Wagga Wagga Civic Theatre Expansion Project: Economic Assessment

Prepared for the City of Wagga Wagga

April 2022

City of Wagga Wagga

lawrence consulting

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INTRODUCTION

Lawrence Consulting was commissioned by the City of Wagga Wagga to undertake an economic assessment of the proposed Wagga Wagga Civic Theatre Expansion Project. The aim of the analysis is to demonstrate the economic benefit of the project to the City of Wagga Wagga, the Riverina region and New South Wales, and subsequently to ensure the efficient allocation of public and private funding.

The Wagga Wagga Civic Theatre (WWCT) is a main focus of cultural activities within the Wagga Wagga community. Based in the Civic Precinct on the banks of the Wollundry Lagoon, the theatre attracts a great variety of National and International Touring shows as well as many local events. The Theatre boasts a 491-seat auditorium and features an orchestra pit seating up to 38 musicians as well as professional lighting and sound systems.

The proposed expansion project includes development of two new venues of 120 and 300 seats that would provide many more performance and event opportunities, address the growing demand for arts and culture within the Wagga community and create a vibrant and attractive performance culture within the City.

The scope of this economic assessment included:

- Determination of the total direct, indirect and consumption-induced economic benefit to the economy of the City of Wagga Wagga of the proposed Wagga Wagga Civic Theatre Expansion Project (WWCTEP); and

- Evaluation of the direct costs and benefits to the community resulting from the Project.

This report details the following key components of the economic assessment undertaken:

- Economic impact analysis (including direct, indirect, consumption-induced and catalytic/spillover benefits);
- Evaluation framework and guidelines;
- Cost-benefit analysis (including approach, key inputs and assumptions and scenarios modelled);
- Results of analysis, including Net Present Value (NPV) and Benefit Cost-Ratio (BCR); and
- Sensitivity analysis.

The economic impact assessment has concentrated on both the construction and operating phase of the proposed Wagga Wagga Civic Theatre Expansion Project as well as the indirect impact of increased visitor spending in the region as a result of the project. The theatre development may also be a catalyst for further commercial development within the City of Wagga Wagga in the area surrounding the cultural precinct, although this has not been included as part of the analysis.

The following sections of this report present the results of the economic assessment.

Prepared by:

ECONOMIC IMPACT

Approach

Cultural precincts such as the Wagga Wagga Civic Theatre generate economic benefits for the regional economy through operational expenditure associated with the organisation as well as benefits associated with tourism expenditure within the region. As a part of ongoing operations, economic impacts from the Theatre are generated by organisational and facility operations, visiting performers and patron spending. The most visible direct impacts are patron spending on tickets, food and beverages, parking and merchandise, whilst subsequent rounds of spending include indirect or off-site tourism expenditure and business supply chain purchases.

The contribution made by the proposed Wagga Wagga Civic Theatre Expansion Project to the economy of the City of Wagga Wagga, the Riverina region and New South Wales has been assessed using the City of Wagga Wagga LocalImpact economic model developed specifically for the region by Lawrence Consulting. All input data, except where referenced in the report, has been supplied by Wagga Wagga Civic Theatre and Randall Arts Management. The stimulus from economic activity can be traced through the economy in several different ways:

- The first-round effects, or direct effects, are those from the activities expenditure in purchasing goods from other industries;

- The second-round effects are those from the supplying industries increasing their purchases to meet the additional demand. The second and subsequent rounds of purchasing are termed the indirect effects; and

- The consumption-induced effects, which recognise that the level of local production is important in determining regional levels of household consumption and that this in turn will be spent locally to a large extent and therefore influence the level of regional consumption and the level of output of each sector.

Note: Caution should be exercised when interpreting the consumption impacts as they are generally expected to overestimate the actual impact, as they involve assumptions about fixed relationships between income and consumption patterns. These factors mean that the consumption-induced effects should generally be treated as the upper bound of estimates of economic activity. A full explanation of the assumptions underpinning the use of input-output modelling is contained in Appendix A.

These effects can be represented by multipliers. There are commonly four different types of multipliers:

- Output;
- Income;
- Employment; and
- Value added.

Output

The output impact measures the increase in gross sales throughout the whole economy by summing all the individual transactions resulting, directly and indirectly, from the economic stimulus. The output impacts are however regarded as overstating the impact on the economy, as they count 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.

Income

The income impact measures the additional wages and salaries paid to employees of the industry under consideration and to other industries benefiting from the stimulus to the economy.

Employment

The employment impact measures the number of jobs created by the stimulus, both directly and indirectly. It should be noted that the short-term response to increased demand might be for employers to ask existing staff to work overtime. As a consequence, lower employment than the level indicated by the economic impact of the stimulus will result. This short-term scenario is particularly true where the demand stimulus is seen as temporary or where there is spare capacity in the economy (i.e. unemployment).

Value Added

The value added or Gross Regional Product (GRP) impact measures only the net activity at each stage of production. GRP is defined as the addition of consumption, investment and government expenditure, plus exports of goods and services, minus imports of goods and services for a region. The GRP impacts are the preferred measure for the assessment and contribution of a stimulus to the economy.

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 hence are an appropriate tool for determining the direct and indirect economic impact of the proposed Wagga Wagga Civic Theatre Expansion Project.

Displacement & Leakages

Displacement arises when an economic stimulus such as the proposed Wagga Wagga Civic Theatre Expansion Project takes market share from other existing local firms or organisations, or 'displaces' alternative uses of project funds that might otherwise have occurred. Leakages are defined as the proportion of project outputs that flow out of the catchment area, i.e. purchases from outside the region.

For the purpose of this analysis, during the construction phase of the proposed WWCTEP there are expected to be some minor displacement effects relating to the regionally-sourced component of project funding, although only to a limited extent; therefore, a low level of displacement has been assumed (15%). It has been assumed that the majority of benefits/purchases will be retained within the catchment area, with consequently a low level of leakages allowed for (15%).

In relation to the operation of the proposed WWCTEP and the indirect tourism benefits created by the precinct, for the purpose of this analysis it has been assumed that the City of Wagga Wagga is a closed economy, i.e. any displacement and leakages are considered marginal. All expenditure related to these elements of the project is therefore assumed to be made within the region – where not otherwise identified – in order to represent the additional economic activity generated by the proposed WWCTEP.

Data Inputs

Construction Costs

The capital expenditure component for the proposed Wagga Wagga Civic Theatre Expansion Project has been adopted from preliminary cost plans completed by Slattery Australia on behalf of ARM Architecture and is summarised in the following table. For the purpose of the cost benefit analysis, ongoing maintenance costs have estimated at 1% of construction costs and depreciation has been based on a 60-year period and 25% residual.

Table 1: Indicative Construction Costs for Proposed WWCTEP ($)	
Expenditure type	Cost
Building works	30,800,000
External Works and Demolition	1,211,000
External Services	876,000
Contingency	5,821,000
Cost Escalation	1,742,000
Total Construction Cost	*40,450,000*
Consultant fees	6,141,000
Authority and headworks charges	405,000
AV/IT	809,000
Decanting	100,000
SOACT Works	967,000
Total End Cost	48,872,000
Below the Line Items	2,387,000
Total Cost	51,259,000

Source: Slattery Australia

Theatre Operations

Future operating expenditures derived for the proposed Wagga Wagga Civic Theatre Expansion Project have been based on extensive financial budget modelling prepared by Randall Arts Management and are summarised for Year 2 and 5 of full operation as per the following table.

Table 2: Estimated Operating Expenditure for Proposed WWCTEP ($)		
Expenditure type	Year 2	Year 5
Salaries & Wages	1,262,507	1,405,028
Employee Related Costs	22,083	23,435
Repair & Maintenance	94,279	100,050
Marketing & Publicity	33,558	35,612
Ticketing Expenses	55,662	67,099
Administration Costs	269,227	285,173
Professional Fees	3,600	3,600
Total Net Programming	611,500	619,500
Total Expenditure	2,352,416	2,539,497
Region of purchase		
City of Wagga Wagga	1,767,187	1,930,342
Riverina	16,950	17,642
Rest of New South Wales	329,985	343,476
Interstate	238,293	248,036

Note: Annual impact in Year 2 and 5 of full operations
Source: Randall Arts Management, Wagga Wagga Civic Theatre, Lawrence Consulting

Visitor Impact

Detailed attendance and visitor numbers have been modelled by Randall Arts Management for the proposed Wagga Wagga Civic Theatre Expansion Project under consideration. A summary of total attendance by theatre and subsequent forecast visitor numbers in Year 2 and 5 of full operations following completion of construction, along with the gross annual stimulus to the local economy associated with visitor spending, is provided in the following table.

Table 3: Summary of Total Attendance, Visitor Numbers and Spend by Type, WWCTEP		
	Year 2	Year 5
Attendance by Theatre		
Main theatre (T1)	53,308	60,410
Second theatre (T2)	19,260	22,425
Studio theatre (T3)	9,360	10,080
Total attendance	81,928	92,915
Annual visitors:		
Day trip	14,663	16,629
Overnight	3,733	4,233
Total	18,395	20,862
Expenditure type ($M)		
Accommodation	0.1	0.1
Food & beverage	0.7	0.8
Road transport	0.1	0.1
Retail shopping	1.9	2.2
Attractions	0.0	0.0
Other	0.3	0.3
Total visitor spend	3.2	3.6

Note: Annual impact in Year 2 and 5 of full operations

Impact Assessment

Construction Phase

The proposed Wagga Wagga Civic Theatre Expansion Project is expected to cost approximately $51.3 million in development and construction costs. After assumed displacement and leakages relating to local funding and sourcing of building inputs are taken into account (refer page 3), the economic impact – i.e. direct, indirect and consumption-induced – associated with the construction phase of the proposed project on the economy of the City of Wagga Wagga is summarised in Table 4 below and includes:

- An estimated direct output of $35.9 million and additional flow on increases in output of $29.2 million through other industries, for a total industry impact of $65.1 million. A further $14.9 million in output in the region can be associated with consumption-induced effects;
- Estimated direct income (wages and salaries) of $3.6 million, with $5.8 million in additional income generated through flow on effects in other industries and a further $4.3 million from household spending;
- Approximately 53.7 direct full-time equivalent (FTE) employment positions, with an estimated additional 134.7 employment positions supported indirectly through other industries and household consumption for a total employment impact of 188.4 FTEs; and
- An estimated contribution to GRP of $7.9 million from direct effects, with a further flow on impact of $11.5 million through other industries for a total industry value added of $19.4 million. An additional $7.5 million in gross regional product can be attributed to consumption-induced effects.

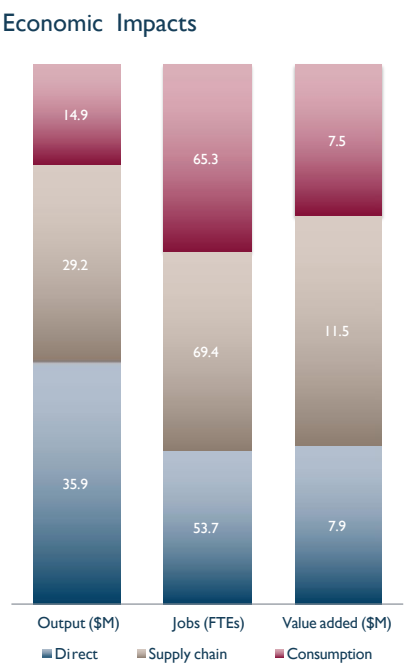


Table 4: Economic Impact of Wagga Wagga Civic Theatre Expansion Project – Construction Phase

	Wagga Wagga	Riverina	New South Wales	Australia
Output ($ million)				
Direct	35.9	35.9	51.3	51.3
Indirect	29.2	29.2	57.8	75.8
Consumption	14.9	16.1	41.2	45.4
Total	80.0	81.2	150.2	172.5
Income ($ million)				
Direct	3.6	3.6	5.1	5.1
Indirect	5.8	5.8	13.9	17.7
Consumption	4.3	4.7	14.2	14.7
Total	13.6	14.1	33.2	37.5
Employment (fte persons)				
Direct	53.7	53.7	76.7	76.7
Indirect	69.4	69.7	151.7	191.5
Consumption	65.3	74.1	192.5	198.2
Total	188.4	197.5	420.8	466.4
Value added ($ million)				
Direct	7.9	7.9	11.2	11.2
Indirect	11.5	11.5	26.5	33.6
Consumption	7.5	9.2	26.0	32.0
Total	26.9	28.6	63.8	76.9
% change in baseline GRP	0.61%	0.40%	0.01%	0.00%

Theatre Operations

The net annual regional economic impact – i.e. direct, indirect and consumption-induced – associated with the proposed Wagga Wagga Civic Theatre Expansion Project in Year 2 of full operation on the economy of the City of Wagga Wagga includes (refer Table 5):

- An estimated direct output of $1.6 million and additional flow on increases in output of $2.2 million through other industries, for a total industry impact of $3.7 million. A further $1.1 million in output in the region can be associated with consumption-induced effects;
- Estimated direct income (wages and salaries) of $1.3 million, with $0.7 million in additional income generated through flow on effects in other industries and a further $0.3 million from household spending;
- Approximately 17.1 direct full-time equivalent (FTE) employment positions, with an estimated additional 15.2 employment positions supported indirectly through other industries and household consumption for a total employment impact of 32.4 FTEs; and
- An estimated contribution to GRP of $1.1 million from direct effects, with a further flow on impact of $1.2 million through other industries for a total industry value added of $2.3 million. An additional $0.6 million in gross regional product can be attributed to consumption-induced effects. The total value added impact of $2.9 million represents a contribution of 0.1% to the GRP for the City of Wagga Wagga ($4.4 billion in 2019/20).

Economic Impacts

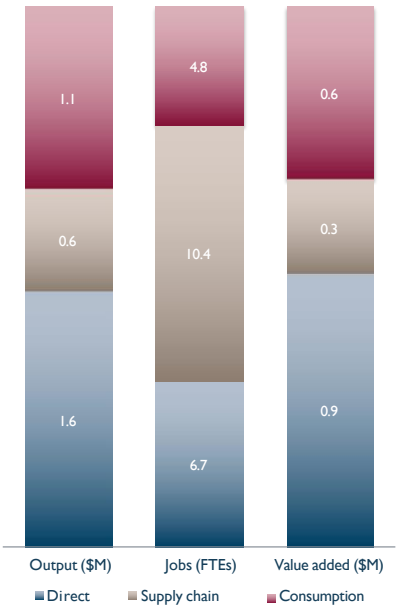


Table 5: Economic Impact of Wagga Wagga Civic Theatre Expansion Project – Operating Phase (Year 2)

	Wagga Wagga	Riverina	New South Wales	Australia
Output ($ million)				
Direct	1.6	1.6	1.9	2.1
Indirect	2.2	2.2	3.0	3.7
Consumption	1.1	1.2	2.2	2.5
Total	4.8	5.0	7.0	8.3
Income ($ million)				
Direct	1.3	1.3	1.3	1.3
Indirect	0.7	0.7	0.9	1.1
Consumption	0.3	0.4	0.8	0.9
Total	2.3	2.4	2.9	3.2
Employment (fte persons)				
Direct	17.1	17.1	17.1	17.1
Indirect	10.4	10.6	13.8	16.5
Consumption	4.8	6.1	10.7	12.0
Total	32.4	33.8	41.6	45.7
Value added ($ million)				
Direct	1.1	1.1	1.1	1.1
Indirect	1.2	1.2	1.6	2.0
Consumption	0.6	0.8	1.4	1.9
Total	2.9	3.1	4.2	5.0
% change in baseline GRP	0.06%	0.04%	0.00%	0.00%

Note: Annual impact in Year 2 of full operations

Indirect Tourism Spending Impact

The proposed Wagga Wagga Civic Theatre Expansion Project is expected to enhance visitor numbers to the City of Wagga Wagga. The economic impacts of the indirect tourism expenditure associated with total visitors attending the proposed WWCTEP in Year 2 of full operation on the economy of the City of Wagga Wagga include (refer Table 6):

- An estimated direct output of $3.2 million and additional flow on increases in output of $1.7 million through other industries and a further $2.2 million associated with consumption-induced effects;
- Estimated direct income (wages and salaries) of $1.0 million, with $0.4 million in additional income generated through flow on effects in other industries and a further $0.6 million from household spending;
- Approximately 24.7 direct full-time equivalent (FTE) employment positions, with an estimated additional 13.9 employment positions supported indirectly through other industries and household consumption for a total employment impact of 38.6 FTEs; and
- An estimated contribution to GRP of $1.7 million from direct effects, with a further flow on impact of $0.8 million through other industries for a total industry value added of $2.5 million. An additional $1.1 million in gross regional product can be attributed to consumption-induced effects. The total value added impact of $3.6 million represents a contribution of 0.08% to the GRP for the City of Wagga Wagga.

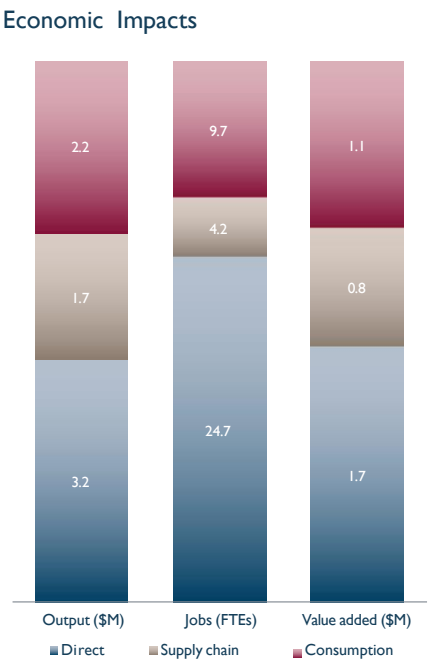


Table 6: Economic Impact of Wagga Wagga Civic Theatre Expansion Project – Indirect Tourism Spend (Year 2)

	Wagga Wagga	Riverina	New South Wales	Australia
Output ($ million)				
Direct	3.2	3.2	3.2	3.2
Indirect	1.7	1.7	2.0	2.4
Consumption	2.2	2.4	3.6	3.6
Total	7.0	7.2	8.8	9.2
Income ($ million)				
Direct	1.0	1.0	1.0	1.0
Indirect	0.4	0.4	0.5	0.6
Consumption	0.6	0.8	1.3	1.3
Total	2.0	2.2	2.8	2.9
Employment (fte persons)				
Direct	24.7	24.7	24.7	24.7
Indirect	4.2	4.3	5.1	6.3
Consumption	9.7	12.2	18.1	18.4
Total	38.6	41.2	47.9	49.4
Value added ($ million)				
Direct	1.7	1.7	1.7	1.7
Indirect	0.8	0.8	1.0	1.2
Consumption	1.1	1.5	2.4	2.9
Total	3.6	4.0	5.2	5.8
% change in baseline GRP	0.08%	0.06%	0.00%	0.00%

Note: Annual impact in Year 2 of full operations

Impacts on Other Industries

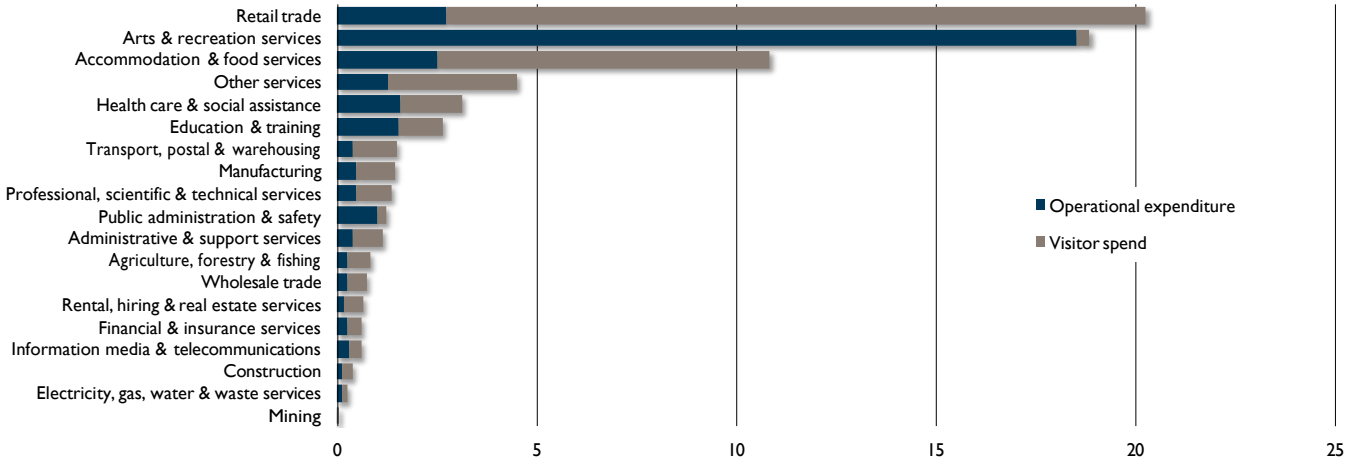
The flow-on impacts from the proposed Wagga Wagga Civic Theatre Expansion Project to other industries across the City of Wagga Wagga as derived from the LocalImpact model are substantial and have been disaggregated in order to measure the contribution in other areas of the economy. The following table (Table 7) demonstrates that the Retail Trade industry benefits most in terms of total output ($2.6 million), followed by Arts & Recreation Services ($1.9 million), Accommodation & Food Services ($1.4 million) and Manufacturing ($0.7 million).

Table 7: Estimated Disaggregated Annual Industry Impacts of Wagga Wagga Civic Theatre, City of Wagga Wagga

Industry division	Operating phase		Indirect visitor expenditure	
	Industry output ($ million)	Direct employment (FTEs)	Industry output ($ million)	Direct employment (FTEs)
Agriculture, Forestry and Fishing	0.1	0.2	0.2	0.6
Mining	0.0	0.0	0.0	0.0
Manufacturing	0.2	0.5	0.5	1.0
Electricity, Gas, Water and Waste Services	0.1	0.1	0.2	0.2
Construction	0.1	0.1	0.1	0.3
Wholesale Trade	0.1	0.3	0.2	0.5
Retail Trade	0.4	2.7	2.2	17.5
Accommodation and Food Services	0.3	2.5	1.1	8.3
Transport, Postal and Warehousing	0.1	0.4	0.4	1.1
Information Media and Telecommunications	0.2	0.3	0.2	0.3
Financial and Insurance Services	0.2	0.3	0.2	0.3
Rental, Hiring and Real Estate Services	0.1	0.2	0.3	0.5
Professional, Scientific and Technical Services	0.1	0.5	0.3	0.9
Administrative and Support Services	0.1	0.4	0.2	0.8
Public Administration and Safety	0.2	1.0	0.0	0.2
Education and Training	0.3	1.5	0.2	1.1
Health Care and Social Assistance	0.2	1.6	0.2	1.5
Arts and Recreation Services	1.8	18.5	0.1	0.3
Other Services	0.2	1.3	0.4	3.2
Total	4.8	32.4	7.0	38.6

Note: Annual impact in Year 2 of full operations

Estimated Annual Employment (FTEs) Supported by Wagga Wagga Civic Theatre Expansion Project
City of Wagga Wagga



COST BENEFIT ASSESSMENT

Evaluation Framework

The economic assessment is based on a generalised Cost Benefit Analysis (CBA) framework which quantifies and compares the direct infrastructure cost (capital and recurrent) of a project with the change in economic value (benefits / cost savings) generated by the project. The overall appraisal framework is based on welfare economic theory. This framework defines the change in economic value in terms of the following theoretical concepts:

- User consumer surplus;
- Producer surplus;
- Resource cost corrections; and
- Externalities.

The purpose of the CBA was to determine whether the community will enjoy a net benefit as a result of the proposed Wagga Wagga Civic Theatre Expansion Project and to ensure efficient allocation of public resources. The CBA takes into account:

- The potential direct benefits and costs that would not otherwise occur in the absence of the Wagga Wagga Civic Theatre Expansion Project; and

- The costs of construction and ongoing maintenance of the proposed WWCT.

The CBA framework is based on an annual discounted cash flow model. The model develops 'streamed' infrastructure costs and benefits over an evaluation period extending a minimum of 30 years from the first full year of operation of the proposed WWCTEP (inclusive).

Future costs and benefits are converted to a common time dimension; the present value (PV). Present values are calculated by discounting future values using a recommended discount rate (which reflects the time value of money). The discounted costs and benefits are then combined using specific equations to produce conventional measures of economic performance.

The CBA model produces the following key measures of economic performance:

- Net Present Value (NPV) – the difference between the PV of total incremental benefits and the PV of the total incremental costs, which allows the project options to be compared on the same basis to allow determination of the greatest net benefit to the community or the most efficient use of resources. Project options that yield a positive NPV indicate that the (discounted) incremental benefits of a scenario exceed the incremental costs over the evaluation period.

- Benefit Cost Ratio (BCR) – ratio of the PV of total incremental benefits to the PV of total incremental costs. A BCR greater than 1.0 indicates that project benefits exceed project costs. However, generally, a project with a higher BCR may be preferred to protect against unexpected project delays, optimism bias or cost overruns.

Key Inputs and Assumptions

The streamed costs and benefits are based on underlying profiles of costs and demand that have been developed as part of the business and operating plan produced by Randall Arts Management on behalf of the City of Wagga Wagga.

Costs

The CBA incorporates the following economic costs relevant to the construction and ongoing maintenance of the Project:

- Fixed infrastructure costs, including earthworks, drainage and other infrastructure;
- Systems infrastructure;
- Other construction costs such as investigation, design and project management costs;
- Planned construction and operation risk;
- Land acquisition costs; and
- Recurrent costs, such as scheduled maintenance and operating costs.

Specifically, the capital expenditure component for the proposed Wagga Wagga Civic Theatre Expansion Project is $51.3 million during a construction period of twelve months. For the purpose of the cost-benefit analysis, ongoing maintenance costs have estimated at 1% of construction costs for each option and depreciation has been based on a 60-year period and 25% residual.

Benefits

Direct and indirect incremental benefits of the proposed Wagga Wagga Civic Theatre Expansion Project which have been considered as part of the CBA include:

- Increase in value added to the City of Wagga Wagga economy (i.e. supply chain and consumption effects) associated with the construction of the proposed Wagga Wagga Civic Theatre Expansion Project;

- Increase in revenue and direct value added generated from operations of the facility and local expenditure by touring shows and promoters;

- Net economic benefits flowing from spending impacts associated with additional visitors to the City of Wagga Wagga as a result of the proposed WWCTEP; and

- The residual value or scrap value of the project asset at year 30, given its operational life has been assessed as 60 years with 25% residual.

Evaluation Period

The base price year adopted is 2022, whilst the assumed construction period is July 2022 to June 2023. The appraisal period for the economic assessment is 2022 up to and including 30 years (i.e. 2051).

Sensitivity Analysis

Consistent with relevant guidelines, a real discount rate of 7% has been adopted for the CBA. For the purposes of sensitivity testing, real discount rates of 3% and 10% have also been applied.

Results

The results of the CBA for the proposed Wagga Wagga Civic Theatre Expansion Project are summarised in the following table (Table 8), including the total (discounted) present value incremental costs and benefits and resulting NPV and BCR. Also included are sensitivity results for lower and upper range discount rates (3% and 10%).

As expected for this type of project, costs are dominated by capital expenditures, whereas benefits are more broadly distributed across different categories, with additional visitor expenditure and direct and indirect increases in regional value added providing significant contributions.

Table 8: Present Value Incremental Costs and Benefits ($ million), 7% discount rate

	Results
Direct Costs	
Capital	47.91
Maintenance (excl. depreciation)	6.29
Operating expenditure	36.84
Total Costs	88.21
Cost Savings and External Benefits	
Value added from construction phase	17.76
Operational revenue	25.96
Increased visitor expenditure	53.81
Value added from local production expenditure	13.77
Residual asset value	30.54
Total Benefits	109.47
NPV	21.26
IRR	11%
BCR	1.24
Scenario analysis	
Discount rate (3%)	
NPV ($ million)	67.51
BCR	1.57
Discount rate (10%)	
NPV ($ million)	5.08
BCR	1.07

In aggregate, the NPV analysis suggests significant net benefits of approximately $21.3 million – i.e. net of construction, operating and opportunity costs – over the 30-year evaluation period flowing from the proposed Wagga Wagga Civic Theatre Expansion Project, with a BCR of 1.24 and internal rate of return (IRR) of 11%, indicating that the project offers significant societal and community benefits well in excess of costs. This also takes into account timing differences between the earlier incurrence of costs and ongoing receipt of facility users and other benefits over the evaluation period.

Given the large volume of upfront costs and the (in general) stream of ongoing benefits, the CBA moves as expected insofar as the lower discount rate (3%) increases the NPV and BCR for the project, whilst the higher rate (10%) decreases the NPV and BCR relative to the base case, although all BCR's recorded are significantly higher than break-even.

CONCLUSION

The proposed Wagga Wagga Civic Theatre Expansion Project will become an iconic attraction for both local residents, performers and visitors to the City of Wagga Wagga and the preferred destination for creative and collaborative arts in the region. The key economic outcomes from the proposed Wagga Wagga Civic Theatre Expansion Project are:

- During the construction phase, the $51.3 million project will generate 54 cumulative direct local jobs and support $44.1 million in additional spending in the community and a further 135 indirect jobs;

- The Wagga Wagga Civic Theatre Expansion Project is conservatively forecast to attract almost 82,000 persons per annum by Year 2 of full operation, including over 18,000 visitors to the City of Wagga Wagga. The direct spending associated with these visitors is approximately $3.2 million per year, which will support an additional 25 direct jobs across the region; and

- Over the next 30 years, the proposed Wagga Wagga Civic Theatre Expansion Project will deliver a net present value of $21.3 million, with over $1.20 in benefits to the community created for every dollar spent in construction, maintenance and operation of the facility.

APPENDIX A: ADVANTAGES AND ASSUMPTIONS OF LOCALIMPACT MODEL

Input-output (I-O) modelling techniques provide a solid approach for taking account of the inter-relationships between the various sectors of the economy in the short-term and hence are an appropriate tool for determining the direct, indirect and induced economic impact of economic stimuli.

The I-O technique was developed by Wassily Leontief in the 1930s to describe how impacts in one sector of an economy interacted with other sectors to generate economic changes, with matrix algebra used to perform the complex calculations. More advanced forms of I-O models are computable general equilibrium models, which are used for analysis of larger national economies, but are generally not as applicable for smaller areas. The standard I-O model approach is particularly useful for predicting the impacts of events or projects in an economy, or analysing local or regional level economies.

I-O models can be used to capture only the indirect impacts that occur through other industry sectors (Type I models), or the indirect plus the consumption-induced effects (Type II models), which have been adopted for the current study. Further, the LocalImpact economic model used in this study was based on the ABS model of the Australian economy generated from general equilibrium models.

A concept underlying I-O modelling is that an initial economic shock or stimulus can have multiplier effects through a series of successive spending rounds. The size of the economic multiplier in a local or regional area can be summarised in the following way:

- The extent to which project operators purchase inputs from the local or regional economy. Examples of inputs include wages for labour supplied from the local or regional area, and purchases of goods and services. The more that a project operator sources from the local or regional economy, the more money directly injected into the economy; and

- The extent to which money spent in a local or regional economy is retained within that economy. If there is not much opportunity for people receiving income to spend it on goods and services in their local or regional area, then not as much money will be kept in the local or regional area. Larger and more diverse regional economies tend to be better at keeping expenditures in their economy and not 'losing' it to other regions.

Key advantages of using input-output models are the fineness of detail available at a disaggregated industry level, the relative ease of application, particularly for sub-regional levels, and the ability to model effects in a timely manner. However, care has to be taken in their application and interpretation of results. Key assumptions that underpin the application of I-O models include:

- The inputs purchased by each industry are a function of the level of output of that industry. The input function is generally assumed linear and homogenous of degree one (which implies constant returns to scale and no substitution between inputs);

- Each commodity (or group of commodities) is supplied by a single industry or sector of production. This implies that there is only one method used to produce each commodity and that each sector has only a single primary output;

- 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;

- The system is in equilibrium at given prices. This is obviously not the case in an economic system subject to external influences;

- In the static input-output model, there are no capacity constraints, so the supply of each good is perfectly elastic. Each industry can supply whatever quantity is demanded of it and there are no capital restrictions. This assumption would come into play depending upon the magnitude of the changes in quantities demanded, brought about through changes in taxation levels; and

- The input-output model is an optimisation model that allocates resources between sectors to their most efficient use. This is not expected to happen all of the time in the "real world" and as such results from the input output analysis may overestimate the actual impact delivered on ground.

Type II models involve additional assumptions about fixed relationships between income and consumption patterns. These factors mean that the results of I-O models should generally be treated as the upper bound of estimates, and that care has to be taken in interpreting the results of very large changes in demand or production.