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UPDATE TO ECONOMIC IMPACT ASSESSMENT OF 1-5 CHESTER STREET, ANNANDALE

In 2019, AEC Group (AEC) was engaged by Britely Property to prepare an Economic Impact Assessment (EIA) to examine the economic impacts likely to result from the proposed planning control amendments and development of the site at 1-5 Chester Street in Annandale (“the Site”).

The planning proposal seeks to rezone to B7 Business Park zone and make the following amendments to the Leichhardt Local Environmental Plan (2013).

- Establish a B7 use, a maximum height of 17m, and site specific FSR control.
- Include a local provision which:
 - Allows boarding house for student accommodation use as additional permitted uses.
 - Requires a minimum of 980sqm (FSR 0.75:1) to be delivered as non-residential uses.
 - Allows an additional FSR of 1.25:1 for a boarding house to be used as student and/ or key worker housing.

The Proposal would enable a mix of land uses as follows:

- Employment for innovation / creative office (FSR 0.75:1); and
- Residential boarding house for student accommodation (FSR 1.25:1).

The original EIA examined the economic impacts if the Camperdown Precinct were redeveloped as recommended under PRUTS. The economic impacts from the extent to which the Proposal varied from PRUTS was also assessed.

Britely Property have subsequently requested additional items to be addressed in the EIA arising from comments received from DPIE and Council. These include:

- 1 Economic modelling of the recommended planning control amendments for the B7 zone (the Site, rather than the entire Camperdown Precinct as previously modelled).
- 2 Comparison of the economic benefits including job creation between the different scenarios, being:
 - a **Base Case:** The Site under the existing planning framework (IN2 zoning and 1:1 FSR).
 - b **PRUTS Case:** The Site as envisaged by PRUTS (R3 Medium Density Residential and 1.5:1 FSR).
 - c **Planning Proposal Case:** The Site as proposed by the Planning Proposal (B7 Business Park and 1.25:1 FSR for Student Accommodation and 0.75:1 FSR for Employment Creative Office uses).

This document represents an addendum to the initial report *1-5 Chester Street, Annandale Economic Impact Assessment* (AEC, 2019) and should be read in conjunction with the initial report.

ECONOMIC IMPACT ASSESSMENT

In order to understand the economic impacts likely to result from the Proposal, it is necessary to distinguish economic impacts during the construction phase and those economic impacts that will be more permanent in nature following construction completion and operations commencement.

- **Construction Phase:** Construction activity will draw resources from and thereby generate economic activity in Inner West LGA as well as from outside the LGA. Assumptions are made on the proportion sourced from within and from outside the LGA. Construction activity generated by the different scenarios includes:
 - **Base Case:** No construction activity is anticipated in the base case.
 - **PRUTS Case:** Construction costs of \$9.18 million for a residential apartment building. The development will include 26 new apartments, housing approximately 73 additional residents across a floorspace of circa 1,950m².
 - **Planning Proposal Case:** Construction costs of \$12.30 million towards construction of a student accommodation building and a commercial creative office. The student accommodation site will accommodate 63 new students, whilst the commercial office is expected to employ 81 staff across a floorspace of 980m².
- **Operations Phase:** The ongoing economic/ operational activity generated by the different scenarios, being:
 - **Base Case:** Direct turnover generated by the operational activities of the built mechanics workshop.
 - **PRUTS Case:** The direct turnover generated by residents working from home, as well as the additional household expenditure circulated through the Inner West LGA.
 - **Planning Proposal Case:** Direct turnover generated by the student accommodation activities, the expenditure of students, and the operational activities of the creative office.

BASE CASE

Base Case Construction Phase

No construction activity is anticipated in the base case.

Base Case Operational Phase

Employment estimates for the base case were developed based on current planning controls enabled by the precinct. For modelling purposes, estimated operational employment levels for the base case were allocated to its respective Input-Output industry, being the Automotive Repair and Maintenance sector.

Employment by industry estimates were converted to an output value using a multiplier based on the national transaction table (ABS, 2019a). The resultant estimates of output were modelled as the direct activity associated with the base case.

Table 1. Base Case Operational Activity

Component	Input-Output Industry	Employment (FTE)	Output (\$M)
Mechanics Workshop	Automotive Repair and Maintenance	4.0	\$0.62

Source: ABS (2019a), Britely & AEC.

PRUTS CASE

PRUTS Case Construction Phase

For modelling purposes, construction costs for the PRUTS case were allocated to their respective Input-Output industries. This breakdown was developed based on assumptions by AEC regarding the most appropriate industries for each activity.

Table 2. PRUTS Case Construction Costs Allocation

Component	Input-Output Industry	Construction Costs (\$M)
Apartment Building	Residential Building Construction	\$7.35
	Construction Services	\$0.92
	Professional, Scientific and Technical Services	\$0.92
Total	-	\$9.18

Source: Britely & AEC.

Only the construction activity expected to be undertaken *within the Inner West LGA* has been included in the economic impact assessment. For the purposes of this assessment it was assumed:

- Approximately 50% of the direct expenditure on construction activity would be sourced from local businesses and labour (including construction and professional services activity).
- Approximately 25% of purchases on goods and services (supply chain related activity) made by construction-related businesses sourced from outside the Inner West LGA would be spent within the local economy (i.e., 25% of the Type I flow on activity associated with non-local construction companies is assumed to represent additional local activity in Inner West LGA).
- Approximately 5% of wages and salaries paid to construction-related workers sourced from outside the region would be spent on local goods and services, such as food and beverages (i.e., 5% of the Type II flow on activity associated with non-local workers is assumed to represent additional local activity in the LGA).

PRUTS Case Operational Phase

The PRUTS residential development with 26 apartments is expected to house approximately 73 new residents (using an average household size of 2.8 for the Greater Sydney region) once completed. Of these residents, it is anticipated that approximately 4.5% will be employed and choose to work from home, in line with averages for Greater Sydney in 2016 (ABS, 2017a), equating to approximately 3.3 full time equivalent (FTE) jobs. These FTEs were then allocated across industry based on the share of industries of people working from home in 2016 (ABS, 2017a).

Estimates of output were developed based on employment multipliers per million dollars of output for each industry using AEC's Input-Output model. This equates to \$1.05 million in output. A breakdown of economic activity delivered by new employees in the LGA is provided below.

Table 3. PRUTS Case Operational Activity (Output by Employees Working from Home)

Input-Output Industry	Employment (FTE)	Output (\$M)
Agriculture, Forestry and Fishing	0.07	\$0.02
Mining	0.01	\$0.01
Manufacturing	0.13	\$0.05
Electricity, Gas, Water and Waste Services	0.01	\$0.01
Construction	0.25	\$0.12
Wholesale Trade	0.12	\$0.05
Retail Trade	0.16	\$0.02
Accommodation and Food Services	0.06	\$0.01
Transport, Postal and Warehousing	0.08	\$0.03
Information Media and Telecommunications	0.14	\$0.07
Financial and Insurance Services	0.25	\$0.19
Rental, Hiring and Real Estate Services	0.11	\$0.05
Ownership of Dwellings	0.00	\$0.00
Professional, Scientific and Technical Services	0.92	\$0.24
Administrative and Support Services	0.18	\$0.06
Public Administration and Safety	0.05	\$0.01
Education and Training	0.19	\$0.03

Input-Output Industry	Employment (FTE)	Output (\$M)
Health Care and Social Assistance	0.29	\$0.04
Arts and Recreation Services	0.11	\$0.02
Other Services	0.15	\$0.02
Total	3.28	\$1.05

Source: ABS (2017a; 2019a), Britely & AEC.

In addition to the economic activity supported by people working from home, new residents to Inner West LGA attracted by development of new dwellings under the PRUTS case are expected to support economic activity in the region through household expenditure. With up to 26 new households in the region as a result of residential development, and an average weekly household income of \$2,430 per week in the Inner West LGA (ABS, 2017a), this equates to approximately \$3.3 million in annual incomes for households within the dwellings developed.

A portion of these incomes will be spent within the Inner West LGA. Estimates for household expenditure circulated by new residents in the region were developed based data from the Household Expenditure Survey (ABS, 2017b) regarding the proportion of household incomes that are then spent on goods and services, as well as assumptions regarding the proportion of this expenditure captured within the Inner West LGA based on demand and supply of goods and services by industry in the LGA as estimated in the Input-Output transaction table for the Inner West LGA (see Appendix A for details regarding the Input-Output transaction table used). Based on the above approach, the household expenditure captured within the Inner West LGA is estimated to be \$1.93 million annually for the dwellings developed.

Table 4. PRUTS Case Household Expenditure of New Residents

Input-Output Industry	Output (\$M)
Agriculture, Forestry and Fishing	\$0.00
Mining	\$0.00
Manufacturing	\$0.00
Electricity, Gas, Water and Waste Services	\$0.01
Construction	\$0.21
Wholesale Trade	\$0.00
Retail Trade	\$0.71
Accommodation and Food Services	\$0.15
Transport, Postal and Warehousing	\$0.03
Information Media and Telecommunications	\$0.06
Financial and Insurance Services	\$0.20
Rental, Hiring and Real Estate Services	\$0.03
Ownership of Dwellings	\$0.18
Professional, Scientific and Technical Services	\$0.01
Administrative and Support Services	\$0.01
Public Administration and Safety	\$0.07
Education and Training	\$0.08
Health Care and Social Assistance	\$0.08
Arts and Recreation Services	\$0.04
Other Services	\$0.06
Total	\$1.93

Source: ABS (2017a; 2017b), Britely & AEC.

PLANNING PROPOSAL CASE

Planning Proposal Case Construction Phase

For modelling purposes, construction costs for the planning proposal case were allocated to their respective Input-Output industries. This breakdown was developed based on assumptions by AEC regarding the most appropriate industries for each activity.

Table 5. Planning Proposal Case Construction Costs Allocation

Component	Input-Output Industry	Construction Costs (\$M)
Student Accommodation & Creative Office	Residential Building Construction	\$3.69
	Non-Residential Building Construction	\$6.15
	Construction Services	\$1.23
	Professional, Scientific and Technical Services	\$1.23
Planning Proposal Total	-	\$12.30

Source: Britely & AEC.

Only the construction activity expected to be undertaken *within the Inner West LGA* has been included in the economic impact assessment. For the purposes of this assessment it was assumed:

- Approximately 50% of the direct expenditure on construction activity would be sourced from local businesses and labour (including construction and professional services activity).
- Approximately 25% of purchases on goods and services (supply chain related activity) made by construction-related businesses sourced from outside the Inner West LGA would be spent within the local economy (i.e., 25% of the Type I flow on activity associated with non-local construction companies is assumed to represent additional local activity in Inner West LGA).
- Approximately 5% of wages and salaries paid to construction-related workers sourced from outside the region would be spent on local goods and services, such as food and beverages (i.e., 5% of the Type II flow on activity associated with non-local workers is assumed to represent additional local activity in the LGA).

Planning Proposal Case Operational Phase

Employment estimates for the Planning Proposal Case were provided by Britely Property, based on anticipated floorspace ratios and GFA per employee benchmarks. For the Student Accommodation site, a floorspace ratio of 1.25:1 was used, supporting approximately 2 full-time equivalent (FTE) jobs once operational. For the creative office space, a floorspace ratio of 0.75:1 is anticipated, supporting 81 FTE jobs. For modelling purposes, estimated operational employment levels for the Proposal were allocated to their respective Input-Output industry. This breakdown was developed based on assumptions on the most appropriate industries for each activity. Estimates of output were developed based on employment multipliers per million dollars of output for each industry using AEC's Input-Output model.

Table 6. Planning Proposal Case Operational Activity

Component	Input-Output Industry	Employment (FTE)	Output (\$M)
Student Accommodation	Accommodation	2	\$0.45
	Professional, Scientific and Technical Services	41	\$9.92
Creative Office	Computer Systems Design and Related Services	8	\$2.40
	Heritage, Creative and Performing Arts	4	\$0.61
	Publishing (except Internet and Music Publishing)	7	\$2.31
	Motion Picture and Sound Recording	7	\$2.41
	Broadcasting (except Internet)	7	\$3.35
	Internet Service Providers, Internet Publishing and Broadcasting, etc.	7	\$6.19
Total	-	83	\$27.63

Source: (ABS, 2019a), Britely & AEC.

International high-school and/ or tertiary education students are expected to reside in the Student Accommodation once developed, providing 63 beds for students in the Inner West LGA. As is the case with household expenditure under the PRUTS case, these students will support ancillary expenditure within the local economy. Overseas students have been estimated to spend approximately \$40,000 to \$50,000 per annum on average in Australia (Australian Government, 2013), inclusive of expenditure on tuition and accommodation.

A conservative estimate of student expenditure on goods and services excluding tuition and accommodation of approximately \$20,000 per annum has been used in this assessment, in consideration of a mix of school and tertiary education students and data from the ABS (2019b) indicating expenditure of international school students on tuition fees is approximately equivalent to their spend on goods and services. Expenditure on tuition is excluded as it has conservatively been assumed that provision of student accommodation will not result in an increase in overall student numbers at the nearby education institutions, while expenditure on accommodation is excluded as this is already captured in the activity of the Student Accommodation outlined in Table 6 and to include this spend would double count this impact.

With up to 63 students in the region as a result of student accommodation, and an average annual expenditure of \$20,000, this equates to approximately \$1.26 million in annual expenditure on goods and services by these students.

As with household expenditure, not all of this expenditure will be spent in the Inner West LGA. Estimates of expenditure across different goods and services were developed based data from the Household Expenditure Survey (ABS, 2017b), as well as assumptions regarding the proportion of this expenditure captured within the Inner West LGA based on demand and supply of goods and services by industry in the LGA as estimated in the Input-Output transaction table for the Inner West LGA (see Appendix A for details regarding the Input-Output transaction table used). This provides an estimate of student expenditure in the Inner West LGA of approximately \$1.15 million annually.

Table 7. Planning Proposal Case Student Expenditure

Input-Output Industry	Output (\$M)
Agriculture, Forestry and Fishing	\$0.00
Mining	\$0.00
Manufacturing	\$0.00
Electricity, Gas, Water and Waste Services	\$0.00
Construction	\$0.00
Wholesale Trade	\$0.00
Retail Trade	\$0.58
Accommodation and Food Services	\$0.12
Transport, Postal and Warehousing	\$0.02
Information Media and Telecommunications	\$0.05
Financial and Insurance Services	\$0.16
Rental, Hiring and Real Estate Services	\$0.02
Ownership of Dwellings	\$0.00
Professional, Scientific and Technical Services	\$0.01
Administrative and Support Services	\$0.01
Public Administration and Safety	\$0.06
Education and Training	\$0.00
Health Care and Social Assistance	\$0.04
Arts and Recreation Services	\$0.03
Other Services	\$0.05
Total	\$1.15

Source: ABS (2017a; 2017b; 2019b), Australian Government (2013), Britely & AEC.

ECONOMIC IMPACT ASSESSMENT

The economic activity supported can be traced through the economic system via:

- **Direct impacts**, which represent the economic activity of the industry or industries directly experiencing the stimulus.
- **Indirect Impacts (Flow-on impacts)**, which are disaggregated to:

- **Indirect Impact (Type I)**, which comprise the effects from:
 - Direct expenditure on goods and services by the industry experiencing the stimulus (direct suppliers to the industry), known as the first round or direct requirements effects.
 - The second and subsequent round effects of increased purchases by suppliers in response to increased sales, known as the industry support effects.
- **Indirect Impact (Type II)**, which represent the consumption induced activity from additional household expenditure on goods and services resulting from additional wages and salaries being paid within the economic system.

The premise behind Type I and Type II indirect impacts applies across both the construction and operational phase, except the impacts on industry will be different. For example, Type I impacts during the construction phase may include professional services (e.g. architects, engineers), manufacturing (steel, construction materials) while examples of Type I impacts during the operational phase may include manufacturing (food and beverage, food related), administrative and support services (e.g. building cleaning, employment services, travel agencies, etc.).

The following sections outline the economic activity attributed to all future land uses on the Site, including accommodation.

BASE CASE

Base Case Construction Phase

No construction phase impacts in the base case.

Base Case Operational Phase

The existing mechanics workshop is estimated to support the following annual economic activity within the Inner West LGA through the direct and flow-on impacts associated (per annum):

- \$1.3 million in output (including \$0.6 million in direct activity).
- \$0.7 million contribution to GRP (including \$0.3 million in direct activity).
- \$0.4 million in incomes and salaries paid to households (including \$0.2 million in direct wages).
- 6 FTE jobs (including 4 FTE jobs from direct activity)

Table 8. Base Case Annual Activity Supported from Operations Phase

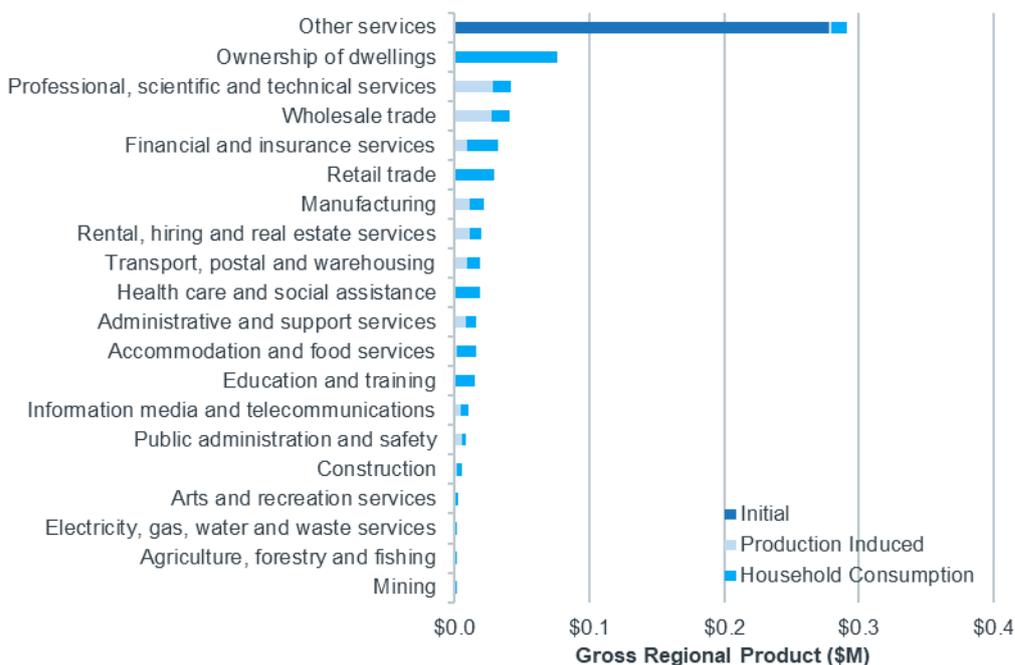
Impact	Output (\$M)	Gross Regional Product (\$M)	Incomes (\$M)	Employment (FTE)
Direct	\$0.6	\$0.3	\$0.2	4
Type I Flow-On	\$0.2	\$0.1	\$0.1	1
Type II Flow-On	\$0.5	\$0.3	\$0.1	2
Total	\$1.3	\$0.7	\$0.4	6

Note: Totals may not sum due to rounding
Source: AEC

Major industry beneficiaries of the Base Case include:

- Other services (GRP \$0.29 million per annum).
- Ownership of dwellings (GRP \$0.08 million per annum).
- Professional, scientific and technical services (GRP \$0.04 million per annum).

Figure 1. Gross Regional Product (GRP) Impact by Industry, Base Case Operations (Annual)



Source: AEC

PRUTS CASE

PRUTS Case Construction Phase

The construction phase associated with the PRUTS Case is expected to support the following economic activity through direct and flow-on impacts (in aggregate over the course of the construction phase):

- \$10.2 million in output (including \$4.6 million in direct activity).
- \$4.4 million contribution to GRP (including \$1.5 million in direct activity).
- \$2.3 million in incomes and salaries paid to households (including \$0.8 million in direct wages).
- 32 FTE jobs (including 14 directly employed in the construction activity).

Table 9. PRUTS Case Aggregate Construction Activity Supported

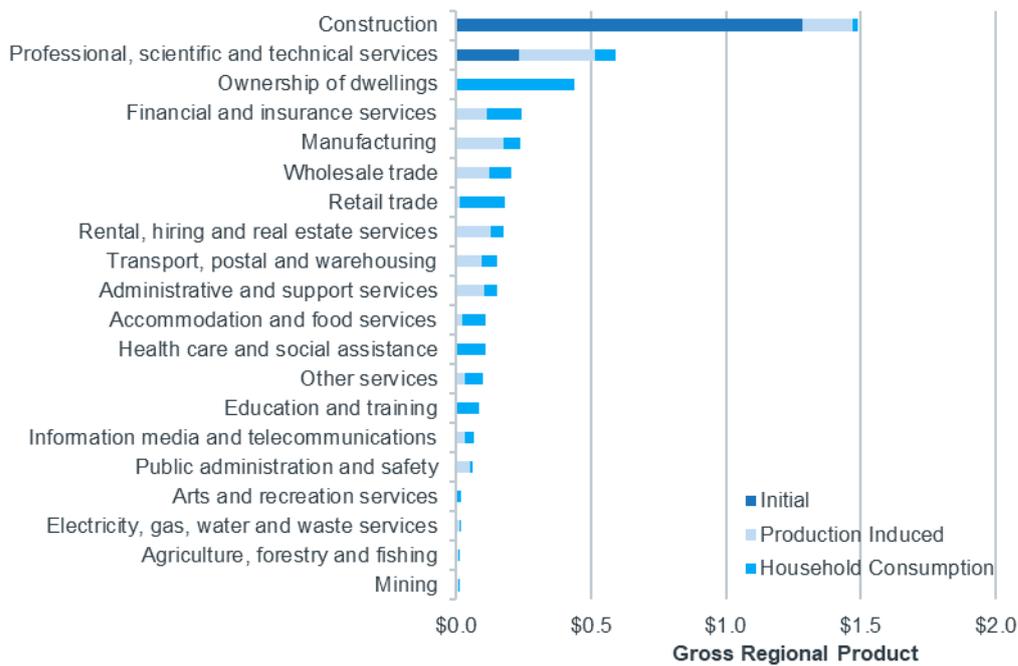
Impact	Output (\$M)	Gross Regional Product (\$M)	Incomes (\$M)	Employment (FTE)
Direct	\$4.6	\$1.5	\$0.8	14
Type I Flow-On	\$3.0	\$1.4	\$0.8	10
Type II Flow-On	\$2.6	\$1.5	\$0.7	9
Total	\$10.2	\$4.4	\$2.3	32

Note: Totals may not sum due to rounding
Source: AEC

Major industry beneficiaries from construction phase activity in the PRUTS Case include:

- Construction (GRP \$1.5 million per annum).
- Professional, scientific, and technical services (GRP \$0.6 million per annum).
- Ownership of dwellings (GRP \$0.4 million per annum).

Figure 2. Gross Regional Product (GRP) Impact by Industry, PRUTS Case Construction (Aggregate)



Source: AEC

PRUTS Case Operational Phase

One fully developed and operational, the PRUTS Case is estimated to support the following annual economic activity within the Inner West LGA through the direct and flow-on impacts associated (per annum):

- \$7.0 million in output (including \$3.0 million in direct activity).
- \$3.8 million contribution to GRP (including \$1.6 million in direct activity).
- \$2.0 million in incomes and salaries paid to households (including \$0.9 million in direct wages).
- 26 FTE jobs (including 13 FTE jobs from direct activity)

Table 10. PRUTS Case Annual Activity Supported from Operations Phase

Impact	Output (\$M)	Gross Regional Product (\$M)	Incomes (\$M)	Employment (FTE)
Working from Home				
Direct	\$1.1	\$0.5	\$0.3	3
Type I Flow-On	\$0.6	\$0.3	\$0.2	2
Type II Flow-On	\$0.9	\$0.5	\$0.2	3
Total	\$2.5	\$1.3	\$0.7	8
Household Expenditure				
Direct	\$1.9	\$1.0	\$0.6	9
Type I Flow-On	\$1.0	\$0.5	\$0.3	3
Type II Flow-On	\$1.6	\$0.9	\$0.4	5
Total	\$4.5	\$2.5	\$1.3	18
PRUTS Case Total				
Direct	\$3.0	\$1.6	\$0.9	13
Type I Flow-On	\$1.6	\$0.8	\$0.5	5
Type II Flow-On	\$2.4	\$1.4	\$0.6	8
Total	\$7.0	\$3.8	\$2.0	26

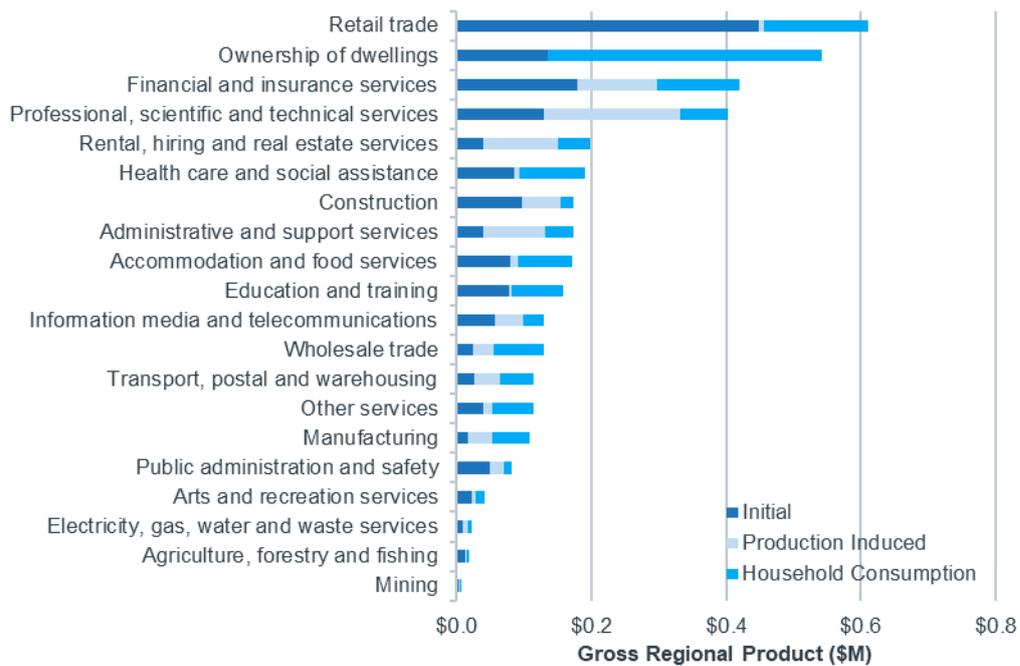
Note: Totals may not sum due to rounding

Source: AEC

Major industry beneficiaries of operations phase activity from the PRUTS Case include:

- Retail trade (GRP \$0.6 million per annum).
- Ownership of dwellings (GRP \$0.5 million per annum).
- Financial and insurance services (GRP \$0.4 million per annum).

Figure 3: Gross Regional Product (GRP) Impact by Industry, PRUTS Case Operations (Annual)



Source: AEC

PLANNING PROPOSAL CASE

Planning Proposal Case Construction Phase

The construction phase associated with the Planning Proposal Case is expected to support the following economic activity through direct and flow-on impacts (in aggregate over the course of the construction phase):

- \$14.2 million in output (including \$6.2 million in direct activity).
- \$6.4 million contribution to GRP (including \$2.2 million in direct activity).
- \$3.3 million in incomes and salaries paid to households (including \$1.2 million in direct wages).
- 44 FTE jobs (including 17 directly employed in the construction activity).

Table 11. Planning Proposal Case Aggregate Construction Activity Supported

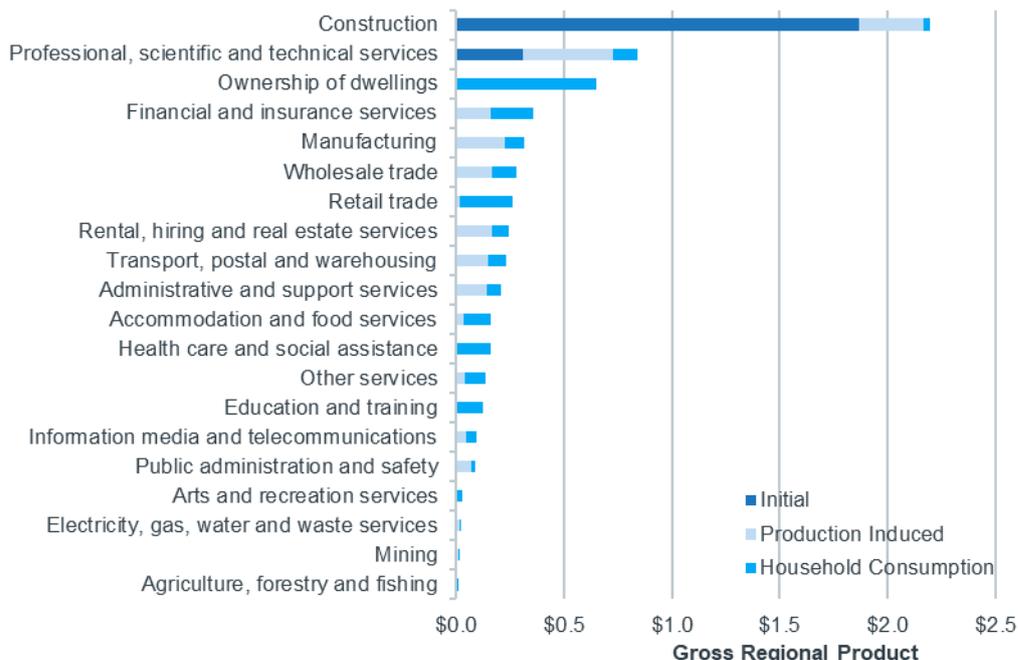
Impact	Output (\$M)	Gross Regional Product (\$M)	Incomes (\$M)	Employment (FTE)
Direct	\$6.2	\$2.2	\$1.2	17
Type I Flow-On	\$4.2	\$2.0	\$1.2	14
Type II Flow-On	\$3.8	\$2.3	\$1.0	13
Total	\$14.2	\$6.4	\$3.3	44

Note: Totals may not sum due to rounding
Source: AEC

Major industry beneficiaries from construction phase activity in the Planning Proposal Case include:

- Construction (GRP \$2.2 million per annum).
- Professional, scientific, and technical services (GRP \$0.8 million per annum).
- Ownership of dwellings (GRP \$0.6 million per annum).

Figure 4. Gross Regional Product (GRP) Impact by Industry, Planning Proposal Case Construction (Aggregate)



Source: AEC

Planning Proposal Case Operational Phase

One fully developed and operational, the Planning Proposal Case is estimated to support the following annual economic activity within the Inner West LGA through the direct and flow-on impacts associated (per annum):

- \$68.5 million in output (including \$28.8 million in direct activity).
- \$36.1 million contribution to GRP (including \$14.2 million in direct activity).
- \$19.3 million in incomes and salaries paid to households (including \$8.3 million in direct wages).
- 224 FTE jobs (including 89 FTE jobs from direct activity).

Table 12. Planning Proposal Case Annual Activity Supported from Operations Phase

Impact	Output (\$M)	Gross Regional Product (\$M)	Incomes (\$M)	Employment (FTE)
Student Accommodation				
Direct	\$0.4	\$0.2	\$0.1	2
Type I Flow-On	\$0.3	\$0.1	\$0.1	1
Type II Flow-On	\$0.4	\$0.2	\$0.1	1
Total	\$1.1	\$0.6	\$0.3	4
Student Expenditure				
Direct	\$1.1	\$0.6	\$0.4	6
Type I Flow-On	\$0.6	\$0.3	\$0.2	2
Type II Flow-On	\$1.0	\$0.6	\$0.3	4
Total	\$2.8	\$1.5	\$0.8	12
Creative Office				
Direct	\$27.2	\$13.4	\$7.8	81
Type I Flow-On	\$15.1	\$7.4	\$4.6	50
Type II Flow-On	\$22.3	\$13.1	\$5.8	77
Total	\$64.7	\$34.0	\$18.2	208
Planning Proposal Case Total				
Direct	\$28.8	\$14.2	\$8.3	89
Type I Flow-On	\$16.1	\$7.9	\$4.9	53
Type II Flow-On	\$23.7	\$14.0	\$6.1	82
Total	\$68.5	\$36.1	\$19.3	224

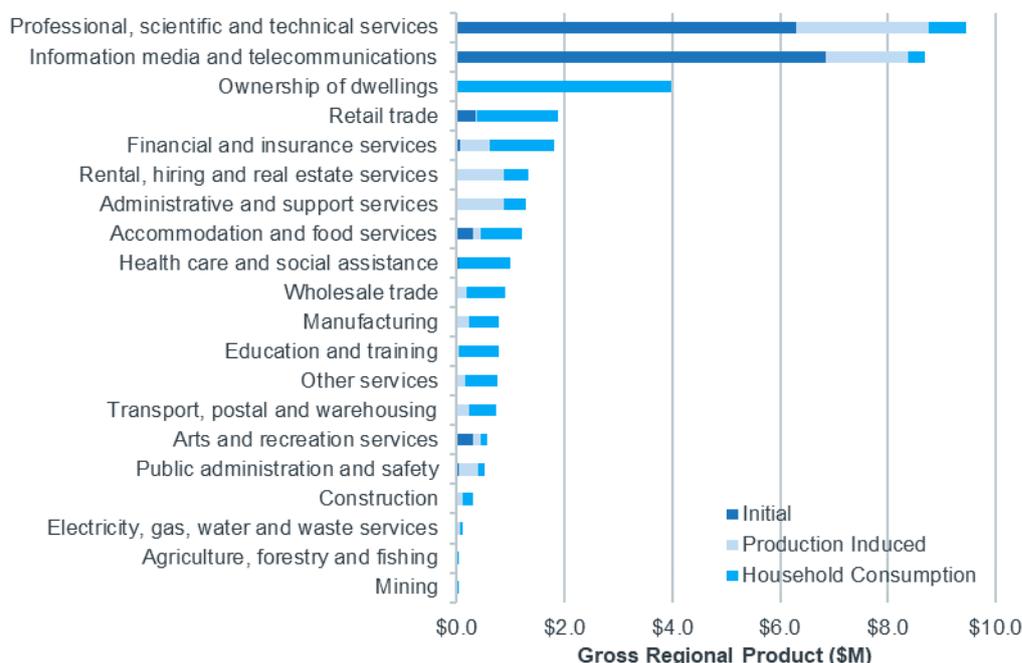
Note: Totals may not sum due to rounding

Source: AEC

Major industry beneficiaries operations phase activity from the Planning Proposal Case include:

- Professional, scientific, and technical services (GRP \$9.4 million per annum).
- Information media and telecommunications (GRP \$8.7 million per annum).
- Ownership of dwellings (GRP \$4.0 million per annum).

Figure 5: Gross Regional Product (GRP) Impact by Industry, Proposal Operations (Annual)



Source: AEC

SUMMARY OF ECONOMIC IMPACTS

During site development, the Planning Proposal Case would generate significant economic benefits to the Inner West LGA throughout the construction period.

- Economic activity generated by construction activities, which will occur entirely within the Inner West LGA, which is estimated to support 17 jobs on-site (direct jobs) and 27 indirect jobs elsewhere in the Inner West LGA.
- The economic activity generated by the development of the Planning Proposal Case is estimated to support over \$14.2 million in output, contribute approximately \$6.4 million in GRP and pay wages and salaries of \$3.3 million to households in the region.

Once fully developed and operational, The Planning Proposal Case would also provide economic benefits to the Inner West LGA each year.

- Economic activity from businesses locating to the site, as well as through induced student spend in the Inner West LGA economy, is estimated to support 89 jobs directly and 135 indirect jobs elsewhere in the Inner West LGA.
- The economic activity is estimated to support over \$68.5 million in output and more than \$36.1 million in contribution to GRP with circa \$19.3 million in incomes and salaries paid to local households annually.

The table below summarises the economic activity associated with the construction and operations phases for the Planning Proposal Case compared to the impacts delivered by the Base Case and the PRUTS Case, highlighting the activity supported by the Planning Proposal is considerably higher than the level of economic activity supported through the alternative options.

Table 13. Total Economic Impact of Scenarios

Impact	Base Case	PRUTS Case	Planning Proposal Case
Construction Impacts			
Output (\$M)	-	\$10.2 million	\$14.2 million
GRP (\$M)	-	\$4.4 million	\$6.1 million
Income (\$M)	-	\$2.3 million	\$3.3 million
Employment (FTE)	-	32 jobs	44 jobs
Ongoing Operational Impacts			
Output (\$M)	\$1.3 million	\$7.0 million	\$68.5 million
GRP (\$M)	\$0.7 million	\$3.8 million	\$36.1 million
Income (\$M)	\$0.4 million	\$2.0 million	\$19.3 million
Employment (FTE)	6 jobs	26 jobs	224 jobs

Note: Totals may not sum due to rounding
 Source: AEC

The Planning Proposal would deliver a clear, strong positive economic impact compared to the Base Case and PRUTS Case. Delivery of the Proposal contributes to supporting growth of both the Inner West local government area and the and the broader Metro Sydney Area and results in a strong net positive economic impact.

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APPENDIX A: INPUT-OUTPUT METHODOLOGY

INPUT-OUTPUT MODEL OVERVIEW

Input-Output analysis demonstrates inter-industry relationships in an economy, depicting how the output of one industry is purchased by other industries, households, the government and external parties (i.e. exports), as well as expenditure on other factors of production such as labour, capital and imports. Input-Output analysis shows the direct and indirect (flow-on) effects of one sector on other sectors and the general economy. As such, Input-Output modelling can be used to demonstrate the economic contribution of a sector on the overall economy and how much the economy relies on this sector or to examine a change in final demand of any one sector and the resultant change in activity of its supporting sectors.

The economic contribution can be traced through the economic system via:

- **Initial stimulus (direct) impacts**, which represent the economic activity of the industry directly experiencing the stimulus.
- **Flow-on impacts**, which are disaggregated to:
 - **Production induced effects (type I flow-on)**, which comprise the effects from:
 - Direct expenditure on goods and services by the industry experiencing the stimulus (direct suppliers to the industry), known as the first round or direct requirements effects.¹
 - The second and subsequent round effects of increased purchases by suppliers in response to increased sales, known as the industry support effects.
 - **Household consumption effects (type II flow-on)**, which represent the consumption induced activity from additional household expenditure on goods and services resulting from additional wages and salaries being paid within the economic system.

These effects can be identified through the examination of four types of impacts:

- **Output:** Refers to the gross value of goods and services transacted, including the costs of goods and services used in the development and provision of the final product. Output typically overstates the economic impacts as it counts all goods and services used in one stage of production as an input to later stages of production, hence counting their contribution more than once.
- **Gross product:** Refers to the value of output after deducting the cost of goods and services inputs in the production process. Gross product (e.g., Gross Regional Product) defines a true net economic contribution and is subsequently the preferred measure for assessing economic impacts.
- **Income:** Measures the level of wages and salaries paid to employees of the industry under consideration and to other industries benefiting from the project.
- **Employment:** Refers to the part-time and full-time employment positions generated by the economic shock, both directly and indirectly through flow-on activity, and is expressed in terms of full time equivalent (FTE) positions.

Input-Output multipliers can be derived from open (Type I) Input-Output models or closed (Type II) models. Open models show the direct effects of spending in a particular industry as well as the indirect or flow-on (industrial support) effects of additional activities undertaken by industries increasing their activity in response to the direct spending.

¹ Modelling note: In assessing construction impacts, AEC's modelling approach treats subcontractors in the construction services sector engaged through first round effects as part of the initial stimulus impact rather than as part of the production induced impact.

Closed models re-circulate the labour income earned as a result of the initial spending through other industry and commodity groups to estimate consumption induced effects (or impacts from increased household consumption).

MODEL DEVELOPMENT

Multipliers used in this assessment are derived from sub-regional transaction tables developed specifically for this project. The process of developing a sub-regional transaction table involves developing regional estimates of gross production and purchasing patterns based on a parent table, in this case, the 2016-17 Australian transaction table (ABS, 2019a).

Estimates of gross production (by industry) in the study area were developed based on the percent contribution to employment (by place of work) of the study area to the Australian economy (ABS, 2012), and applied to Australian gross output identified in the 2016-17 Australian table.

Industry purchasing patterns within the study area were estimated using a process of cross-industry location quotients and demand-supply pool production functions as described in West (1993).

Where appropriate, values were rebased from 2016-17 (as used in the Australian national IO transaction tables) to current values using the Consumer Price Index (ABS, 2019d).

MODELLING ASSUMPTIONS

The key assumptions and limitations of Input-Output analysis include:

- **Lack of supply-side constraints:** The most significant limitation of economic impact analysis using Input-Output multipliers is the implicit assumption that the economy has no supply-side constraints, so the supply of each good is perfectly elastic. That is, it is assumed that extra output can be produced in one area without taking resources away from other activities, thus overstating economic impacts. The actual impact is likely to be dependent on the extent to which the economy is operating at or near capacity.
- **Fixed prices:** Constraints on the availability of inputs, such as skilled labour, require prices to act as a rationing device. In assessments using Input-Output multipliers, where factors of production are assumed to be limitless, this rationing response is assumed not to occur. The system is in equilibrium at given prices, and prices are assumed to be unaffected by policy and any crowding out effects are not captured. This is not the case in an economic system subject to external influences.
- **Fixed ratios for intermediate inputs and production (linear production function):** Economic impact analysis using Input-Output multipliers implicitly assumes that there is a fixed input structure in each industry and fixed ratios for production. That is, the input function is generally assumed linear and homogenous of degree one (which implies constant returns to scale and no substitution between inputs). As such, impact analysis using Input-Output multipliers can be seen to describe average effects, not marginal effects. For example, increased demand for a product is assumed to imply an equal increase in production for that product. In reality, however, it may be more efficient to increase imports or divert some exports to local consumption rather than increasing local production by the full amount. Further, it is assumed each commodity (or group of commodities) is supplied by a single industry or sector of production. This implies there is only one method used to produce each commodity and that each sector has only one primary output.
- **No allowance for economies of scope:** The total effect of carrying on several types of production is the sum of the separate effects. This rules out external economies and diseconomies and is known simply as the "additivity assumption". This generally does not reflect real world operations.
- **No allowance for purchasers' marginal responses to change:** Economic impact analysis using multipliers assumes that households consume goods and services in exact proportions to their initial budget shares. For example, the household budget share of some goods might increase as household income increases. This equally applies to industrial consumption of intermediate inputs and factors of production.
- **Absence of budget constraints:** Assessments of economic impacts using multipliers that consider consumption induced effects (type two multipliers) implicitly assume that household and government consumption is not subject to budget constraints.

Despite these limitations, Input-Output techniques provide a solid approach for taking account of the inter-relationships between the various sectors of the economy in the short-term and provide useful insight into the quantum of final demand for goods and services, both directly and indirectly, likely to be generated by a project.

In addition to the general limitations of Input-Output Analysis, there are two other factors that need to be considered when assessing the outputs of sub-regional transaction table developed using this approach, namely:

- It is assumed the sub-region has similar technology and demand/ consumption patterns as the parent (Australia) table (e.g. the ratio of employee compensation to employees for each industry is held constant).
- Intra-regional cross-industry purchasing patterns for a given sector vary from the national tables depending on the prominence of the sector in the regional economy compared to its input sectors. Typically, sectors that are more prominent in the region (compared to the national economy) will be assessed as purchasing a higher proportion of imports from input sectors than at the national level, and vice versa.