

Economic Impact Study



Urban Development Institute of Australia
Western Australia Division Incorporated



Economic Contribution of the Land Development Industry in Western Australia

*A study commissioned by
the Urban Development Institute of Australia (WA Division)
on behalf of its members*

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Executive Summary

The Western Australian division of the Urban Development Institute on behalf of its members commissioned Economic Research Associates Pty Ltd to prepare an economic impact study to measure the value of the industry to the Western Australian economy in terms of direct and indirect employment, wages and salaries and taxation.

This report shows that the land development industry is found to make a major contribution to employment and income generation in Western Australia. For the Metropolitan Development Plan region, annual lot production averaged 9,139 over the period 1996/97 to 2001/2002.

For 2001/2002, 10,222 lots were created in the Metropolitan Development Plan area. At average lot sale values this production had a gross value of \$1.04 billion in value. For the State as a whole, some 11,584 lots were created in 2001/2002 which represented \$1.17 billion in production value.

For the State, production of these 11,584 lots generated 2,881 jobs in direct employment on a full time equivalent basis and through the indirect multiplier effects of this lot production activity, an additional 7,187 jobs in the economy giving around 10,100 jobs overall. These jobs are generated each year on an ongoing basis although the exact number will vary with actual lot production activity. Wages and salaries associated with this level of lot production activity is estimated to be \$107.7 million in direct activity related to lot production and \$264.8 million overall.

These impacts, 10,100 jobs and \$264 million per annum in wages and salaries represent the backward linkages from lot production activity. That is they account for the activity generated in supplying industries.

The lot production activity generates significant tax flows. At the State level, based on the average lot value and 2001/2002 lot production stamp duty is estimated to be \$29.1 million. Based on the value of production and direct wages and salaries, GST is estimated to be \$58.8 million and personal income tax is estimated to be \$26.3 million.

Land development is also associated with significant follow up activity in that it is the prerequisite residential construction industry activity. In 2000/2001, lot production for the MDP was 8,328 with a value of \$760 million. That year, residential building approvals were \$1,536 million with \$1,203 million of that being on houses. Average dwelling value was \$131,681 on average lot value of \$91,417. Almost twice the level of lot activity production value is then generated when dwellings are constructed on those lots.

Land development compares well with other industries regarded as significant in the Western Australian context. Based on ABS labour force survey data direct employment of 2,881 in residential lot production is comparable with commercial forestry [1,900 persons], commercial fishing[3,200 persons], oil and gas exploration[1,900 persons], water supply sewerage and drainage [3,200].

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1. Introduction

This report looks at the land development industry in Western Australia and its economic contribution to the Western Australian economy. In this context, the land development industry principally consists of the subdivision of large parcels of land for sale to the general market. For the most part lots are used for the construction of single residential and grouped dwellings, together with the retail, commercial and community infrastructure necessary for an urban community. The study does not consider the economic consequences of the construction of buildings on the developed land.

1.1. Scope and Purpose of Study

The current study seeks to document the extent of the economic activity which is directly related to land development and the magnitude of the flow-on effects which this lot production has in the rest of the economy. Impacts are measured in terms of output, employment and household incomes generated. Flow-on effects are estimated using multipliers from the Western Australian input-output table.

Land development is a substantial industry in Western Australia. For 2001/2002 it is estimated that the total value of residential lots developed in the Perth metropolitan region was \$1,042 million.

1.2. Structure of the Report

The report has three main chapters and data appendices.

Chapter Two presents an overview of recent trends in new vacant lot production and lot values for the Perth Metropolitan Development Plan (MDP) region and the State. This is essential background information to the analysis of economic impacts. Conventional economic impact analysis measures the impact of an industry at a point in time. The data presented in Chapter Two documents the current position of the industry in terms of the volume and value of lot production. The analysis of recent trends indicates the extent to which this level of activity continues over time.

The economic impact estimates for lot production are presented in Chapter Three. This chapter also presents an overview of the methodology used to analyse the economic impact associated with the industry. The estimates of the direct and indirect effects on employment, household incomes and output which flow from the current level and pattern of activity in the industry are presented. The analysis relies on data from ABS on the level of activity of various property-related employment categories and on data obtained directly from developers.

2. Recent Trends in Residential and Commercial Lot Development

2.1. Introduction

The output of the land development industry is the production of lots for sale.

The focus of the information in this chapter is the planning region centred on Perth which corresponds with the Metropolitan Development Plan area. This area incorporates metropolitan Perth and the Peel region.

2.1.1. Lot Production

Two sources of lot production data have been used; data from the Western Australian Planning Commission and data from UDIA. The data for each and the associated trends are shown below in Table 2-1 which shows total lot creation over the last five years.

Table 2-1: Total New Lot Creation in the MDP, 1996/1997 to 2001/2002

Year Ending June	1997	1998	1999	2000	2001	2002	Average
Inner	818	994	834	1,174	1,037	748	934
Middle	1,608	1,893	2,324	2,396	2,137	1,951	2052
North-West	1,263	1,373	2,336	2,270	1,726	2,541	1918
Eastern	942	1,248	1,254	1,426	1,113	1,298	1214
South-East	631	852	878	1,569	732	1121	964
South-West	1,187	877	1,911	1,537	1,015	1,590	1353
Peel	677	471	672	867	568	973	705
MDP TOTAL	7,126	7,708	10,209	11,239	8,328	10,222	9,139

Source: WAPC.

Over the period, from 1996/97 to 2001/2002 total residential lot creation has averaged 9,139 lots per annum in the MDP area. In 2001/02 10,222 residential lots were created, an increase in lot production of 19% as measured from the previous financial year.

The type of lot created in the MDP is shown in Table 2-2. The number of lots created as Torrens Title (for single residential dwellings) has averaged 7,632 over the five year period to 2001/2002 while the number of strata title lots has averaged 1047 over the period.

The number of dwellings approved is shown in Table 2-3. The average over the period is 14,085 lots per annum, 11,569 for houses and 2,056 for other dwellings (multiple units). This exceeds the simple average of lots created because strata lots accommodate multiple dwellings. In addition in any period, the stock of vacant residential lots can adjust at any time to balance lot creation and housing production. At the end of 2001, vacant residential lots in the Perth MDP were estimated to be 26,475.

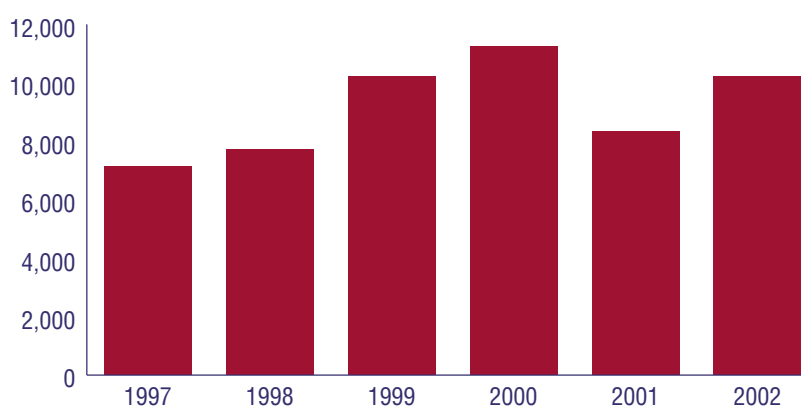


Figure 2-1: Total New Lot Creation in the MDP.

Table 2-2: New Lot Creation - Strata, Single Residential and Special Rural Lot Creation in the MDP, 1996/1997 to 2001/2002.

Year Ending June	1997	1998	1999	2000	2001	2002
Strata Lots	458	552	1,095	1,231	1,329	1,615
Torrens Title	6,270	6,721	8,459	9,507	6,552	8,285
Special Rural Lots	398	435	655	501	447	322
MDP Total	7,126	7,708	10,209	11,239	8,328	10,222

Source: WAPC.

Table 2-3: Dwelling Approvals in the MDP, 1996/1997 to 2001/2002.

Year Ending June	1997	1998	1999	2000	2001	Average Over Period
Other DUs	1,750	2,019	2,644	3,784	2,334	2,506
Houses	9,919	11,443	12,908	14,236	9,338	11,569
Perth MDP Total	11,669	13,462	15,552	18,020	11,672	14,075

Source: WAPC.

The value of production can be inferred from lot creation and an average value per lot. Lot value data is not available in a format that parallels the WAPC lot creation data. However, the annual surveys by UDIA collect data on the average value of lots sold in the Perth Metropolitan Area. These average lot values have been used in Table 2-4 below. At these values, annual lot creation varies from \$761 million to \$1.096 million over the last three years.

Table 2-4: Value of Lots Created, MDP, 1999/2000 to 2001/2002.

Year	1999/2000	2000/2001	2001/2002
Lots Created	11,329	8,328	10,222
Average Value Per Lot	\$96,811	\$91,417	\$101,992
Aggregate Value of Production	\$1,096,771,819	\$761,322,777	\$1,042,562,224

Source: WAPC.

Beyond the MDP there are a substantial number of lots are created in the rest of the State.

Table 2-5 shows the State total based on final lot approvals, the MDP lots and remainder of the State. In addition to the 10,222 lots created in the year 2001/2002 another 1,362 lots were created in the State.

Table 2-5: Total State Lot production 1996/97 to 2001/2002.

Year Ending June	1997	1998	1999	2000	2001	2002
MDP	7,126	7,708	10,209	11,239	8,328	10,222
Country	1,285	1,728	2,058	1,768	1,171	1,362
Total	8,411	9,436	12,267	13,007	9,499	11,584

Source: WAPC.

2.1.2. Property Operators and Developers as a Measure of Direct Employment

A number of sources of employment data exist that relate to land development. However, most of these do not separate out land development per se. We consider first the ABS data.

In the ABS data, land development is in the employment category 'property and business services' (ANZIC code 77) which is divided into a number of sub groups of which sub group 771 (Property Operators and Developers) is the one that includes land developers. However this category is broader than just land developers and also includes both commercial property operators and developers and residential property operators.

However, it is a starting point for thinking about employment. In Western Australia, the employment in ABS category 771 is shown below in Table 2-6 which shows an estimated 3,800 people employed in the category in 2002 and 3,600 in 2001.

Table 2-6: Employment in 'Property Operators and Developers' (ANZIC 771), Western Australia.

Year	Persons
November Quarter 1998	2,300
November Quarter 1999	3,800
November Quarter 2000	3,600
November Quarter 2001	3,600
November Quarter 2002	3,800

Source: ABS Labour Force Survey

The Census classification counts show the number of people defining themselves into various employment categories. Table 2-7 shows the counts in categories most closely identifiable with property development activities and these add to 3,252. Census is June 2001 and the labour force survey of August 2001 estimated 3,300 persons in the Property Operators and Developers group.

Table 2-7: Employment in Property Development Related Categories

<i>Commercial Property Operators and Developers</i>	1,208
Property Operators and Developers, undefined	91
Property Services, undefined	1,259
Residential Property Operators	694
TOTAL	3,252

2.1.3. Employment in Land Development

Although these numbers are consistent with each other, the basic ABS definition of the 'property operators and developers' group is not entirely satisfactory as a measure of the direct employment associated with the land development activity of UDIA members in Western Australia. The category includes those involved in owning and renting buildings. It does not therefore appear indicative of the core direct employment generated when a developer takes a greenfields site and transforms it into saleable lots.

An alternative approach to understanding direct employment is to estimate the employment required to create lots across all of the major employment categories associated with lot production. In terms of the basic activity of lot production the typical list of employment activities is something like that shown in Table 2-8 below.

Table 2-8: Employment Categories for a Typical Land Development.

Developer	Consultants	Services
Acquisition	Planner / Urban Designer	Earth Works
Project Manager	Market Research	Services
Sales and Marketing	Statutory Planner	Roads
Customer Service	Engineer	Landscaping
Support Staff / Accounts	Environmental Scientist	Landscape Maintenance
Finance	Landscape Architect	
	Surveyor	
	Community Development	
	Communications and Marketing	
	Sales	
	Legal	
	Settlement	



Most of the above are not likely to be included in the typical ABS “property operators and developers” group. On the other hand, within that group, property operators do not fit the definition of land development related employment.

Employment in terms of the above definition is not readily estimable from public data bases. Therefore an estimate has been made based on the employment structure for a typical estate on a per lot basis using data provided by a sample of major developers. Data was collected on employment numbers and time dedicated to the project as well as project scale in terms of lots produced. Using the employment numbers and months on the project and estimate was made of FTE (full time equivalent employment numbers) and these were then put on a per lot basis. The weighted average results across estates in the survey have been applied to the aggregate number of lots created to get an estimate of the full time equivalent employment that goes with the aggregate level of lot production activity.

Using this analysis for typical estates, we get an estimate of total employment for the 2001/2002 lot creation in the MDP. This is shown in Table 2-9 where the aggregate estimate is based on the 2001/2002 lot production of 10,222 per annum. To produce this output requires 2,566 full time equivalent employees. Based on the estimated 2002 average lot value of \$101,922 these 2,566 jobs are associated with aggregate production value of \$1,042 million. The estimated direct employment of 2,566 is associated with aggregate wages and salaries of \$93.83 million.

These direct impact estimates of 2,566 jobs, \$93.83 million in wages and an aggregate lot production value of \$1,042 million are the basis for estimating the indirect or flow on impacts associated with land development in the MDP. If we based the estimates on the state total lot production of 11,584 lots total employment would be 2,881 full time equivalent and wages would be \$107.7 million.

The estimation of the multiplier impacts is considered in the next chapter.

Table 2-9: Estimated Direct Employment Based on MDP 2001/2002 Lot Production

	FTE per lot	2002 lots	Aggregate FTE	Aggregate Wages and Salaries
Administration Services	0.0440	10,222	453	
Professional Services	0.0730	10,222	755	
Contractors	0.1325	10,222	1358	
Total	0.2495	10,222	2,566	\$93,826,654

Table 2-10: Estimated Direct Employment Based on State 2001/2002 Lot Production

	FTE per lot	2002 lots	Aggregate FTE	Aggregate Wages and Salaries
Administration Services	0.0440	11,584	508	
Professional Services	0.0730	11,584	843	
Contractors	0.1325	11,584	1530	
Total	0.2495	11,584	2,881	\$107,700,923

“...11,584 lots total employment would be 2,881 full time equivalent and wages would be \$107.7 million.”

3. Economic Analysis of Land Development Impacts

3.1. Introduction

The analysis in chapter 2 provides an overview of the structure and operations of the land development industry in Western Australia. In this section we consider the economic impacts that flow from this level of activity.

Estimates are first made of the direct output, employment and income effects associated with land development based on the data from ABS. This has been supplemented with data from the UDIA and a sample of individual developers.

Relevant multipliers have been applied to this data to estimate the indirect of flow on effects from the land development activity.

3.2. Measuring Economic Impacts

The measurement of economic impacts in this study concentrates on employment and income impacts which flow from the operation of the land development industry in Western Australia.

These impacts can be classified into three distinct categories. These are:

- i. Direct Effects;
- ii. Production Induced Effects; and
- iii. Consumption Induced Effects.

The direct impacts on income and employment flow from the economic activity which is directly related to land development activity. As already noted, the scope of the direct impacts will be related to the definition chosen for the land development industry. Briefly, the analysis of direct impacts must take account of those activities which are directly related to the development of lots for sale.

Flowing on from these direct impacts are indirect impacts on income and employment which are generated because of the backward linkages between the individuals and firms directly involved in the land development and firms in the rest of the economy who supply them. These are the production induced effects.

Additional impacts flow from the fact that the expenditure generated as part of the land development activity, together with the production of goods and services in industries supplying land development operators, gives rise to additional household incomes being generated in the economy. This income will be spent on goods and services generally but can be attributed to the operations of the land development sector. This is the consumption induced effect.

These indirect impacts give rise to the concepts of employment and income multipliers. The magnitude of these multipliers depends on the particular set of inter-industry relationships that exists in the economy.

3.2.1. Measuring Indirect Impacts: Multiplier Analysis

The direct impact associated with land development activity will give rise to further impacts in the form of flow on effects. These arise as a result of the additional output, income and employment generated in those industries supplying the goods and services to those involved in land development. The increased household incomes generated in this process will cause increases in general consumption expenditure thereby inducing further production, income and employment increases.

In order to estimate the flow on effects associated with a given activity, a multiplier is applied to the direct impact estimates. This multiplier has the effect of scaling the direct impact estimate up to a level which accounts for the flow on effects generated. The multiplier therefore expresses the ratio of flow on output/income/employment to direct output/income/employment for the industry under consideration, land development in the current study.

Multiplier estimates for specific industries can be derived from input-output analysis as set out in Appendix A. It is common to define multipliers at two levels. The Type I multiplier = (direct + indirect effects)/direct effect, while the Type II multiplier = (direct + indirect + induced effects)/direct effect. The Type II multiplier, because it accounts for induced consumption effects, is larger.

Application of relevant multipliers is a standard way of estimating economic impacts.

3.3. Estimated Economic Impact of the Development Industry in Western Australia

This section presents the results of applying the impact methodology discussed in the previous sections to the results obtained in the surveys of firms related to land development activities in Western Australia.

Table 3-1 summarise the output, household income and employment impacts associated with land development.

3.3.1. Direct Impacts

The available information gives a direct value of output estimate of \$1,042 million for the MDP based on the lot and value data available.

The land development industry is estimated to generate approximately 2,566 full time equivalent jobs. These are jobs that can be attributed directly to land development operations and firms and agencies whose activity is directly linked to land development.

In conjunction with the employment impact the land development industry generates significant income impacts. The total **wages and salaries expenditure** associated with the direct employment impact is estimated to be approximately \$93.8 million. This implies an average wage/salary and supplements per person across the total estimated direct employment of around \$38,000 per annum.

For the State as a whole wages and salaries are \$107.7 million and full time equivalent employment is 2,881. These direct effects are shown in Table 3-1.

Table 3-1: Direct Output, Income and Employment Effects Based on 2002 Lot Production: MDP and State.

	MDP	STATE
Output (Lot Value)	\$1,042,562,224	\$1,172,689,022
Wages and Salaries	\$93,826,654	\$107,700,923
Employment FTE	2,566	2,881

3.3.2. Indirect Impacts

The above tables also show the flow on effects attributable to the estimated direct output, employment and income generation associated with the operations of the land development industry in Western Australia. The calculation in this table is based on assigning the direct employment and income impacts associated with land development to the industry sectors of the Western Australian input-output table to which they most closely relate.

Table 3-2 shows the direct output, income and employment impacts, the Type I and Type II employment multipliers and the total estimated impact on output, employment and incomes implied by the application of these multipliers to the direct impact estimates.

Table 3-2: Direct and Indirect Employment and Incomes Based on 2002 Lot Production.

MDP					
	Direct Impact	Indirect Impact Type I	Indirect Impact Type II	Total Impact Type I	Total Impact Type II
Employment	2,566	3,320	6,402	5,886	8,968
Wages and Salaries (\$ mill)	\$93,826,655	\$69,463,912	\$135,243,821	\$163,290,567	\$229,070,476

STATE					
	Direct	Indirect Type I	Indirect Type II	Total Type I	Total Type II
Employment	2,881	3,728	7,187	6,609	10,067
Wages and Salaries (\$ mill)	\$107,700,923	\$81,079,752	\$157,125,013	\$188,780,675	\$264,825,936



The Type I impacts account for the direct impacts and the production induced effects whereby land development induces employment and output in industries supplying land development activities. In aggregate for the MDP, the direct wages and salaries of \$93.8 million becomes \$163.3 million using the Type I multiplier.

The type II multiplier accounts for all the direct and production induced effects but also accounts for the consumption induced effects whereby employment and output is induced in a variety of industries as the direct and indirect wages and salaries attributable to land development activities are spend throughout the economy. In aggregate, land development activities in the MDP account for \$230 million in wages and salaries using the Type II multiplier.

The estimated direct employment impact of 2,566 full time equivalent jobs becomes 6,402 using the Type I multipliers and 8,968 using the Type II multipliers.

In summary based on lot creation at the 2001/2002 level of around 10,222 a year, around 9,000 full time equivalent jobs are generated on going.

For the State, based on lot creation at the 2001/2002 level of a round 11,584 lots a year, around 10,100 full time equivalent jobs and \$264 million in wages and salaries are generated based on the full type II multiplier analysis.

3.3.3. Other Impact: Tax Flows

Land development generates significant tax flows with the main tax items being stamp duty, personal income tax and GST. The State lot production in 2001/220 of 11,584 lots with gross value of \$1.17 billion is estimated to have generated around \$29.1 million in stamp duty.

Based on the aggregate value of production and sales and direct wages and salaries, GST is estimated to be \$58.8 million and personal income tax is estimated to be \$26.3 million.

3.3.4. Other Impacts Employment Mix

The composition of those directly employed in the industry is notable for the high proportion of 'knowledge workers'. As outlined previously the estimated number of direct employees for MDP lot production is 2,566. The broad composition based on the splits in Table 2-8 is shown in Table 3-3.

Table 3-3: Employment Breakdown for Land Development, MDP.

Category	Employment	Proportion
Administration Services	453	18%
Professional Services	755	29%
Contractors	1358	53%

That is, almost half of the industry is in Administration or Professional Services. The high level of national and international recognition gained by Western Australian projects indicates that a competitively high level of expertise is contained in this group. This concentration of expertise has enabled a significant export of services from the state. Anecdotally, there are a number of professional services firms, in particular, whose activities in the Western Australian industry gives them a viable base to undertake projects in other states of Australia and internationally, particularly in Asia.

3.4. Future Activity and Employment

As noted above, employment impacts will follow directly from the level of lot creation activity. The Western Australian Planning Commission estimates the lot production for the future as just over 50,000 lots over the period 2002/2003 to 2005/2006 or 12,505 lots per annum on average for the MDP. Hence the future average annual level of direct employment, measured in FTEs is expected to be 3,160 with 11,100 jobs on average in total each year in the MDP.

**“...10,100 full time jobs... \$264 million in wages and salaries...
11,584 lots with gross value of \$1.17 billion...
GST is estimated to be \$58.8 million”**



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