



***DRAFT***

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**ECONOMIC AND REVENUE  
IMPACTS OF THE PROPOSED  
GRAND CANYON UNIVERSITY  
CAMPUS IN TUCSON**

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## 1.0 INTRODUCTION

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Applied Economics was retained by the City of Tucson to prepare an economic impact analysis of the proposed Grand Canyon University (GCU) campus in Tucson to quantify the impacts that it could create on the local economy. The analysis is based on information provided by Grand Canyon University on projected staffing, enrollment, wage levels and construction costs. The proposed 100-acre campus in Tucson could support enrollment of 7,500 students by 2020 with 1,000 faculty and staff.

Colleges and universities are not only important in terms of the educational services they provide for residents and workers, but they also create a significant economic impact. Future population increases in the metro area will spur continued growth in demand for higher education.

Higher education is also a fundamental building block in terms of supporting economic development. Local businesses require a pool of educated workers from which to hire their employees, in addition they may require continuing education for their employees. Colleges and universities are a valuable resource. In particular, many of the colleges in this study offer undergraduate and graduate degree options for working adults and non-traditional students to support workforce development.

*The information and observations contained in this report are based on our present knowledge of the operations of the selected institutions, and of the current fiscal and socioeconomic conditions of the affected areas. Some estimates made in this report are based on assumptions. However, even if the assumptions outlined in this report were to occur, there will usually be differences between the estimates and the actual results because events and circumstances frequently do not occur as expected. This analysis is based on the best available information and is intended to aid the city in quantifying the impacts of higher education on the local economy. In no way will Applied Economics be held responsible or have any liability or be subject to damages as a result of this analysis. This report may be used only for the purposes that it was intended.*

## 2.0 IMPACT SUMMARY

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The operations of Grand Canyon University detailed in this analysis will provide the following economic benefits to the City of Tucson.

### Economic Impacts

- **Construction Expenditures.** The proposed campus would include 1.2 million square feet constructed over the next seven years. The \$179.7 million in construction activity could create an economic impact of \$283.6 million in Tucson along with supporting about 2,400 jobs and \$98.3 million in personal income during the construction period. This in addition to the operations impact described below.
- **Overall Operations Impacts.** All total, the Grand Canyon University could have an economic impact of nearly \$446.4 million on the City of Tucson by 2020. This total includes direct impacts of the university plus indirect and induced impacts from vendor purchases, employee and student spending. GCU could support an estimated 2,500 jobs and \$79.5 million in payroll *at other local businesses* that experience increased demand from the university, its employees and students. This is in addition to the approximately 1,000 full and part-time employees at the university.
- **Direct Jobs and Income.** GCU would open with approximately 250 employees and ramp up to 1,000 employees by 2020 as enrollment increases. Their payroll is estimated at \$60.0 million by 2020.
- **Local Vendor Spending.** The university would likely make local purchases for materials, utilities, equipment and furniture, professional services, facility maintenance, food service, office supplies, telephone, insurance and other services and supplies. The indirect impacts of local vendor spending are estimated at \$79.2 million per year by 2020.
- **Employee Spending.** Another component of the overall impact of the university comes from employee spending. The faculty and staff working at GCU would also make a significant amount of local purchases. The effect of employee purchasing could create an induced economic impact of \$60.9 million on the city by 2020. This amount of economic activity or sales could support about 370 jobs and \$12.6 million in payroll at other local businesses.
- **Student Spending.** Another important component of the economic impact of higher education institutions is student spending. Although student incomes are much lower than employee incomes, they create a sizeable amount of local demand. Based on typical student spending levels for full time students only, GCU student spending could support about 1,600 jobs and create an annual economic impact of \$136.2 million per year by 2020.

### Revenue Impacts

- **Direct Revenue Impacts.** Since GCU is a for-profit institution, they would pay local property taxes based on the value of new construction. Total direct revenues including both property tax and sales tax are estimated at \$3.9 million to the City of Tucson and \$14.3 million to other local governments over the next seven years. The land, which is owned by the city, would be tax exempt, however GCU would enter into a long term land lease with the City of Tucson that would generate additional lease revenues that are not included here.

- **Indirect Revenue Impacts.** The university would also generate substantial indirect property and sales tax revenues through employee and student spending and their support of jobs at other local businesses through their economic impacts. Indirect revenues could include \$8.8 million in sales and property taxes to the City of Tucson and \$16.8 million in property and sales taxes to the county, school district and other local taxing districts from 2014 to 2020.

**SUMMARY OF RESULTS**  
(millions of dollars)

<b>GCU PROFILE</b>	
University Employees	1,000
University Payroll	\$60.00
Estimated Percent of Employees Living in Tucson	79%
Total Enrollment	7,500
Full Time	6,000
Part Time	1,500
<b>ECONOMIC IMPACTS (2014 to 2020)</b>	
Total Output	\$446.39
Total Personal Income	\$139.54
Total Jobs	3,540
<b>LOCAL REVENUE IMPACTS (2014 to 2020)*</b>	
Direct Taxes	\$18.21
Indirect Taxes	\$25.69
<b>CONSTRUCTION IMPACTS</b>	
Direct Construction Expenditures	\$179.66
Total Output	\$283.60
Total Personal Income	\$98.28
Total Jobs	2,433

Source: Applied Economics, 2013.

Data reflects 2020 conditions.

\* Indirect taxes include those generated by students, faculty and by supported employees.

### 3.0 ECONOMIC IMPACT ANALYSIS

Economic impact analysis is a means for identifying the nature of changes in jobs, personal income and business sales that can occur in a given area as a result of a business or other project that supports economic activity. Economic impacts shown here include direct and indirect jobs, personal income, and sales or output that could be generated by GCU through their local operations. Indirect impacts are the result of the multiplier effect and capture supported supplier and consumer businesses and employees in Tucson that benefit from higher education. Multiplier effects are a way of representing the larger economic effects on the local economy. In essence, the multiplier effect represents the recycling of local spending that, in turn, creates new business opportunities.

Direct impacts include employees and payroll at the proposed GCU campus, as well as the value of educational services that are provided. Total jobs include local vendors from whom the university could make purchases and local establishments where employees and students shop. These local establishments and their employees in turn make additional local purchases that are captured in the total impact estimates. The total impact includes both the direct impacts and the secondary impacts created by other local businesses and their employees. Additional purchases by both the institutions and their students and employees will also occur outside the city and are not represented here.

#### 3.1 Construction Impacts

The economic benefits resulting from Grand Canyon University include both the non-recurring construction impacts and on-going operations impacts. GCU is projected to spend \$179.7 million over the next five years on the construction of its new campus (Figure 1). This would include 840,000 square feet of dormitory space, 350,000 square feet of classroom and student activity space as well as a number of athletic facilities and parking lots. Although construction represents a non-recurring source of economic impacts, this level of expenditures creates a significant impact during the construction period.

The multiplier effect of this spending on the city would result in a total increase in economic activity of about \$283.6 million over the construction period. The approximately 2,400 direct and indirect jobs created by these construction projects will result in \$98.3 million in total personal income.

**FIGURE 1  
CONSTRUCTION IMPACTS OF GRAND CANYON UNIVERSITY  
CITY OF TUCSON**

Year	Direct			Total		
	Construction Spending	Jobs	Personal Income	Output	Jobs	Personal Income
2014	\$37,975,000	318	\$13,025,419	\$59,945,087	514	\$20,772,913
2015	\$34,612,500	290	\$11,872,082	\$54,637,244	469	\$18,933,574
2016	\$23,675,000	198	\$8,120,521	\$37,371,953	321	\$12,950,592
2017	\$24,112,500	202	\$8,270,584	\$38,062,565	326	\$13,189,911
2018	\$11,062,500	93	\$3,794,436	\$17,462,608	150	\$6,051,359
2019	\$24,112,500	202	\$8,270,584	\$38,062,565	326	\$13,189,911
2020	\$24,112,500	202	\$8,270,584	\$38,062,565	326	\$13,189,911
<b>Total</b>	<b>\$179,662,500</b>	<b>1,503</b>	<b>\$61,624,210</b>	<b>\$283,604,587</b>	<b>2,433</b>	<b>\$98,278,170</b>

### 3.2 Vendor Spending

Higher education institutions are significant purchasers of local goods and services. Typical local purchases by higher education institutions include food services, utilities, facilities maintenance services, professional services, office supplies, advertising, equipment and furniture (Figure 2). It is important to note that the university could also make a considerable volume of non-local purchases that are not captured here. The impacts from local vendor purchases are estimates based on typical purchasing patterns by higher education institutions and the availability of those goods and services in Tucson. Actual vendor spending levels will vary depending on specific purchasing patterns of GCU.

As purchases are made from local vendors they, in turn, support jobs and payroll in Tucson. Local spending may also take place on behalf of the local vendors that supports additional jobs and payroll. Estimated local vendor purchases could support an annual economic impact of \$79.2 million by 2020 along with about 530 jobs at local vendors and their suppliers.

**FIGURE 2  
TYPICAL LOCAL PURCHASES**

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Food Service and Banquet
Utilities
Facilities Maintenance
Telecommunications
Insurance
Training
Legal Services
Office Supplies
Advertising
Professional Services
Rent
Equipment and Furniture
Books/Bookstore Merchandise
Printing/Promotional Materials
Janitorial Service
IT Related Services
Copier Maintenance
Security Service
Banking Fees and Charges
Clothing
Transportation

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### 3.3 Employee Spending

The next largest component of the indirect and induced impacts that could be created by GCU comes from employee spending. The university would employ about 1,000 people in Tucson with an annual payroll of \$60.0 million. The average wage per university employee is estimated at \$60,000 plus benefits, which is well above average wage levels in the region. These employees represent a substantial amount of purchasing power that supports additional jobs and payroll at local retail and service establishments in the city.

Based on the Census Consumer Expenditure Survey, it is estimated that employees spend approximately 83 percent of their income on goods and services. Employee spending, adjusted for the share of employees living in Tucson, could result in an estimated annual economic impact of \$60.9 million by 2020.<sup>1</sup> Through this spending, the university could indirectly support about 370 jobs and \$12.6 million in personal income at local retailers and service providers in Tucson.

### 3.4 Student Spending

The final component of the indirect and induced impacts that could be created by GCU in Tucson comes from student spending. By 2020, the campus could support approximately 7,500 students, of which an estimated 80 percent would be full-time (Figure 3). Approximately 45 percent of the full time students would live on campus. It is assumed that most of the remaining full-time students would live near the campus in the City of Tucson, and that much of their local spending could be attributed to the presence of the university.

**FIGURE 3**  
**ENROLLMENT AND STUDENT SPENDING IMPACTS**

	Full Time	Part Time	Total
Enrollment			
2014	1,000	250	1,250
2015	1,800	450	2,250
2016	2,600	650	3,250
2017	3,400	850	4,250
2018	4,200	1,050	5,250
2019	4,920	1,230	6,150
2020	6,000	1,500	7,500

	Average Spending per FT Student	Total Expenditures (2020)
Housing (off campus)	\$5,600	\$18,480,000
Food	\$4,700	\$15,510,000
Transportation	\$3,700	\$22,200,000
Personal	\$2,650	\$15,900,000
Books & Supplies	\$2,300	\$13,800,000
Utilities	\$2,200	\$7,260,000
<b>Total</b>	<b>\$21,150</b>	<b>\$93,150,000</b>

The average university student living off-campus spends about \$21,000 per year on non-tuition expenses on housing, food, transportation, personal items, books, and other items.<sup>2</sup> In total, student spending for full-time students is estimated at \$93.2 million per year by 2020 (Figure 3). Although the amount of disposable income per student is significantly less than for employees, the sheer volume of students results in a sizeable amount of expenditures. Based on the specific categories of spending, this

<sup>1</sup> Analysis assumes that 79 percent of employees live in the City of Tucson based on PAAG Trip Reduction Survey data.

<sup>2</sup> Based on student spending data from other private colleges and universities in Arizona. Student spending is only applied to full time students. Housing, utility and food expenditures are excluded for students living on-campus.

information can be used to estimate the economic impacts related to students. All total, the \$93.2 million in student spending could generate a total economic impact of \$136.2 million, supporting about 1,600 jobs and \$46.6 million in personal income at local businesses by 2020.

### **3.5 Overall Operations Impacts**

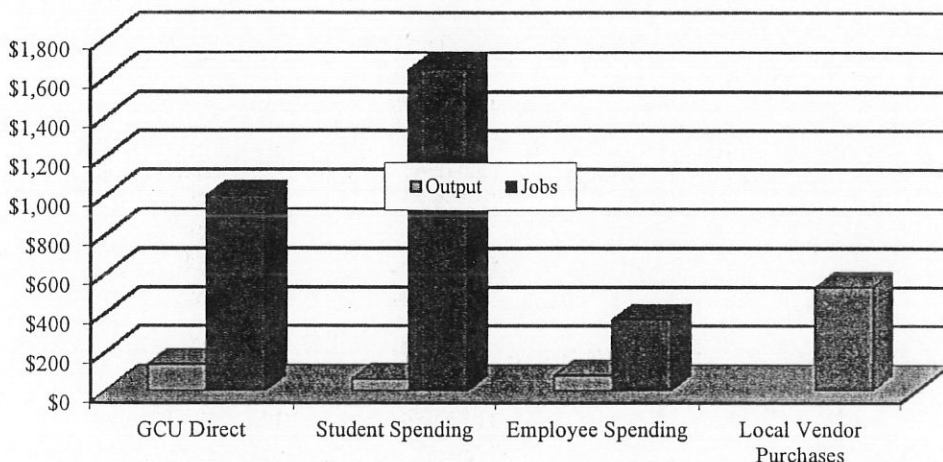
The economic impact results presented here from the components detailed above are grouped into direct, indirect, induced and total impacts. Direct impacts include the jobs, payroll and value of services provided by the university. Indirect impacts include local vendor spending. Induced impacts include spending by students and employees. Indirect and induced jobs represent employees at local supplier businesses where the university makes purchases, as well as local consumer establishments where students and employees make purchases. These supplier businesses and their employees in turn make additional local purchases that are captured in the total impact estimates. The total impact includes the direct impacts of the university and the indirect and induced impacts created by other local businesses and their employees. All total, the operations of GCU could create a total economic impact of \$446.4 million in Tucson's economy each year, directly and indirectly supporting about 3,500 jobs and \$139.5 million in annual personal income by 2020 (Figures 4 and 5).



**FIGURE 4**  
**OVERALL OPERATIONS IMPACT OF GRAND CANYON UNIVERSITY**  
**ON CITY OF TUCSON**

	Output	Jobs	Personal Income
<b>University Direct Impacts</b>			
2014	\$42,521,237	250	\$15,000,000
2015	\$68,033,979	400	\$24,000,000
2016	\$85,042,473	500	\$30,000,000
2017	\$110,555,215	650	\$39,000,000
2018	\$136,067,957	800	\$48,000,000
2019	\$153,076,452	900	\$54,000,000
2020	\$170,084,947	1,000	\$60,000,000
<b>Indirect Impacts - Local Vendor Purchases</b>			
2014	\$19,807,854	133	\$5,107,845
2015	\$31,692,566	212	\$8,172,553
2016	\$39,615,708	265	\$10,215,691
2017	\$51,500,420	345	\$13,280,398
2018	\$63,385,132	424	\$16,345,105
2019	\$71,308,274	478	\$18,388,243
2020	\$79,231,416	531	\$20,431,381
<b>Indirect Impacts - Student Spending</b>			
2014	\$22,703,109	274	\$7,758,772
2015	\$40,865,597	493	\$13,965,789
2016	\$59,028,084	712	\$20,172,807
2017	\$77,190,572	932	\$26,379,824
2018	\$95,353,059	1,151	\$32,586,842
2019	\$111,699,298	1,348	\$38,173,157
2020	\$136,218,656	1,644	\$46,552,631
<b>Induced Impacts - Employee Spending</b>			
2014	\$15,214,437	91	\$3,140,092
2015	\$24,343,099	146	\$5,024,147
2016	\$30,428,873	183	\$6,280,183
2017	\$39,557,535	238	\$8,164,238
2018	\$48,686,197	293	\$10,048,293
2019	\$54,771,972	329	\$11,304,330
2020	\$60,857,746	366	\$12,560,366
<b>Total Economic Impacts</b>			
2014	\$100,246,637	748	\$31,006,709
2015	\$164,935,240	1,252	\$51,162,488
2016	\$214,115,139	1,661	\$66,668,681
2017	\$278,803,743	2,164	\$86,824,460
2018	\$343,492,346	2,668	\$106,980,240
2019	\$390,855,996	3,055	\$121,865,730
2020	\$446,392,765	3,540	\$139,544,378

**FIGURE 5  
TOTAL ANNUAL ECONOMIC IMPACT OF  
GRAND CANYON UNIVERSITY**



Note: Output in millions of dollars. Excludes non-recurring construction activity.

The secondary impacts of university expenditures, employee and student expenditures are called multiplier effects. Multiplier effects are a way of representing the larger economic effects on the local economy. The multiplier effects translate an increase in output (loosely defined for service industries as sales) into a corresponding increase in jobs and personal income. In essence, the multiplier effect represents the recycling of local spending. This recycling process creates new business opportunities.

The multipliers used in this analysis are from IMPLAN, a national vendor of economic impact software, and are specific to Tucson. Industry specific multipliers were used for higher education and for each category of student purchases. Household consumption multipliers were used to model employee spending. On average, the output multiplier for this analysis is 2.62. This means that for every \$1.0 million of revenues produced by GCU, an additional \$1.62 million in additional economic activity is generated in the local economy. The nature of higher education, which supports not only employee and vendor spending associated with normal business operations but also student spending, results in a higher multiplier effect than many other types of industries.

## 4.0 REVENUE IMPACTS

In addition to supporting jobs and output at related businesses in the city through multiplier effects, GCU would also generate local tax revenues. The university would generate construction sales tax as well as on-going local property taxes. In addition, employees and students generate sales taxes on a portion of their local purchases and property taxes on their homes. The same is true for employees at other local businesses that are supported by vendor spending and employee and student spending as shown in the economic impacts. All total, GCU could directly and indirectly generate an estimated \$43.9 million in local tax revenues from 2014 to 2020, including \$12.7 million to the City of Tucson (Figure 6).

**FIGURE 6  
REVENUE IMPACTS  
GRAND CANYON UNIVERSITY**

	City of Tucson		Pima County	RTA	School	Pima CC	Total
	Property	Sales	Property*	Sales	Property	Property	
<b>University Direct Revenues</b>	<b>\$1,234,323</b>	<b>\$2,666,371</b>	<b>\$5,347,563</b>	<b>\$664,819</b>	<b>\$7,145,482</b>	<b>\$1,146,625</b>	<b>\$18,205,183</b>
2014	\$0	\$493,675	\$0	\$123,419	\$0	\$0	\$617,094
2015	\$73,435	\$609,576	\$318,148	\$152,098	\$425,113	\$68,217	\$1,646,588
2016	\$140,367	\$467,389	\$608,125	\$116,552	\$812,584	\$130,394	\$2,275,412
2017	\$186,149	\$473,076	\$806,470	\$117,973	\$1,077,615	\$172,923	\$2,834,208
2018	\$232,777	\$303,426	\$1,008,480	\$75,561	\$1,347,544	\$216,238	\$3,184,027
2019	\$254,170	\$159,614	\$1,101,160	\$39,608	\$1,471,384	\$236,111	\$3,262,046
2020	\$347,425	\$159,614	\$1,505,180	\$39,608	\$2,011,241	\$322,741	\$4,385,809
<b>Indirect Revenues</b>							
<b>Students and Employees</b>	<b>\$370,861</b>	<b>\$4,269,404</b>	<b>\$1,606,711</b>	<b>\$1,067,351</b>	<b>\$1,504,334</b>	<b>\$344,511</b>	<b>\$9,163,172</b>
2014	\$20,603	\$196,670	\$89,262	\$49,168	\$83,574	\$19,140	\$458,416
2015	\$32,965	\$339,312	\$142,819	\$84,828	\$133,719	\$30,623	\$764,266
2016	\$41,207	\$467,260	\$178,523	\$116,815	\$167,148	\$38,279	\$1,009,232
2017	\$53,569	\$609,902	\$232,080	\$152,476	\$217,293	\$49,763	\$1,315,082
2018	\$65,931	\$752,544	\$285,637	\$188,136	\$267,437	\$61,246	\$1,620,932
2019	\$74,172	\$870,636	\$321,342	\$217,659	\$300,867	\$68,902	\$1,853,578
2020	\$82,413	\$1,033,080	\$357,047	\$258,270	\$334,297	\$76,558	\$2,141,665
<b>Supported Employees</b>	<b>\$1,243,457</b>	<b>\$2,958,650</b>	<b>\$5,387,133</b>	<b>\$739,663</b>	<b>\$5,043,876</b>	<b>\$1,155,109</b>	<b>\$16,527,888</b>
2014	\$61,654	\$151,871	\$267,111	\$37,968	\$250,091	\$57,274	\$825,969
2015	\$103,163	\$250,594	\$446,943	\$62,648	\$418,465	\$95,834	\$1,377,647
2016	\$136,857	\$326,543	\$592,918	\$81,636	\$555,139	\$127,134	\$1,820,226
2017	\$178,366	\$425,266	\$772,750	\$106,317	\$723,512	\$165,693	\$2,371,904
2018	\$219,875	\$523,989	\$952,582	\$130,997	\$891,886	\$204,253	\$2,923,582
2019	\$251,762	\$596,898	\$1,090,731	\$149,225	\$1,021,232	\$233,875	\$3,343,723
2020	\$291,779	\$683,488	\$1,264,098	\$170,872	\$1,183,552	\$271,048	\$3,864,837
<b>Total Direct and Indirect</b>	<b>\$2,848,641</b>	<b>\$9,894,425</b>	<b>\$12,341,407</b>	<b>\$2,471,833</b>	<b>\$13,693,693</b>	<b>\$2,646,245</b>	<b>\$43,896,243</b>
2014	\$82,258	\$842,216	\$356,373	\$210,554	\$333,665	\$76,413	\$1,901,479
2015	\$209,563	\$1,199,482	\$907,909	\$299,575	\$977,296	\$194,674	\$3,788,500
2016	\$318,431	\$1,261,192	\$1,379,567	\$315,002	\$1,534,871	\$295,807	\$5,104,870
2017	\$418,084	\$1,508,245	\$1,811,300	\$376,766	\$2,018,420	\$388,379	\$6,521,194
2018	\$518,583	\$1,579,960	\$2,246,700	\$394,694	\$2,506,867	\$481,738	\$7,728,541
2019	\$580,104	\$1,627,148	\$2,513,233	\$406,491	\$2,793,483	\$538,888	\$8,459,347
2020	\$721,618	\$1,876,182	\$3,126,325	\$468,750	\$3,529,090	\$670,347	\$10,392,312

\*County property tax includes countywide special taxing districts.

Indirect property tax revenues for "Students and Employees" reflect property taxes on employee residences.

#### **4.1 Direct Revenue Impacts**

Since GCU is a for-profit educational institution, they would pay property taxes on their buildings. On-going property taxes to the City of Tucson are estimated at \$347,000 per year once the campus is built out, based on \$179.7 million in new construction value. Direct property taxes to the county, school, community college district and other special districts are estimated at \$3.8 million per year. The land where the building would be located is currently owned by the City of Tucson and would be leased to GCU for 50 years. The lease payment would be approximately 9 percent of the appraised value of the land. This would generate additional lease revenues to the city that are not included in Figure 6.

GCU could also generate an estimated \$3.3 million in local sales tax revenues over the next seven years. This includes \$2.3 million in construction sales tax to the city, and \$584,000 to the RTA. There would be on-going sales tax revenues generated by on-campus printing, retail and restaurant facilities, personal property rentals, use tax and hotel/motel sales, based on estimates provided by GCU. On-going sales tax revenues are estimated at \$160,000 per year to the city and \$40,000 per year to the RTA.

#### **4.2 Indirect Revenue Impacts**

In addition to property and sales taxes generated by GCU directly, there would be indirect revenues associated with students and employees. Indirect property taxes to the city, county, school district, community colleges and other local taxing districts are estimated at \$3.9 million per year by 2020, including \$374,000 to the City of Tucson. Indirect property tax revenues are estimated based on per capita residential assessed value in Tucson times the average tax rate times the supported population. Property tax revenues were also adjusted for the share of employees living in Tucson.

Annual indirect sales taxes are projected at \$2.1 million by 2020, including \$1.7 million to the City of Tucson.<sup>3</sup> Sales taxes include taxable spending by direct and supported employees. City sales taxes are adjusted for the share of employees living in Tucson. Sales tax revenues also include student spending for books, utilities and personal items. A sales tax rate of 2.0 percent was used for the City of Tucson and 0.5 percent for the RTA.

#### **4.3 Summary**

Grand Canyon University could be a source of new job creation in the next several years as they expand the number of campus locations. They provide the region with a highly educated potential workforce and provide opportunities for current workers to upgrade their skills. They would create high quality jobs for a large number of faculty and staff in Tucson and support the local economy with vendor purchases. In addition to jobs and vendor purchases that are generally associated with economic impacts created by local businesses, as a university they are unique in that they also create impacts through their students. This would result in additional jobs and economic activity in the community, as well as local tax revenues that would be the direct result of the presence of the university.

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<sup>3</sup> Sales taxes from employee spending are based on typical consumer expenditure patterns. According to the Census Bureau Consumer Expenditure Survey, approximately 31 percent of gross personal income is spent on taxable goods. Applying this assumption to personal income of college and university employees and other supported jobs at local businesses times the local sales tax rate yields local sales tax revenues from employee spending.