

FINANCIAL ANALYSIS AND ECONOMIC IMPACT OF
NORTHERN ARIZONA UNIVERSITY'S ATHLETICS
DEPARTMENT



July 2010

The Arizona Rural Policy Institute

A Unit of the Center for Business Outreach

Thomas Combrink, Senior Research Specialist

Wayne Fox, Director

Jeff Peterson, Research Associate

Collaborator: Dr. Ronald J. Gunderson, PhD

This report was prepared by the Arizona Rural Policy Institute, Northern Arizona University, with funding from Northern Arizona University, the City of Flagstaff, Coconino County, and the United States Economic Development Administration.



Acknowledgements:

This study would not have been possible without the generous help of the following people and departments:

David Bousquet, Vice President of Enrollment Management and Student Affairs

Mark Boyer, Fiscal Operations Manager, Dining and Card Administration

James Casebeer, Associate Director, Enrollment Services

Cheryl Cothran, Director, Arizona Hospitality Resource and Research Center

James Fallis, Director, Athletics

Mason Gerety, Senior Vice President, Advancement

Patricia Haeuser, Vice President, Planning and Institutional Research

Lynn Newson, Interim Assistant Director, Athletics

Contents

Summary	3
Estimating the Economic Contribution of the NAU Athletics Program	4
Financial Implications within the University	4
Payments to NAU by Student-Athletes and Affiliates	5
<i>Part I – Student-Athletes and Affiliates</i>	5
<i>Part II – Payments</i>	8
Local Area Economic Impact	11
Methodology	11
Economic Contributions of the Athletics Department	12
Economic Contributions by Student-Athletes & Affiliates	14
Tax Impact	16
Potential Impact of Visiting Teams and Fans	17
Potential Impact of Spectators.....	19
Additional Considerations.....	19
Appendix	22

Summary

The Arizona Rural Policy Institute in the W.A. Franke College of Business at Northern Arizona University was recruited to make a comprehensive analysis of the true cost of the NAU Athletics Program to the university. The study also analyzed the economic benefits the program has generated within Flagstaff and Coconino County.

The study resulted in the following findings:

- Direct state and institutional support to the Athletics Program totals just under \$8 million. However, \$2.3 million of this is in the form of tuition waivers that are immediately returned to the university. Removing these waivers reduces support to a net of \$5.6 million.
- Many students would likely not attend NAU in the absence of an athletics program. Current athletics-related enrollment includes 409 student-athletes, 11 cheerleaders, 14 dancers, two mascots, 40 members of the marching band, and 166 athletic training majors.
- These 640 students pay approximately \$4.2 million in tuition and housing payments to the university. Their dining plans contribute an additional \$139,223 to NAU.
- When payments for tuition, housing, and meal plans are subtracted from direct institutional support, the cost of keeping the Athletics Program is revealed to be \$1.3 million. This figure is approximately one-third of one percent of the university's total operating expenses in FY 2009.
- Spending by the Athletics Department in the community is nearly \$6.4 million annually. The multipliers, or ripple effects, of that direct spending lead to a total of \$9.3 million being spent in Flagstaff and Coconino County. Similarly, the 640 students mentioned earlier spend an estimated \$9.2 million, which yields \$13.3 after the multiplier effect is considered. Together these two groups create a total economic effect on the local economy of \$22.6 million, as well as 309 jobs.
- Federal, state, and local taxes collected due to this spending total close to \$3.85 million.
- Visiting teams also contributed over \$330,000 to the local economy in FY 2009. After multipliers, this amounts to \$500,000 in economic activity. This spending generates close to six jobs in the community.
- Although the economic impact is not estimated here, the competitions on the mountain campus were attended in FY 2009 by 77,200 people.
- Other considerations are notable. Each of NAU's 16 ABOR-approved peer institutions has a fully-functioning athletics program. Events such as homecoming would be sparsely attended if not for the ball games. Also, on-campus happenings such as camps for kids and the Arizona Cardinals' training camp rely on the Athletics Department's facilities and staff.

Estimating the Economic Contribution of the NAU Athletics Program

Studies designed to estimate the impact of university athletics programs are fairly commonplace. Examples of such studies can be found in the economic analysis literature (Fox and Hill, University of Tennessee, 2004; Bureau of Business Research, University of Lincoln-Nebraska, 2005), although the quality and methodological rigor of the studies vary greatly. Studies of university Athletics Departments tend to focus on estimating the impact of the department's payroll and operating expenditures, as well as the economic impact of attendees at the various sporting events on regional economies. This study will depart somewhat from standard economic impact studies in that it will not attempt to determine the impact of visiting spectators. The information required for these calculations is not currently available on the Flagstaff campus. Also different is the inclusion of an internal financial analysis of NAU athletics, a feature typically excluded by similar studies.

This study focuses on the financial impact of Northern Arizona University's Athletics Department (the Athletics Department), both on the university itself and on the economy of the surrounding area. The financial impact on the university is determined by analyzing the cost of supporting the department and internal revenues generated by its existence. The financial impact the Athletics Department has on the economy of Flagstaff and Coconino County is determined based upon the spending requirements of the department as well as the spending habits of those students whose enrollment is dependent upon its existence. The lesser impact of visiting teams is also considered, as well as a number of non-measurable, but significant sources of economic stimulus.

This analysis also assumes an all or none approach to the financial and economic impacts of NAU Athletics. There is logically a range of alternate operating scenarios which could lower the division status or conversely increase the division status of the program, all of which would likely have an array of different financial impacts. The all or none approach was used in part to provide a more concise, measurable and supportable analysis.

Financial Implications within the University

The financial costs which are incremental to net revenues generated by the Athletics Department can be found in *The Independent Accountant's Report on Applying Agreed-Upon Procedures in Compliance with the National Collegiate Athletic Association for the Year Ended June 30, 2009* (2009). Two costs in the financial statements that identify incremental university support are Direct State Support and Direct Institutional Support. These costs, shown in Table 1, total nearly \$8 million.

Table 1 – Direct Support of the Athletics Department

Direct State Support	\$2,516,538
Direct Institutional Support	\$5,401,895
Total Direct Support	\$7,918,433

Direct State Support primarily covers salaries and employee-related expenses for Athletics Department personnel. Direct Institutional Support represents transfers from other university accounts. Approximately \$2.3 million of Direct Institutional Support is in the form of tuition waivers made directly to students and is arguably not what an economist would classify as a true incremental cost. This is because issuance of the waiver generates little if any additional cost (consumption of resources) to the institution in the short term. Adjusting for the tuition waiver component yields a net hard dollar cost to the institution of just over \$5.6 million, prior to other considerations, as illustrated in Table 2.

Table 2 – Net Institutional Support to the Athletics Department, FY 2009

Total Direct Support	\$ 7,918,433
Tuition Waivers	\$ 2,316,083
Net Institutional Support	\$ 5,602,350

Payments to NAU by Student-Athletes and Affiliates

This section of the analysis estimates payments made to NAU by student-athletes and by students affiliated with the Athletics Department (cheerleaders, dancers, mascots, marching band members, and athletic trainers – referenced as Affiliates). Tuition, student fees, dining services, and housing are the most likely payments and are the basis for the following computations. In *Part I* below the number of student-athletes and affiliates is defined and quantified. Later, in *Part II*, the payments these students make to the university are calculated. It is interesting to note that of 409 student-athletes only 88, or 22 percent, are awarded full scholarships. Indeed, 40 percent of student-athletes receive no financial support from NAU Athletics.

Part I – Student-Athletes and Affiliates

Table 3 lists the students whose attendance at Northern Arizona University is highly dependent upon the Athletics Department and intercollegiate competition. These include competitors in football, men's and women's basketball, men's and women's tennis, men's and women's track and cross country, volleyball, swimming, soccer, and golf. Table 3 categorizes these student-athlete numbers based on the size of the grant-in-aid awarded in FY 2009 – full, 50-99% of full, 1-49% of full, or no scholarship.

Table 3 – Student Athletes and Affiliates; Information on Scholarship Award Ratios; FY 2009

Student Athletes and Affiliates - Numbers and Scholarships					
Student-Athletes					
Amount of Scholarship	100%	50-99%	1-49%	0%	Totals
Football	43	20	15	58	136
Men's Basketball	7	7	-	3	17
Men's Tennis	0	5	3	1	9
Men's Track/Cross Country	0	10	14	48	72
Sub-Total, Men's Sports	50	42	32	110	234
Women's Basketball	12	2	-	-	14
Women's Tennis	6	2	-	3	11
Women's Track/Cross Country	3	15	9	39	66
Volleyball	9	4	-	5	18
Swimming	3	8	13	2	26
Soccer	2	13	12	6	33
Golf	3	4	-	-	7
Sub-Total, Women's Sports	38	48	34	55	175
Student-Athlete Grand Total	88	90	66	165	409
Affiliates					
Cheer Team	-	-	-	11	11
Dance Team	-	-	-	14	14
Mascots	-	-	-	2	2
Incremental Marching Band Members	-	-	-	40	40
Athletic Training Majors	-	-	-	166	166
Total Affiliates	-	-	-	233	233
Total Student Athletes & Affiliates	88	90	66	398	642
Adjustment*					(2)
Total Students Dependent on Athletic Department					640

The adjustment is to avoid double-counting two athletes also enrolled in the Athletic Training Education Program

Affiliates – students who do not participate in sports but whose presence at NAU is almost certainly dictated by the presence of the Athletics Department – are also listed in Table 3. These students are categorized as cheerleaders, dancers, and mascots; incremental marching band members; or declared majors in the Athletic Training Education Program.

The following assumptions are made when determining which students would not be enrolled at Northern Arizona University in the absence of a competitive athletics program:

- All athletes, cheerleaders, dance team members, and mascots would have elected to attend another institution if the NAU Athletics Department did not exist.
- Many members of the marching band choose a university based on the opportunity to participate in a marching band. A study made for Nicholls State University (Coats and Cox, 2004) concluded that a third of its marching band would not have attended Nicholls State University without an athletics program. This analysis uses the Nicholls State estimate as a proxy for the approximately 120 NAU marching band students and therefore assumes 40 students would have chosen an alternate university.
- In FY 2010, NAU had 166 declared majors in its Athletic Training Education Program. The director of the Athletic Training Education Program at NAU has stated that without an active athletics program, the training program would not be able to continue. In the absence of an athletics program at NAU, it is logically assumed that the majority of these students would have selected an alternate institution which provides athletic training majors a hands-on practicum. It has been mentioned that this program costs an estimated \$300,000 to administer.
- A complete analysis of student identification numbers of student-athletes and affiliates revealed that two student-athletes were also enrolled in the Athletic Training Education Program. Calculations therefore adjusted the number of students to avoid double-counting these students.

Part II – Payments

Payments to NAU by student-athletes and affiliates were compiled based on a detailed analysis provided by the Office of the Vice President for Enrollment Management and Student Affairs. Table 4 lists actual payments for tuition and housing as collected from the various student-athletes and affiliates for the 2009-2010 academic year.

Table 4 – Tuition and Housing Payments by Student-Athletes and Affiliates

Total Tuition and Housing Payments by Student-Athletes and Affiliates	
	Tuition and Housing
Student Athletes	\$ 2,583,428
Affiliates	
<i>Cheer, Dance, and Mascots</i>	\$ 173,756
<i>Athletic Training Majors</i>	\$ 1,169,761
<i>Incremental Marching Band</i>	\$ 278,449
Total Affiliates	\$ 1,621,966
Total Athletes & Affiliates	\$ 4,205,394

The Tuition and Housing figures for Student-Athletes and Cheer, Dance, and Mascots were gathered from individual student records provided by the Office of the Vice President of Enrollment Management and Student Affairs. The figures for the Athletic Training majors were provided by the office of Enrollment Services and reflect actual amounts paid by those students to the university for Tuition and Housing.

To develop a reliable estimate for marching band students, the average payment among the population for the Cheerleaders, Dancers, and Mascots category and the Athletic Training Majors was calculated. This figure – \$6,961 – was then applied to the 40 incremental band members, for a total of \$278,449 paid by that group.

The payments for Tuition and Housing made by these students total \$4,205,394.

It should be noted that during the past academic year the demand for on-campus housing exceeded the supply of available rooms and therefore there would have been no financial loss to the university from housing fees during the current academic year if the student-athletes and affiliates were not enrolled. There are currently 637 students on the wait list for Residence Life. The university is also planning additional on-campus housing to accommodate a minimum of 800 additional students.

The select students also pay \$580,095 to dining services, according to a detailed analysis provided by the Dining and Card Administration. The agreement NAU has with its dining services vendor requires the vendor to pay a certain percentage of its gross sales to the university. The amount of the payment is tiered, with the top tier in FY 2010 being 24 percent. The gross collections that come from the athletes and affiliates therefore equal a payment to the university of \$139,223.

Table 5 calculates the payments made by the selected students to Dining Services, and the subsequent transfers to the university.

Table 5 – Payments from Dining Services to the University

Payments from Dining Services	Total Paid to Dining Services	Transfers to NAU (24% of Gross)
Student Athletes	\$ 265,171	\$ 63,641
Cheer, Dance, and Mascots	\$ 22,797	\$ 5,471
Athletic Training Majors	\$ 254,132	\$ 60,992
Incremental Marching Band	\$ 37,995	\$ 9,119
Total	\$ 580,095	\$ 139,223

Table 6 adds together the total payments made to the university from students for tuition and housing and from dining services. The resulting figure, \$4,344,616, represents payments collected by NAU in FY 2010 that would not be collected in the absence of the Athletics Department. Nearly \$2.65 million is collected from the student-athletes themselves, while an additional \$1.7 million is collected from affiliates.

Table 6 – Payments to the University by Student-Athletes and Affiliates

Total Payments by Student-Athletes and Affiliates				
	Tuition and Housing	Dining Services	Total	
Student Athletes	\$ 2,583,428	\$ 63,641	\$ 2,647,069	
Affiliates				
<i>Cheer, Dance, and Mascots</i>	\$ 173,756	\$ 5,471	\$ 179,227	
<i>Athletic Training Majors</i>	\$ 1,169,761	\$ 60,992	\$ 1,230,753	
<i>Incremental Marching Band</i>	\$ 278,449	\$ 9,119	\$ 287,568	
Total Affiliates	\$ 1,621,966	\$ 75,582	\$ 1,697,548	
Total Athletes & Affiliates	\$ 4,205,394	\$ 139,223	\$ 4,344,616	

Instructional Savings

It should be noted that there are indeterminate costs which could be avoided by the university with a reduction of students living in on-campus housing. Over an extended period of time it is reasonable to assume that the university theoretically could realize a significant decrease in instructional costs if Flagstaff enrollments decreased by 640 students. Given the following, an estimate of the maximum potential theoretical savings can be calculated:

- Average undergraduate class size – 32 students
- Average number of classes taken per academic year assuming 30 credit hours – 10
- Average teaching load per faculty per academic year – 5 three unit classes
- Average academic year salary (all faculty ranks) - \$69,200
- Average employee related expenses (all faculty ranks) - \$22,144

The maximum potential theoretical savings, based on preceding information would be \$3,653,760 per academic year. The amount and timing of the potential savings would likely be significantly less and indeterminate when issues such as tenure, transfers, and course mix are considered. Furthermore, it is highly unlikely the majority of the 640 students are enrolled in the same courses and the loss of the students would not decrease costs. The courses that are normally taught would just be less efficient. Reinforcing this concept is full-time equivalent students on the Flagstaff campus declined by 422 students (3.2%) between the 2002/2003 academic year and the 2003/2004 academic year while instructional expenditures increased 4.2% during the 2003/2004 academic year and again by 7.5% during the 2004/2005 academic year.

Athletics Program Net Cost

Applying the payments to the university against the net institutional cost yields a net cost of the NAU Athletics Department of \$1,257,734. This is compared to an initial cost of \$7,918,433, as reported in the 2009 financial statements of NAU Athletics. According to NAU's *Financial Report 2008-2009* (2009), total operating expenses in FY 2009 were \$355 million. The net cost of the Athletics Department is therefore equal to 0.35% of annual operating expenses.

Table 7 – Net Cost of the Athletics Department

Net Institutional Support	\$ 5,602,350
Total Student Payments	\$ 4,344,616
Net Cost	\$ 1,257,734

Local Area Economic Impact

The local economic impact will focus on two areas of spending generated by the presence of the athletics department. The first is the expenditures of the NAU Athletics Department within the local area. The second is spending in the local economy by student-athletes and affiliates who attend NAU specifically because the school has an Athletics Department. This study also addresses the impact of visiting teams and coaches and gives detailed attendance records of athletic competitions.

The effects of spending by the Athletics Department and its student affiliates on the economy of Coconino County are significant. Direct spending alone is over \$15.6 million. The ripple, or multiplier, effects of this spending raise this amount to a total of \$22.6 million in economic activity. The effect on local employment is also significant; the estimated number of jobs created by spending due to the presence of the Athletics Department is 309.

Methodology

The specific model used in this portion of the study was developed in 1985 by the Minnesota IMPLAN Group Inc. IMPLAN is an acronym for Impact Analysis for PLANing. It is a nationally-recognized and accepted economic model. The model employs a sophisticated computer program which adapts national input-output tables to county and state levels. This procedure permits computations generated for the national economy to be uniquely broken out and designated for use at state and local levels. The smallest geographic region that IMPLAN can analyze is the county; therefore this analysis estimates the impact of the NAU Athletics Department on Coconino County. Because the Athletics Department only operates from the Mountain Campus, NAU's numerous other locations are ignored.

The IMPLAN methodology estimates the impacts on a state or county that stem from a given event or from the elimination of a set of economic activities. The model therefore analyzes impacts resulting from changes in demand that would occur if the NAU Athletics Department ceased to exist. In a similar vein the model analyzes the impacts of the loss of those students whose attendance is dependent upon the existence of an athletics program.

Input-output models identify three distinct effects on the region – direct, indirect, and induced – and the magnitudes of these impacts are the same size regardless of whether the initial change in spending is positive or negative. Only the direction of the change will vary. The impacts are primarily grouped into output, income, employment, and tax arenas. The magnitude of the impact in the county is a function of spending by the Athletics Department and the student-athletes and affiliates.

When NAU or its students increase their spending, this action is called the *direct effect*. These expenditures immediately increase local sales activity and generate increases in local employment and income levels.

This increase in demand for local inputs generates a multiplier, or ripple effect in the local economy. This action is the *indirect effect*, which occurs when local businesses gear up to replace and expand the level of inputs. To meet these demands, the firms must also increase their purchase of inputs from other producers, some of whom may be local. As a result, those producers must also increase hiring of labor inputs required to produce the desired goods and services.

The chain of events does not stop here. Increases in employment resulting from higher direct and indirect spending will increase the incomes of local households. These households, in turn, will spend a portion of their new income in the local economy. This spending stimulates even more demand for output and creates additional employment opportunities in the local region. This third level increase in economic activity is the *induced effect*, and is a reflection of the changes that occur due to higher household incomes in a region.

Therefore, the total effect of changes in spending by the NAU Athletics Department and by student-athletes and affiliates will be the sum of the direct, indirect, and induced effects described above.

The *employment effect* is gauged by the number of jobs that exist as a result of the increased additional sales activities and the higher business-to-business activity that occurs to meet the demands of the increasing economic activity in the county.

The *tax impact* is a measure of the change in tax collections resulting from expenditures by the Athletics Department and those students dependent upon the program.

Economic Contributions of the Athletics Department

The impacts of the NAU Athletics Department on Coconino County have been estimated using IMPLAN. The impacts are separated into two distinct components. The first impact results from the day-to-day spending of the Athletics Department itself. These figures include spending from all sources, including operations, wages, and promotion. The second impact results from the expenditures of student-athletes and affiliates. These expenditures are derived from a study of the *Economic Contributions of NAU* (2003), and include impacts on local goods and services such as restaurants and bars, hotels, real estate, and automotive services. The impacts do not include student payments to the university, such as tuition, on-campus housing costs, fees, and purchases at dining halls.

The overall impact on Coconino County is obtained by summing the impacts generated by each of the study groups. Three measures are used to demonstrate the Athletics Department's impact on the county:

- Output (in dollars)
- Employment (in full-time-equivalent jobs)
- Labor Income

As shown in Table 8, the overall financial impact of spending by the Athletics Department in 2009 was \$9,329,508. This figure includes direct, indirect, and induced effects. In addition to dollars moving about the community, local employment is increased noticeably. A more detailed breakout of where these impacts occurred can be found in Tables A-1, A-2, and A-3 in the Appendix.

Table 8 – IMPLAN Output, Effects of Athletics Department Spending

NAU Athletics	Direct	Indirect	Induced	Multiplier	Total
Total Output	6,360,201	316,726	2,652,581	1.47	\$ 9,329,508
Total Employment	138	0.4	28	1.21	166
Total Labor Income	5,594,210	14,869	1,003,632	1.18	\$ 6,612,712

Direct spending of \$6.36 million was derived from information contained in [The Independent Accountant's Report on Applying Agreed-Upon Procedures in Compliance with the National Collegiate Athletic Association for the Year Ended June 30, 2009](#) (2009).

Output

As shown in Table 8, almost \$6.4 million of the \$9.3 million in total expenditure is the result of direct spending by the Athletics Department. An additional \$316,726 resulted from indirect expenditures by county businesses whose operations were positively influenced by this direct spending. Furthermore, almost \$2.7 million in induced expenditures resulted from the increased household spending generated by the resulting household income increases. The difference between the \$9.3 in overall spending and the \$6.4 million in direct spending is referred to as the multiplier effect. Here the multiplier is 1.47 which means that every \$1 million spent by the NAU Athletics Department generates \$470,000 dollars of spending somewhere else in the county.

Employment

The overall effects of these spending activities generate moderate increases in employment within the county. According to the IMPLAN output, the direct employment effects lead to 138 full-time equivalent jobs. The NAU Athletics Department employs 53 full-time and four part-time employees as coaches, trainers, and administrators. Thus about 83 non-university jobs are supported by the department's direct expenditures. The induced spending leads to employment of an additional 28 full-time workers. The total effect on employment, therefore, is 166 additional full-time jobs.

Labor Income

The direct impact on employee compensation was almost \$5.6 million. This figure includes wages paid to employees of the department and of the firms initially impacted by the direct spending. As these dollars were spent and re-spent in the county, they generated additional compensation to workers employed in the indirect and induced sectors. The indirect labor income in this case is \$14,869, and the induced labor income is \$1,003,632. Together these indicate a multiplier of 1.18. Labor income is included in the total output, but represents the amount of that spending received by employees.

Economic Contributions by Student-Athletes & Affiliates

This section addresses the annual economic impact of 640 university students on Coconino County. Without an athletics program, these students would presumably leave the community as well as the university.

The numbers shown here reflect expected changes based upon the decreased expenditure levels that would result from the reduced number of students as well as the reduction in visitor expenditures associated with fewer visitors to these students. The figures do not include any accompanying reductions in spending by NAU or by NAU employees.

Assumptions

In order to calculate the impact of the loss of 640 students, data from *The NAU Economic Impact Study* (Eastwood, Fox and Gunderson, 2003) were used to define the impact each has on the county economy. The NAU Economic Impact Study calculated that a hypothetical reduction of 1,000 students on the Mountain Campus would result in a total decline of \$12.755 million across all sectors, translating to a direct loss of \$12,755 per student. Student expenditures were adjusted for inflation to 2007 dollars, to match the year of the IMPLAN model used in this analysis. This proxy was then applied to the 640 students shown in Table 9.

Table 9 – Student-Athletes and Affiliates

Student-Athletes	409
Cheer/Dance/Mascots	27
Incremental Marching Band	40
Athletic Training Majors	166
Adjustment	-2
Total	640

The adjustment in Line 5 is to avoid double-counting two athletes who were also enrolled in the Athletic Training Degree Program

The per-student losses were applied to the estimated reduction in student numbers (640) as shown in Table 10. The result is a \$9.246 million decline in student expenditures within the county.

Table 10 – Calculating Direct Spending of Student-Athletes and Affiliates; Adjusting for Inflation

Students	640
Spending Per Student	\$ 12,755
Aggregate Spending	\$ 8,163,200
Inflation Rate, July, 03- July, 07	13.27%
Direct Spending, Inflation-Adjusted	\$ 9,246,457

Inflation Data from Inflationdata.com (2010)

The IMPLAN output shown in Table 11 explains the effects of this amount of spending in the economy. More detailed IMPLAN output concerning these effects is contained in Tables B-1, B-2, and B-3 in the Appendix.

Table 11 - IMPLAN Output, Effects of Student-Athlete and Affiliate Spending

NAU Athletics	Direct	Indirect	Induced	Multiplier	Total
Total Output	9,246,457	2,044,895	1,968,440	1.43	\$ 13,259,792
Total Employment	106	18	19	1.34	143
Total Labor Income	2,719,968	723,439	674,676	1.51	\$ 4,118,083

Once the effect of \$9.25 million in the economy is expanded to include the changes in the levels of indirect and induced expenditure, the total decline in spending in the county would reach \$13.26 million.

Employment levels in the county would also decrease. The model estimates that county employment would decline by 143 full-time positions, 106 due to reductions in direct spending and 37 more due to the multiplier effects.

The reduction in labor income is a smaller percentage of total output, as compared to department spending, due to the nature of the expenditures. Direct effects on labor income would be \$2.7 million, growing to \$4.1 million with the multiplier effects.

Table 12 shows the sectors of the economy that benefit from the direct spending of students and their visitors, according to the study of the impact of NAU. The second column of Table 12 shows the aggregate spending in these areas that is a direct result of the presence of 640 students.

Table 12 – Reduction in Spending Activity by Sector Associated with 640 Fewer Students

Sector	Direct Expenditure 2007
Real Estate	\$2,186,745
Eating & Drinking	\$1,492,777
Miscellaneous Retail	\$1,045,098
Food Stores	\$817,370
Hotel & Lodging Places	\$531,536
Automotive Dealers and Service Stations	\$484,142
Insurance Agents and Brokers	\$459,344
Communications	\$396,103
Amusement & Recreation	\$329,486
Apparel and Accessory Stores	\$195,740
Subtotal all Other Sectors	\$1,308,115
Total Decline in all Sectors	\$9,246,457

Tax Impact

The IMPLAN model also provides a means to calculate the impact that spending has on government revenues, both at the national and at state and local levels. Even though NAU commands a tax exempt status for state and federal income taxes, purchases the Athletics Department makes on the open market generate tax revenue. Estimates were generated by the model to determine the levels of taxes and other government revenues collected as a result of the direct, indirect, and induced spending.

Table 13 lists the tax collections resulting from athletics department spending. The total amount of tax revenue resulting from the Athletics Department's direct spending is \$1,781,403.

Table 13 – Tax Impact from Department Spending

Government	Source of Tax or Fee					Total
	Employee Compensation	Proprietary Income	Household Expenditures	Corporations	Indirect Business Taxes	
Federal	729,964	6,398	521,014	115,325	19,563	1,392,264
State & Local	35,716	0	139,978	40,595	172,850	389,139
Total	765,680	6,398	660,992	155,920	192,413	1,781,403

Table 14 shows the tax revenue collected as a result of spending by 640 students. These collections total \$2,077,320.

Table 14 – Tax Impact from Student Spending

Source of Tax or Fee						
Government	Employee Compensation	Proprietary Income	Household Expenditures	Corporations	Indirect Business Taxes	Total
Federal	350,369	28,078	298,288	259,279	96,869	1,032,883
State & Local	17,143	-	80,141	91,267	855,886	1,044,437
Total	367,512	28,078	378,429	350,546	952,755	2,077,320

According to the information shown in Tables 13 and 14, the total amount of taxes generated by both of these sources is nearly \$3.85 million.

Potential Impact of Visiting Teams and Fans

There are two more areas of potential impact that need to be considered. These are the impact of visiting teams and the impact of visiting spectators. First, the impact of visiting teams is apparent in the local economy as Big Sky Conference teams and others travel to Flagstaff to compete. Coaches and affiliates are among the visitors who stay in hotels and eat in the community during their visits. NAU Athletics provided the number of team members and staff traveling to the Mountain Campus in 2009. A total of 3,227 individuals traveled to the Mountain Campus in 2009, as broken down in Table 15.

Table 15 – Visiting Competitors and Staff, FY 2009

Visiting Athletes, Coaches and Affiliates	Competitors	Staff	Total
Cross Country	165	20	185
Football	265	60	325
Men's basketball	195	65	260
Women's Basketball	210	70	280
Volleyball	192	39	231
Soccer	210	44	254
Track & Field	1,200	100	1,300
Golf	143	24	167
Men's Tennis	40	5	45
Women's Tennis	40	5	45
Swimming & Diving	125	10	135
Total	2,785	442	3,227

As with spending by the Athletics Department and students, the purchases of visiting teams can be studied using IMPLAN. To do so, the average amount of money spent per day by visitors to Flagstaff was estimated using information from the *Flagstaff Tourism Study* (Arizona Hospitality

Research and Resource Center, 2009). The study found that the average visitor to Flagstaff spends \$104.33 on lodging, food, and beverage per overnight visit. Under the assumption that each team spends one day in town, this number was applied to the 3,227 visiting athletes and staff. The resulting estimated direct spending of \$336,663 was analyzed using IMPLAN. The results, shown in Table 16, are \$508,821 in total spending, 5.8 jobs, and \$176,245 in labor income.

Table 16 – Financial and Employment Effects of Visiting Teams

Visiting Athletes	Direct	Indirect	Induced	Multiplier	Total
Direct	\$336,663	\$83,958	\$88,200	1.51	\$508,821
Labor	4.2	0.8	0.8	1.38	5.8
Labor Income	\$113,350	\$32,664	\$30,231	1.55	\$176,245

Cumulative effects of spending by the Athletic Department, student-athletes and affiliates, and visiting teams are listed in Tables 17 and 18. When added together the financial impact from these sources is nearly \$16 million in direct spending, and \$23 million in total spending. The employment effects are 249 direct jobs and 315 total jobs.

Table 17 – The Financial Impact of Spending by the Athletics Department, Affiliated Students, and Visiting Teams

Total County Impact of the Athletic Department				
	Direct Spending	Indirect Spending	Induced Spending	Total
Department Spending	\$ 6,360,201	\$ 316,726	\$ 2,652,581	\$ 9,329,508
Student Spending	\$ 9,246,457	\$ 2,044,895	\$ 1,968,440	\$ 13,259,792
Visiting Teams	\$ 336,663	\$ 83,958	\$ 88,200	\$ 508,821
Total	\$ 15,943,321	\$ 2,445,579	\$ 4,709,221	\$ 23,098,121

The dollar amounts in Table 17 are stated in 2007 dollars, the year of the most recent inputs to the IMPLAN model. If the total dollar amount of \$23,098,121 were to be inflated by 4.66% (the inflation rate between July, 2007 and April, 2010, the total impact on the county would be inflated to \$24,174,493.

Table 18 – The Employment Impact of Spending by the Athletics Department, Affiliated Students, and Visiting Teams

Total Employment Impact of the Athletic Department				
	Direct	Indirect	Induced	Total
Department	138	0.4	28	166
Student	106	18	19	143
Visiting Teams	4	0.8	0.8	6
Total	249	19	48	315

Potential Impact of Spectators

The second area impact by visitors is the spectators who visit Flagstaff to watch athletic competitions at NAU. The Athletics Department provided attendance figures broken down by activity. The department estimates that approximately 77,200 spectators attended NAU's home athletic competitions during FY 2009. Attendance by activity is shown in Table 19.

Unfortunately, the origin of these spectators (local, in-state, out-of-state) cannot be determined with any accuracy. Without this information, the impact of this group on the community cannot be determined. It can be assumed, though, that these visitors do have a significant, though uncalculated, impact on the economy.

Table 19 – Attendance Estimates for NAU Athletics by Sport, FY 2009

Attendance Estimates for NAU Athletics FY2009	Attendance
Football	36,826
Men's basketball	11,957
Women's Basketball	6,100
Volleyball	8,717
Soccer	6,250
Cross Country	250
Track & Field	5,000
Tennis	1,000
Golf	100
Swimming & Diving	1,000
Estimated Total Attendance at NAU Athletic Events FY2009	77,200

Additional Considerations

In addition to the preceding analysis it is appropriate to identify other financial and economic factors that are not easily quantifiable or are intangible and not measurable. The following items, not considered to be all inclusive, should be considered when evaluating the economic impact of NAU Athletics.

Peer Institutions

NAU's ABOR-approved peer institutions, shown in Table 20, all appear to have robust athletics programs. It can be suggested that one or more of NAU's peers would be without an athletics program if it was a significant net financial drain on the institution.

Table 20 – Arizona Board of Regents'-Approved Peer Institutions

Bowling Green State University-Main Campus
George Mason University
Georgia State University
Kent State University Kent Campus
Northern Arizona University
Northern Illinois University
Ohio University-Main Campus
Old Dominion University
Southern Illinois University Carbondale
The University of Alabama
University of Akron Main Campus
University of Maine
University of Nevada-Las Vegas
University of North Carolina at Greensboro
Western Michigan University
Wichita State University

Student Selection Process and Retention

NAU is in a competitive environment relative to attracting and retaining students. While not easily measurable it is certain that some students would select an alternative institution with an athletics program, if NAU did not have one. An active athletics program can also be considered a positive part of the undergraduate student experience for some students and therefore a contributor to student retention. University sports programs also provide incremental media exposure for the institution.

An example of this is the exposure brought by former NAU Lumberjack track and cross country runner Lopez Lomong. In addition to being a torch-bearer in the 2008 Olympic Summer Games, which introduced him to an audience of tens of millions, Lomong is to be the subject of a biographical film produced by New Line Cinema prior to the 2012 Summer Olympics. As this athlete's story is followed by millions of people around the world, NAU is exposed, at no cost, to an audience that paid advertising could never reach.

Student-athlete and Affiliate Spending

Student-athletes and affiliates also contribute financially to the institution in addition the payments previously quantified. Bookstore purchases, some food purchases, events and other usage fees would be representative of such unmeasured additions.

Homecoming

It is unlikely that NAU would enjoy a vibrant, if any, Homecoming without a football game to anchor the event. The goodwill generated in the community and with alumni would be negatively impacted as well as the financial contributions to NAU and the local economy.

Donations by Athletics Alumni

NAU also directly benefits from its athletes long after they have graduated. Alumni who were student-athletes give more money back to the university. Data from 2006 to 2010 suggests that student-athletes are twice as likely as non-athlete alumni to donate to NAU. When they do so, their donations average three and a half times those of non-athlete alumni.

Arizona Cardinals

The Arizona Cardinals Football Club (the Cardinals) utilizes the university's facilities and services for its annual summer training camp. While it is unlikely that the agreement between NAU and the Cardinals would lapse without a vibrant Athletics Department, it is reasonable to assume that the department is a positive contributor to the existing relationship. The Cardinals paid NAU \$443,579 for facilities and services in 2009. In addition, a 2003 study (*The Arizona Cardinals' Training Camp: Economic Impact on Coconino County in the Year 2003*; Eastwood, Fox, Gunderson) estimated the economic impact of the training camp at \$2,028,000 or \$2,406,019 in current dollars (*Inflationdata.com*, 2010)

Appendix

Aggregated Impact results

IMPLAN generates some very large tables as part of the economic impact analysis. These tables are too large to include in this report; however, the reports have been aggregated along one-digit Standard Industrial Classification (SIC) codes and summary information from the aggregated table is presented in the body of the report. The aggregated tables are included in the following tables. The figures in the tables have been rounded to the nearest whole job or whole dollar. For this reason, the individual rows may not sum to the totals shown. All totals shown are accurate.

IMPLAN Output, Athletics Department Expenditures

Table A-1
Output Impact

Copyright MIG 2007
IMPACT NAME: Coconino County
MULTIPLIER: Type SAM

Output Impact	Direct	Indirect	Induced	Total
1 Agriculture	57	433	4,187	4,677
20 Mining	2,642	187	10,870	13,699
34 Construction	11,029	1,909	32,741	45,679
41 Manufacturing	4,919	280,192	278	285,389
332 TCPU	28,300	5,579	140,668	174,547
319 Trade	10,184	2,079	514,604	526,867
354 FIRE	28,049	9,474	731,052	768,575
367 Services	59,718	13,421	1,112,634	1,185,773
423 Government	6,215,303	3,492	228,015	6,446,810
440 Other	-	-	-	-
	6,360,201	316,766	2,775,049	9,452,016

Note: The Indirect and Induced impacts in Table A-1 vary from those in Table 8 as the multipliers by sector will not be equivalent to the aggregator multiplier applied to the Total Output in the region as was done in Table 8.

Table A-2
Employment Impact

Copyright MIG 2007
IMPACT NAME: Coconino County
MULTIPLIER: Type SAM

Employment Impact	Direct	Indirect	Induced	Total
1 Agriculture	-	-	-	-
20 Mining	-	-	-	-
34 Construction	0.1	-	0.2	0.3
41 Manufacturing	-	-	-	-
332 TCPU	-	-	1	1
319 Trade	-	-	7	7.4
354 FIRE	-	-	2	2
367 Services	0.6	-	14.3	14.9
423 Government	136.3	-	2.7	139
440 Other	-	-	-	-
	137	0	27	165

Note: The Indirect and Induced impacts in Table A-2 vary from those in Table 8 as the multipliers by sector will not be equivalent to the aggregator multiplier applied to the Total Output in the region as was done in Table 8.

Table A-3
Labor Income Impact

Copyright MIG 2007
IMPACT NAME: Coconino County
MULTIPLIER: Type SAM

Labor Income Impact		Direct	Indirect	Induced	Total
1	Agriculture	-	-	374	387
20	Mining	-	-	238	283
34	Construction	5,041	831	11,129	17,001
41	Manufacturing	1,134	311	12,330	13,775
332	TCPU	8,544	1,789	41,656	51,989
319	Trade	3,908	829	215,237	219,974
354	FIRE	1,201	1,742	78,885	81,828
367	Services	35,621	7,389	518,235	561,245
423	Government	5,538,753	1,928	125,548	5,666,229
440	Other	-	-	-	-
		5,594,210	14,869	1,003,632	6,612,711

Note: The Indirect and Induced impacts in Table A-3 vary from those in Table 8 as the multipliers by sector will not be equivalent to the aggregator multiplier applied to the Total Output in the region as was done in Table 8.

IMPLAN Output, Student-Athlete and Affiliate Expenditures

**Table B-1
Output Impact**

Copyright MIG 2007
IMPACT NAME: Coconino County
MULTIPLIER: Type SAM

Output Impact	Direct	Indirect	Induced	Total
1 Agriculture	-	4,507	2,815	7,322
20 Mining	-	3,143	1,390	4,533
34 Construction	-	72,560	21,807	94,367
41 Manufacturing	-	62,710	40,773	103,483
332 TCPU	396,103	261,331	101,774	759,208
319 Trade	2,058,208	90,753	345,775	2,494,736
354 FIRE	2,646,089	614,380	549,906	3,810,375
367 Services	4,146,056	743,536	771,748	5,661,340
423 Government	-	242,276	153,514	395,790
440 Other	-	-	-	-
	9,246,456	2,095,196	1,989,502	13,331,154

Note: The Indirect and Induced impacts in Table B-1 vary from those in Table 11 as the multipliers by sector will not be equivalent to the aggregator multiplier applied to the Total Output in the region as was done in Table 8.

Table B-2
Employment Impact

Copyright MIG 2007
IMPACT NAME: Coconino County
MULTIPLIER: Type SAM

Employment Impact	Direct	Indirect	Induced	Total
1 Agriculture	-	-	-	-
20 Mining	-	-	-	-
34 Construction	-	0.7	0.1	0.8
41 Manufacturing	-	0.1	-	0.1
332 TCPU	1.2	1.9	0.6	3.7
319 Trade	40.2	0.9	5.1	46.2
354 FIRE	13.3	2.9	1.2	17.4
367 Services	51.5	9	9.7	70.2
423 Government	-	1.6	2	3.6
440 Other	-	-	-	-
	106.2	17.1	18.7	142

Note: The Indirect and Induced impacts in Table B-2 vary from those in Table 11 as the multipliers by sector will not be equivalent to the aggregator multiplier applied to the Total Output in the region as was done in Table 8.

Table B-3
Labor Income Impact

Copyright MIG 2007
IMPACT NAME: Coconino County
MULTIPLIER: Type SAM

Employment Impact	Direct	Indirect	Induced	Total
1 Agriculture	-	-	-	-
20 Mining	-	-	-	-
34 Construction	-	0.7	0.1	0.8
41 Manufacturing	-	0.1	-	0.1
332 TCPU	1.2	1.9	0.6	3.7
319 Trade	40.2	0.9	5.1	46.2
354 FIRE	13.3	2.9	1.2	17.4
367 Services	51.5	9	9.7	70.2
423 Government	-	1.6	2	3.6
440 Other	-	-	-	-
	106.2	17.1	18.7	142

Note: The Indirect and Induced impacts in Table B-3 vary from those in Table 11 as the multipliers by sector will not be equivalent to the aggregator multiplier applied to the Total Output in the region as was done in Table 8.

References:

Bureau of Business Research. (2005) *The Economic Impact of the University of Nebraska-Lincoln Athletic Department*. The University of Nebraska-Lincoln. Department of Economics, College of Business Administration.

Coats, R. Morris, and Cox, K. Chris. (2004) *Economic Impact of NSU Athletics*. South Louisiana Economic Council.

Eastwood, J. D., Fox, W. R., and Gunderson, R. J. (2003) *The Arizona Cardinals' Training Camp: Economic Impact on Coconino County in the Year 2003*. Bank One Center for Business Outreach. College of Business Administration. Northern Arizona University.

Eastwood, J. D., Fox, W. R., and Gunderson, R. J. (2003) *The Economic Contributions of Northern Arizona University to the State of Arizona in 2003*. Bank One Center for Business Outreach. College of Business Administration. Northern Arizona University.

Fox, W. F., and Hill, B. C. (2004) *Economic Effects of the University of Tennessee, Knoxville, Athletic Department*. The University of Tennessee. Center for Business and Economic Research, College of Business Administration.

"Inflationdata.com". *Financial Trend Forecaster*. (2010) April 3, 2010
<<http://www.inflationdata.com>>.

Northern Arizona University: Financial Report 2008-2009 (2009). Financial Services/Comptroller's Office. Northern Arizona University.

The Arizona Hospitality Research and Resource Center. (2009) Flagstaff Tourism Study. Northern Arizona University. The W. A. Franke College of Business.

The Independent Accountant's Report on Applying Agreed-Upon Procedures in Compliance with the National Collegiate Athletic Association for the Year Ended June 30, 2009. (2009)