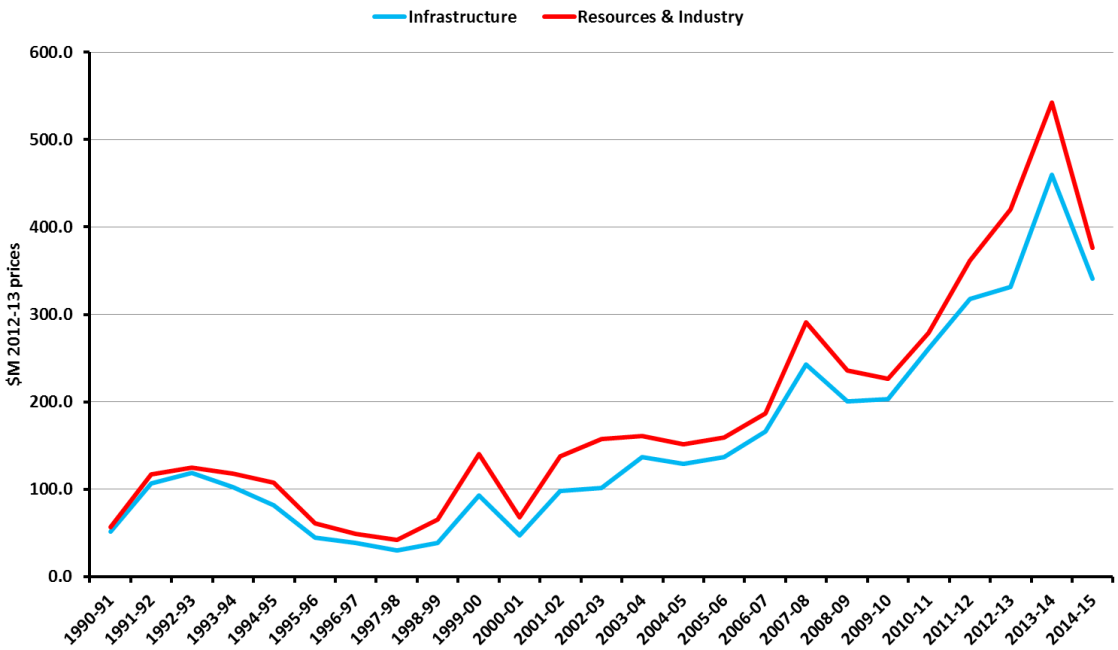


Asset growth rates

It is important to understand how specific asset classes are growing over these time periods.

We will break down the assets described in Tables 1 and 2 and review them individually over the same time periods shown. Growth rates are summarised below in Tables 4 and 5.

As demonstrated in Table 4, in recent years there has been strong growth in bridges, railways and harbours, electricity and pipelines, and telecommunications. Although the roads sector has seen strong growth in both the private and public sectors in the last five years, this has dropped dramatically in the most recent year. Table 5 shows that although there has been growth for non-infrastructure assets in the last five years, the most recent year is recording large negative growth.

It must be noted that the degree of variability recorded for some of these infrastructure assets shown in Tables 4 and 5 is quite large in some cases, and that can be attributed in part to the smaller size of the ACT economy. One big project in the territory can greatly influence the growth rate recorded. The degree of variability in a small economy can also have flow on effects to the workforce, which is affected by boom bust cycles, which can result in skills shortages.

TABLE 4: SUMMARY OF AVERAGE ANNUAL GROWTH RATES, INFRASTRUCTURE COMPONENTS, QUEENSLAND, PRIVATE & PUBLIC SECTORS

Period	Roads	Bridges etc	Electricity & Pipes	Water & Sewerage	Telecommunications	Infrastructure
Private Sector						
1990-91 to 2014-15	6.6	54.5	50.5	17.6	75.3	10.6
2005-06 to 2014-15	-1.8	74.9	36.3	24.6	39.0	9.0
2010-11 to 2014-15	-18.0	171.2	19.1	24.7	8.0	0.5
2014-15	-18.2	-20.9	-69.8	-4.4	-12.4	-39.5
Public Sector						
1990-91 to 2014-15	5.5	12.2	6.5	10.7	32.7	3.8
2005-06 to 2014-15	8.8	12.1	2.6	16.4	74.9	3.1
2010-11 to 2014-15	-4.8	-3.9	-2.1	-12.4	56.6	-7.2
2014-15	-28.3	63.0	-0.3	-39.7	25.8	-15.2
Both Sectors Combined						
1990-91 to 2014-15	5.0	11.8	8.9	10.1	3.4	5.1
2005-06 to 2014-15	4.1	9.6	7.5	16.7	3.2	4.7
2010-11 to 2014-15	-10.0	-0.9	3.1	-5.0	12.3	-4.8
2014-15	-25.7	12.5	-42.3	-28.1	-5.8	-26.6

TABLE 5: SUMMARY OF AVERAGE ANNUAL PERCENTAGE GROWTH RATES, MAIN COMPONENTS, ENGINEERING CONSTRUCTION

Period	Infrastructure	Recreation	Heavy industry	Non-engineering Total	Total
Private sector					
1990-91 to 2014-15	16.1	1133.1	30.9	28.9	15.7
2005-06 to 2014-15	12.5	154.4	27.0	23.0	12.3
2010-11 to 2014-15	13.5	198.8	33.3	32.8	13.5
2013-14 to 2014-15	6.5	403.1	-33.3	-32.5	-0.8
Public sector					
1990-91 to 2014-15	5.6	2226.0	97.8	97.7	5.9
2005-06 to 2014-15	11.7	5370.3	155.2	155.1	12.1
2010-11 to 2014-15	16.9	10740.6	78.1	77.9	17.9
2013-14 to 2014-15	-18.3	-50.0	-9.0	-10.7	-18.3
Both sectors combined					
1990-91 to 2014-15	6.1	1076.3	22.8	20.3	6.4
2005-06 to 2014-15	9.8	127.4	24.5	21.6	9.8
2010-11 to 2014-15	13.1	138.9	28.4	28.5	13.3
2013-14 to 2014-15	-8.5	23.0	-28.5	-28.1	-10.9

The degree of variability in a small economy can also have flow on effects to the workforce, which is affected by boom bust cycles, which can result in skills shortages.

Roads

The 2010 ACT Infrastructure Report Card appears to have been a catalyst for big spending on roads in the ACT.

Figure 4 expresses the trends in private and public sector engineering construction on roads, highways and subdivisions in constant 2012-13 prices and covers:

- Parking areas
- Cycle paths
- Airport runways
- Pedestrian and vehicle overpasses
- Traffic lights
- Roundabouts
- Associated road drainage works
- Street and highway lighting
- Road resurfacing
- Kerbing and guttering
- Road tunnels.

In 1990-91, total construction on roads was $104.3 million, which grew to $260.8 million in 2014-15. Since the 2010 ACT Infrastructure Report Card, a huge spike can be seen in roads construction.

PUBLIC INVESTMENT

Public sector construction on roads has grown from $53.9 million in 1990-91 to $187.5 million in 2014-15. The biggest change has appeared in the last five years where $19.1 million of construction was completed in 2009-10, followed by $209.4 million completed in 2010-11,which is the huge spike demonstrated in Figure 4. The spike seen in 2010-11 is likely attributed to the Gungahlin Drive extension project which cost an estimated $200 million[4]. Since then a number of roads projects have been developed and are ongoing (eg. the Majura Parkway project), which has kept the number high. A number of new road projects are planned for the next few years including the Gundaroo Drive duplication and the Ashley Drive duplication. In the last year alone, public sector construction on roads accounted for 65 per cent of total public sector construction.

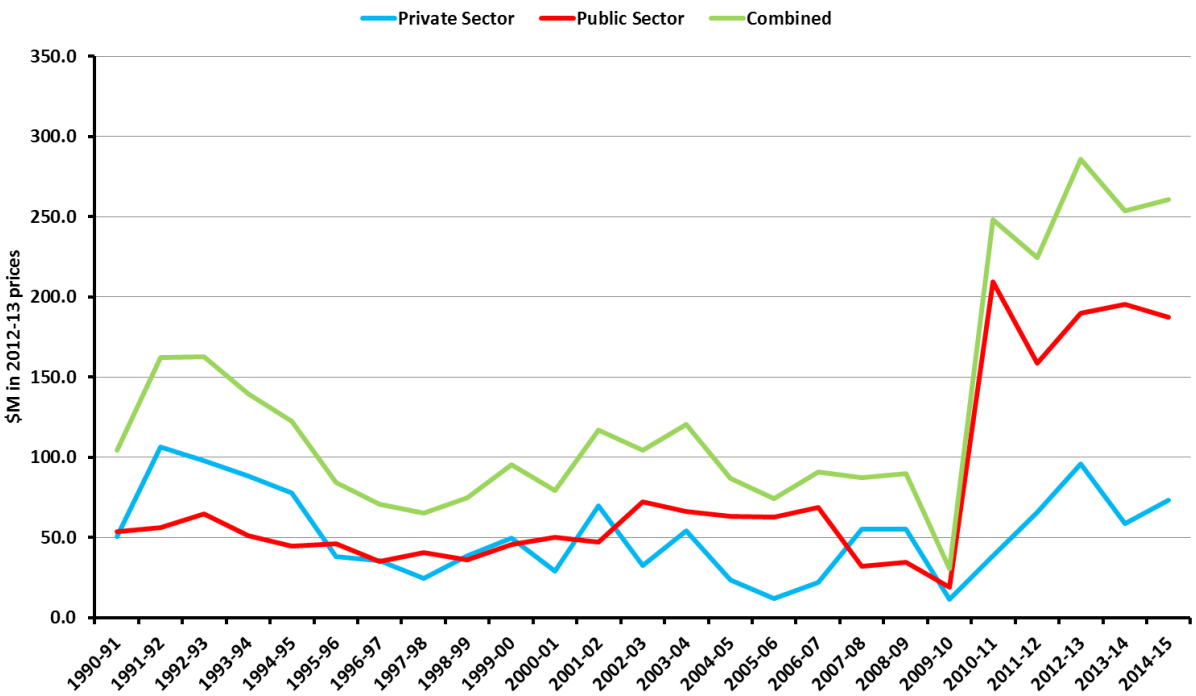
PRIVATE INVESTMENT

Private sector construction on roads has been inconsistent over the past 25 years, with construction numbers falling and rising throughout this time period. The two biggest peaks in roads infrastructure occurred in 1991-92 and in 2012-13 with $106 million and $96 million recorded respectively. In 1991-92 at its peak, roads made up 91 per cent of total private sector construction.

In the last year alone, public sector construction on roads accounted for 65 per cent of total public sector construction.

4 The Canberra Times. 2011. GDE ... Great Drive, Eventually. http://www.canberratimes.com.au/act-news/gde--great-drive-eventually-20111007-1v772.html.

FIGURE 4: TRENDS IN PRIVATE AND PUBLIC SECTOR ENGINEERING CONSTRUCTION ON ROADS IN THE ACT, 1990-91 TO 2014-15



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Bridges, Railways and Harbours

Figure 5 represents the following types of engineering infrastructure, expressed in in constant 2012-13 prices:

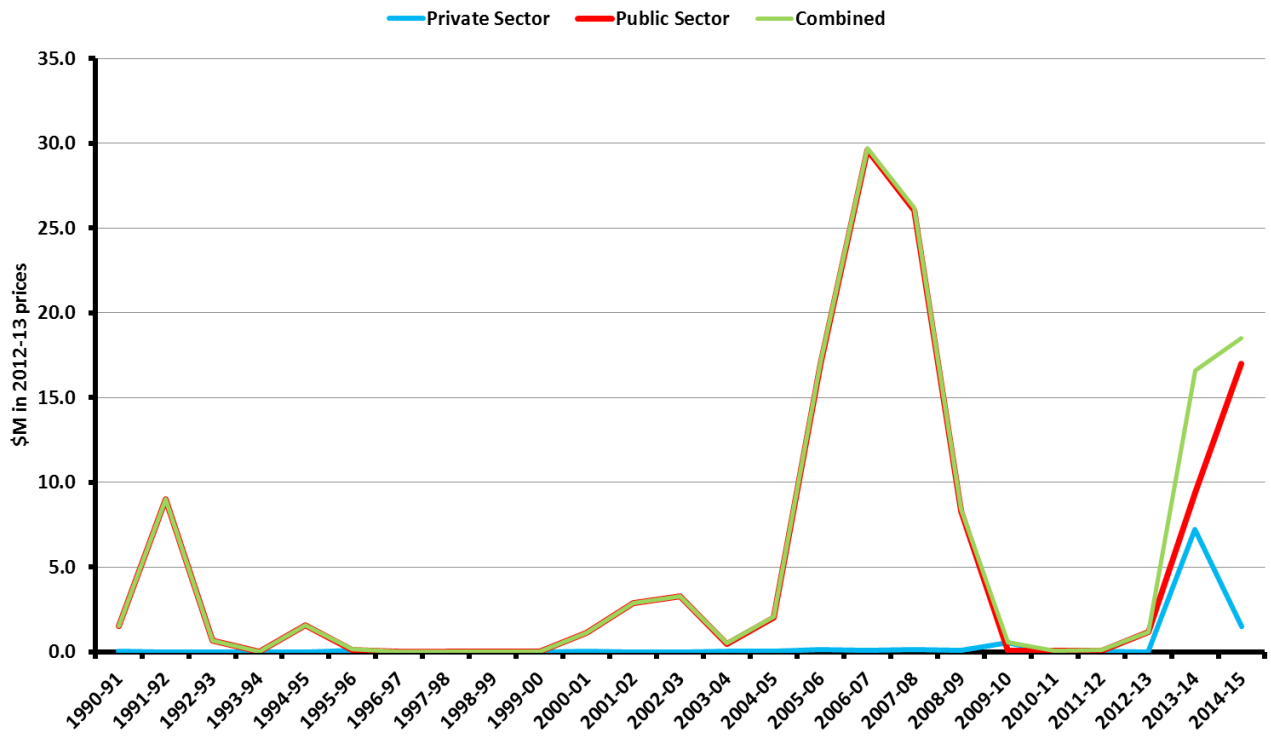
Bridges that support roads, railways, causeways and elevated highways

Railways: tracklaying, overhead power lines and signals, platforms, tramways, tunnels for underground railways and fuel hoppers

Harbours: boat and yacht basins, breakwaters, retaining walls, docks and piers, terminals, wharves, dredging works and marinas.

There were long periods with low construction, accompanied with a few periods of engineering construction booms.

FIGURE 5: TRENDS IN PRIVATE AND PUBLIC SECTOR ENGINEERING CONSTRUCTION ON BRIDGES, RAILWAYS AND HARBOURS IN THE ACT, 1990-91 TO 2014-15



The total spend on engineering construction on bridges, railways and harbours has been inconsistent, starting with $1.5 million in 1990-91 through to $18.5 million in 2014-15. Over this time period, there were long periods with low construction, accompanied with a few periods of engineering construction booms.

There are no harbours in Canberra, and construction on railways during this time period would be minor.

PUBLIC INVESTMENT

Public sector engineering construction on bridges, railways and harbours has been inconsistent over the past 25 years. In 1990-91 construction on these assets was $1.5 million, which remained at low levels until a large spike of $29.6 million in 2006-07 as a number of bridges needed to be built as part of the Glenloch Interchange upgrade and the Gungahlin Drive extension. Construction fell away again before rising to $17 million in 2014-15. The most recent rise is most likely attributed to the building of the Molonglo River Bridge component of the Majura Parkway project, which itself is a $288 million project started in 2013[5]. At its peak in 2006-07, construction on these assets accounted for 19 per cent of total public sector engineering construction.

PRIVATE INVESTMENT

Private sector construction on these assets has remained extremely low for the vast majority of the last 25 years. Only in the last two years has construction passed the $1 million mark, with the peak being 2013-14 at $7.2 million. Even at its peak, construction on these assets only accounted for 1 per cent of total private sector engineering construction.

The most recent rise is most likely attributed to the building of the Molonglo River Bridge component of the Majura Parkway project, which itself is a $288 million project started in 2013.

5 ACT Government, Territory and Municipal Services, Majura Parkway, **www.tams.act.gov.au**

Electricity Generation and Transmission and Pipelines

The private sector carries the weight in this asset class, particularly since 1999.

Figure 6 shows trends in private and public sector engineering construction in constant 2012-13 prices and includes:

Electricity facilities:

- Power stations
- Substations
- Hydro-electric generating plants
- Associated work for towers
- Chimneys
- Transmission and distribution lines.

Pipelines:

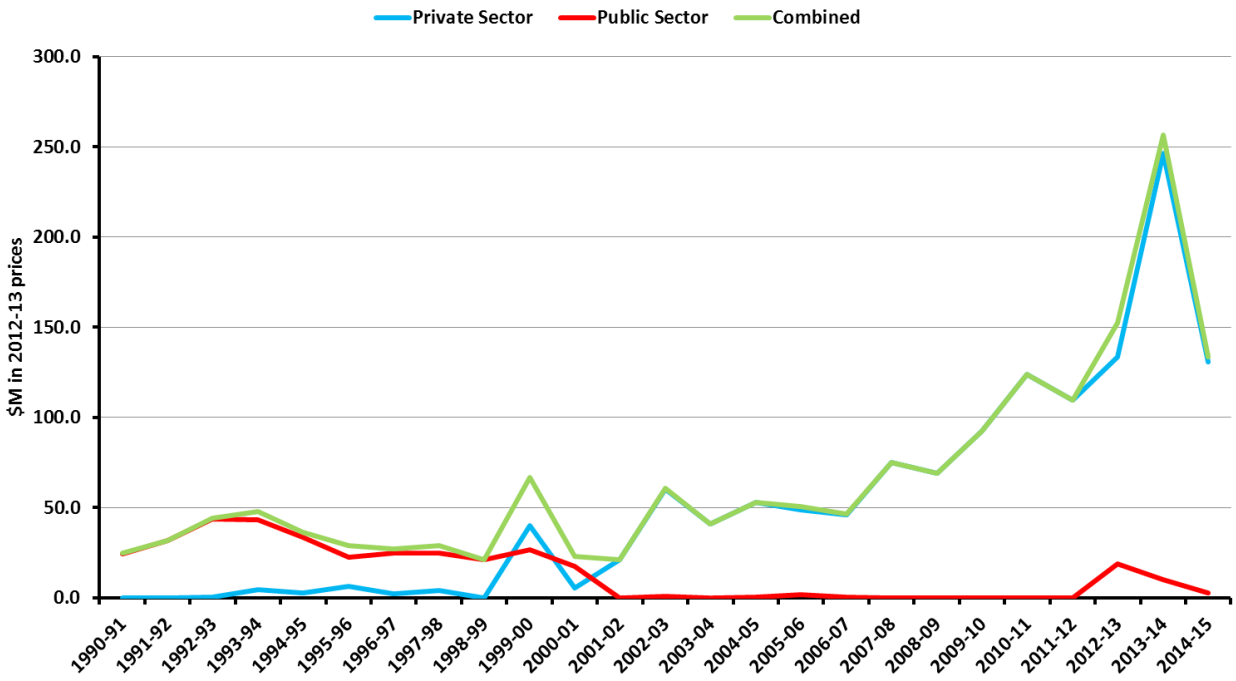
- Oil and gas pipelines
- Urban supply mains for gas
- Pipelines for refined petroleum products, chemicals and foodstuffs.

In 1990-91, total engineering construction spent on electricity and pipelines was $24.7 million, growing to $133.5 million in 2014-15.

The 2010 ACT Infrastructure Report Card recognised that leading up to 2010, there had been improvements in the security and supply of these assets. Since 2010, construction on electricity generation and distribution and pipeline assets has continued to improve, peaking in 2013-14.

Since 2010, construction on electricity generation and distribution and pipeline assets has continued to improve, peaking in 2013-14.

FIGURE 6: TRENDS IN PRIVATE AND PUBLIC SECTOR ENGINEERING CONSTRUCTION ON ELECTRICITY GENERATION AND DISTRIBUTION AND PIPELINES IN THE ACT, 1990-91 TO 2014-15



PUBLIC INVESTMENT

Public sector construction on electricity generation and distribution and pipelines has fallen over the last 25 years. Throughout the 1990s the public sector recorded strong numbers for these assets, before falling away to small numbers during the 2000s. At its peak in 1992-93, public sector construction on these assets accounted for 23 per cent of total public sector engineering construction.

PRIVATE INVESTMENT

The private sector has recorded opposite trends to the public sector, and is the main proponent of construction on these assets. During the 1990s it didn't really record any significant numbers for these assets, before growing in the 2000s, and peaking in 2013-14 at $246 million. This is most likely attributed to maintenance work, and additional pipeline work by the local electricity and gas supplier, as well as the development of solar farms to the south of Canberra. At this time private sector construction on these assets accounted for 45 per cent of total private sector engineering construction.

Much of the electricity construction spike related to upgrading of electricity transmission facilities.

Water, sewerage and drainage facilities

This asset class received a sudden injection of funds driven by the need to upgrade resources following drought.

Figure 7 shows trends in water storage and supply, sewerage and drainage construction over the last 25 years at 2012-13 constant prices. This infrastructure includes:

Water storage and supply

- Dams, weirs, reservoirs
- Embankments for water diversion
- Water pipelines, mains and treatment plants
- Prevention and erosion
- Aqueducts and water conduits
- Systems conveying water to residences, commercial and industrial establishments.

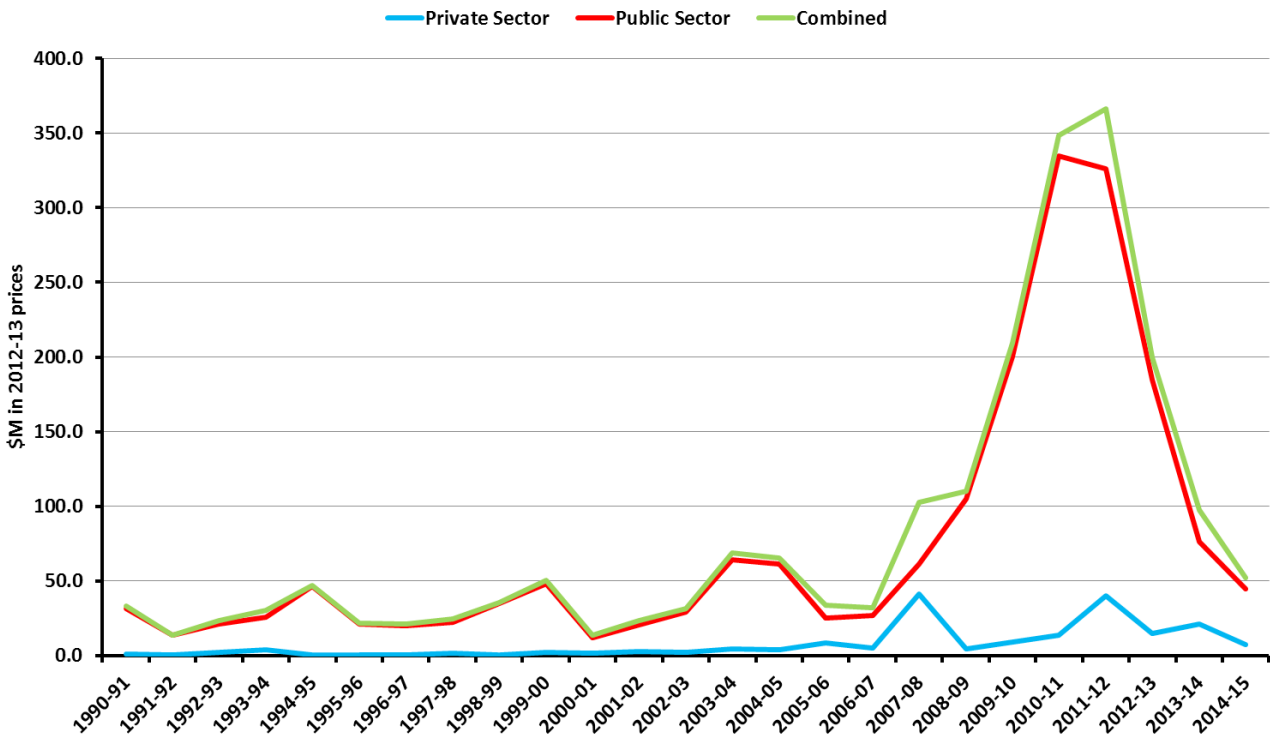
Sewerage and drainage

- Sanitary and storm sewers
- Sewerage treatment plants
- Storm water drains and drainage systems.

In 1990-91, total engineering construction on water and sewerage was $33 million which grew to $366 million in 2011-12, before falling back to $52 million in 2014-15.

The 2010 ACT Infrastructure Report Card noted that drought in the ACT for the early part of the century had accelerated the need to upgrade management of water resources. Since that report card, the final stages of the Cotter Dam enlargement have been completed.

FIGURE 7: TRENDS IN PRIVATE AND PUBLIC SECTOR ENGINEERING CONSTRUCTION ON WATER, SEWERAGE AND DRAINAGE FACILITIES IN THE ACT, 1990-91 TO 2014-15



PUBLIC INVESTMENT

Public sector construction on these assets was moderate through the majority of the last 25 years, growing strongly in 2007-08 and peaking in 2010-11 at $334.7 million. The huge spike seen between 2008 and 2013 is the Cotter Dam enlargement project completed in 2013, with the total cost of the project reaching $410.5 million[6]. During this time public sector construction on these assets accounted for 60 per cent of total engineering construction.

PRIVATE INVESTMENT

Private sector construction on these assets has been relatively minimal in comparison to the public sector. As demonstrated in Figure 7 there are two small spikes in 2007-08 and 2011-12, both just slightly over $40 million.

The 2010 ACT Infrastructure Report Card noted that drought in the ACT for the early part of the century had accelerated the need to upgrade management of water resources.

6 Phillip Thomson, The Canberra Times. 2015. $50 million cost blowout of Cotter Dam expansion. http://www.canberratimes.com.au/act-news/50- million-cost-blowout-of-cotter-dam-expansion-20150624-ghwbt5.html#ixzz3xq1RuABU

Telecommunications

Over the past 25 years, the balance of public and private sector telecommunications infrastructure investment has changed, largely due to the privatisation of Telstra. The rollout of the National Broadband Network (NBN) has led to a more recent uplift in public sector engineering construction.

The telecommunications engineering construction covered by Figure 8 (at 2012-13 constant prices) includes:

- Mobile phone, radio, television, microwave and radar transmission towers
- Telephone lines
- Underground cables and coaxial cables.

In 1990-91, total engineering construction on telecommunications was $66.3 million, growing to $150.6 million in 2014-15.

The federal Government's privatisation of Telstra, 31 per cent of which was in 2006[7], explains the significant changes in private and public sector construction outlined below.

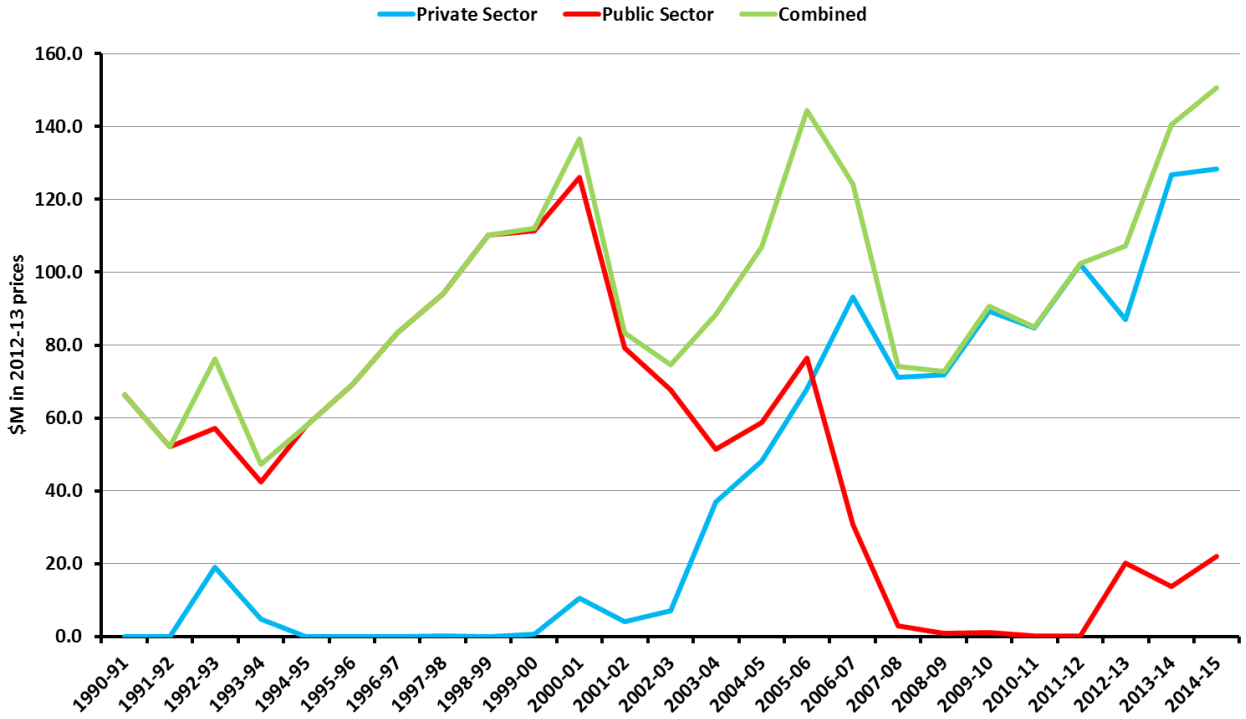
PUBLIC INVESTMENT

Public sector construction on these assets was strong throughout the 1990s and early 2000s, before dropping dramatically in 2005-06. The small rise seen in 2012-13 is most likely attributed to the rollout of the NBN.

PRIVATE INVESTMENT

Private sector construction on these assets was the opposite of what was seen in the public sector. The private sector was recording low numbers in the 1990s and began to rise strongly in the early 2000s, continuing to rise up until 2014-15, reaching $128.4 million in 2014-15. At this time, construction on these assets by the private sector accounted for 34 per cent of total engineering construction.

FIGURE 8: TRENDS IN PRIVATE AND PUBLIC SECTOR ENGINEERING CONSTRUCTION ON TELECOMMUNICATIONS, IN THE ACT, 1990-91 TO 2014-15



7 Telstra, The Telstra Story, www.telstra.com.au

Non-infrastructure elements of engineering construction

There are some elements of engineering construction that fall outside our definition of infrastructure. It is debatable whether recreational facilities should be included in infrastructure or not, but as these areas contribute to economic growth we believe it is worth discussing these construction trends.

RESOURCES AND HEAVY INDUSTRY

The ACT does not have any significant heavy industries, which keeps the spend minimal.

Figure 9 shows trends in public and private sector engineering construction in heavy industry in the last 25 years, in 2012-13 constant prices. This includes:

- Construction and production of oil, gas, coal, bauxite, alumina (and other materials)
- Storage and distribution facilities
- Refineries, pumping stations and mines
- Chemical plants
- Blast furnaces
- Steel mills and other industrial processing plants and ovens.

As demonstrated in Figure 9 total engineering construction on heavy industry is extremely low.

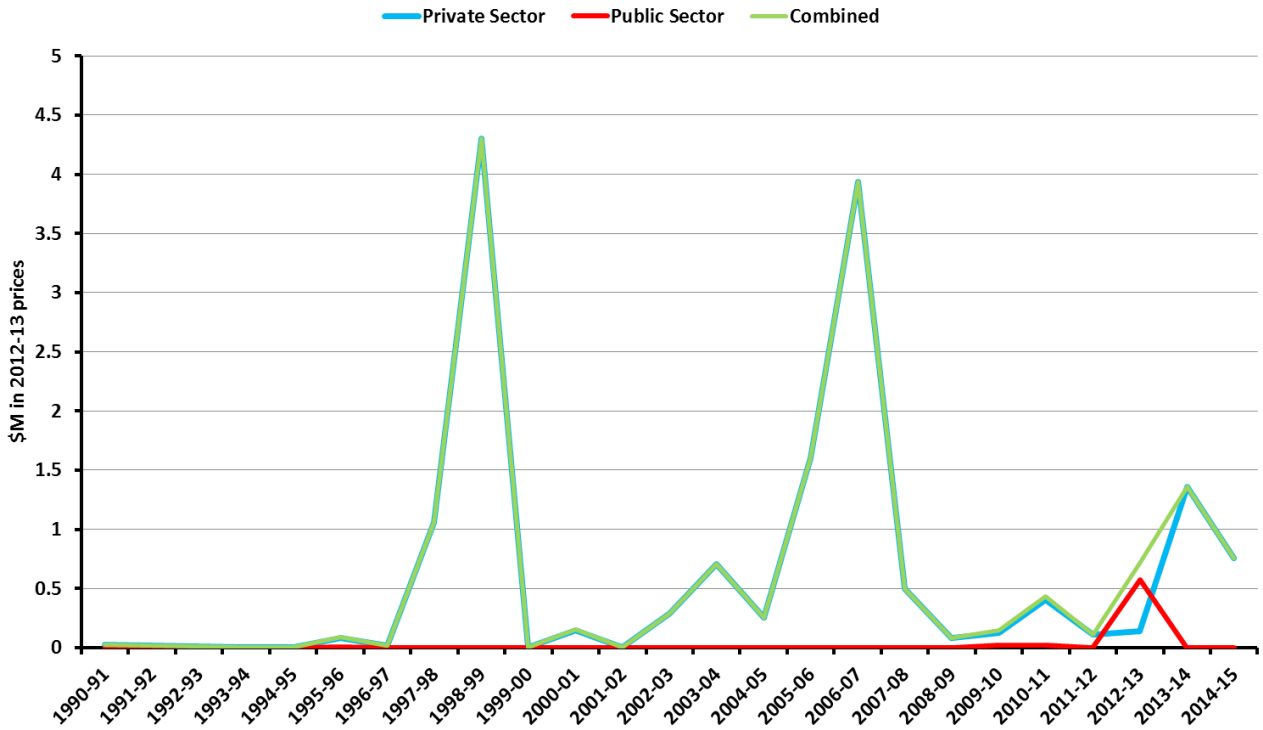
PUBLIC INVESTMENT

2012-13 was the only year that recorded any substantial number for the public sector with $0.6 million.

PRIVATE INVESTMENT

There are two spikes that can be seen in Figure 9 which were $4.3 million recorded in 1998-99 and $3.9 million recorded in 2006-07.

FIGURE 9: TRENDS IN PRIVATE AND PUBLIC SECTOR ENGINEERING CONSTRUCTION ON RESOURCES AND HEAVY INDUSTRY IN THE ACT, 1990-91 TO 2014-15



Recreation facilities

This class of engineering construction includes:

- Golf courses
- Playing fields and stadiums
- Racecourses
- Swimming pools
- Landscaping and park construction.

Total engineering construction on recreation facilities saw three spikes over the past 25 years of $98 million in 1999-00, $81 million in 2002-03, and an extended spike of $109.3 and $104.6 million in 2012-13 and 2013-14 respectively.

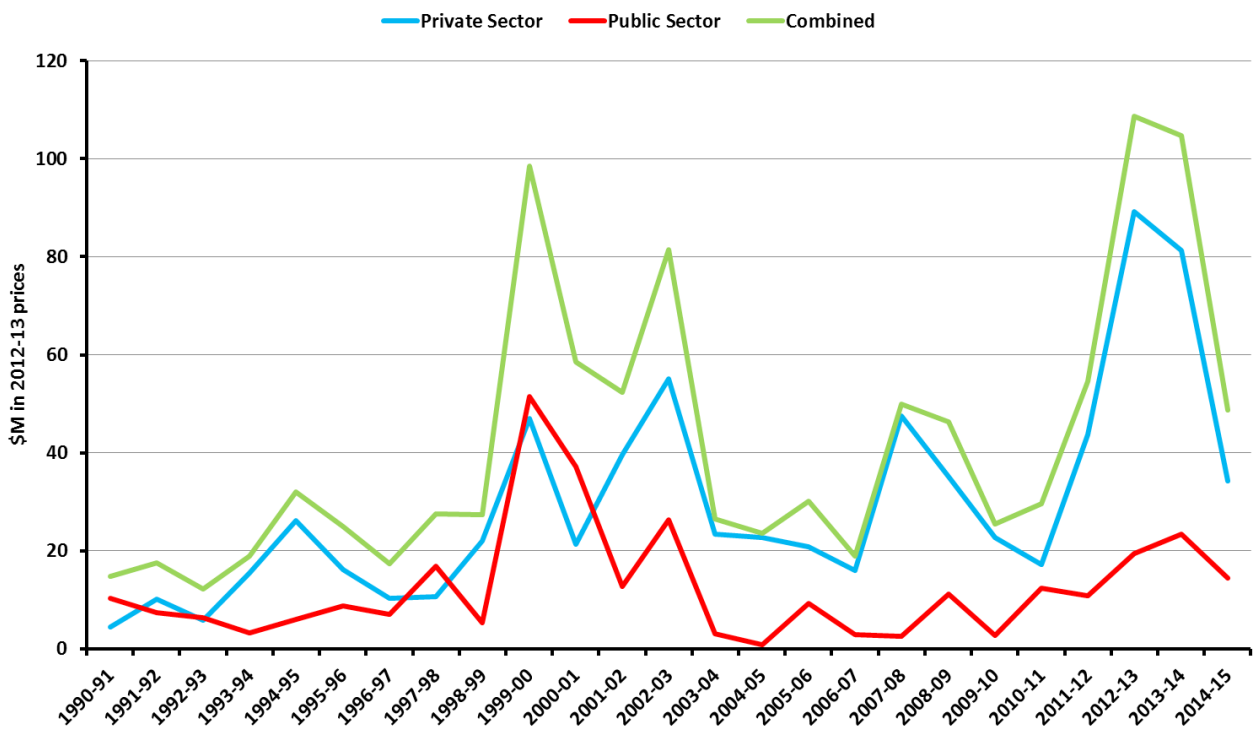
PUBLIC INVESTMENT

Public sector construction on these assets has been inconsistent over the last 25 years, with the largest period recorded between 1999-00 and 2002-03. At its peak in 1999-00 the public sector recorded $51.4 million on recreation facilities.

PRIVATE INVESTMENT

The private sector has been more prominent in construction on these assets since 2000-01. There have been a few years with large numbers recorded more recently. At its peak in 2012-13, public sector construction was responsible for $89.2 million in construction on these assets, and this accounted for 21 per cent of total engineering construction by the private sector.

FIGURE 10: TRENDS IN PRIVATE AND PUBLIC SECTOR ENGINEERING CONSTRUCTION ON RECREATIONAL FACILITIES IN THE ACT, 1990-91 TO 2014-15



Looking forward

Having reviewed infrastructure and engineering construction in the ACT over the last 25 years, we now need to look towards the future. By their nature these are long running projects with lengthy periods of planning and design, negotiation, approval, financing and then the build process itself. The data discussed so far only details engineering construction completed, so what is now in the pipeline?

NEW PROJECTS

We are using statistics which provide insight into how much construction work is still in the system as work not yet completed, and other infrastructure projects that have just commenced.

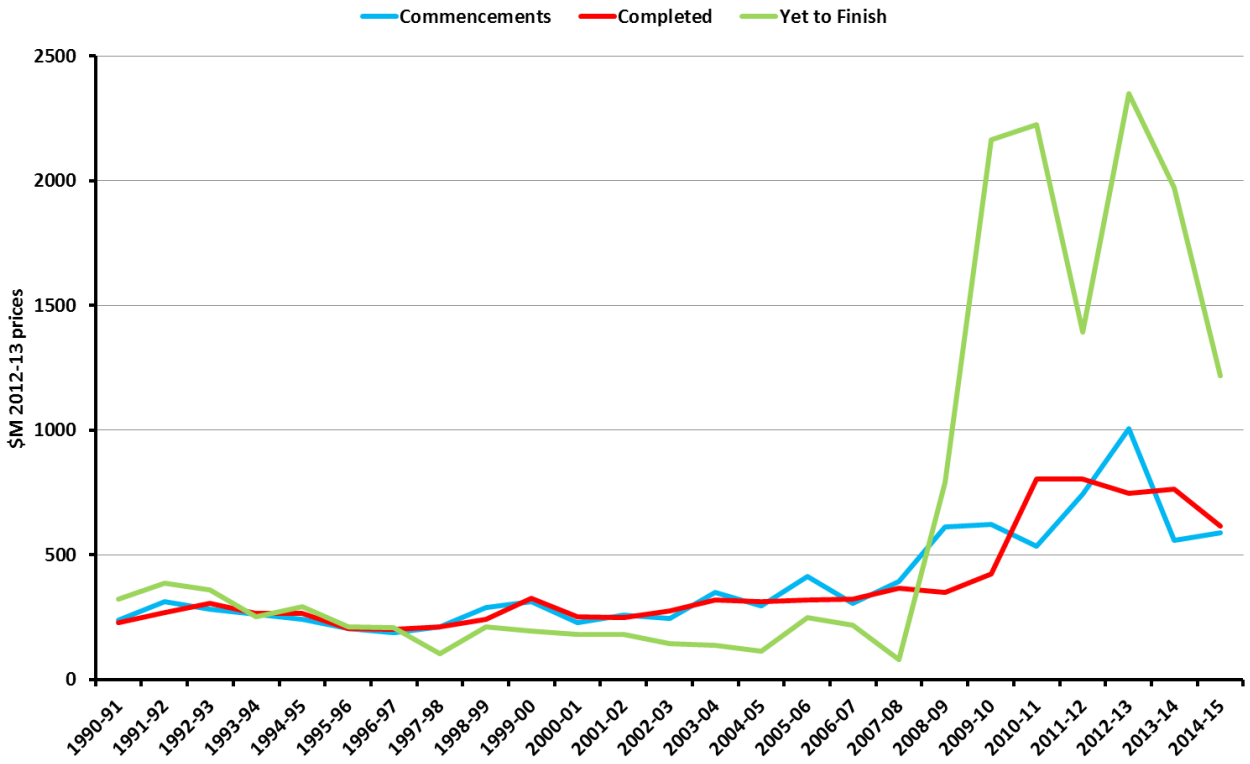
We cannot be certain all these projects will eventually reach completion, which is worth noting for subsequent reports because uncompleted work will not necessarily convert into completion statistics.

This only gap in our approach relates to projects that are still in the planning phase and have not yet commenced.

Figure 11 shows trends for infrastructure projects in the ACT, comparing projects that have commenced, that are yet to be completed, and that have been completed. Consistent with Figure 1, completed work has been more prominent in the last five years when compared to the long-term trends. Commencements closely follow the trend seen in work completed statistics, with higher numbers recorded in the last five years.

The green line represents work which is still in the system and is yet to be completed - note this may

FIGURE 11: THE INFRASTRUCTURE PIPELINE IN THE ACT, PUBLIC AND PRIVATE SECTORS



include cost variations during construction. Looking at Figure 11 there is a large amount of work yet to be completed. As of 30 June 2015 there was $1.2 billion in infrastructure which was yet to be finished. This compares to $615 million in work which was completed in 2014-15.

At the present rate of infrastructure completion there is sufficient work outstanding for the next two years. Although this seems like an ample amount of work, the work yet to be completed has fallen 48 per cent since 2012-13, while the work being completed has fallen by only 18 per cent in the same time period, indicating more work in the system is being completed at a faster rate.

Figures 12 and 13 divide the ACT infrastructure pipeline into public and private sector components. Figure 12 for the public sector shows a large overhang of work yet to be completed.

Figure 13 shows the work that is yet to be completed by the private sector has fallen dramatically in the last few years from a peak in 2012-13, and this is now much further below the numbers recorded for completions and commencements. For the public sector at the current rate of completion, there is 4.1 years of work in the system, while there is only 0.3 years of work for the private sector.

Looking at the 2014-15 trend directions for the components of infrastructure construction in Table 6, we can see the last 12 months has been relatively positive in the ACT with a number of components, and overall infrastructure recording increases. However for work yet to finish and

FIGURE 12: THE PUBLIC SECTOR INFRASTRUCTURE PIPELINE, ACT

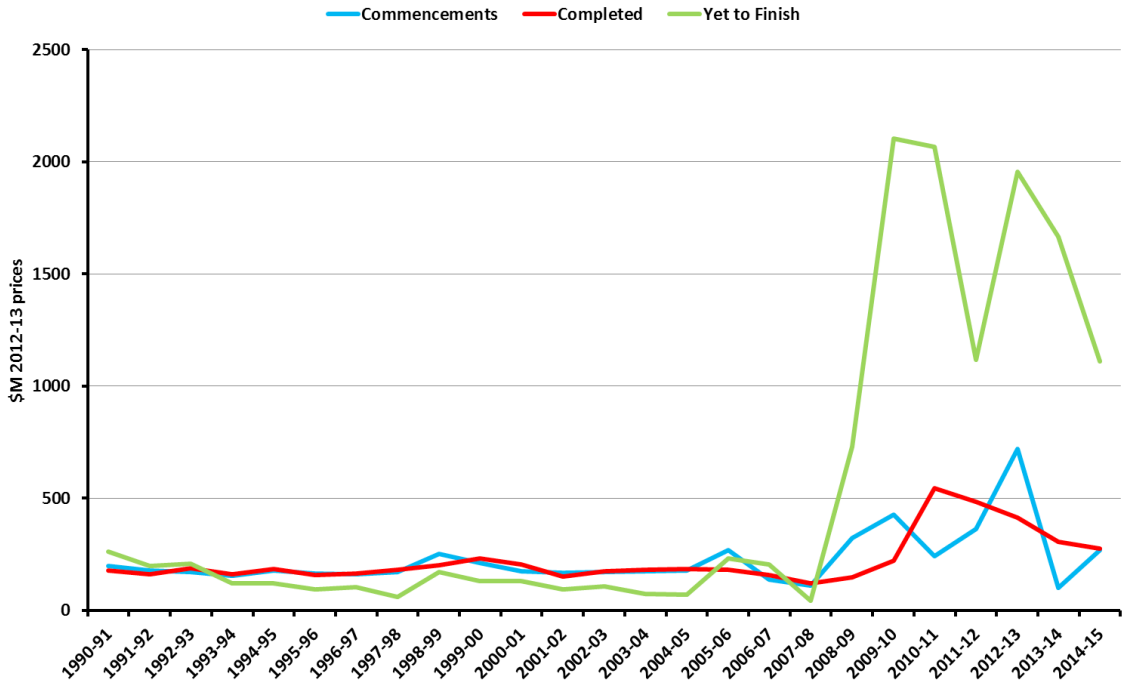


FIGURE 13: THE PRIVATE SECTOR INFRASTRUCTURE PIPELINE, ACT

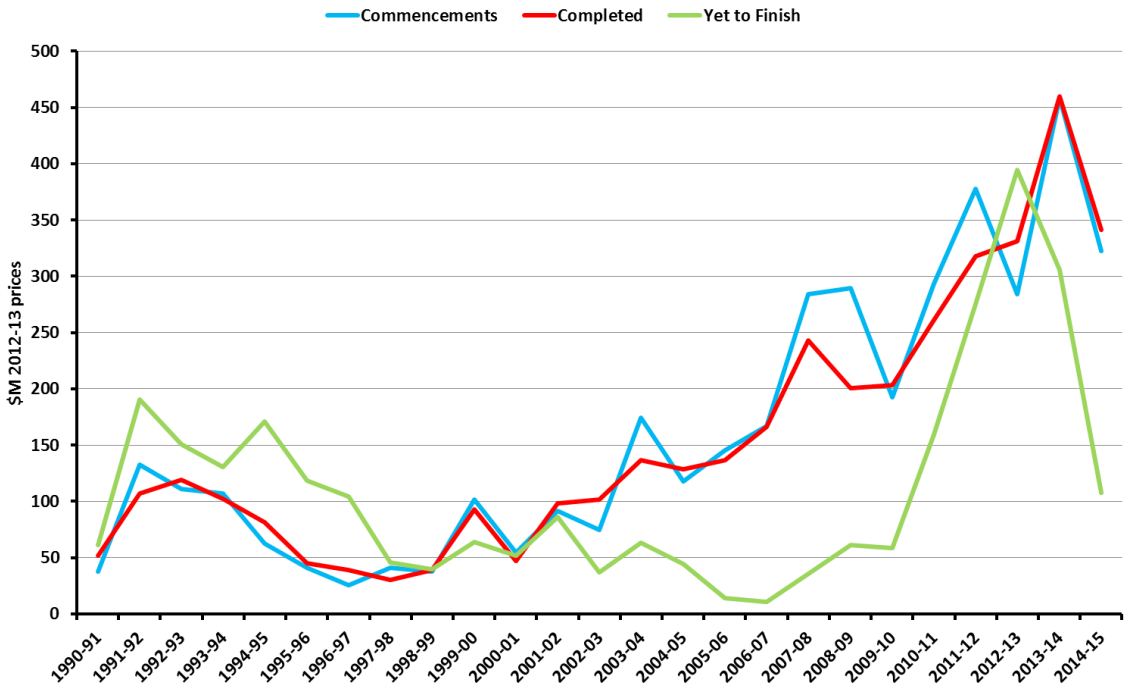
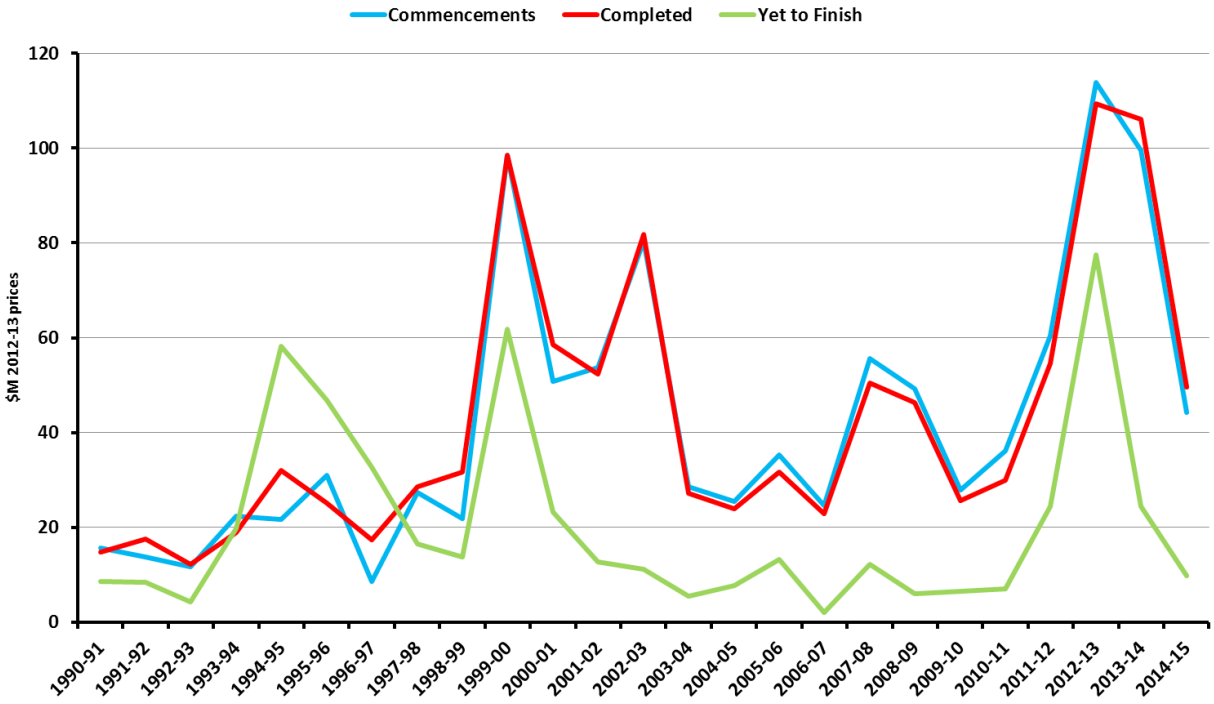


FIGURE 14: THE PIPELINE OF NON-INFRASTRUCTURE ENGINEERING CONSTRUCTION IN THE ACT, PUBLIC AND PRIVATE SECTORS



completions, the numbers are not as promising with only a few components recording increases, and infrastructure overall recording falls in both categories. This is most noticeable in the work yet to be done which has been falling dramatically in the last 12 months as seen in Figure 11. The falls seen in completions would have been worse if it were not for the Roads and Telecommunications sectors which recorded increases. The infrastructure construction completions have been falling since the large rise recorded in 2010-11.

Figure 14 shows the trends in non-infrastructure components of engineering construction, principally the resource and heavy industry sectors and recreation facilities. Figure 14 shows that growth in this area over the last decade has been fairly inconsistent, with a few spikes in work in 1999-00 and 2012-13. In 2014-15 there was $49.5 million worth of construction on non-infrastructure assets completed in the ACT. As of June 2015 there was only $9.7 million of work yet to be completed. At the current rate that non-infrastructure engineering construction is being completed, there is only 0.2 years of work still in the system.

The last 12 months has been relatively positive in the ACT with a number of components, and overall infrastructure recording increases.

TABLE 6: OVERVIEW OF CHANGES, INFRASTRUCTURE COMPONENTS, ACT PIPELINE

Component	Commencements	Completed	Yet to Finish
Roads	↑	↑	↓
Bridges etc	↑	↑	↑
Electricity etc	↓	↓	↓
Water & Sewerage	↓	↓	↓
Telecommunications	↑	↑	↓
Infrastructure	↑	↓	↓

Conclusion

Over the last 25 years, expansions in the ACT economy and population have put pressure on the territory's infrastructure. Since 1990-91, the population in the ACT has increased by 35.5 per cent and the size of the territory's economy has increased by 85.5 per cent. At the same time, combined annual public and private sector engineering construction on infrastructure has increased by 167.7 per cent. When non-engineering infrastructure components are included, that percentage increases to 171.8 per cent.

Following the release of the 2010 Engineers Australia Infrastructure Report Card, engineering construction on infrastructure in the ACT increased significantly for a few years before dropping back again. In 2009-10 engineering construction on infrastructure was $423.9 million. In the following year it jumped dramatically to $805 million, and remained high for the next few years. Although this number has since dropped back to $615.3 million in 2014-15, it is still higher than the numbers recorded before the Report Card.

The 2010 Report Card rated the territory's infrastructure assets as good, with some minor changes required to enable infrastructure to be fit for its current and future purposes. A large boost in construction on infrastructure in the following years signalled the ACT government's intention to improve and maintain its infrastructure assets. All asset components—except for bridges, railways and telecommunications—saw an increase in the following year. Although construction numbers have begun to slide again in recent years, they are still a notable improvement on the years leading up to 2010.

As the population in the ACT continues to rise, construction on infrastructure assets will be an important indicator of productivity growth in the region. In recent years, the private sector has been responsible for the majority of the engineering construction on infrastructure assets but, if the ACT is to reach 2010-11 construction levels again, it looks increasingly likely that the public sector will need to drive this construction growth. There are a number of ongoing construction projects in the ACT, including the Canberra light rail project, which would give the local construction numbers a significant spike. However the light rail project continues to be a topic of rigorous public debate.

Engineers Australia believes that an infrastructure plan must discuss, in a detailed and transparent manner, a prioritised list of projects incorporating a number of different infrastructure components. A plan must translate into real action, with a view to enable productivity growth.

The ACT currently has an infrastructure plan for 2011 to 2021, however, Engineers Australia believes that there is not enough specific detail, which makes it difficult to assess potential future trends in engineering construction. It is important that the public sector develops a plan with a transparent pipeline of future infrastructure projects to boost productivity growth and provide stability to the local workforce.

As the population in the ACT continues to rise, construction on infrastructure assets will be an important indicator of productivity growth in the region.

Over the last two years, the ACT has recorded falling trends in engineering construction on infrastructure assets, indicating that there are not enough projects in the short term. Engineers Australia believes that if these current engineering construction trends continue, the ACT may be at risk of having its infrastructure assets slip from a good state, to just adequate in the near future.

If the ACT is to improve and maintain current standards of living, accounting for the expected population and economic pressures of the future, increased spending on infrastructure assets will be essential.

The public sector needs to lead the way through infrastructure investment to promote productivity growth, and improve the standard of living for ACT residents.

Contact us

Public Affairs
Engineers Australia
11 National Circuit, Barton ACT 2600
(02) 6270 6555
publicaffairs@engineersaustralia.org.au

ENGINEERS AUSTRALIA

engineersaustralia.org.au

twitter.com/engaustralia | @EngAustralia

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