

The Economic Impact of Flagstaff Unified School District #1 on the Flagstaff Area Economy



The Arizona Rural Policy Institute

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Executive Summary

Flagstaff Unified School District #1 is an educational institution as well as an important economic engine. The district is one of the largest employers in the city and spends over \$100 million each year. This study examines the effects of FUSD's FY2011 budget on the city of Flagstaff and the greater community. The results indicate that the district contributes to a vibrant local economy.

- The money spent locally by the district stimulates more spending and more hiring, yielding a total impact well beyond the district's expenditures and payroll.
- The total economic impact of FUSD during FY2011 (July 2010 – June 2011) was approximately \$132.3 million.
- The total impact on local employment during FY 2011 was nearly 1,800 jobs.
- The value of a high school diploma in the labor market is approximately \$10,000 in annual income, or \$490,000 over a normal working life, between age 18 and 65.
- The graduating class of 2011 at Flagstaff's two high schools will earn an additional \$321 million between the ages of 18 and 65, due to their diplomas.
- If the entire class of 2011 stayed in Arizona until age 65, the state would collect \$13.6 million more in income tax, on the incremental income enabled by the earning power of a diploma.
- Over their working lives, the past 20 graduating classes at FUSD should earn a combined \$8.5 billion in incremental earnings, when compared to taxpayers without a diploma.

Flagstaff Unified School District #1

Despite an emerging tapestry of charter schools, the educational landscape in the Flagstaff area continues to be dominated by Flagstaff Unified School District (FUSD). The district's 15 schools – 10 elementary schools, two middle schools, two high schools, and one alternative education program – educated approximately 9,800 students in FY2011. It is one of the largest geographical school districts in the country, covering 4,500 square miles. It commands a fleet of 93 buses which transport 3,700 students per day from as far away as Cameron and Tolani Lake. The longest bus route is 80 miles one way.

Serving so many children across such a large footprint makes a significant impact on the area economy. The district operates on an annual budget commonly exceeding \$100 million. The Arizona Rural Policy Institute was asked by FUSD to estimate the economic impact of district spending on the region. This document will define that impact in terms of what is quantifiable in dollars spent by the district and the ripple effects of that spending.

IMPLAN, an input-output software program that uses area-specific trade flow data, was used to estimate the total impact of district spending in the area. This software uses spending patterns and local business characteristics to model how dollars spent stimulate further spending as incomes rise and demand is increased among suppliers. In order to limit the district's impact to its constituents – businesses and residents contained within district boundaries – the area of analysis was limited to nine zip codes that together best fit the district geographically:

- 86001
- 86003
- 86004
- 86011
- 86015
- 86017
- 86024
- 86035
- 86038

Figure 1 below shows the boundaries of FUSD and the ZIP codes used in this analysis. Some areas of the district fall outside of the chosen ZIP codes. For simplicity, these areas were intentionally omitted from calculations. They are both sparsely populated and parts of ZIP codes whose population centers lie in other school districts. In addition, the ZIP codes as geographic approximations are only used to estimate economic activity, and such remote rural areas are unlikely to significantly affect the overall impact in those terms.

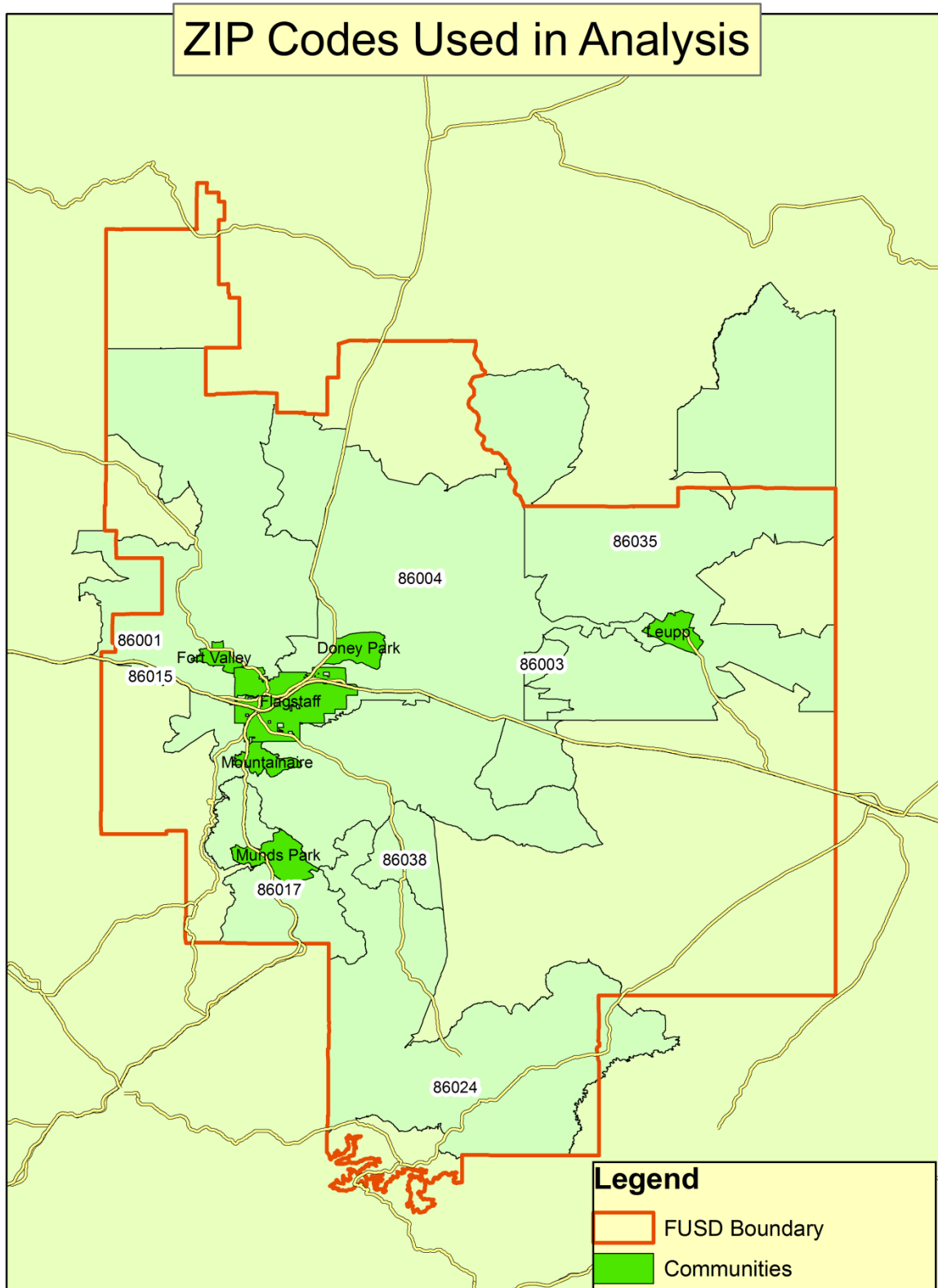


Figure 1: Flagstaff Unified School District Boundaries and ZIP Codes Used in this Analysis

Economic Impact of FUSD’s Budget

This study breaks the FUSD budget into two distinct parts – operating budget and capital budget. The operating budget is spending incurred in order to provide for basic annual operations and maintenance. The capital budget consists of construction and non-routine maintenance and capital equipment purchases. Operating budgets are somewhat consistent from year to year. Capital budgets vary depending on need and are thus analyzed separately. Three years of capital budgets are analyzed here in order to reflect their changing nature.

Both budgets are analyzed in terms of the impact they have on employment (number of local jobs created), labor income (wages and salaries paid to local employees), and output (money spent in the local economy). Those three impacts are further divided into three categories quantifying the effects of the initial spending and the ripple effects of that spending. The impact of the initial spending, in this case the actual expenses of the school district, is known as the *direct effects*. Spending, hiring, and wages paid in response to the increased demand generated by direct spending are known as *indirect effects*. Both direct and indirect spending translate to increased household income. When that income is spent locally, the resulting activity is known as *induced effects*. These will be discussed in more specific terms below.

The fiscal year starts and ends in the summer – July 1 to June 30. In FY2011, the district spent approximately \$106 million. Around \$11 million of that was in capital expenditures, which will be analyzed separately below. The remainder – \$95 million – has been analyzed in an attempt to quantify the effects of annual operations on the city economy.

Table 1 lists these effects in terms of employment, labor income, and output. The budget was analyzed using IMPLAN’s Public Education Spending Pattern, and it only considers effects on businesses and households within the afore–mentioned ZIP code boundaries. Other stakeholders that live outside of this defined area may benefit from the district spending. While such impacts may be significant, they are mostly ignored in this study in an attempt to localize the impact.

Table 1- IMPLAN Results, FY2011 Operating Budget

Impact Type	Employment	Labor Income	Output
Direct Effect	1,300	\$ 69,600,000	\$ 79,400,000 ¹
Indirect Effect	2	\$ 85,000	\$ 250,000
Induced Effect	349	\$ 12,400,000	\$ 37,700,000
Total Effect	1,651	\$ 82,085,000	\$ 117,350,000

Because the table deals in estimates, the IMPLAN output has been rounded to reflect uncertainty.

¹ Direct output of \$79.4 million is less than the operating budget of \$95 million. This discrepancy is explained on Page 6.

Economic Impact of Flagstaff Unified School District FY2011

As Table 1 shows, the operations budget spends around \$79 million locally, hiring 1,300 workers and paying almost \$70 million in salary and wages. When the ripple effects (indirect and induced effects) of that spending are added, approximately \$117 million was spent within the city. This created 1,651 jobs and \$82 million in earnings that can be traced to district operations.

Direct Effects

The *direct effects* shown above are defined as the impact of the money spent by the district. This includes money spent on wages, health insurance, retirement contributions, gasoline, vehicle maintenance, utility bills, text books, snow removal, and hundreds of other goods and services. The *total output* column in Table 1 indicates a direct effect of only \$79.4 million – significantly less than the operating budget total of \$95 million. This discrepancy is explained by the fact that much of the district’s budget is either spent outside of the defined area (for example, textbooks for 10,000 students are not purchased locally), or spent on retail items that are not made locally (fuel for busses, for example). Money spent outside of the area is considered leakage, and the IMPLAN model estimates that most money spent on retail items is leakage as well. Thus, the model assumes that of a \$95 million budget, only \$79.4 million remains as local output.

Employment and labor income are similarly estimated based on what happens locally. The direct employment effect of 1,300 jobs was calculated using IMPLAN’s trade flow estimates. It omits those employees that may commute from surrounding communities such as Parks or Williams.

Indirect and Induced Effects

The *indirect effects* shown in Table 1 are minimal. The indirect effects of district spending are defined as spending by local businesses in response to the increase in demand from the district’s direct spending. Because most of the district’s local expenditures are either employment-related or high-leakage retail, very little indirect effect results from district spending.

Induced effects are more significant. These are the result of increased household spending due to the higher income that results from the direct and indirect spending. Because of the large employment base of the district, these numbers are high. The employees of the district spend large amounts of money within the community. This creates significant demand for goods and services, supporting an estimated 349 jobs. The total output of \$37.7 million is partially this household spending and partially the ripple effects of it.

Capital Budget

Capital expenditures also contribute an annual boost to the local economy. Table 2 illustrates FUSD’s capital expenditures over the fiscal years 2009, 2010, and 2011. During that time, the capital budgets averaged \$13.67 million. Such budgets nearly always focus on construction, renovation, and large purchases.

Table 2 – Approximated Capital Budgets, FY2009-FY2011

2009	2010	2011	3-Year Average
\$ 14,400,000	\$ 15,600,000	\$ 11,000,000	\$ 13,666,667

These expenditures were analyzed using IMPLAN. The financial results are shown in Table 3. The direct effects in Table 3 are smaller than the budget numbers shown in Table 2. The difference reflects leakage in the capital budget – many large purchases, such as new busses, are made in other areas, thus they have no effect on the local economy.

The total effects of the budget were highest in 2010, when \$23.7 million changed hands in the city economy due to FUSD capital spending. Over the three years analyzed, the average total effect was \$19 million. Unlike the operating budget, the capital budget has stimulated a sizeable indirect effect. This indicates that construction and remodeling supplies were purchased locally and therefore increased the business of local suppliers. The induced effect is also important, again reflecting the increase in household income.

Table 3 – IMPLAN Financial Results, Capital Budgets FY2009-FY2011

	Output			
	2009	2010	2011	Average
Direct Effect	\$ 12,200,000	\$ 15,600,000	\$ 9,800,000	\$ 12,533,333
Indirect Effect	\$ 2,500,000	\$ 3,200,000	\$ 2,000,000	\$ 2,566,667
Induced Effect	\$ 3,900,000	\$ 4,900,000	\$ 3,000,000	\$ 3,933,333
Total Effect	\$ 18,600,000	\$ 23,700,000	\$ 14,800,000	\$ 19,033,333

Because the table deals in estimates, the IMPLAN output has been rounded to reflect the uncertainty. The direct effects in years 2009 and 2011 differ from the numbers in Table 2 to correct for leakage in the form of retail items purchased outside the study area. Capital purchases in 2010 were considered to all occur within the study area.

Economic Impact of Flagstaff Unified School District FY2011

Table 4 shows the estimated employment impact of the capital budgets over three years. Approximately 117 people, on average, were directly employed each year in capital projects during that time. Considering the multiplier effects of spending, these projects stimulated an average of 178 annual jobs during this period.

Table 4 – IMPLAN Employment Results, Capital Budgets FY2009-FY2011

Employment				
	2009	2010	2011	Average
Direct Effect	112	149	90	117
Indirect Effect	24	29	18	24
Induced Effect	38	46	28	37
Total Effect	173	224	136	178

Total 2011 Impact

To arrive at an overall impact on the community during FY2011, the capital and operations budgets were added together. The results are shown in Table 5.

Table 5 – IMPLAN Results, FY2011 Capital and Operating Budgets

Impact Type	Employment	Labor Income	Output
Direct Effect	1,390	\$ 74,400,000	\$ 89,300,000
Indirect Effect	20	\$ 800,000	\$ 2,200,000
Induced Effect	377	\$ 13,400,000	\$ 40,800,000
Total Effect	1,787	\$ 88,600,000	\$132,300,000

Because the table deals in estimates, the IMPLAN output has been rounded to reflect the uncertainty.

According to Table 5, FUSD activities in FY2011 lead to the employment of 1,787 workers, the payment of \$88.6 million in Labor income, and \$132.2 million in overall spending within the economy.

Tax Impact

IMPLAN also estimates taxes paid to federal, state, and local governments. Table 6 shows where state and local governments benefitted from district spending in FY2011. These revenues combined for almost five million dollars. These taxes are collected from all economic activity – direct, indirect, and induced effects.

Economic Impact of Flagstaff Unified School District FY2011

Table 6 – IMPLAN Results, State and Local Tax Impact, FY2011

State and Local Tax Impact					
Description	Employee Compensation	Proprietor Income	Indirect Business Tax	Households	Corporations
Dividends					\$319,851
Social Ins Tax- Employee Contribution	\$80,492				
Social Ins Tax- Employer Contribution	\$346,301				
Indirect Bus Tax: Sales Tax			\$1,255,250		
Indirect Bus Tax: Property Tax			\$862,367		
Indirect Bus Tax: Motor Vehicle Lic			\$10,598		
Indirect Bus Tax: Severance Tax			\$10,382		
Indirect Bus Tax: Other Taxes			\$78,156		
Indirect Bus Tax: S/L NonTaxes			\$90,880		
Corporate Profits Tax					\$199,154
Personal Tax: Income Tax				\$1,012,331	
Personal Tax: NonTaxes (Fines- Fees				\$453,154	
Personal Tax: Motor Vehicle License				\$42,572	
Personal Tax: Property Taxes				\$36,710	
Personal Tax: Other Tax (Fish/Hunt)				\$26,034	
Total State and Local Tax	\$426,793		\$2,307,634	\$1,570,801	\$519,005

State & Federal Projects – Net Inflows

Millions of dollars within the budget come from state and federal project funds. Although these outside government funds are included in the budget analysis above, they are worth noting here because they are a net gain to the local economy. In the 2011 budget, state and federal monies spent by the district for special projects were \$312,786 and \$9,922,769 respectively. The various projects this money supported are listed in Table 7.

Table 7 – Projects Supported by State and Federal Funds, FY 2011

State	Federal
Vocational Education	Title I – Helping Disadvantaged Children
Early Childhood Block Grant	Title II – Professional Development and Technology
Extended School Year – Pupils with Disabilities	Title IV – 21 st Century Schools
Adult Basic Education	Title V – Promote Informed Parent Choice
Chemical Abuse Prevention Programs	Title III – Limited English & Immigrant Studies
Academic Contests	Title VII – Indian Education
Dropout Prevention Program (grades 4-12)	Title VI – Flexibility and Accountability
Gifted Education	IDEA Part B
Family Literacy Pilot Program	Johnson-O’Malley
Environmental Special Plate	Workforce Investment Act
	Adult Education
	Vocational Education - Basic Grants
	Title X - Homeless Education
	Medicaid Reimbursement
	E-Rate
	Impact Aid

Lifetime Earnings – Tax Implications

In addition to the economic impacts attributed to the expenditures of the district, students themselves create a measurable financial economic benefit. Simply attaining a high school diploma raises earning potential, which equates to higher spending and tax contributions.

High school graduates follow limitless paths, so estimating the financial benefit of a graduating class is impossible to do with precision. But the impact can be approximated using census data. According to the 2010 census, the annual lifetime earnings of high school graduates average \$10,386 higher than those of non-graduates (Table 8)².

Table 8 – Earnings Differential, High School Graduates vs. Non-Graduates

	Not a High School Graduate	High School Graduate Only	Δ
Average Earnings	\$ 20,241	\$ 30,627	\$ 10,386

The data in Table 8 are the average of all people, 18 years old and over, who had an income. These figures can be expanded to indicate how much more income a graduate can expect to earn, at a minimum, between the ages of 18 and 65. Over the course of 47 years of earning, this differential adds up to \$488,142. Knowing that in FY2011 the district graduated 658 students, the present value of that education totals over \$321 million. These calculations are shown in Table 9.

Table 9 – Total and Discounted Value of High School Degrees

	Per Student	658 Students
Average Earnings Differential	\$ 10,386	\$ 6,800,000
Estimated Working Career (47 years, 18-64)	\$ 488,142	\$ 321,000,000

Because the table deals in estimates, the figures have been rounded to reflect the uncertainty

² Census 2010. Current Population Survey Table 232. Mean Earnings by Highest Degree Earned: 2009

Aside from the spending benefits stimulated by higher personal wealth, taxes are also collected on the increased wages. A significant amount of FUSD graduates will leave the state, and so these calculations are not considered a bankable benefit. However, this estimate quantifies the potential value of these taxable wages for state governments. Table 10 represents the expected incremental Arizona personal income tax generated by the increase in income due to high school graduation for individuals, for the 2011 graduating class of 658 students, and for 17,357 students who graduated between 1991 and 2011. These are calculated both as annual sums and as the total value of that tax applied over the 47 years between ages 18 and 65. This indicates that each graduate might pay an average of \$440 extra in state taxes annually over his working career. If that rate is applied to the entire graduating class of 2011, the tax averages \$289,761 annually and over \$13.6 million (in 2011 dollars) over 47 years. The impact of all graduates during the past 20 years is \$8.5 billion in incremental earnings and \$359 million in incremental taxes.

Table 10 – Career Earnings Differential, per Student and Entire Class

Average Earnings differential	Annual Earnings Differential	Working Career Earnings Differential	Tax Rate (4.24%)	Annual Incremental Tax	Working Career Incremental Tax
Per Student	\$ 10,386	\$ 488,142	0.0424	\$ 440	\$ 20,697
658 Students	\$ 6,800,000	\$ 321,000,000	0.0424	\$ 289,761	\$ 13,600,000
17,357 Students	\$180,000,000	\$ 8,500,000,000	0.0424	\$ 7,600,000	\$ 359,000,000

Because the table deals in estimates, the figures have been rounded to reflect the uncertainty