

Delfin Lend Lease

# Economic impacts of the proposed Calderwood Urban Development Project

**Final Report**

February 2010

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Comments and queries can be directed to:

Scott Lennon  
Partner  
PricewaterhouseCoopers  
201 Sussex Street  
Sydney NSW 2000  
Phone: (02) 8266 2765  
Email: [scott.lennon@au.pwc.com](mailto:scott.lennon@au.pwc.com)

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## Summary Letter

Mr Bill Mitchell  
Project Director, Calderwood Valley  
Delfin Lend Lease  
Locked Bag 1  
MILLERS POINT NSW 2000

03 February 2010

### Calderwood Valley Economic Impact Update

Dear Bill,

#### Introduction

This letter summarises the preliminary results of the updated Economic Impact Analysis (EIA) of the Calderwood Urban Development Project (CUDP). The quantitative EIA estimates the level of economic activity that a project generates and assesses the contribution of a project to local employment and the size and structure of the economy in which the project is proposed.

The detail underpinning the analysis is contained in a full report accompanying this letter. In summary, the key outcomes of the EIA are that:

- the project will inject (directly) an estimated \$2.9 billion into the local economy during the construction period in the form of payments to goods and service providers;
- 'leakages' or losses of these payment and jobs will be minimised by preferring the use of local construction inputs and labour where possible;
- direct construction expenditures and expenditures by incoming residents will create an additional PV\$6.3 billion in net value for the Shellharbour Local Government Area (LGA) economy over the project period. Any cost to government should be viewed in the context of the size of the economic impacts and public benefits;
- the local construction sector will enjoy a large proportion of the additional value created during the initial phases, while the services and retailing sectors become the main beneficiaries as residents move in;
- the Project will assist in maintaining existing employment positions, particularly in the construction sector, and create an additional 7,925 full time equivalent (FTE) positions, with around 5,260 of these located in the Shellharbour LGA. This yields a high job containment ratio of over 60% for the development;
- DLL's pro-active employment initiatives will further contribute to the employment of Shellharbour residents;
- the significant market entry level housing component would help reduce housing stress and encourage economic activity by attracting and retaining a

skilled and younger labour force and increasing disposable incomes of residents; and

- the increase in housing mix and affordability would generate a range of benefits to residents including but not limited to better access to employment, training and educational resources, while the community would also benefit through impacts such as improved local amenity.

## Background

This EIA has been prepared to accompany a Concept Plan Application under Part 3A of the Environmental Planning & Assessment Act, 1979 (EP&A Act) and a proposal for State significant site listing under Schedule 3 of State Environmental Planning Policy Major Development 2005 (SEPP Major Development) in relation to the Calderwood Urban Development Project.

The CUDP is a master planned community development by Delfin Lend Lease (DLL). The CUDP site is located within the Calderwood Valley in the Illawarra Region. It is approximately 700 hectares in area with approximately 107 hectares of land in the Wollongong Local Government Area (LGA) and the balance located within the Shellharbour LGA.

The Calderwood Valley is bounded to the north by Marshall Mount Creek (which forms the boundary between the Shellharbour and Wollongong Local Government Areas (LGAs)), to the east by the Macquarie Rivulet, to the south by Johnson's Spur and to the west by the Illawarra Escarpment. Beyond Johnson's Spur to the south is the adjoining Macquarie Rivulet Valley within the suburb of North Macquarie. The Calderwood Urban Development Project land extends south from the Calderwood Valley to the Illawarra Highway.

In April 2008 the Minister for Planning issued terms of reference for the preparation of a Justification Report (JR) to address the implications of initiating the rezoning of Calderwood for urban development including associated staging, timing and infrastructure considerations.

In February 2009 the Minister for Planning considered a Preliminary Assessment Report for the Calderwood Urban Development Project that provided justification for the planning, assessment and delivery of the project to occur under Part 3A of the EP&A Act, having regard to the demonstrated contribution that the project will have to achieving State and regional planning objectives.

Subsequently, on the 16 April 2009, pursuant to Clause 6 of SEPP Major Development, the Minister for Planning formed the opinion that the Calderwood Urban Development Project constitutes a Major Project to be assessed and determined under Part 3A of the EP&A Act, and also authorised the submission of a Concept Plan for the site. In doing so, the Minister also formed the opinion that a State significant site (SSS) study be undertaken to determine whether to list the site as a State Significant site in Schedule 3 of SEPP Major Development.

The Part 3A process under the EP&A Act allows for the Calderwood Urban Development Project to be planned, assessed and delivered in an holistic manner, with a uniform set of planning provisions and determination by a single consent authority. Given the scale of the proposal, the Concept Plan and SSS listing provide the opportunity to identify and resolve key issues such as land use and urban form, development staging, infrastructure delivery and environmental management in an integrated and timely manner.

This EIA has been prepared to partially fulfil the Environmental Assessment Requirements issued by the Director General for the inclusion of the Calderwood site as a State Significant Site under SEPP Major Development, and for a Concept Plan approval for the development.

### Methodology

A summary of the approach adopted in this study is shown below in **Table S 1**.

**Table S 1: Summary approach to the study**

Task	Description
<b>Define the socio-economic and demographic context of the development</b>	Before the potential economic impacts of the development can be estimated, it is necessary to first develop a socio-economic profile of the region. Such a profile can be used to highlight the key areas of the local economy which will benefit most from the implementation of the development. Some of the key variables relevant to the development include population growth, housing availability and affordability, and the level of unemployment in the local economy.
<b>Describe the project</b>	Describes the main aspects of the CUDP in terms of construction activity of the infrastructure, subdivision, dwellings, the village centre, town centre and employment initiatives.
<b>Estimate the quantitative economic impacts</b>	In the development of this EIA, PwC appointed consultants National Economics to develop input-output modelling to quantify the economic impacts of the CUDP (comprising the proposed DLL development of approximately 4,800 dwellings plus the balance of approximately 3,000 dwellings). Those outputs are then interpreted with regards to the economic aspects of the socio-economic profile of the region.

NSW Treasury Guidelines identifies EIA as an accepted method for quantifying the direct and indirect economic impacts at a local and regional level<sup>1</sup>. The direct expenditure on goods and services by the Proponent and incoming residents comprise payments to industries which supply these goods and services. These payments in turn generate demand and employment in other sectors through the 'multiplier' effect.

Economic multipliers are estimated from 'Input-Output' models which describe and quantify the relationship between various sectors of an economy. These multipliers are then applied to expenditures by the developer and residents to estimate the conventional economic impacts described in **Table S 2**.

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<sup>1</sup> NSW Treasury 1997, *Guidelines for Economic Appraisal*, NSW Treasury, Sydney, p.6.

**Table S 2: Economic impacts**

Economic impact	Description
<b>Gross Output</b>	Measures the value of goods and services sourced directly by the Proponent to deliver the project and the value of the goods and services directly consumed by incoming residents. The measure relates to goods and services sourced from the Shellharbour economy.
<b>Value added</b>	Gross output less the cost incurred by goods and service providers in supplying the Proponent and incoming residents.
<b>Employment</b>	Measures the additional number of households that gain employment as a result of the increased economic activity generated due to the Project.

PwC engaged National Economics to implement the Input-Output model for the Shellharbour LGA. The key assumptions used are as follows:

- total project expenditure (for the Calderwood release area) was \$2.9 billion (rounded);
- the market for the housing products will primarily come from within the Region; and
- Calderwood residential population will reach approximately 21,000 persons by the end of the 20-25 year project period (across the entire release area).

### The socio-economic setting

The significance of the economic effects and impacts of the development are determined by the current socio-economic profile of the Shellharbour LGA. The current setting is characterised as follows:

- Shellharbour is a rapidly expanding area, with population growth of 2.0% in the seven years since 2001, higher than the state average of 1.3% over the same period. Strong growth is anticipated, at least over the next decade, with potential population forecasts between 75,000 – 82,000 by 2031;
- the median weekly household income within Shellharbour is 5.0% lower than the corresponding state figure, with a relatively large proportion of Shellharbour residents on low incomes.
- there is relatively high unemployment rate (7.3%, based on 2006 Census data) in the region and a subsequently higher than average number of people on income support. Youth unemployment is a significant and ongoing challenge for the area;
- there is a high level of home ownership and a low rate of private rental in Shellharbour, which reflects a low population turnover. However, housing affordability is a major concern in the Illawarra region;
- the rapidly growing resident population has created some social and physical infrastructure gaps, such as road upgrades and child and aged care facilities; and

- Shellharbour LGA self containment ratio in 2006 was 30.6%, that is 30.6% of the workforce in Shellharbour has a job in the LGA. IRIS<sup>2</sup> refers to Shellharbour (along with Kiama) as 'dormitory' areas for residents who work in Wollongong and Sydney.

### Economic impact analysis results

The multiplier analysis (see **Table S 3**) indicates that the development would generate a total (average) value added of \$180 million in 2012 rising to \$668 million in 2028 (2010 real dollars). The model timeframe was specified to capture the impacts of both the 'construction' and 'operating' phases of the CUDP.

**Table S 3: Value of economic impacts**

Economic impact (2010 \$ million)	2012	2017	2022	2028
<b>Gross output</b>	414	603	864	1,211
<b>Value added</b>	180	310	462	668

**Source:** PwC and National Economics

The values in the intervening years (e.g. 2012-2017) are linearly interpolated, while the values post-2028 are extrapolated at a growth rate of 0.5 per cent per year. The resultant future stream of values is discounted back to present value (PV) terms using a discount rate of 7 per cent. This analysis indicates that the development will add PV\$6.3 billion of net value to the Shellharbour economy over the development period.

**Table S 4: PV of output and value added**

Economic impact	PV \$ billion @ 7% (2010-2028)
<b>Gross output</b>	11.9
<b>Value added</b>	6.3

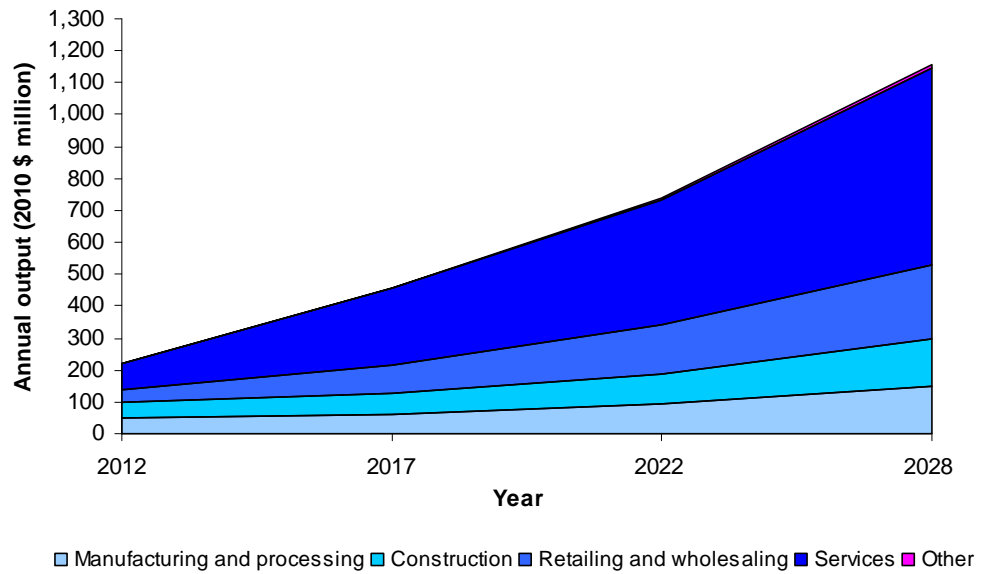
**Source:** PwC and National Economics

The Project is also expected to benefit a range of economic sectors.

**Figure S 1** indicates that during the initial project period, the construction sector accounts for a large proportion of the value of output. This reduces over time with the main beneficiaries becoming the services and retailing sectors.

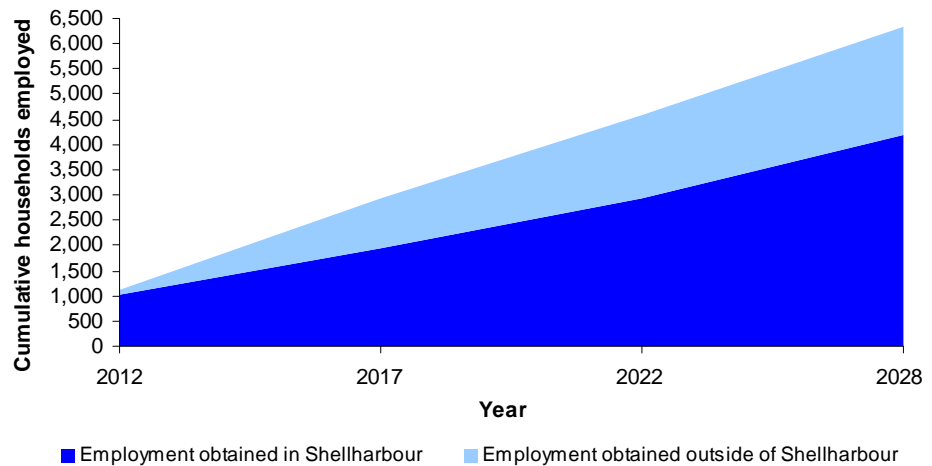
<sup>2</sup> IRIS Research Limited 2008, *How Is Our Labour Force Changing?*, Economic Report 1 2008, p.13.



**Figure S 1: Annual gross output by industry (2012 – 2028)**

Source: PwC and National Economics

**Figure S 2** indicates that a total of 6,340 households (from across Shellharbour) will obtain employment (net of that which would occur in the absence of the development) as a result of the economic activity created by the Project. About 4,200 of these households will obtain employment in the Shellharbour LGA.

**Figure S 2: Employment impacts**

Source: PwC and National Economics

A factor of 1.25 is applied to households to estimate the new full time equivalent (FTE) positions created. This is a standard modelling assumption that each employed household is assumed to contain 1.25 FTE workers. Therefore, the Project is expected to create an average of 495 new positions per year between 2012 and 2028. In other words, the project would maintain the existing employment base in the region, as well as

create an additional 7,925 jobs. DLL's employment and economic development initiatives will further contribute to the employment of Shellharbour residents.

In summary, the forecast quantitative economic impacts of the Calderwood development include:

- annual gross output from 2028 of \$1.2 billion;
- annual value added from 2028 of \$668 million;
- PV of total project gross output of \$11.9 billion;
- PV of total project value added of \$6.3 billion;
- contribution to sectoral diversification in favour of services; and
- generation of approximately 7,925 FTE jobs.

### Conclusions

The Calderwood Project will provide a significant stimulus to the Shellharbour economy. This stimulus will comprise \$2.9 billion in development expenditure and significant expected expenditure by the incoming residents. This stimulus is expected to add around PV\$6.3 billion to the Shellharbour economy and create 7,925 FTE positions by 2028. The resourcing of the development will ensure that local inputs and labour are used where possible, minimising the 'leakage' of value from the Shellharbour economy. Moreover, the project will benefit a range of sectors, with significant value created in the services and retailing sectors as residents move in.

The economic impacts of the development are conventionally described as increased employment opportunities and value of local economic activity. These impacts are facilitated by the expenditure of the developers during the construction phase and residents during the 'operating' phase.

However, as discussed in the JR, the net community benefit (as defined in an economic appraisal) is also a key measure of the economic contribution of the CUDP. While a formal economic appraisal is not required at this stage of the investigation, the JR highlighted the economic effects of the CUDP. Specifically, the JR noted that:

*Application of the NSW Treasury Guidelines for Economic Appraisal to the Calderwood development would involve comparing the cost to government and the community benefits of the development with those that would occur with the 'Base Case'. The Base Case refers to the status quo situation, ie. the government costs and community benefits that would be created by maintaining the current land use at the Calderwood site. Therefore, the Calderwood development is an alternative land use option for a particular site rather than an alternative to developments in other areas.*

*However, other nearby urban developments would indirectly influence the economic appraisal of the Calderwood development through their impacts on expected housing uptake and hence, benefit realisation. These impacts should be modelled under as close to competitive market conditions as possible, ie. potential residents are aware of and are free to choose between numerous housing products and providers and would make their choices rationally to maximise the net benefits they would enjoy from their purchase.*

*In the absence of a demonstrable market failure in the property market, government intervention in favour of a particular economic activity in the area would affect the results of an economic appraisal of the Calderwood development.*

The qualitative discussion of the potential economic benefits in the JR provides preliminary evidence that the CUDP would also generate significant direct benefits for the community in addition the significant economic and employment impacts identified in this EIA.

If you would like to discuss any aspect of this letter, please contact myself on 02 8266 2765 or Vartguess Markarian on 02 8266 5596.

Yours sincerely

A handwritten signature in cursive script that reads "Scott Lennon".

Scott Lennon  
Partner  
PwC Economics

## Executive summary

### E.1 Introduction

This EIA has been prepared to accompany a Concept Plan Application under Part 3A of the Environmental Planning & Assessment Act, 1979 (EP&A Act) and a proposal for State significant site listing under Schedule 3 of State Environmental Planning Policy Major Development 2005 (SEPP Major Development) in relation to the Calderwood Urban Development Project (CUDP).

In April 2008 the Minister for Planning issued terms of reference for the preparation of a Justification Report to address the implications of initiating the rezoning of Calderwood for urban development including associated staging, timing and infrastructure considerations.

In February 2009 the Minister for Planning considered a Preliminary Assessment Report for the CUDP that provided justification for the planning, assessment and delivery of the project to occur under Part 3A of the EP&A Act, having regard to the demonstrated contribution that the project will have to achieving State and regional planning objectives.

Subsequently, on the 16 April 2009, pursuant to Clause 6 of SEPP Major Development, the Minister for Planning formed the opinion that the CUDP constitutes a Major Project to be assessed and determined under Part 3A of the EP&A Act, and also authorised the submission of a Concept Plan for the site. In doing so, the Minister also formed the opinion that a State significant site (SSS) study be undertaken to determine whether to list the site as a State Significant site in Schedule 3 of SEPP Major Development.

The Part 3A process under the EP&A Act allows for the CUDP to be planned, assessed and delivered in an holistic manner, with a uniform set of planning provisions and determination by a single consent authority. Given the scale of the proposal, the Concept Plan and SSS listing provide the opportunity to identify and resolve key issues such as land use and urban form, development staging, infrastructure delivery and environmental management in an integrated and timely manner.

This EIA has been prepared to partially fulfil the Environmental Assessment Requirements issued by the Director General for the inclusion of the Calderwood site as a State Significant Site under SEPP Major Development, and for a Concept Plan approval for the development.

The economic effects analysis remains unchanged from that included in the 2008 JR.

### E.2 Background

Delfin Lend Lease (DLL) proposes to develop a residential community and associated infrastructure at its 700 hectare landholding at Calderwood Valley (Calderwood), in the Shellharbour Local Government Area (LGA).<sup>4</sup> In addition to DLL's proposed development, which is comprised of approximately 4,800 residential dwellings, strategic planning documents suggest that a further 3,000 residential dwellings could also be accommodated within the broader Calderwood release area.

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<sup>4</sup> DLL's proposal covers approximately 700 hectares of land, 107 hectares of which are located in the Wollongong LGA, while the balance is located within Shellharbour LGA.

The CUDP site is located within the Calderwood Valley in the Illawarra Region. It is approximately 700 hectares in area with approximately 107 hectares of land in the Wollongong LGA and the balance located within the Shellharbour LGA.

The Calderwood Valley is bounded to the north by Marshall Mount Creek (which forms the boundary between the Shellharbour and Wollongong Local Government Areas (LGAs)), to the east by the Macquarie Rivulet, to the south by Johnson's Spur and to the west by the Illawarra Escarpment. Beyond Johnson's Spur to the south is the adjoining Macquarie Rivulet Valley within the suburb of North Macquarie. The Calderwood Urban Development Project land extends south from the Calderwood Valley to the Illawarra Highway.

The overall Calderwood Valley residential yield nominated in the strategic planning documents is approximately 8,000 dwellings. Within this, DLL proposes to construct residential, employment and associated infrastructure on their landholding at Calderwood. DLL's development is expected to yield around 4,800 lots of mixed housing, including family homes, courtyard-style villas, townhouses and accommodation for seniors, together with a village centre, town centre and community and education facilities. It is anticipated that the development will be approximately a 20-year project post re-zoning and, after a start-up period, could achieve 225 sales per annum. Development could occur almost immediately after the area is re-zoned.

### E.3 EIA Approach

NSW Treasury Guidelines identifies the EIA as an accepted method for quantifying the direct and indirect economic impacts at a local and regional level.<sup>6</sup>

A summary of the approach adopted in this EIA is shown in **Table E 1**.

**Table E 1: Summary approach to EIA**

Task	Description	Report section
<b>Define the socio-economic and demographic context of the development</b>	Before the potential economic impacts of the development can be estimated, it is necessary to first develop a socio-economic profile of the region. Such a profile can be used to highlight the key areas of the local economy which will benefit most from the implementation of the development. Some of the key variables relevant to the development include population growth, housing availability and affordability, and the level of unemployment in the local economy.	<b>Chapter 2</b>
<b>Describe the project</b>	Describes the main aspects of the proposed development in terms of construction activity of the infrastructure, subdivision, dwellings, the village centre, town centre and employment initiatives.	<b>Chapter 3</b>

<sup>6</sup> NSW Treasury 1997, *Guidelines for Economic Appraisal*, NSW Treasury, Sydney, p.6.

Task	Description	Report section
<b>Estimate the quantitative economic impacts</b>	In the development of this EIA, PwC appointed consultants National Economics to develop input-output modelling to quantify the economic impacts of development at Calderwood (comprising the proposed DLL development of approximately 4,500 to 5,000 dwellings plus the balance of approximately 3,000 dwellings). Those outputs are then interpreted with regards to the economic aspect of the socio-economic profile of the region developed in Chapter 2.	<b>Chapter 4</b>

The direct expenditure on goods and services by developers and incoming residents comprise payments to industries which supply these goods and services. These payments, in turn, generate demand and employment in other sectors through the multiplier effect.

Economic multipliers are estimated from input-output models, which describe and quantify the relationship between various sectors of an economy. These multipliers are then applied to expenditures by developers and residents of Calderwood to estimate the quantitative economic impacts described in **Table E 2**.

**Table E 2: Quantitative economic impacts**

Economic impact	Description
<b>Gross output</b>	Measures the value of goods and services sourced directly by developers of Calderwood, as well as the value of the goods and services directly consumed by incoming residents. The measure relates to goods and services sourced from the Shellharbour economy.
<b>Value added</b>	Derived by subtracting from gross output the cost incurred by goods and service providers in supplying the developers and incoming residents.
<b>Employment</b>	Measures the additional number of households that gain employment as a result of the increased economic activity generated due to the Calderwood development.

## E.4 Economic Impact Results

The multiplier analysis results are summarised in **Table E 3**.

**Table E 3: Value of economic impacts**

Economic impact (2010 \$million <sup>7</sup> )	2012	2017	2022	2028	Present value (PV) at 7% <sup>8</sup>
<b>Gross output</b>	414	603	864	1,211	11,901

<sup>7</sup> Rounded to the nearest \$10 million

<sup>8</sup> Includes PV of impacts post 2028 (in perpetuity)

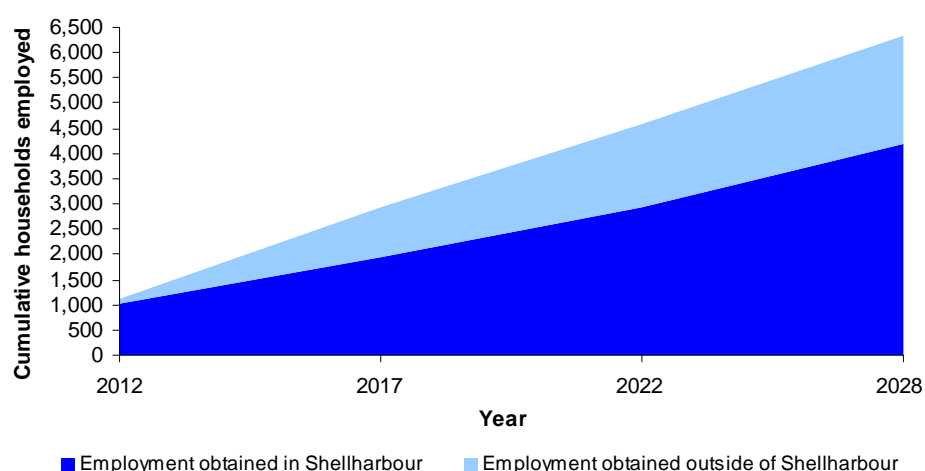
Economic impact (2010 \$million <sup>7</sup> )	2012	2017	2022	2028	Present value (PV) at 7% <sup>8</sup>
Value added	180	310	462	668	6,344

Source: PwC and National Economics

The development is expected to generate annual gross output and value added from 2028 of \$1.2 billion and \$668 million, respectively. This translates into total PV of the gross output and value added of \$11.9 billion and \$6.3 billion, respectively. The model timeframe was specified to capture the impacts of both the 'construction' and 'operating' phases of the CUDP.

The economic activity generating the gross output and value added would also lead to the creation of approximately 7,925 full-time equivalent (FTE) jobs. With the assumption that the ratio of FTE jobs and employed households is 1.25:1<sup>9</sup>, the employment impact of the Calderwood development on Shellharbour's households is shown in **Figure E 1**.

**Figure E 1: Employment impacts**



Source: PwC and National Economics

## E.5 Conclusions

The CUDP would provide a significant stimulus to the Shellharbour economy. This stimulus would comprise \$2.9 billion in capital expenditure and significant expenditure by the incoming residents. It is expected to add \$6.3 billion to the regional economy and create over 7,900 FTE positions by 2028.

The resourcing of the development could ensure that local inputs and labour are used where possible, minimising the 'leakage' of value from the Shellharbour economy. Moreover, the development would benefit a range of sectors.

Importantly, some of the other benefits of development at Calderwood would be:

<sup>9</sup> Standard modelling assumption adopted by National Economics.

- it would be consistent with, and supportive of, the objectives of the State Plan, Metropolitan and Regional Strategies;
- the DLL project would deliver a comprehensive infrastructure package, including state of the art telecommunications infrastructure, benefitting Calderwood residents as well as the broader Illawarra community and economy;
- its proximity to established infrastructure, ensuring that infrastructure capacity within the region is used efficiently and minimising the need for duplication of existing infrastructure with spare capacity. This in turn provides a benefit of minimising the level of capital expenditure requirement during the early stages of the development ;
- DLL's consolidated, single control, of a large proportion of the land in Calderwood would also ensure that infrastructure provision and development occurs in a timely and efficient manner (as the cost of negotiating and dealing with multiple land owners would be avoided);
- improved housing availability, affordability and diversity – which is particularly important given increasing concerns over housing affordability (as reflected in the NSW Government's State Plan and recent COAG resolutions) and uncertainty around other housing supply generating projects throughout NSW due to the impact of the 'credit crunch'; and
- the creation of jobs in addition to those generated via economic activity from the development, particularly through DLL's Economic Development Initiatives.

It is also worth noting that private sector funding and implementation of the project can reduce the risk to Government, particularly in relation to the financial risk associated with the provision of upfront infrastructure.

Overall, the CUDP would have considerable positive economic impacts and economic and social benefits on both Shellharbour and the Illawarra.



# 1 Introduction

## 1.1 Background

DLL proposes to develop a residential community and associated infrastructure at its 700 hectare landholding at Calderwood Valley, in the Shellharbour LGA.<sup>10</sup> In addition to DLL's proposed development, comprised of approximately 4,800 residential dwellings, strategic planning documents suggest that a further 3,000 residential dwellings could also be accommodated within broader Calderwood release area.

The CUDP site is located within the Calderwood Valley in the Illawarra Region. It is approximately 700 hectares in area with approximately 107 hectares of land in the Wollongong LGA and the balance located within the Shellharbour LGA.

The Calderwood Valley is bounded to the north by Marshall Mount Creek (which forms the boundary between the Shellharbour and Wollongong LGAs), to the east by the Macquarie Rivulet, to the south by Johnson's Spur and to the west by the Illawarra Escarpment. Beyond Johnson's Spur to the south is the adjoining Macquarie Rivulet Valley within the suburb of North Macquarie. The Calderwood Urban Development Project land extends south from the Calderwood Valley to the Illawarra Highway.

The Calderwood Valley has long been recognised as a location for future urban development, firstly in the Illawarra Urban and Metropolitan Development Programmes and more recently in the Illawarra Regional Strategy (IRS).

The IRS nominates Calderwood as an alternate release area if demand for additional housing supply arises because of growth beyond projections of the Strategy, or if regional lot supply is lower than expected.

In 2008, the former Growth Centres Commission reviewed the proposed West Dapto Release Area (WDRA) draft planning documents. The GCC concluded that forecast housing land supply in the IRS cannot be delivered as expected due to implementation difficulties with the WDRA, and the significantly lower than anticipated supply of housing land to market in the Illawarra Region is now been recognised as a reality.

The GCC Review of the WDRA also recognised that there is merit in the early release of Calderwood in terms of creating a higher dwelling production rate and meeting State government policy to release as much land to the market as quickly as possible. Given the demonstrated shortfall in land supply in the Illawarra Region and the WDRA implementation difficulties highlighted in the GCC Report, the release of Calderwood for urban development now conforms to its strategic role under the IRS as a source of supply triggered by on-going delays in regional lot supply. The CUDP can deliver about 12% of the IRS' new dwelling target.

Changes in outlook arising from global, national and regional factors influencing investment and delivery certainty, housing supply and affordability and employment and economic development also add to the case for immediate commencement of the Calderwood Project.

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<sup>10</sup> DLL's proposal covers approximately 700 hectares of land, 107 hectares of which are located in the Wollongong LGA, while the balance is located within Shellharbour LGA.

In April 2008 the Minister for Planning issued terms of reference for the preparation of a Justification Report to address the implications of initiating the rezoning of Calderwood for urban development including associated staging, timing and infrastructure considerations.

In February 2009 the Minister for Planning considered a Preliminary Assessment Report for the Calderwood Urban Development Project that provided justification for the planning, assessment and delivery of the project to occur under Part 3A of the EP&A Act, having regard to the demonstrated contribution that the project will have to achieving State and regional planning objectives.

Subsequently, on the 16 April 2009, pursuant to Clause 6 of SEPP Major Development, the Minister for Planning formed the opinion that the Calderwood Urban Development Project constitutes a Major Project to be assessed and determined under Part 3A of the EP&A Act, and also authorised the submission of a Concept Plan for the site. In doing so, the Minister also formed the opinion that a State significant site (SSS) study be undertaken to determine whether to list the site as a State Significant site in Schedule 3 of SEPP Major Development.

The Part 3A process under the EP&A Act allows for the Calderwood Urban Development Project to be planned, assessed and delivered in an holistic manner, with a uniform set of planning provisions and determination by a single consent authority. Given the scale of the proposal, the Concept Plan and SSS listing provide the opportunity to identify and resolve key issues such as land use and urban form, development staging, infrastructure delivery and environmental management in an integrated and timely manner.

This EIA has been prepared to partially fulfil the Environmental Assessment Requirements issued by the Director General for the inclusion of the Calderwood site as a State Significant Site under SEPP Major Development, and for a Concept Plan approval for the development.

## 1.2 Analysis objectives and approach

The quantitative EIA estimates the level of economic activity that a project generates and assesses the contribution of a project to local employment and the size and structure of the economy in which the project is proposed.

The broad approach to the economic assessment contained in this report is outlined below in **Table 1**.

**Table 1: Economic assessment approach**

<b>Task</b>	<b>Description</b>	<b>Report section</b>
<b>Define the socio-economic and demographic context of the development</b>	Before the potential economic impacts of the development can be estimated, it is necessary to first develop a socio-economic profile of the region. Such a profile can be used to highlight the key areas of the local economy which will benefit most from the implementation of the project. Some of the key variables relevant to the development include population growth, housing availability and affordability, and the level of unemployment in the local economy.	<b>Chapter 2</b>
<b>Describe the project</b>	Describes the main aspects of the proposed development in terms of construction activity of the infrastructure, subdivision, dwellings, the village centre, town centre, community facilities and employment initiatives.	<b>Chapter 3</b>
<b>Estimate the quantitative economic impacts</b>	In the development of this EIA, PwC appointed consultants National Economics to develop input-output modelling to quantify the economic impacts of development at Calderwood. Those outputs are then considered in the context of the socio-economic profile of the region outlined in Chapter 2.	<b>Chapter 4</b>

## 2 Socio-economic context

### 2.1 Introduction

In order to assess the potential economic impact of the CUDP, it is necessary to develop a socio-economic and demographic profile of the study area. Such a profile can highlight the specific attributes of the local economy, which could affect or be affected by the development.

For example, the employment creation capacity of the development is of particular significance, given the relatively high unemployment rate in Shellharbour compared with Sydney (see **Section 2.4**). Likewise, the development's contribution to improving housing affordability in the region is also particularly important, due to increasing concerns about this issue in the area in recent years. This section describes relevant socio-economic characteristics of the Shellharbour LGA.

### 2.2 Social profile

#### 2.2.1 Population

The Australian Bureau of Statistics (ABS) estimated that the resident population of Shellharbour LGA in 2008 was 65,587. This represents an average annual compound growth rate of 2.0% in the seven years since 2001, and exceeds the state average annual compound population increase of 1.3% per year over the same period.<sup>13</sup> The population of Shellharbour represents approximately 23% of the total population of the broader Wollongong region and 15% of the Illawarra region.

Population growth in Shellharbour LGA is expected to remain strong over the next decade. The exact nature and scale of this population growth is difficult to predict, and there are a number of possible population growth scenarios.

The NSW DoP has forecast that the Shellharbour population will reach approximately 70,000 by 2016, as shown in **Table 2**, representing an average annual compound growth rate of 1.0%.<sup>14</sup> Following 2016, growth rates are expected to decrease. With a population forecast of about 75,000 by 2031, the implied average annual compound growth rate falls to 0.4% in the 15 years to 2031.

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<sup>13</sup> ABS 2001 and 2006 Census Community Profile Series: Shellharbour (Local Government Area) and New South Wales. .

<sup>14</sup> NSW Department of Planning, *NSW SLA Population Projections – 2005 Release*, [http://www.planning.nsw.gov.au/programs/services/population\\_projections.asp#state](http://www.planning.nsw.gov.au/programs/services/population_projections.asp#state).

**Table 2: NSW Department of Planning Population Forecasts**

Location	2006	2011	2016	2021	2026	2031	CAGR <sup>1</sup> (%)
Shellharbour	63,792	67,461	70,246	72,237	73,805	74,905	0.6%
Kiama	20,476	21,222	21,924	22,686	23,531	24,432	0.7%
Wollongong	193,592	199,202	205,212	211,646	217,917	223,735	0.6%
<b>Total Wollongong (SSD)</b>	<b>277,860</b>	<b>287,885</b>	<b>297,382</b>	<b>306,569</b>	<b>315,253</b>	<b>323,072</b>	<b>0.6%</b>

**Source:** NSW Department of Planning, *NSW SLA Population Projections – 2005 Release* – based on input data available August 2006.

**Note:**

<sup>1</sup>/Compound average growth rate

The Transport Data Centre (TDC), in consultation with the Population Projections Group, is responsible for the production of the official New South Wales population projections for State government planning purposes. The projection totals for some regions may differ from the population levels planned for in the Department's regional strategies. This is because these strategies may contain pro-active measures to encourage growth not in place at the time that the demographic projections were produced.

More recent data released by the DoP suggests that population in the Wollongong and the broader Illawarra region (excluding Wollongong) will be at 299, 600 and 155, 600 persons, respectively.<sup>15</sup>

In 2009 the Commonwealth Department of Health and Ageing (DoHA) released new forecasts of populations in Statistical Local Areas across Australia. While the 2005 NSW Department of Planning (DoP) forecasts are still the 'official' forecasts for LGAs in NSW, these DoHA projections take into account recent shifts in fertility and mortality. The DOHA figures forecast the population in Shellharbour will reach 78,811 by 2026, compared with the DoP forecast of 73,805.

Compared to the 2005 DoP forecasts, the DoHA/ABS forecasts show more growth overall for Shellharbour, but less emphasis on the older age groups.

The Illawarra Regional Strategy anticipates an additional 47,600 new residents in the greater Wollongong region by 2031, which equates to an average annual compound population growth rate of 0.6%. However, this projection is lower than that observed in recent years in Shellharbour and the broader region. According to ABS Census data, the Illawarra (Statistical Region) population grew by an average annual compound rate of 0.8% over 1996 to 2006. Over this same period, the Sydney Region achieved an annual average population growth rate of 1%.

If, under a reasonably moderate growth scenario, the population in the region were to grow at an annual average rate of 1% from 2007, the 2031 populations of the greater Wollongong region and Shellharbour would be 356,000 and 82,000, respectively. Under this scenario, population growth in Shellharbour would be 9% higher than the NSW Department of Planning forecast of 75,000 by 2031. Reasons why the higher rate is plausible include the sustainability of the historically high immigration intake, the rising

<sup>15</sup> NSW Department of Planning 2008, New South Wales State and regional population projections 2006-2036, <http://www.planning.nsw.gov.au/Programsservices/Populationandhousingprojections/tabid/124/Default.aspx>.

fertility rate, and a potential trend of increased migration from Sydney due to housing affordability concerns and the rising cost of living.

Shellharbour has a relatively young population base. Approximately 23% of the Shellharbour community is under 15 years of age, compared with the state average of 20%.<sup>16</sup> Furthermore, the median age is 35, compared to the national average of 37.<sup>17</sup>

## 2.2.2 Income

The median household weekly income within Shellharbour LGA was \$1,040, based on 2006 Census data indexed to May 2009. This is approximately 5% lower than the NSW median household weekly income of \$1,096.<sup>18</sup> About 22% of households in Shellharbour earn a 'low' income (less than \$500 per week), while approximately 20% of households receive a 'high' income (\$1,700 per week or more). For NSW, these figures are 20% and 24%, respectively.<sup>19</sup>

This in part reflects a higher unemployment rate in Shellharbour (7.3%, based on 2006 Census data) compared to the NSW average (5.9%), and a subsequently higher than average number of people on income support.<sup>20</sup> In addition, only 5.2% of Shellharbour residents hold a post-school qualification (Bachelors degree or higher), which is over two times lower than the total proportion for NSW.<sup>21</sup> Young people in Shellharbour have a lower high school completion rates than the state average and lower rates of participation in tertiary studies.<sup>22</sup>

## 2.2.3 Housing

According to the 2006 Census data, there were 21,555 occupied dwellings in the Shellharbour LGA. Approximately 83% are detached dwellings, which is 12% higher than the corresponding state average. The remaining dwellings comprise around 10% medium density housing<sup>23</sup> and 5% are higher density accommodation.<sup>24</sup> Based on a population of 60,338<sup>25</sup> in 2006<sup>26</sup>, the average number of people in each occupied dwelling in Shellharbour is 2.8, which is higher than the NSW average occupancy rate of 2.6.

There is a high proportion of home ownership in the region, with 35% of dwellings fully owned and 36% being purchased. Of the balance, 17% of dwellings are private rental and 8% public housing.<sup>27</sup> This proportion of privately-rented dwellings is lower than the NSW average of 24%.<sup>28</sup>

<sup>16</sup> ABS 2006, Census Community Profile Series.

<sup>17</sup> Ibid.

<sup>18</sup> Ibid.

<sup>19</sup> Ibid.

<sup>20</sup> ABS 2005, *National Regional Profile*, cat. no. 1379.0.55.001

<sup>21</sup> ABS 2006 Census Community Profile series.

<sup>22</sup> Shellharbour City Council 2004, *Shellharbour's Social Plan 2004 – 2009*, p.39.

<sup>23</sup> Semi-detached, row or terrace house or townhouse

<sup>24</sup> Flat, unit or apartment

<sup>25</sup> This differs from the forecasts produced by the Department of Planning prior to the release of the 2006 Census data.

<sup>26</sup> 2006 Census QuickStats : Shellharbour (C) (Local Government Area) - [http://www.censusdata.abs.gov.au/ABSNavigation/prenav/ViewData?producttype=QuickStats&subaction=-1&areacode=LGA16900&action=401&collection=Census&textversion=true&breadcrumb=LP&period=2006&n](http://www.censusdata.abs.gov.au/ABSNavigation/prenav/ViewData?producttype=QuickStats&subaction=-1&areacode=LGA16900&action=401&collection=Census&textversion=true&breadcrumb=LP&period=2006&navmapdisplayed=true)

<sup>27</sup> Shellharbour City Council 2004, *Shellharbour's Social Plan 2004 – 2009*, p.22.

<sup>28</sup> ABS 2006 Census Community Profile series.

However, as noted in the Illawarra Regional Strategy, “Housing stress is a continuing problem in the region and has now reached a point where many local residents are being excluded from participating in the housing market”.<sup>29</sup> For example, in regards to rental affordability, the proportion of households on 80% of median income<sup>31</sup> that can afford renting a property in Shellharbour was 61% at June 2008, in comparison to 71.3% a year earlier. For Wollongong the proportion of affordable private rental was 61.5% at June 2008. Note, yet, that not all affordable rentals in Shellharbour are occupied by lower and moderate income earners. The proportion of affordable dwellings for purchase by households on 80% median income<sup>32</sup> at June 2008 was 0.5% and 0.7% for Shellharbour and Wollongong, respectively. Therefore, it is quite clear that purchasing a home in Shellharbour or Wollongong is quite difficult for lower income households.<sup>33</sup>

Housing in Shellharbour is facing some serious issues related to low vacancy rates, strong increases in the costs of renting and housing demand and the increasing number of people in housing stress. There is a strong case for increasing the supply of affordable housing.

## 2.2.4 Infrastructure

Shellharbour is relatively well-serviced by existing social and physical infrastructure. However, there are some service gaps that could be exacerbated by population growth. These infrastructure gaps are summarised in **Table 3**.

**Table 3: Gaps in social and physical infrastructure**

Infrastructure	Existing gaps
Arterial road upgrades	A growing Shellharbour population is placing pressure on the arterial road network to employment centres in Wollongong and Sydney. With the high reliance on private transport in the area, road upgrades are necessary.
Flood-free access	Many areas, particularly around Albion Park, are flood-prone and are typically cut off from road access every two years. Flood-free access is required.
Access to Illawarra Regional Airport	The Illawarra Regional Airport is potentially a significant employment sector per the Draft Illawarra Regional Strategy. Transport access to the airport and the surrounding social infrastructure could be improved.
Public transport	The frequency and availability of public transport service in the Illawarra region is limited, resulting in a high dependence on private transport.
Job containment and industry diversification	Currently, 15.8% of the Illawarra workforce commutes to Sydney. <sup>34</sup> Hence, local job containment and creation, linked with diversifying the economy, is a key challenge for the region.

<sup>29</sup> NSW Department of Planning, 2007, *Illawarra Regional Strategy*, p 6.

<sup>31</sup> Median income for metropolitan residents.

<sup>32</sup> Affordability is assessed based on 30% of household income.

<sup>33</sup> Housing New South Wales 2008, Information on Shellharbour Housing Market.

<sup>34</sup> DoP 2007, *Illawarra Regional Strategy*, p.5.

Infrastructure	Existing gaps
Childcare	There is a shortage of affordable, licensed childcare centres in Shellharbour, particularly for children under two years of age. This is likely to be a key contributor to the decreasing labour force participation rates in the area, as many parents delay their return to work until a childcare placement is available.
Aged care	There is also an identified need for more aged facilities and services within Shellharbour. Consultations by the Council with aged care service providers revealed that there are difficulties in securing appropriate land to further develop facilities and provide more aged care facilities.
Utilities	The rapidly expanding population in Shellharbour area will require significant upgrade and enhancement of utilities, specifically sewerage and water.

## 2.3 Economic profile

### 2.3.1 Size of the economy

The annual gross product<sup>35</sup> of the Illawarra economy was estimated at \$11 billion in 2005, which includes the LGAs of Wollongong, Shellharbour, Kiama and Wollondilly.<sup>36</sup> While specific estimates on the value of the Shellharbour economy are not readily available, its approximate size can be inferred based on its share of population. Based on a population of 390,616 for the Illawarra from 2006 Census data, the annual gross product of Shellharbour is approximately \$1.7 billion.

### 2.3.2 Structure of the economy

The Shellharbour economy has expanded significantly in recent years from a number of small villages into the focal point of urban development in southern Illawarra. Reflecting this surge in residential expansion, Shellharbour's main industries are retail, manufacturing and construction. Construction businesses now account for 26.5% of all business locations in Shellharbour<sup>37</sup>. In 2007, the value of buildings approved in Shellharbour totalled \$100.5 million, of which 69.4% was attributed to residential building.<sup>38</sup>

The emergence of the construction and retail industries in the Shellharbour economy has been mirrored by a decline in the dominance of manufacturing and mining. In 1986, there were 4,714 people employed in manufacturing, representing 29% of the local workforce, which has declined to around 15% twenty years later, as shown in **Figure 1**.

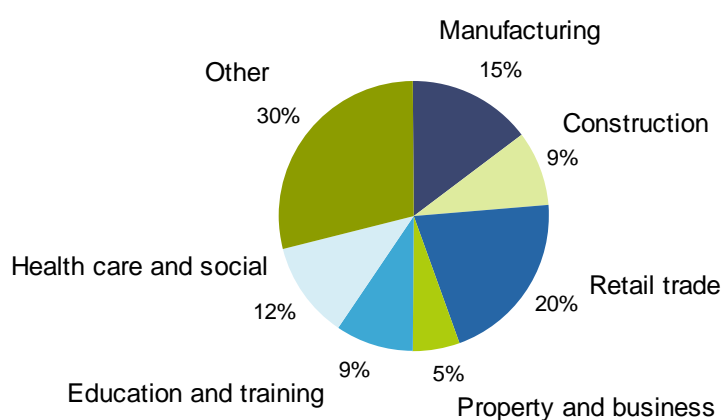
<sup>35</sup> Total value of goods and services produced

<sup>36</sup> IRIS 2005, Illawarra Coal Regional Economic Impact Assessment, p.6.

<sup>37</sup> Illawarra Regional Information Service 2008, Characteristics of the Shellharbour Area, at <http://www.iris.org.au/>

<sup>38</sup> Ibid



**Figure 1: Proportion of jobs by industry in Shellharbour LGA, 2006**

**Source:** ABS Census 2006

The retail industry has expanded to the largest single sector of employment in the area, employing over 4,000 people and producing annual turnover in excess of \$230 million.<sup>39</sup> This has been driven by the strong urban expansion, spurring a \$27.5 million extension to Shellharbour Square.

The continuing population growth is increasing the prominence of service industries. Consequently, an increasing amount of the area's economic activity relates to tertiary industries, with higher employment levels in areas such as health and community services, business and property services, and the retail trade.

The Illawarra Regional Airport is seen as a key component to further diversifying economic activity within the area. The airport forms an important part of the region's infrastructure and the tourism industry. The airport runway was recently strengthened to enable the operation of regional services to Melbourne. The airport has also recently undertaken the Light Aeronautics Industry Cluster initiative in order to attract new industry and employment opportunities. Subsequently, an aircraft manufacturing business has relocated to the area.

## 2.4 Employment profile

As of June 2006, the Shellharbour labour force was estimated at 26,000<sup>40</sup>, indicating that approximately 60% of the total working-age population participate in the labour force, a proportion that has remained constant over the past 10 years. While it is slightly lower than the state average, it is higher than the participation rates observed for both the Illawarra and south-east regions of NSW.

<sup>39</sup> Ibid

<sup>40</sup> DEWR 2006, *Small Area Labour Markets – June Quarter 2006*. Labour force includes both those employed and those actively looking for work

**Table 4: Employment trends in Shellharbour, Illawarra and NSW, 1996 – 2006**

Location	Employment		Unemployment		Participation rate	
	2006	Change <sup>41</sup>	2006	Change	2006	Change
Shellharbour	26,212	2.7%	8.0%	-0.5%	58.6%	-0.2%
Illawarra <sup>42</sup>	259,400	0.5%	6.7%	-0.3%	56.4%	-0.2%
NSW	3,295,348	2.6%	5.3%	-0.4%	63.3%	0.2%

**Source:** ABS 2006, *Labour Force, Australia*, cat. no. 6291.0.55.001, Table 16 and DEWR 2006, *Small Area Labour Markets – June Quarter 2006*.

The strong economic expansion in Shellharbour is demonstrated by the positive economic outcomes over the past 10 years relative to the Illawarra and NSW averages, as shown in **Table 4**. Shellharbour demonstrated the largest improvement in the number of people employed and the unemployment rate. While these trends in employment and unemployment are slightly better than the NSW average, they are significantly stronger than those observed in the broader Illawarra region.

Despite the strong employment growth and lower unemployment levels, the relatively high unemployment rate of 8.0%, which is 2.7 percentage points higher than the state average, remains a challenge for Shellharbour. Unemployment is most pervasive for the younger residents: according to the 2001 Census, 36% of people aged between 15 and 24 years were unemployed.

Commentary on the results of the 2006 Census indicates that<sup>43</sup> youth unemployment in the Illawarra region has reached the highest level for over a decade. The research indicates that the unemployment rate amongst teenagers (15-19 years) in Wollongong, Shellharbour and Kiama is over 40%<sup>44</sup>, the highest rate since October 1995.

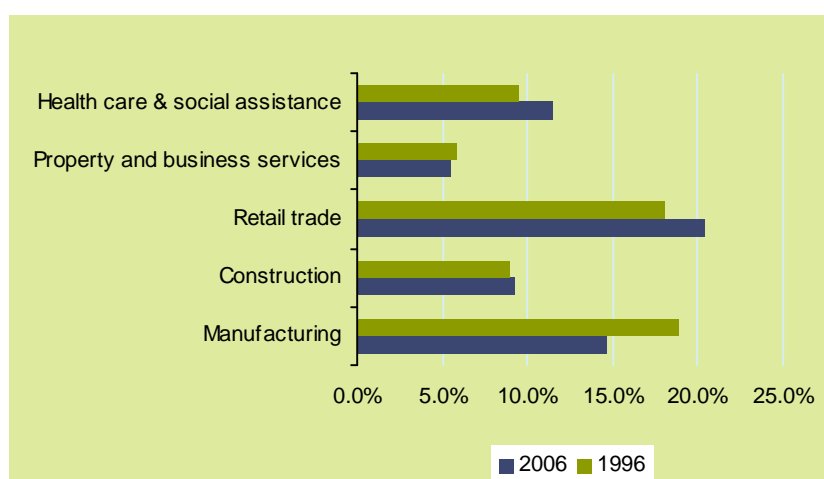
As outlined above, employment in the area is concentrated around the retail, construction and manufacturing industries. **Figure 2** shows that the retail industry is the largest employer in the region, and one that is continuing to grow.

<sup>41</sup> Compound annual increase, 1996 - 2006

<sup>42</sup> Including south-east NSW

<sup>43</sup> Illawarra Mercury, Wednesday October 26<sup>th</sup> 2006.

<sup>44</sup> Excludes persons who are employed on a part-time basis but who are seeking a full-time position.

**Figure 2: Proportion of employment by industry, Shellharbour LGA, 1996 - 2006**

**Source:** ABS 2006 Census Community Profile Series

The reliance on the manufacturing industry for employment has decreased significantly. However, the number of people employed in the industry has only decreased by around 4%. This is a clear signal of the growing diversification and growth of the economy and labour force.

The growth in employment was strongest in the services industries, with the number of people employed in the property and business services industry more than doubling, with a comparable 72% increase in the health and community services industry employment. This growth reflects the response of the economy to the demands of a growing residential population.

In addition to the relatively high levels of unemployment there is a low level of job containment in the Shellharbour LGA. Job containment or self containment is the measure of a region's ability to provide employment for its residents.

Research by IRIS<sup>45</sup> indicates that the Shellharbour LGA self containment ratio of 30.6% in 2006, that is 30.6% of the workforce in Shellharbour has a job in the LGA. IRIS refers to Shellharbour (along with Kiama) as 'dormitory' areas for residents who work in Wollongong and Sydney. It notes the importance of increasing the self containment ratios through increasing and diversifying the commercial activity in the LGA.

A relatively low self containment rate is characterised by a high commute rate. According to the Draft Illawarra Strategy, around 16% of Illawarra's residents – approximately 44,960<sup>46</sup> people – commute to Sydney daily<sup>47</sup>, while research by IRIS indicates that the proportion of the Shellharbour workforce which commute to Sydney was 7.4% in 2006<sup>48</sup>.

The resultant key strategy for local job containment is to secure sufficient employment lands, of which there is a shortfall in the Shellharbour (only 49 ha of employment lands are available in the Shellharbour LGA) and Kiama LGAs. This is consistent with the Shellharbour Council Social Plan emphasis on encouraging the growth of new

<sup>45</sup> IRIS Research Limited 2008, *How Is Our Labour Force Changing?*, Economic Report 1 2008, p.13

<sup>46</sup> NSW Department of Planning 2007, *Final Illawarra Regional Strategy: 2006 – 2031*, p.3.

<sup>47</sup> NSW Department of Planning 2006, *Draft Illawarra Regional Strategy: 2006 – 2031*, p.3.

<sup>48</sup> IRIS (2008, p. 14)

businesses which offer employment opportunities, in order to reduce the relatively high unemployment rates among the young, disabled and indigenous residents.

## 2.5 Summary of socio-economic profile

In summary, the current socio-economic profile of the Shellharbour LGA is:

- Shellharbour is a rapidly expanding area, with population growth of 2.0% in the six years since 2001, higher than the state average of 1.3% over the same period. Strong growth is anticipated, at least over the next decade, with potential population forecasts between 75,000 – 82,000 by 2031;
- the annual gross product of the Shellharbour LGA is estimated at approximately \$1.7 billion. Reflecting the surge in residential expansion the main industries are retail, manufacturing and construction;
- the median weekly household income within Shellharbour is 5% lower than the corresponding state figure, with a relatively large proportion of Shellharbour residents on low incomes. This reflects a relatively high unemployment rate (7.3%, based on 2006 Census data) in the region and a subsequently higher than average number of people on income support. Youth unemployment is a significant and ongoing challenge for the area.
- there is a high level of home ownership and a low rate of private rental in Shellharbour, which reflects a low population turnover. However, housing affordability is a major concern in the Illawarra region.
- the rapidly growing resident population has created some social and physical infrastructure gaps, such as road upgrades and child and aged care facilities.

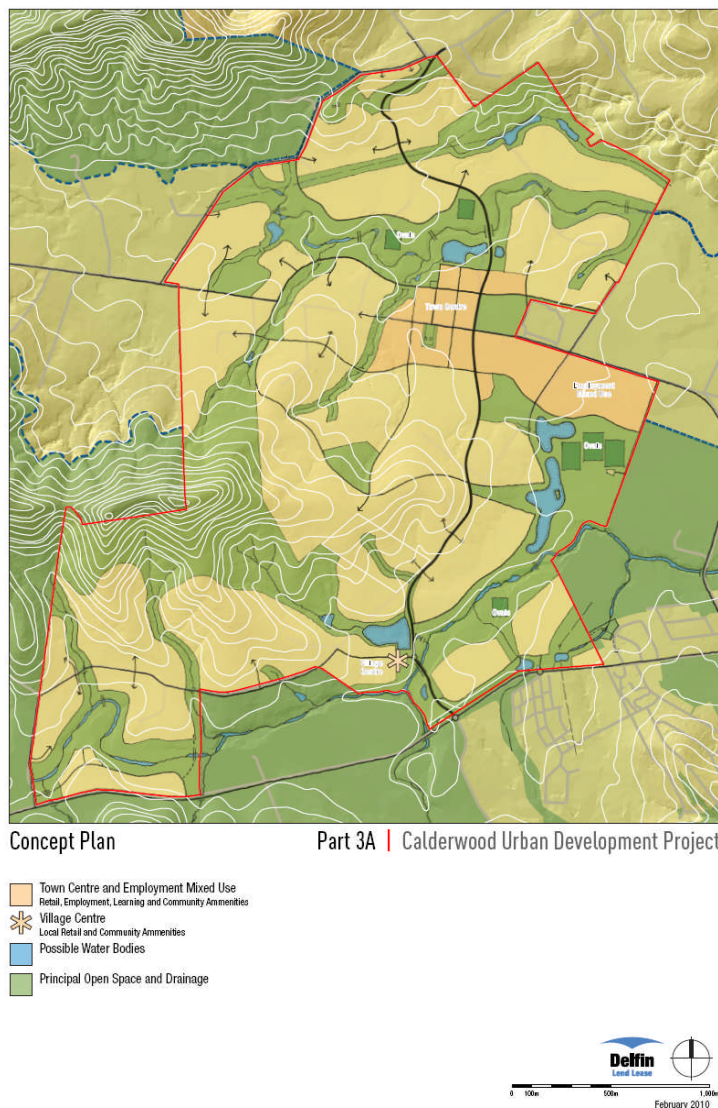
### 3 Development description

#### 3.1 Site description and location

Calderwood Valley is located immediately west of the existing urban footprint of Albion Park, in the newly created Shellharbour LGA suburb of Calderwood. To its north is Marshall Mount Creek, to the east is the Illawarra Regional Airport, to the south is Johnson's Spur and to the west is the Illawarra Escarpment.

The CUDP Draft Concept Plan is shown below in **Map 1**.

**Map 1: CUDP Concept Plan**



Source: DLL

Strategic planning documents (e.g. the Illawarra Regional Strategy) have forecast an overall yield of approximately 8,000 dwellings from the Calderwood Release Area. Structure Planning undertaken by DLL confirms that this release area yield can be realised, accommodating a population of approximately 21,000 people.

Within the Calderwood Release Area, DLL's proposal covers approximately 700 hectares of land, 107 hectares of which are located in the Wollongong LGA with the balance located within Shellharbour LGA. DLL's proposal involves construction of 4,800 dwellings, a village centre and town centre, community facilities and supporting infrastructure. Development would occur over a period of approximately 20-25 years, and would accommodate about 12,500 to 14,000 people, or about 60% of the future release area population.

The DLL landholding at Calderwood is the largest area of urban capable land within the Illawarra region currently available for development under single control. The adjoining land uses are currently:

- rural lands to the north, which are part of the West Dapto Study process;
- the Illawarra Highway, Arterial Road reservation and the Illawarra Regional Airport to the east,
- the existing township of Albion Park, including the new suburb of Tullimbar to the south; and
- rural lands, a golf course and escarpment foothills to the west.

The potential residents will have access to existing regional social and physical infrastructure located within the immediate vicinity of Albion Park and the surrounding Shellharbour and Wollongong areas. Existing regional social infrastructure for potential Calderwood residents is listed in **Table 5**. However, as outlined above in **Table 3**, there is a range of physical and social infrastructure gaps, which pose a challenge for existing and potential residents in the area. The most problematic of which are the shortage in child and aged care services, high dependence on private transport, and unemployment rates, particularly among young residents.

**Table 5: Existing regional infrastructure**

Infrastructure	Details
<b>Education</b>	<ul style="list-style-type: none"> <li>▪ numerous primary and high schools and a number of pre-schools,</li> <li>▪ a mix of public and independent schools; and</li> <li>▪ the University of Wollongong.</li> </ul>
<b>Transport</b>	<ul style="list-style-type: none"> <li>▪ Albion Park station provides a direct rail link to Sydney and Wollongong, with a proposed new station at Huntley;</li> <li>▪ Wollongong public and private bus services; and</li> <li>▪ F6 freeway facilitates travel to Wollongong, Sydney and the South Coast.</li> </ul>

Infrastructure	Details
<b>Shopping</b>	<ul style="list-style-type: none"> <li>Albion Park Village shopping centre available for local shopping; and</li> <li>a range of larger shopping centres, including Shellharbour Square, Warilla Grove Shopping Centre and Dapto Mall.</li> </ul>
<b>Other</b>	<ul style="list-style-type: none"> <li>local medical facilities, including Wollongong Hospital, Shellharbour Hospital and Illawarra Private Hospital; and</li> <li>parks and recreation, particularly around Lake Illawarra.</li> </ul>

### 3.2 Infrastructure profile

The CUDP would involve the provision of new infrastructure and facilities. These would primarily be delivered via Planning and Developer Agreements with both State and Local Governments (in the case of the DLL development) and local and state infrastructure levies (for the balance of the Calderwood Release Area).

DLL have scoped the infrastructure needs of the development. The proposed upgrades, shown in **Table 6**, would complement the existing local infrastructure listed above, as well as fill some of the regional infrastructure gaps discussed in **Chapter 2**.

**Table 6: Proposed Calderwood infrastructure upgrades**

Infrastructure	Details
<b>Transport</b>	A detailed Transport Management and Accessibility Plan has been prepared for the Project. This Plan identifies a comprehensive package of deliverable sustainable transport measures to be delivered under the DLL proposal. These include regional and local road upgrades, public transport initiatives, integrated land use and transport planning and initiatives to assist in achieving mode shift away from the private vehicle such as early and timely provision of facilities and services, fibre to the home/premise, urban design and walking and cycling networks.
<b>Sewerage</b>	The Albion Park Low Level Sewer Carrier Main is located near the southern boundary of the Calderwood Valley development area and has the capacity to accommodate the early stages of development. The existing downstream sewerage system can be augmented to accommodate the later stages of the development area.
<b>Potable water</b>	Potable water would be supplied from surplus capacity in the existing mains for the initial stages of development. Future stages would require construction of trunk mains and a water reservoir.
<b>Telecommunications</b>	A fibre optical cable, laid in Calderwood in 2004, has the capacity to serve the area with telecommunications and data transfer facilities, including ADSL broadband. A Mains Distribution Frame (MDF) would be constructed as part of the Calderwood development to ensure all households have access to the applicable services. Fibre to the Home and Fibre to Premises would be provided in accordance with National



Infrastructure	Details
	Broadband Network.
<b>Electricity</b>	Electrical reticulation will be met by construction of a new Zone Substation in the Calderwood Valley (for which a site has already been identified), reticulating power throughout the site in underground cables.
<b>Gas</b>	Jemena is currently developing an upgrade strategy for the provision of natural gas to the CUDP. The upgrade strategy involves assessing the existing capacity of the existing local network, calculating the gas requirements of the proposed Calderwood development and determining upgrades required to the current infrastructure to ensure gas supply is made available.

### 3.3 Housing profile

The Calderwood Release Area is expected to yield approximately 8,000 lots of mixed housing product. DLL's component of the development, comprising about 4,800 lots, would be expected to occur over approximately 20-25 years, following re-zoning. After the initial three-year ramp-up period, during which approximately 300-400 dwellings would be built and sold, DLL expect annual sales of approximately 225 dwellings for the remaining development period. A notional residential yield and product mix for DLL's development has been prepared.

In addition to the residential lots, a town centre and a smaller village centre would also be constructed as part of the DLL proposal. The town centre would be developed in two stages and would service the entire release area. The village centre would be developed early in the DLL development project. Both would comprise retail, commercial, education, mixed use and employment facilities. Facilities that would likely be included in the town and village centres are:

- supermarket and specialty retail;
- sales and information centre;
- medical centres;
- schools;
- multi-purpose community resource hub and branch library;
- child care facilities;
- retirement accommodation;
- medium density housing and commercial development; and
- mixed use and employment.



## 4 Economic impacts of the development

### 4.1 Introduction

NSW Treasury Guidelines identify EIA as an accepted method for quantifying the direct and indirect economic impacts at a local level.<sup>49</sup> EIA is an adjunct appraisal technique employed in cases where the proposal being evaluated is expected to generate significant economic impacts at the regional, state or national economy levels. EIA cannot be used to establish the economic viability of the proposal, as it cannot quantify the changes in economic welfare (net benefit) by implementing the proposal. This can only be established using cost benefit analysis.

The EIA is focused on the direct expenditure on goods and services by developers and incoming residents, which, in turn, generate demand and employment at the immediate suppliers, as well as in other sectors through the multiplier effect, an example of which is provided in **Text box 1**. Therefore, the model timeframe was specified to capture the impacts of both the 'construction' and 'operating' phases of the CUDP.

#### Text box 1: The multiplier effect of construction expenditure

##### Direct employment

Describes the employment by the construction and development industry required to develop the Calderwood site, as well as the jobs generated by the demand of residents and businesses that will be located on the site.

##### Indirect Employment

Describes the increased employment across all industries from the generation of the direct employment. Indirect effects are comprised of the 'first round effect', the 'industrial support effect' and the 'consumption effect':

- multiplier for the first round effect quantifies the increased employment required for all other industries that supply goods and services to the industries generating the direct employment;
- multiplier for the industrial support effect quantifies the value of the induced extra employment from all industries to support the production of the first round effect; and
- multiplier for consumption effect quantifies the value of induced employment due to increased spending by the wage and salary earners across all industries arising from the compensation received for their labour as part of the other effects above.

Economic multipliers are estimated from input-output models that describe and quantify the relationship between various sectors of an economy. These multipliers are then applied to expenditures by the developer and residents to estimate the quantitative economic impacts described in **Table 7**.

<sup>49</sup> NSW Treasury 1997, *Guidelines for Economic Appraisal*, NSW Treasury, Sydney, p.6.

**Table 7: Quantitative economic impacts**

Economic impact	Description
<b>Gross output</b>	Measures the value of goods and services sourced directly by the developer to deliver the project, as well as the value of the goods and services directly consumed by incoming residents. The measure relates to goods and services sourced from the Shellharbour economy.
<b>Value added</b>	Derived by subtracting from gross output the cost incurred by goods and service providers in supplying the developer and incoming residents.
<b>Employment</b>	Measures the additional number of households that gain employment as a result of the increased economic activity generated due to the project.

## 4.2 Methodology

The economic impact of development at Calderwood was assessed by applying an input-output model of the Shellharbour LGA. PwC engaged modelling specialists National Economics to undertake the input-output modelling for the Shellharbour LGA. The input-output tables for the region are in terms of direct allocation of imports and are estimated for every year to 2028.

The estimation of the input-output tables to 2028 is based on benchmarks of other input-output tables towards which Shellharbour is expected to evolve to over the next 20 years, as the population and industrial bases of the local economy expand. Current input-output tables for LGAs like Wyong are used to benchmark the evolution of the Shellharbour input-output tables.

The key assumptions used in the input-output modelling are shown in **Table 8**.

**Table 8: Key modelling assumptions**

Assumption	Description
<b>Project expenditure</b>	For the purpose of the EIA, the total project expenditure is estimated at approximately \$2.9 billion.
<b>Housing product</b>	<p>It is assumed that the residents that will acquire the housing product will primarily come from within 15km radius of the development.</p> <p>During the initial take-up stages, family households are expected to constitute a significantly larger share of all Calderwood households than what is currently the case in Shellharbour. Over time, as the stock of constructed and sold dwellings approaches 4,000, the Calderwood household structure profile will approximate that of Shellharbour overall.</p>

Assumption	Description
<b>Household employment</b>	The employment rate of the Calderwood development households is assumed to be 70%, which is the current Shellharbour average. This is expected to decrease to 60% by 2028. Those new households that are employed in Shellharbour are expected increase the skills profile of the labour force. It is then expected that the induced consumption, government expenditure and construction effects create enough new employed households from domestic residents to more than offset the displacement effect.
<b>Distribution of employment</b>	In line with the current average, two thirds of construction employment is assumed to be filled by local residents.
<b>Government expenditure</b>	Induced government expenditure on health and education for the new residents is considered.

## 4.3 Results

### 4.3.1 Economic output

As is shown in **Table 9**, the multiplier analysis indicates that the development would generate a total value added of \$180 million in 2012, rising to \$668 million in 2028.

**Table 9: Value of economic impacts**

Economic impact (2010 \$ million <sup>50</sup> )	2012	2017	2022	2028
<b>Gross output</b>	414	603	864	1,211
<b>Value added</b>	180	310	462	668

**Source:** PwC and National Economics

The values in the intervening years were then linearly interpolated, while the values post-2028 were extrapolated at a growth rate of 0.5% per year.<sup>51</sup> The resultant future stream of values was discounted back to present value (PV) terms using a discount rate of 7%.<sup>52</sup> This analysis indicates that the CUDP would add around PV\$6.3 billion of net value to the Shellharbour economy, as presented in **Table 10**.

<sup>50</sup> Rounded to the nearest \$10 million

<sup>51</sup> National Economics assumption. PV taken in perpetuity for post 2028 period.

<sup>52</sup> Real discount rate recommended by NSW Treasury.

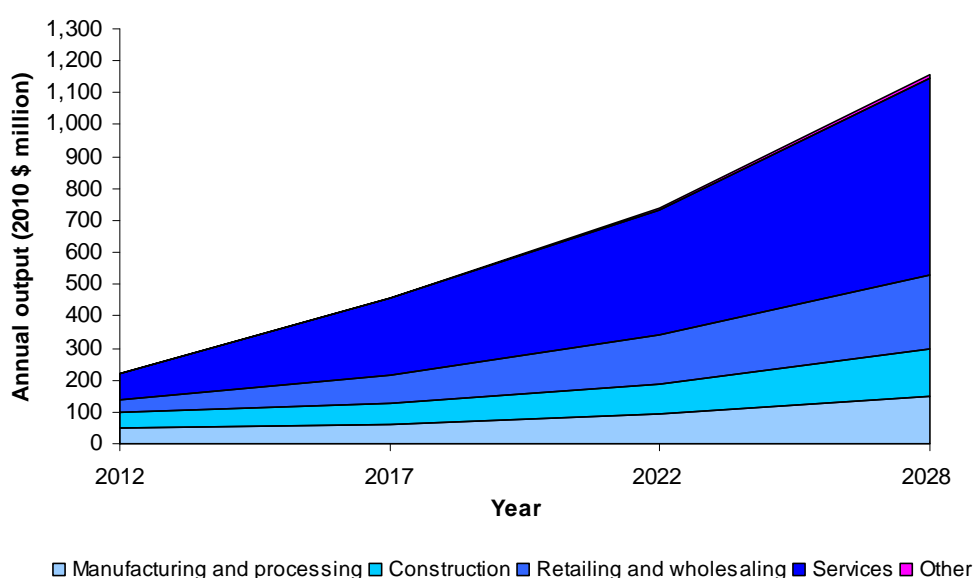
Table 10: PV of output and value added

Economic impact	PV at 7% (\$ billion <sup>53</sup> )
Gross output	11.9
Value added	6.3

Source: PwC and National Economics

The development is also expected to benefit a range of economic sectors. **Figure 3** provides a breakdown by industry of the gross output information provided in **Table 9** and indicates that, during the initial project period, the construction sector accounts for a large proportion of the value of output. This reduces over time, with the main beneficiaries becoming the services and retailing sectors.

Figure 3: Annual gross output by industry (2012 – 2028)

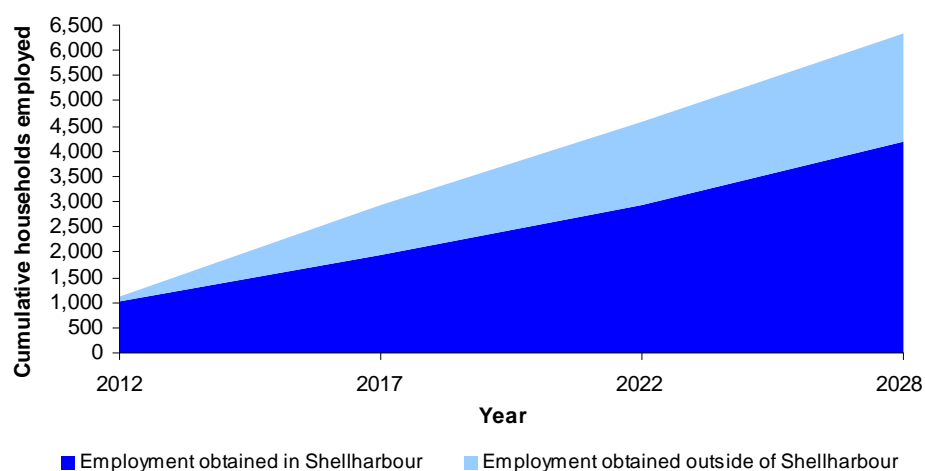


Source: PwC and National Economics

#### 4.3.2 Employment generation

The results of the economic impact analysis illustrated in **Figure 4** indicate that a total of 6,340 households would obtain employment as a result of the economic activity created by the urban development at Calderwood, in addition to the number which would occur in the absence of the project. About 4,200 of these households would obtain employment in the Shellharbour LGA.

<sup>53</sup> Rounded to the nearest \$10 million

**Figure 4: Employment impacts**

**Source:** PwC and National Economics

Finally, a factor of 1.25<sup>54</sup> is applied to households to estimate the new FTE positions created, meaning that each employed household is assumed to contain 1.25 FTE workers. Therefore, the project is expected to create an average of about 495 new positions per year between 2012 and 2028. In other words, the project would maintain the existing employment base in the region, as well as create an additional 7,925 jobs.

## 4.4 Summary

In summary, the forecast quantitative economic impacts of the Calderwood development include:

- annual gross output from 2028 of \$1.2 billion;
- annual value added from 2028 of \$668 million;
- PV of total project gross output of \$11.9 billion;
- PV of total project value added of \$6.3 billion;
- contribution to sectoral diversification in favour of services; and
- generation of approximately 7,925 FTE jobs.

<sup>54</sup> National Economics assumption.

However, as discussed in the JR, the net public benefit (as defined in an economic appraisal) is also a key measure of economic contribution of the CUDP. While a formal economic appraisal is not required at this stage of the investigation, the JR highlighted the economic effects of the CUDP. Specifically, the JR noted that:

*Application of the NSW Treasury Guidelines for Economic Appraisal to the Calderwood development would involve comparing the cost to government and the community benefits of the development with those that would occur with the 'Base Case'. The Base Case refers to the status quo situation, ie. the government costs and community benefits that would be created by maintaining the current land use at the Calderwood site.*

*Therefore, the Calderwood development is an alternative land use option for a particular site rather than an alternative to developments in other areas.*

*However, other nearby urban developments would indirectly influence the economic appraisal of the Calderwood development through their impacts on expected housing uptake and hence, benefit realisation. These impacts should be modelled under as close to competitive market conditions as possible, ie. potential residents are aware of and are free to choose between numerous housing products and providers and would make their choices rationally to maximise the net benefits they would enjoy from their purchase.*

*In the absence of a demonstrable market failure in the property market, government intervention in favour of a particular economic activity in the area would affect the results of an economic appraisal of the Calderwood development.*

The qualitative discussion of the potential economic benefits in the JR provides preliminary evidence that the CUDP would also generate significant direct benefits for the community in addition the significant economic and employment impacts identified in this EIA.

## 5 Conclusions

The Calderwood development will provide a significant stimulus to the Shellharbour economy. This stimulus will comprise \$2.9 billion in development expenditure and significant expected expenditure by the incoming residents. This stimulus is expected to add around PV\$6.3 billion to the Shellharbour economy and create over 7,900 FTE positions by 2028.

The resourcing of the development will ensure that local inputs and labour are used where possible, minimising the 'leakage' of value from the Shellharbour economy and maximisation of job containment within the local area. Moreover, the project will benefit a range of sectors, with significant value created in the services and retailing sectors as residents move in.

Importantly, the Project will deliver, through a developer agreement, a comprehensive infrastructure package for the local economy. Such an agreement provides a level of certainty for the LGA given that expected Council funds for infrastructure investment are constrained and that the Illawarra Regional Strategy does not focus on the infrastructure needs of the Shellharbour LGA.

A range of positive economic effects would also significantly reinforce the value captured in the quantitative EIA.

It is also worth noting that private sector funding and implementation of the project can reduce the risk to Government, particularly in relation to the financial risk associated with the provision of upfront infrastructure.

Overall, the CUDP would have considerable positive economic impacts and economic and social benefits on both Shellharbour and the Illawarra.