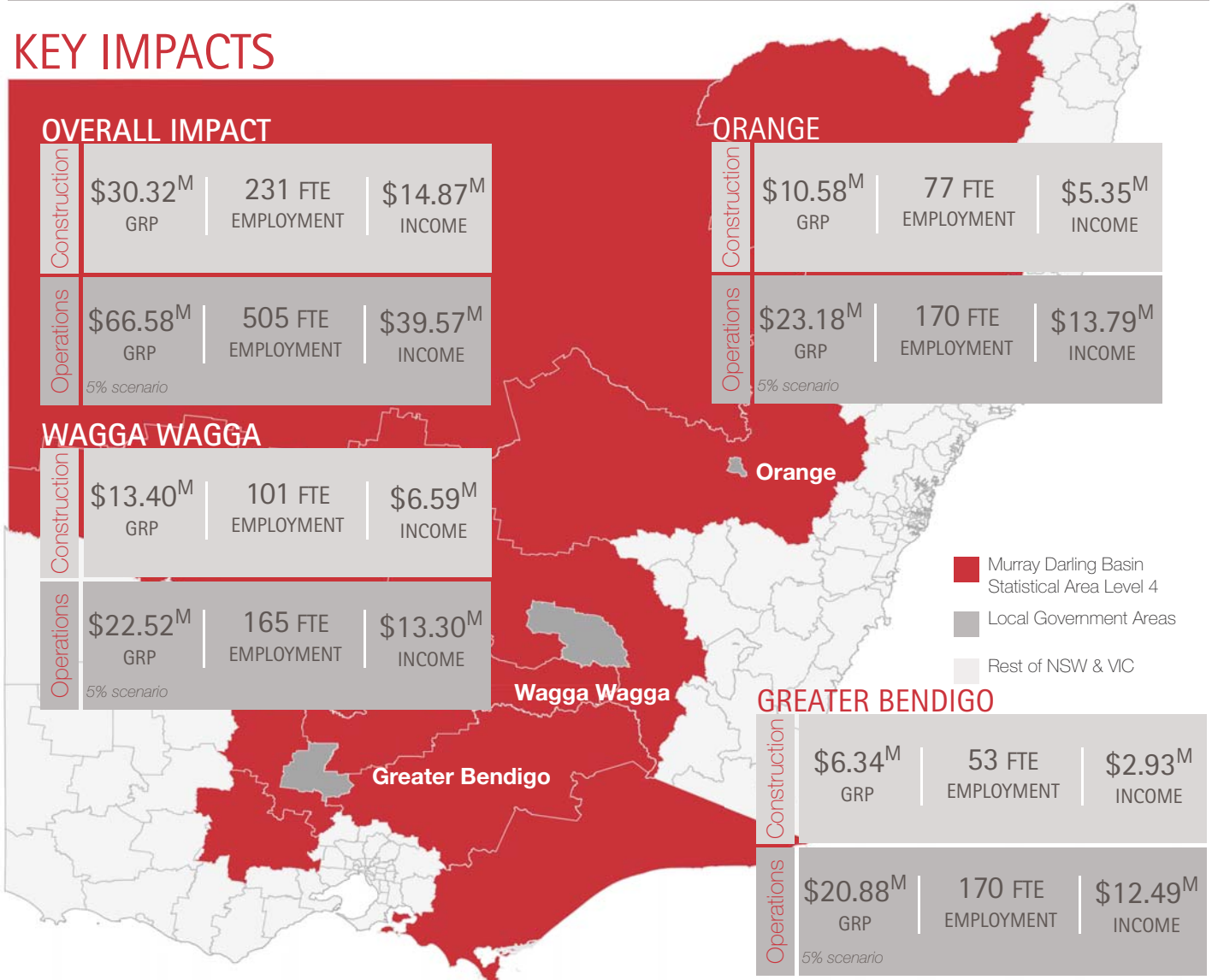


KEY IMPACTS



INTRODUCTION

The Western Research Institute (WRI) was commissioned to undertake an economic assessment of the impact of the construction and operation of the rurally based Murray Darling Medical School (MDMS). The MDMS is proposed for the Orange and Wagga Wagga campuses of Charles Sturt University (CSU) and the Bendigo campus of La Trobe University (LTU), with the aim to address the chronic shortage of doctors in rural and regional Australia.

Impacts were generated for the Local Government Areas (LGAs) of Greater Bendigo, Orange and Wagga Wagga as a result of the MDMS. The impacts have been calculated based solely on the construction expenditure occurring in each of the three LGAs (a one-off impact); and several ongoing impacts (as at year 8):

- the operational expenditures expected within each of the three LGAs;
- the additional medical students expected to be resident in the three LGAs; and
- an assumed 'halo effect', that is the additional non-local students attracted to existing Allied Health courses at CSU and LTU, expected to be resident in the three LGAs.

Impacts accruing to other LGAs have not been calculated.

WRI considered two scenarios in order to account for the 'halo effect' of establishing a new rurally based medical school, scenario 1 is based on a 5% increase in Allied Health students in the first year of operations, over an 8 year period, scenario 2 is based on a 10% increase in the first year. The operational impacts shown above reflect scenario 1.

The overall impacts outlined in the table above are a simple summation of impacts calculated for each LGA. The aggregated impacts do not account for transactions between the three LGAs or any operational expenditure or student impacts generated in other LGAs.

WRI undertook economic modelling of the MDMS on the three LGAs of Greater Bendigo, Orange and Wagga Wagga. Economic modelling was undertaken using input-output analysis. Input-output analysis provides a detailed picture of the structure of a regional economy at a point in time and can be used to estimate the contribution or impact of a particular sector of the economy including initial and flow-on effects. Impacts are measured using the Final Demand method.

Construction Phase

The construction phase of the MDMS will occur between the 2016/2017 and 2019/2020 financial years. Cultivate Solutions provided WRI with the MDMS's total expected construction spend for each School: \$9 million for Bendigo Campus, \$14 million for Orange Campus and \$14 million for Wagga Wagga campus. A portion of the construction expenditure not expected to be made within the school's LGAs was effectively removed from the analysis through the use of location quotients in the Input-Output model.

Operational Phase

The economic impact of the operational phase of the MDMS has been assessed for the year 2027, Year 8, when the facility is anticipated to be fully operational and have students in each year of the six year course.

School operations

Cultivate Solutions provided WRI with the total operational spend for the MDMS as at year 2027. This expenditure, approximately \$44 million, was split equally between the three campuses. A portion of the operational expenditure not expected to be made within the school's LGAs was effectively removed from the analysis through the use of location quotients in the Input-Output model.

Student Impacts

As at Year 8 it is anticipated that there will be a total of 1,045 students undertaking the course in medicine, split equally between the three rural campuses. It has been assumed that if the MDMS did not exist in the three regional LGAs the students would undertake a medical degree elsewhere.

It was further assumed that all students live off-campus incurring associated rental and utilities expenditure. Expenditure by students was based on the second lowest income quintile spending habits of the ABS Household Expenditure Survey (ABS Cat. 6535.0). Adjustments were made to take into account students that leave the local area for a short period of time in order to attend practicum placements. These students are assumed to incur only accommodation costs whilst attending the practical studies.

Based on information from Cultivate Solutions, assumptions were made as to the number of weeks students reside in the School's LGA whilst attending the course. This was dependent on the student's year of study and whether the student would be attending practical studies outside of the School's LGA.

Additional Allied Health courses

The opening of the MDMS will permit the expansion of student numbers in existing Allied Health courses. WRI considered two scenarios in order to account for the 'halo effect' of establishing a new rural based medical school:

Scenario 1: A 5% increase in rural campus health science commencing load in the first year of operation pipelined over 8 years.

Scenario 2¹: A 10% increase in rural campus health science commencing load in the first year of operation pipelined over 8 years.

In order to determine the number of additional students resulting from the MDMS, WRI applied a 5% and 10% increase to 2015 EFTSL numbers and compared the number of Allied Health students under scenarios 1 and 2 with the number of Allied Health students as at 2015. The number of non-local Allied Health students to the School's LGA was determined based on data supplied.

It was also assumed that the additional Allied Health students live off-campus with associated rental and utilities expenditure and that expenditure by Allied Health students is based on a 30 week year.

The physical facilities planned for the MDMS will enable these expanded courses to be run without additional construction, but will involve additional staffing. WRI estimated the impact of the operations of these courses and the expenditure by additional non-local students undertaking the courses under the two scenarios based on data supplied.

Reporting

The economic impacts have been reported as a sum of:

- **Initial impacts:** defined as the value of the immediate changes in the local LGA economy.
- **Flow-on impacts:** defined as the value of changes in the regional economy in the course of an additional round of spending after the initial impact occurred.

These impacts have been estimated in terms of:

- **Output:** Output is equal to total revenue plus any internal consumption.
- **Value added (GRP):** the amount by which the value of an article is increased at each step of its production, exclusive of its initial cost.
- **Income:** measuring the benefit received by regional households from economic activity. It typically refers to compensation of employees but can also include other types of income.
- **Full-time equivalent employment:** a measure of the workload of an employed person in a given location that makes workloads comparable across different types of employment (part-time, full time and casual).

¹ Secondary research completed for the MDMS provides the rationale for the inclusion of the halo effect.

Greater Bendigo LGA

Both the construction phase and operational phase of the proposed Murray Darling Medical School (MDMS) will have an economic impact on Greater Bendigo LGA.

The economic impact of the operational phase of the MDMS on Greater Bendigo LGA has been estimated as at year 8 when it is envisaged that the School will be fully operational and have students in each year of the six year course. The operational phase incorporates the operations of Bendigo's MDMS; non-local medical student expenditure and the estimated expenditure generated from additional Allied Health students and staffing.

Overall, the operational phase of the MDMS is estimated to contribute \$20.88 million to gross regional product, \$12.49 million in household income and 170 FTE employees in Greater Bendigo LGA when flow-on effects are taken into account. Detailed impacts of the operational phase of the MDMS on Greater Bendigo LGA are provided in the adjacent table.

\$20.88^M
GRP

170 FTE
EMPLOYMENT

\$12.49^M
INCOME

	Output \$m	Value Added \$m	Employment FTE	Income \$m
Initial	15.43	10.38	96	7.78
Flow on	20.53	10.50	74	4.71
Total	35.95	20.88	170	12.49

Data presented in the table may not add up due to rounding. The operational phase above includes scenario 1: A 5% increase in rural campus health science commencing load in the first year of operation pipelined over 8 years.

The main industry sectors impacted by the overall operations of the MDMS in terms of employment FTE include:

Education & Training

Health Care & Social Assistance

Retail Trade

Construction Phase

\$6.34^M
GRP

53 FTE
EMPLOYMENT

\$2.93^M
INCOME

- Overall, the construction phase of Bendigo's MDMS is estimated to contribute an additional \$6.34 million to gross regional product, \$2.93 million to household income and 53 FTE employment in Greater Bendigo LGA when flow-on effects are taken into account.
- The main industry sectors likely to be impacted by the construction phase of the MDMS on Bendigo campus in terms of FTE employment are Construction, Health Care & Social Assistance and Retail Trade.

The economic impact estimated to be generated by the construction of the MDMS is classified as a one off impact. Detailed impacts of the construction phase on Greater Bendigo LGA are provided below.

	Output \$m	Value Added \$m	Employment FTE	Income \$m
Initial	6.57	1.77	19	0.91
Flow on	11.14	4.56	34	2.02
Total	17.70	6.34	53	2.93

Note: Data presented may not add up due to rounding

School Operations

\$17.78^M
GRP

144 FTE
EMPLOYMENT

\$10.88^M
INCOME

- Overall, the Bendigo campus school operations are estimated to contribute an additional \$17.78 million to gross regional product, \$10.88 million to household income and 144 FTE employment in Greater Bendigo LGA when flow-on effects are taken into account.
- The main industry sectors likely to be impacted by the Bendigo campus school operations in terms of FTE employment are Education & Training, Health Care & Social Assistance and Hospitality.

Detailed impacts of the school's operations on Greater Bendigo LGA are provided below.

	Output \$m	Value Added \$m	Employment FTE	Income \$m
Initial	12.62	8.95	82	6.92
Flow on	17.08	8.83	62	3.96
Total	29.70	17.78	144	10.88

Note: Data presented may not add up due to rounding

Student Impacts

In its eighth year of operation it is anticipated that of the 1,045 students studying at the MDMS, one-third would be studying at Bendigo campus.

- Overall, student impacts are estimated to contribute an additional \$2.07 million to gross regional product, \$1.01 million to household income and 18 FTE employment in Greater Bendigo LGA when flow-on effects are taken into account.
- The main industry sectors likely to be impacted by student expenditure in terms of FTE employment are Retail Trade, Health Care & Social Assistance and Personal & Other Services.

Detailed impacts of students on Greater Bendigo LGA are provided in the adjacent table.

Allied Health Impacts

WRI considered two scenarios in order to account for the 'halo effect' of establishing a new rural based medical school. Allied Health impacts include expenditures generated by additional non-local students studying in existing Allied Health courses at Bendigo campus and the associated increased staffing costs.

Scenario 1: 5% increase

\$1.02^M GRP | **8 FTE** EMPLOYMENT | **\$0.60^M** INCOME

Scenario 1: A 5% increase in the Bendigo campus health commencing load in the first year of operation pipelined over 8 years.

- Overall, Allied Health impacts are estimated to contribute an additional \$1.02 million to gross regional product, \$0.60 million to household income and 8 FTE employment in Greater Bendigo LGA when flow-on effects are taken into account.
- The main industry sectors likely to be impacted by the Allied Health impacts in terms of FTE employment are Education & Training, Health Care & Social Assistance and Retail Trade.

Detailed impacts of Allied Health impacts under Scenario 1 on Greater Bendigo LGA are provided below.

	Output \$m	Value Added \$m	Employment FTE	Income \$m
Initial	0.78	0.51	5	0.37
Flow on	1.02	0.52	4	0.23
Total	1.80	1.02	8	0.60

Note: Data presented may not add up due to rounding

\$2.07^M GRP | **18 FTE** EMPLOYMENT | **\$1.01^M** INCOME

	Output \$m	Value Added \$m	Employment FTE	Income \$m
Initial	2.02	0.92	9	0.49
Flow on	2.42	1.15	8	0.52
Total	4.45	2.07	18	1.01

Note: Data presented may not add up due to rounding

Scenario 2: 10% increase

\$2.05^M GRP | **17 FTE** EMPLOYMENT | **\$1.19^M** INCOME

Scenario 2: A 10% increase in the Bendigo campus health science commencing load in the first year of operation pipelined over 8 years.

- Overall, Allied Health impacts are estimated to contribute an additional \$2.05 million to gross regional product, \$1.19 million to household income and 17 FTE employment in Greater Bendigo LGA when flow-on effects are taken into account.
- The main industry sectors likely to be impacted by the Allied Health impacts in terms of FTE employment are Education & Training, Health Care & Social Assistance and Retail Trade.

Detailed impacts of Allied Health impacts under Scenario 2 on Greater Bendigo LGA are provided below.

	Output \$m	Value Added \$m	Employment FTE	Income \$m
Initial	1.56	1.01	9	0.73
Flow on	2.04	1.04	7	0.46
Total	3.60	2.05	17	1.19

Note: Data presented may not add up due to rounding

Orange LGA

Both the construction phase and operational phase of the proposed Murray Darling Medical School (MDMS) will have an economic impact on Orange LGA.

The economic impact of the operational phase of the MDMS on Orange LGA has been estimated as at year 8 when it is envisaged that the School will be fully operational and have students in each year of the six year course. The operational phase incorporates the operations of Orange's MDMS; non-local medical student expenditure and the estimated expenditure generated from additional Allied Health students and staffing.

Overall, the operational phase of the MDMS is estimated to contribute \$23.18 million to gross regional product, \$13.79 million in household income and 170 FTE employees in Orange LGA when flow-on effects are taken into account.

Detailed impacts of the operational phase of the MDMS on Orange LGA are provided in the adjacent table.

\$23.18^M
GRP

170 FTE
EMPLOYMENT

\$13.79^M
INCOME

	Output \$m	Value Added \$m	Employment FTE	Income \$m
Initial	15.26	10.63	93	7.96
Flow on	22.24	12.55	77	5.83
Total	37.50	23.18	170	13.79

Data presented in the table may not add up due to rounding. The operational phase above includes scenario 1: A 5% increase in rural campus health science commencing load in the first year of operation pipelined over 8 years.

The main industry sectors impacted by the overall operations of the MDMS in terms of employment FTE include:

Education & Training

Health Care & Social Assistance

Retail Trade

Construction Phase

\$10.58^M
GRP

77 FTE
EMPLOYMENT

\$5.35^M
INCOME

- Overall, the construction phase of Orange's MDMS is estimated to contribute \$10.58 million to gross regional product, \$5.35 million to household income and 77 FTE employees in Orange LGA when flow-on effects are taken into account.
- The main industry sectors likely to be impacted by the construction phase of the MDMS on Orange campus in terms of FTE employment are Construction, Health Care & Social Assistance and Retail Trade.

The economic impact estimated to be generated by the construction of the MDMS is classified as a one off impact. Detailed impacts of the construction phase on Orange LGA are provided below.

	Output \$m	Value Added \$m	Employment FTE	Income \$m
Initial	9.37	2.68	27	1.52
Flow on	16.46	7.90	50	3.82
Total	25.83	10.58	77	5.35

Note: Data presented may not add up due to rounding

School Operations

\$20.78^M
GRP

152 FTE
EMPLOYMENT

\$12.51^M
INCOME

- Overall, the Orange campus school operations are estimated to contribute \$20.78 million to gross regional product, \$12.51 million to household income and 152 FTE employees in Orange LGA when flow-on effects are taken into account.
- The main industry sectors likely to be impacted by the Orange campus school operations in terms of FTE employment are Education & Training, Health Care & Social Assistance and Retail Trade.

Detailed impacts of the school's operations on Orange LGA are provided below.

	Output \$m	Value Added \$m	Employment FTE	Income \$m
Initial	13.41	9.66	84	7.36
Flow on	19.57	11.12	68	5.15
Total	32.98	20.78	152	12.51

Note: Data presented may not add up due to rounding

Student Impacts

In its eighth year of operation it is anticipated that of the 1,045 students studying at the MDMS one-third would be studying at Orange campus.

- Overall, student impacts are estimated to contribute \$2.07 million to gross regional product, \$1.09 million to household income and 16 FTE employees in Orange LGA when flow-on effects are taken into account.
- The main industry sectors likely to be impacted by student expenditure in terms of FTE employment are Retail Trade, Health Care & Social Assistance and Personal & Other Services.

Detailed impacts of students on Orange LGA are provided in the adjacent table.

\$2.07^M GRP | **16 FTE** EMPLOYMENT | **\$1.09^M** INCOME

	Output \$m	Value Added \$m	Employment FTE	Income \$m
Initial	1.63	0.82	8	0.49
Flow on	2.34	1.25	8	0.59
Total	3.97	2.07	16	1.09

Note: Data presented may not add up due to rounding

Allied Health Impacts

WRI considered two scenarios in order to account for the 'halo effect' of establishing a new rural based medical school. Allied Health impacts include expenditures generated by additional non-local students studying in existing Allied Health courses at Orange campus and the associated increased staffing costs.

Scenario 1: 5% increase

\$0.33^M GRP | **2 FTE** EMPLOYMENT | **\$0.19^M** INCOME

Scenario 1: A 5% increase in the Orange campus health science commencing load in the first year of operation pipelined over 8 years.

- Overall, Allied Health impacts are estimated to contribute \$0.33 million to gross regional product, \$0.19 million to household income and 2 FTE employees in Orange LGA when flow-on effects are taken into account.
- The main industry sectors likely to be impacted by Allied Health impacts in terms of FTE employment are Education & Training, Retail Trade and Health Care & Social Assistance.

Detailed impacts of Allied Health impacts under Scenario 1 on Orange LGA are provided below.

	Output \$m	Value Added \$m	Employment FTE	Income \$m
Initial	0.22	0.15	1	0.11
Flow on	0.33	0.18	1	0.08
Total	0.55	0.33	2	0.19

Note: Data presented may not add up due to rounding

Scenario 2: 10% increase

\$0.67^M GRP | **5 FTE** EMPLOYMENT | **\$0.39^M** INCOME

Scenario 2: A 10% increase in the Orange campus health science commencing load in the first year of operation pipelined over 8 years.

- Overall, Allied Health impacts are estimated to contribute \$0.67 million to gross regional product, \$0.39 million to household income and 5 FTE employees in Orange LGA when flow-on effects are taken into account.
- The main industry sectors likely to be impacted by Allied Health impacts in terms of FTE employment are Education & Training, Retail Trade and Health Care & Social Assistance.

Detailed impacts of Allied Health impacts under Scenario 2 on Orange LGA are provided below.

	Output \$m	Value Added \$m	Employment FTE	Income \$m
Initial	0.45	0.30	3	0.22
Flow on	0.65	0.37	2	0.17
Total	1.10	0.67	5	0.39

Note: Data presented may not add up due to rounding

Wagga Wagga LGA

Both the construction phase and operational phase of the proposed Murray Darling Medical School (MDMS) will have an economic impact on Wagga Wagga LGA.

The economic impact of the operational phase of the MDMS on Wagga Wagga LGA has been estimated as at year 8 when it is envisaged that the School will be fully operational and have students in each year of the six year course. The operational phase incorporates the operations of Wagga Wagga's MDMS; non-local medical student expenditure and the estimated expenditure generated from additional Allied Health students and staffing.

Overall, the operational phase of the MDMS is estimated to contribute \$22.52 million to gross regional product, \$13.30 million in household income and 165 FTE employees in Wagga Wagga LGA when flow-on effects are taken into account.

Detailed impacts of the operational phase of the MDMS on Wagga Wagga LGA are provided in the adjacent table.

Construction Phase

\$13.40^M GRP | **101 FTE** EMPLOYMENT | **\$6.59^M** INCOME

- Overall, the construction phase of Wagga Wagga's MDMS is estimated to contribute \$13.40 million to gross regional product, \$6.59 million to household income and 101 FTE employees in Wagga Wagga LGA when flow-on effects are taken into account.
- The main industry sectors likely to be impacted by the construction phase of the MDMS on Wagga Wagga campus in terms of FTE employment are Construction, Health Care & Social Assistance and Retail Trade.

The economic impact estimated to be generated by the construction of the MDMS is classified as a one off impact. Detailed impacts of the construction phase on Wagga Wagga LGA are provided below.

	Output \$m	Value Added \$m	Employment FTE	Income \$m
Initial	11.92	3.18	34	1.80
Flow on	23.27	10.22	67	4.79
Total	35.19	13.40	101	6.59

Note: Data presented may not add up due to rounding

\$22.52^M
GRP

165 FTE
EMPLOYMENT

\$13.30^M
INCOME

	Output \$m	Value Added \$m	Employment FTE	Income \$m
Initial	15.02	10.41	90	7.87
Flow on	23.16	12.11	75	5.43
Total	38.18	22.52	165	13.30

Data presented in the table may not add up due to rounding. The operational phase above includes scenario 1: A 5% increase in rural campus health science commencing load in the first year of operation pipelined over 8 years.

The main industry sectors impacted by the overall operations of the MDMS in terms of employment FTE include:

Education & Training

Health Care & Social Assistance

Retail Trade

School Operations

\$19.29^M GRP | **141 FTE** EMPLOYMENT | **\$11.60^M** INCOME

- Overall, the Wagga Wagga campus school operations are estimated to contribute \$19.29 million to gross regional product, \$11.60 million to household income and 141 FTE employees in Wagga Wagga LGA when flow-on effects are taken into account.
- The main industry sectors likely to be impacted by the Wagga Wagga campus school operations in terms of FTE employment are Education & Training, Health Care & Social Assistance and Finance & Insurance Services.

Detailed impacts of the school's operations on Wagga Wagga LGA are provided below.

	Output \$m	Value Added \$m	Employment FTE	Income \$m
Initial	12.47	9.13	78	7.06
Flow on	19.21	10.15	63	4.54
Total	31.68	19.29	141	11.60

Note: Data presented may not add up due to rounding

Student Impacts

In its eighth year of operation it is anticipated that of the 1,045 students studying at the MDMS one-third would be studying at Wagga Wagga campus.

- Overall, student impacts are estimated to contribute \$2.37 million to gross regional product, \$1.21 million to household income and 18 FTE employees in Wagga Wagga LGA when flow-on effects are taken into account.
- The main industry sectors likely to be impacted by student expenditure in terms of FTE employment are Retail Trade, Health Care & Social Assistance and Personal & Other Services.

Detailed impacts of students on Wagga Wagga LGA are provided in the adjacent table.

\$2.37^M GRP | **18 FTE** EMPLOYMENT | **\$1.21^M** INCOME

	Output \$m	Value Added \$m	Employment FTE	Income \$m
Initial	1.96	0.89	9	0.53
Flow on	3.03	1.48	10	0.68
Total	4.99	2.37	18	1.21

Note: Data presented may not add up due to rounding

Allied Health Impacts

WRI considered two scenarios in order to account for the 'halo effect' of establishing a new rural based medical school. Allied Health impacts include expenditures generated by additional non-local students studying in existing Allied Health courses at Wagga Wagga campus and the associated increased staffing costs.

Scenario 1: 5% increase

\$0.86^M GRP | **6 FTE** EMPLOYMENT | **\$0.49^M** INCOME

Scenario 1: A 5% increase in the Wagga Wagga campus health science commencing load in the first year of operation pipelined over 8 years.

- Overall, Allied Health impacts are estimated to contribute \$0.86 million to gross regional product, \$0.49 million to household income and 6 FTE employees in Wagga Wagga LGA when flow-on effects are taken into account.
- The main industry sectors likely to be impacted by Allied Health impacts in terms of FTE employment are Education & Training, Health Care & Social Assistance and Retail Trade.

Detailed impacts of Allied Health impacts under Scenario 1 on Wagga Wagga LGA are provided below.

	Output \$m	Value Added \$m	Employment FTE	Income \$m
Initial	0.59	0.38	3	0.28
Flow on	0.91	0.47	3	0.21
Total	1.50	0.86	6	0.49

Note: Data presented may not add up due to rounding

Scenario 2: 10% increase

\$1.71^M GRP | **12 FTE** EMPLOYMENT | **\$0.98^M** INCOME

Scenario 2: A 10% increase in the Wagga Wagga campus health science commencing load in the first year of operation pipelined over 8 years.

- Overall, Allied Health impacts are estimated to contribute \$1.71 million to gross regional product, \$0.98 million to household income and 12 FTE employees in Wagga Wagga LGA when flow-on effects are taken into account.
- The main industry sectors likely to be impacted by Allied Health impacts in terms of FTE employment are Education & Training, Retail Trade and Health Care & Social Assistance.

Detailed impacts of Allied Health impacts under Scenario 2 on Wagga Wagga LGA are provided below.

	Output \$m	Value Added \$m	Employment FTE	Income \$m
Initial	1.18	0.77	7	0.55
Flow on	1.82	0.94	6	0.42
Total	3.00	1.71	12	0.98

Note: Data presented may not add up due to rounding