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CLEVELAND STATE UNIVERSITY:

AN ECONOMIC IMPACT STUDY

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Cleveland State University Foundation

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September 17, 2002

ACKNOWLEDGEMENTS

The authors of this report wish to recognize the assistance of those working on this project and report. Mark S. Rosentraub, Ph.D., Dean, Maxine Goodman Levin College of Urban Affairs provided guidance in the design of the study's methodology, the definition and measurement of net economic impact, and the preparation of the final report. Benjamin Limmer, a graduate assistant in the Center for Economic Development, provided assistance in data analysis and in the production of the report's charts and tables. Susan Petrone provided editorial assistance throughout the preparation of the report. Jeff Chen, Director, Institutional Research and Analysis and Brian Cook, University Controller, provided the data used in the analysis.

The authors also want to acknowledge the help of all other university deans in gathering the information required for this report: Dr. Earl Anderson (interim), College of Arts and Sciences; Dr. John Hemann (interim), Fenn College of Engineering; Dr. James McLoughlin, College of Education; Dr. Rosemary Ramsey (interim), James J. Nance College of Business Administration; Steven Steinglass, Cleveland-Marshall College of Law; and Dr. Mark Tumeo, College of Graduate Studies.

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EXECUTIVE SUMMARY

The economic value of an urban university to a metropolitan region is comprised of (1) the educational opportunities provided to students who rely on local institutions of higher education, (2) the unique contributions of urban universities to the social and political infrastructure of a region, and (3) the research and service contracts and other funds and philanthropic donations attracted to the campus by faculty and staff.

If an urban university such as Cleveland State University (CSU) did not exist in the Cleveland metropolitan region, many, if not all of these economic and social contributions would be lost. In addition, the future earning power of college-educated students would be reduced, resulting in lower tax revenues and a weaker regional and state economy. An urban university's contribution to political and social stability in a region, while more difficult to quantify, is also a significant benefit as regions compete to establish identities that include an emphasis on diversity, equal opportunity, and productive relationships between communities that have different racial and social characteristics.

QUANTIFYING ECONOMIC IMPACT

In FY 2001, CSU generated $254 million for the economy of Northeast Ohio and created $119 million in salaries for workers in the region. CSU activities and the spending by its employees maintain 2,997 jobs in the Northeast Ohio region.

The State of Ohio also enjoys substantially higher tax revenues as a result of CSU's existence. Across their working lives, FY 2000 graduates from CSU will generate $39 million in additional tax revenue for the State of Ohio. The $39 million in tax dollars represent the lifetime tax increment for the graduating class of FY 2000. It should be noted that this number excludes the taxes paid by CSU graduates who would have attended other universities if Cleveland's urban university did not exist.

MEASURING ECONOMIC IMPACT

This study describes CSU's contributions to the Cleveland metropolitan area. In focusing on the economic value of a complex institution such as an urban university, great care was taken to separate benefits that are a direct result of the university's existence from those that would have existed had students attended other institutions of higher education.

CSU is one of many institutions of higher education in Northeast Ohio. If CSU did not exist, it is reasonable to expect that some students at the university would have pursued higher education opportunities at other institutions in the region or in adjacent regions. The contribution of CSU to the economy of the region is produced by (1) the students in attendance who would not have been able to pursue a college education without the presence of the university, and (2) the work performed by the university's faculty and staff that would not have taken place if the university did not exist.

The unique contributions of an institution to a region's wealth are its *net* economic impact effects. Gross economic impact includes this effect as well as the value from activities that would have taken place had the institution not existed. An example may make this distinction easier to understand.

If a student and their family could afford the costs associated with attendance at a local private college, but the student decided to attend CSU, there is no economic gain as the student would have gone to a local college even if another option did not exist. His or her attendance at CSU increases that institution's gross economic impact, but not the net economic impact that takes place as a result of a student attending a regional university. If CSU did not exist and a student's ability to attend college was eliminated, that student's enrollment at CSU would represent net economic impact.

In a similar fashion, several of the unique partnerships between CSU and the community exist only as a result of CSU's presence in the region. These relationships can create economic impact and contribute to regional growth that would not have existed were CSU not located in Cleveland.

CLEVELAND STATE UNIVERSITY: AN OVERVIEW

- Each year from 1996 to 2000, the University served between 15,400 and 16,300 students. While there have been some declines in the total number of undergraduate students enrolled, graduate enrollment has increased. Almost two-thirds of all students at the University are enrolled in undergraduate programs.

- In 2001 the University employed 1,695 full-time equivalent employees. A total of 573 hold doctorate or juris doctorate degrees. The average salary of the 610 full-time professional staff members is $52,591 and the average salary of the 521 full-time members of the faculty is $62,174. CSU's employees pay $1.7 million in taxes each year to the city of Cleveland (earnings tax).

- Almost one-fifth of CSU's undergraduate students and 16 percent of all graduate students identified themselves as African Americans. No other public institution of higher education in the state of Ohio enrolls a higher percentage of African American students (excluding the historically black colleges and universities). CSU leads all U.S. universities, on average, (excluding historically black colleges and universities) in the proportion of its students who are African American.

- In fall 2000, 21 percent of all CSU students were 35 years old or older and almost nine percent of all students were at least 45 years old. Almost three-fifths of undergraduate students were in the "traditional student" age cohort of 18-24.

- More than one-fifth of CSU students live in the city of Cleveland.

THE IMPORTANCE OF CSU TO THE REGION

- Of the CSU undergraduate students who live in the city of Cleveland, 10.5 percent live in census tracts in which the median income was at or below the poverty level of $17,463. One third of the undergraduates attending CSU from the city of Cleveland live in census tracts where the median income was under 150 percent of the poverty level.

- Of the undergraduates who live in Cuyahoga County, 29 percent live in census tracts with a median household income of less than or equal to $34,926, twice the poverty income

- Of the 2,591 students who graduated from CSU in FY 2000, 77 percent held professional employment in Greater Cleveland. Over 80 percent of the 1,400 undergraduates are employed in the region, while almost 74 percent of the graduate and law school alumni are working in northeast Ohio.

- CSU is a strong contributor to the local manufacturing sector's labor needs. Of the Fenn College of Engineering's alumni, 53 percent of the undergraduates and 65 percent of those with a graduate engineering degree are employed by Northeast Ohio manufacturing industries. In addition, local manufacturers employ almost one-fourth of the business school alumni with a graduate degree.

- The average annual starting salary of CSU's FY2000 graduates holding undergraduate degrees was $27,700.

- The average annual starting salary for CSU's FY 2000 graduates holding master's degrees was $42,775. The average annual starting salary for CSU's FY 2000 graduates with a Ph.D. degree was $48,000.

- The average annual starting salary for the FY 2000 graduates of the Law School was $46,300.

SIGNIFICANT COMMUNITY PARTNERSHIPS AND ALLIANCES

CSU's colleges, centers, and institutes have established ongoing partnerships or strategic alliances with the Greater Cleveland community. These partnerships help CSU educate and serve a broad set of constituencies from neighborhood groups and community leaders to leading corporations and foundations. While the placement of a dollar value on these partnerships, is by its nature, somewhat subjective, it is useful to note that the University's participation in programs have led to redevelopment efforts, expanded opportunities for learning, increased public participation in decision-making systems, and allowed people to enjoy their legal rights. Each of these efforts contributes to enhancing the quality of life and the reduction of social tensions.

INTRODUCTION

This study describes the impact of Cleveland State University (CSU) on the Cleveland primary metropolitan statistical area (PMSA) in terms of traditional economic development measures and contributions made through partnerships, community outreach initiatives, and employment of alumni by local companies and service organizations. The Cleveland PMSA includes Cuyahoga and five adjacent counties.[1] The study was conducted by the Center for Economic Development at CSU's Maxine Goodman Levin College of Urban Affairs. The Cleveland State University Foundation, Inc. provided support for this study.

This study employs two methodologies to determine CSU's influence on the local economy. The first uses quantitative analysis to examine student demographics; growth in regional output, earnings, and jobs; state tax benefits; income levels of students and alumni; and the number of students who remain in the local laborforce. The second uses qualitative analysis to demonstrate CSU's contributions to redevelopment efforts, expanded opportunities for learning, and increased public participation in decision-making systems. The university's partnerships and strategic alliances with the region's private, nonprofit, and public sectors make these contributions possible.

The study is organized into five major sections. First, "CSU: Overview" provides demographic information on CSU students. Student headcount trends for the 1996 to 2000 time period are presented, including data related to academic standing, gender, race, and age. Information on degrees awarded (by college) for the five-year period is discussed, including data for gender and race. Residence distributions by zip code are mapped for the city of Cleveland, Cuyahoga County, and the PMSA. Information on CSU revenues and expenditures is provided. In addition, this section discusses continuing education and distance learning at CSU.

Second, input-output (I-O) models were used to calculate how the impact of one dollar spent or one job created within CSU "ripples" throughout the local economy creating additional

[1] These counties include Ashtabula, Geauga, Lake, Lorain, and Medina

expenditure and jobs. Specifically, expenditure data from fiscal year (FY) 2001 was entered into I-O models to measure economic impact in terms of growth in total output (spending), household earnings, and number of new jobs created. Tax benefits to the state accrued through additional earning power of CSU graduates is also discussed.

Finally, an analysis was conducted that provides a framework to assess CSU's role in helping people of lower socioeconomic status attain economic self-sufficiency. Income levels of neighborhoods in which CSU students resided in fall 2000 were identified along with FY 2000 graduates' contributions to the regional labor force. The latter included the number of graduates who chose to begin their careers in the region, employment by major industrial sectors, and average annual earnings.

The qualitative method used internal documents and interviews with CSU faculty and staff, as well as interviews with external leaders in industry, education, and the public sector who are affiliated with CSU or are knowledgeable about its activities. These interviews are the primary means used to qualitatively analyze CSU's contribution to the community. In addition, alumni who have made significant contributions to the local economy through their work in the private, nonprofit, and public sectors are profiled.

CLEVELAND STATE UNIVERSITY: AN OVERVIEW

STUDENT DEMOGRAPHICS

This section provides detailed demographic information on CSU students. First, student headcount trends for the 1996 to 2000 time period are presented, including data related to academic standing, gender, race, and age. Next, information on degrees awarded (by college) for the five-year period is discussed, including data for gender and race. Finally, student residence distributions by zip code are mapped for the city of Cleveland, Cuyahoga County, and the Cleveland primary metropolitan statistical area (PMSA)[2].

Total Student Headcount, Fall 1996 – Fall 2000

Total student headcount remained relatively stable between fall 1996 and fall 2000, showing a decline of only 0.7 percent, (see Table 1). A one-year increase occurred in 1998 due to growth in the number of undergraduate students. Table 2 indicates that the overall flat trend in the number of students results from a decline in undergraduate and law students (-4.7 percent and -14.6 percent respectively) and a 13.3 percent increase in the number of graduate students.

The composition of full-time and part-time students changed during this period (see Tables 2 and 3). The number of full-time students declined over the five-year period at all levels: undergraduate, graduate, and the law school. By fall 2000, full-time students accounted for 49 percent of all students compared to 56 percent in 1996. The biggest percentage decline in full-time status occurred among graduate students, where a 37 percent drop took place.

[2] The Cleveland PMSA includes Ashtabula, Cuyahoga, Geauga, Lake, Lorain, and Medina counties.

Table 1. Student Headcount, Fall 1996 – Fall 2000

Year	Total	UNDERGRADUATE		GRADUATE		LAW	
		Total	%	Total	%	Total	%
1996	**15,522**	10,728	69.1%	3,905	25.2%	889	5.7%
1997	**15,735**	10,675	67.8%	4,154	26.4%	906	5.8%
1998	**16,326**	11,215	68.7%	4,258	26.1%	853	5.2%
1999	**15,680**	10,454	66.7%	4,418	28.2%	808	5.2%
2000	**15,406**	10,222	66.4%	4,425	28.7%	759	4.9%

Table 2. Percent Change In Student Headcount, Fall 1996 – Fall 2000

	1996	2000	Change	% Change
TOTAL STUDENTS	**15,522**	**15,406**	**-116**	**-0.7%**
UNDERGRADUATE				
Total	**10,728**	**10,222**	**-506**	**-4.7%**
Full Time	7,237	6,578	-659	-9.1%
Part Time	3,491	3,644	153	4.4%
GRADUATE				
Total	**3,905**	**4,425**	**520**	**13.3%**
Full Time	894	565	-329	-36.8%
Part Time	3,011	3,860	849	28.2%
LAW				
Total	**889**	**759**	**-130**	**-14.6%**
Full Time	580	458	-122	-21.0%
Part Time	309	301	-8	-2.6%

Table 3. Student Headcount By Full/Part Time Status, Fall 1996 – Fall 2000

Year	UNIVERSITY				
	Total	Full Time		Part Time	
1996	**15,522**	8,711	56.1%	6,811	43.9%
1997	**15,735**	8,866	56.3%	6,869	43.7%
1998	**16,326**	7,597	46.5%	8,729	53.5%
1999	**15,680**	7,848	50.1%	7,832	49.9%
2000	**15,406**	7,601	49.3%	7,805	50.7%

Year	UNDERGRADUATE				
	Total	Full Time		Part Time	
1996	**10,728**	7,237	67.5%	3,491	32.5%
1997	**10,675**	7,291	68.3%	3,384	31.7%
1998	**11,215**	6,875	61.3%	4,340	38.7%
1999	**10,454**	6,795	65.0%	3,659	35.0%
2000	**10,222**	6,578	64.4%	3,644	35.6%

Year	GRADUATE				
	Total	Full Time		Part Time	
1996	**3,905**	894	22.9%	3,011	77.1%
1997	**4,154**	990	23.8%	3,164	76.2%
1998	**4,258**	270	6.3%	3,988	93.7%
1999	**4,418**	546	12.4%	3,872	87.6%
2000	**4,425**	565	12.8%	3,860	87.2%

Year	LAW				
	Total	Full Time		Part Time	
1996	**889**	580	65.2%	309	34.8%
1997	**906**	585	64.6%	321	35.4%
1998	**853**	452	53.0%	401	47.0%
1999	**808**	507	62.7%	301	37.3%
2000	**759**	458	60.3%	301	39.7%

Student Headcount By Gender, Race, and Age, Fall 1996 – Fall 2000

From 1996 to 2000, the total number of male students declined (-5.8 percent), while the number of female students increased (3.6 percent). The share of male students declined from 46 percent in 1996 to 43 percent in 2000. The increase in the number of female students was a result of high graduate school enrollment, where the number of female students increased by 27.6 percent; the number of female students at the undergraduate level and in the law school actually declined. However, since the total number of students in these schools declined, the share of femail students increased (see Table 4).

The number and share of African American students at CSU increased during the study period: the share of African American students increased from 15.5 percent to 17.4 percent, although the number of undergraduate African American students increased slightly (0.8 percent). This contrasted with a decline (-4.7 percent) in the total number of undergraduate students. As a result, the share of African American undergraduate students reached 18.8 percent in fall 2000. Moreover, the number and share of African American graduate students increased substantially. By 2000, 16 percent of all graduate students were African American, rising from only 11 percent in 1996 (see Table 5).

No other public institution of higher education in the State of Ohio enrolls a higher percentage of African American students (excluding historically black colleges and universities) than CSU. In addition, CSU leads all U.S. universities (excluding historically black colleges and universities) in enrollment of African American students (as a percentage of all students).[3] For the fall 2000 semester, average African American enrollment at universities stood at 10.3 percent in the state of Ohio and 11 percent across the U.S.

In contrast, the share of Hispanic students at CSU declined from 2.8 percent to 2.3 percent of all students. This change occurred at all levels -- undergraduate, graduate, and law. Changes in the number and share of Asian and Native American students were minimal over the study period. The total number of white students declined due to losses among undergraduate and law

[3] Source: National Center for Education Statistics – Integrated Postsecondary Education Data System (IPEDS); http://nces.ed.gov/ipeds

students. However, white students still accounted for 61 percent of all students. It should be noted that 15 percent of all students did not report their race.

CSU serves both college-age and older students. More than 20 percent of all students are 35 years old or older and almost nine percent of all students are at least 45 years old (see table 6). In 2000, more than 57 percent of all undergraduates were 18-24 years old, the traditional age group for undergraduate education. However, more than one out of four undergraduates were 25-34 years old, and more than 16 percent were over 35 years old. As expected, about half of all graduate and law students were 25-34 years old in 2000. At the graduate level, more than 35 percent of the students were at least 35 years old and 14 percent of all students were 45 or older. In the law school, almost 50 percent of the students were in the 25-34 year old age category and 17 percent were over 35 years old.

Table 4. Student Headcount By Gender, Fall 1996 – Fall 2000

Year	UNIVERSITY				
	Total	Male		Female	
1996	**15,522**	7,105	45.8%	8,417	54.2%
1997	**15,735**	7,176	45.6%	8,559	54.4%
1998	**16,326**	7,364	45.1%	8,962	54.9%
1999	**15,680**	7,040	44.9%	8,640	55.1%
2000	**15,406**	6,689	43.4%	8,717	56.6%

Year	UNDERGRADUATE				
	Total	Male		Female	
1996	**10,728**	4,869	45.4%	5,859	54.6%
1997	**10,675**	4,862	45.5%	5,813	54.5%
1998	**11,215**	5,099	45.5%	6,116	54.5%
1999	**10,454**	4,810	46.0%	5,644	54.0%
2000	**10,222**	4,602	45.0%	5,620	55.0%

Year	GRADUATE				
	Total	Male		Female	
1996	**3,905**	1,759	45.0%	2,146	55.0%
1997	**4,154**	1,822	43.9%	2,332	56.1%
1998	**4,258**	1,822	42.8%	2,436	57.2%
1999	**4,418**	1,807	40.9%	2,611	59.1%
2000	**4,425**	1,686	38.1%	2,739	61.9%

Year	LAW				
	Total	Male		Female	
1996	**889**	477	53.7%	412	46.3%
1997	**906**	492	54.3%	414	45.7%
1998	**853**	443	51.9%	410	48.1%
1999	**808**	423	52.4%	385	47.6%
2000	**759**	401	52.8%	358	47.2%

Table 5. Student Headcount By Race, Fall 1996 – Fall 2000

Year	UNIVERSITY											
	Total	White		Black		Asian		Hispanic		Native American		Unknown	
1996	**15,522**	9,742	62.8%	2,412	15.5%	496	3.2%	432	2.8%	61	0.4%	2,379	15.3%
1997	**15,735**	9,667	61.4%	2,459	15.6%	498	3.2%	393	2.5%	51	0.3%	2,667	16.9%
1998	**16,326**	9,715	59.5%	2,738	16.8%	465	2.8%	384	2.4%	53	0.3%	2,971	18.2%
1999	**15,680**	9,583	61.1%	2,659	17.0%	453	2.9%	358	2.3%	49	0.3%	2,578	16.4%
2000	**15,406**	9,445	61.3%	2,683	17.4%	485	3.1%	353	2.3%	48	0.3%	2,392	15.5%

Year	UNDERGRADUATE											
	Total	White		Black		Asian		Hispanic		Native American		Unknown	
1996	**10,728**	6,648	62.0%	1,907	17.8%	325	3.0%	308	2.9%	43	0.4%	1497	14.0%
1997	**10,675**	6,546	61.3%	1,908	17.9%	314	2.9%	291	2.7%	34	0.3%	1582	14.8%
1998	**11,215**	6,697	59.7%	2,109	18.8%	299	2.7%	296	2.6%	38	0.3%	1776	15.8%
1999	**10,454**	6,409	61.3%	1,906	18.2%	296	2.8%	282	2.7%	38	0.4%	1523	14.6%
2000	**10,222**	6,262	61.3%	1,923	18.8%	331	3.2%	259	2.5%	37	0.4%	1410	13.8%

Year	GRADUATE											
	Total	White		Black		Asian		Hispanic		Native American		Unknown	
1996	**3,905**	2,322	59.5%	441	11.3%	149	3.8%	106	2.7%	16	0.4%	871	22.3%
1997	**4,154**	2,340	56.3%	479	11.5%	157	3.8%	90	2.2%	14	0.3%	1074	25.9%
1998	**4,258**	2,315	54.4%	555	13.0%	140	3.3%	74	1.7%	13	0.3%	1161	27.3%
1999	**4,418**	2,528	57.2%	674	15.3%	136	3.1%	61	1.4%	9	0.2%	1010	22.9%
2000	**4,425**	2,560	57.9%	703	15.9%	138	3.1%	80	1.8%	9	0.2%	935	21.1%

Year	LAW											
	Total	White		Black		Asian		Hispanic		Native American		Unknown	
1996	**889**	772	86.8%	64	7.2%	22	2.5%	18	2.0%	2	0.2%	11	1.2%
1997	**906**	781	86.2%	72	7.9%	27	3.0%	12	1.3%	3	0.3%	11	1.2%
1998	**853**	703	82.4%	74	8.7%	26	3.0%	14	1.6%	2	0.2%	34	4.0%
1999	**808**	646	80.0%	79	9.8%	21	2.6%	15	1.9%	2	0.2%	45	5.6%
2000	**759**	623	82.1%	57	7.5%	16	2.1%	14	1.8%	2	0.3%	47	6.2%

Table 6. Student Headcount By Age, Fall 1996 – Fall 2000

Year	UNIVERSITY									
	Total	**18-24**		**25-34**		**35-44**		**45-59**		**60+**	
1996	**15,522**	6,822	44.0%	5,555	35.8%	2,173	14.0%	930	6.0%	42	0.3%
1997	**15,735**	6,764	43.0%	5,732	36.4%	2,169	13.8%	968	6.2%	102	0.6%
1998	**16,326**	7,229	44.3%	5,703	34.9%	2,212	13.5%	1,063	6.5%	119	0.7%
1999	**15,680**	4,889	31.2%	6,880	43.9%	2,369	15.1%	1,432	9.1%	110	0.7%
2000	**15,406**	6,772	44.0%	5,308	34.5%	1,995	12.9%	1,101	7.1%	230	1.5%

Year	UNDERGRADUATE									
	Total	**18-24**		**25-34**		**35-44**		**45-59**		**60+**	
1996	**10,728**	6,016	56.1%	3,093	28.8%	1,178	11.0%	420	3.9%	21	0.2%
1997	**10,675**	5,979	56.0%	3,071	28.8%	1,154	10.8%	410	3.8%	61	0.6%
1998	**11,215**	6,446	57.5%	3,067	27.3%	1,132	10.1%	506	4.5%	64	0.6%
1999	**10,454**	4,700	45.0%	3,888	37.2%	1,173	11.2%	640	6.1%	53	0.5%
2000	**10,222**	5,880	57.5%	2,705	26.5%	957	9.4%	480	4.7%	200	2.0%

Year	GRADUATE									
	Total	**18-24**		**25-34**		**35-44**		**45-59**		**60+**	
1996	**3,905**	524	13.4%	2,003	51.3%	892	22.8%	467	12.0%	19	0.5%
1997	**4,154**	486	11.7%	2,205	53.1%	905	21.8%	519	12.5%	39	0.9%
1998	**4,258**	515	12.1%	2,198	51.6%	974	22.9%	516	12.1%	55	1.3%
1999	**4,418**	143	3.2%	2,418	54.7%	1,061	24.0%	739	16.7%	57	1.3%
2000	**4,425**	632	14.3%	2,233	50.5%	939	21.2%	591	13.4%	30	0.7%

Year	LAW									
	Total	**18-24**		**25-34**		**35-44**		**45-59**		**60+**	
1996	**889**	282	31.7%	459	51.6%	103	11.6%	43	4.8%	2	0.2%
1997	**906**	299	33.0%	456	50.3%	110	12.1%	39	4.3%	2	0.2%
1998	**853**	268	31.4%	438	51.3%	106	12.4%	41	4.8%	0	0.0%
1999	**808**	46	5.7%	574	71.0%	135	16.7%	53	6.6%	0	0.0%
2000	**759**	260	34.3%	370	48.7%	99	13.0%	30	4.0%	0	0.0%

Degrees Awarded By College, Gender, and Race

This section reports separately on the number of undergraduate (Table 7) and graduate and professional degrees (Table 8) awarded. Degrees are reported by college and major type of degree.

The total number of degrees awarded declined during the study period at both the undergraduate (-13.4 percent) and graduate (-15.6 percent) levels. Looking at individual colleges, undergraduate degrees awarded declined in the colleges of Arts and Sciences, Business (except in Computer Information Science), and Engineering. In contrast, the colleges of Education and Urban Affairs posted slight gains in the number of undergraduate degrees conferred.

The number of graduate and professional degrees awarded declined in all colleges during the five-year period. One significant area of growth is seen in the number of Computer Information Science (CIS) master's degrees awarded by the business school.

Tables 9 and 10 report additional details on the number of degrees awarded by students' gender and race. The number of degrees awarded to both male and female students declined. Degrees awarded to male students fell in all colleges. Degrees awarded to female students declined in the colleges of Arts and Sciences, Business, and Engineering, but rose slightly in the colleges of Education, Law, and Urban Affairs (see Table 9).

Against the general decline of degrees awarded, the number of degrees awarded to African American students increased by more than nine percent in the five-year period. African Americans receiving degrees at the undergraduate level declined, but rose at both the graduate and Ph.D. levels (see Table 10).

Table 7. Undergraduate Degrees Awarded By College, Fall 1996 – Fall 2000

	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	% Change
TOTAL UNDERGRADUATE DEGREES	**1,621**	**1,535**	**1,772**	**1,764**	**1,404**	**-13.4%**
COLLEGE OF ARTS & SCIENCES	**857**	**851**	**977**	**933**	**748**	**-12.7%**
Bachelor of Arts	613	617	714	730	587	-4.2%
Bachelor of Science	124	122	122	101	81	-34.7%
Bachelor of Music	10	12	13	15	7	-30.0%
Bachelor of Science in Nursing	66	60	64	59	51	-22.7%
First College Degree	44	40	64	28	22	-50.0%
COLLEGE OF BUSINESS	**395**	**364**	**412**	**406**	**338**	**-14.4%**
Bachelor of Business Admin.	371	330	380	360	295	-20.5%
Bachelor of Science in CIS	24	34	32	46	43	79.2%
COLLEGE OF EDUCATION	**148**	**118**	**161**	**194**	**153**	**3.4%**
Bachelor of Science	148	118	161	194	153	3.4%
COLLEGE OF ENGINEERING	**188**	**179**	**186**	**174**	**124**	**-34.0%**
Bachelor of Engineering	143	145	149	135	102	-28.7%
Bachelor of Science	45	34	37	39	22	-51.1%
COLLEGE OF URBAN AFFAIRS	**33**	**23**	**36**	**57**	**41**	**24.2%**
Bachelor of Arts	32	22	34	51	39	21.9%
Bachelor of Science	1	1	2	6	2	100.0%

Table 8. Graduate and Professional Degrees Awarded By College, Fall 1996 – Fall 2000

	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	% Change
TOTAL GRADUATE/PROFESSIONAL DEGREES	**1,406**	**1,236**	**1,584**	**1,414**	**1,187**	**-15.6%**
COLLEGE OF ARTS & SCIENCES	**184**	**153**	**193**	**200**	**175**	**-4.9%**
Master of Arts	120	120	118	116	104	-13.3%
Master of Science	22	9	22	23	15	-31.8%
Master of Applied Communication Theory	12	6	16	25	15	25.0%
Master of Music	8	6	11	7	8	0.0%
Master of Social Work	10	8	17	20	19	90.0%
Psychology Specialists	N/A	N/A	N/A	N/A	9	N/A
Ph.D.	12	4	9	9	5	-58.3%
COLLEGE OF BUSINESS	**443**	**387**	**528**	**493**	**348**	**-21.4%**
MBA	317	293	355	357	227	-28.4%
Master of Acct/Financial Information Sys.	41	28	39	24	19	-53.7%
Master of CIS	58	54	98	83	77	32.8%
Master of Human/Labor Relations	16	7	30	16	17	6.3%
DBA	11	5	6	13	8	-27.3%
COLLEGE OF EDUCATION	**353**	**310**	**438**	**327**	**321**	**-9.1%**
Master of Education	343	291	423	317	304	-11.4%
Education Specialist	3	3	5	2	5	66.7%
Ph.D.	7	16	10	8	12	71.4%
COLLEGE OF ENGINEERING	**96**	**77**	**85**	**65**	**41**	**-57.3%**
Master of Science	90	74	78	59	34	-62.2%
Doctor of Engineering	6	3	7	6	7	16.7%
COLLEGE OF LAW	**254**	**241**	**263**	**235**	**232**	**-8.7%**
Master of Laws	0	2	4	1	1	N/A
Juris Doctor	254	239	259	234	231	-9.1%
COLLEGE OF URBAN AFFAIRS	**76**	**68**	**77**	**94**	**70**	**-7.9%**
Master of Science	51	47	46	63	49	-3.9%
Master of Public Administration	13	12	17	11	13	0.0%
Master of Urban Planning/Design/Develop.	8	7	11	17	8	0.0%
Ph.D.	4	2	3	3	0	-100.0%

Table 9. Degrees Awarded By Gender, Fall 1996 – Fall 2000

	1995-1996			1996-1997			1997-1998			1998-1999			1999-2000			% Change		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
UNIVERSITY TOTALS	**3,027**	**1,467**	**1,560**	**2,771**	**1,287**	**1,484**	**3,356**	**1,482**	**1,874**	**3,178**	**1,402**	**1,776**	**2,591**	**1,142**	**1,449**	**-14.4%**	**-22.2%**	**-7.1%**
COLLEGE OF ARTS & SCIENCES	**1,041**	**384**	**657**	**1,004**	**353**	**651**	**1,170**	**394**	**776**	**1,133**	**389**	**744**	**923**	**316**	**607**	**-11.3%**	**-17.7%**	**-7.6%**
Undergraduate	**857**	305	552	**851**	294	557	**977**	330	647	**933**	327	606	**748**	258	490	**-12.7%**	-15.4%	-11.2%
Graduate	**172**	72	100	**149**	56	93	**184**	59	125	**191**	57	134	**170**	54	116	**-1.2%**	-25.0%	16.0%
Ph.D.	**12**	7	5	**4**	3	1	**9**	5	4	**9**	5	4	**5**	4	1	**-58.3%**	-42.9%	-80.0%
COLLEGE OF BUSINESS	**838**	**501**	**337**	**751**	**460**	**291**	**940**	**538**	**402**	**899**	**526**	**373**	**686**	**418**	**268**	**-18.1%**	**-16.6%**	**-20.5%**
Undergraduate	**395**	239	156	**364**	222	142	**412**	226	186	**406**	224	182	**338**	203	135	**-14.4%**	-15.1%	-13.5%
Graduate	**473**	281	192	**410**	249	161	**561**	327	234	**504**	305	199	**359**	219	140	**-24.1%**	-22.1%	-27.1%
DBA	**11**	7	4	**5**	2	3	**6**	5	1	**13**	8	5	**8**	5	3	**-27.3%**	-28.6%	-25.0%
COLLEGE OF EDUCATION	**501**	**120**	**381**	**428**	**85**	**343**	**599**	**130**	**469**	**521**	**104**	**417**	**474**	**89**	**385**	**-5.4%**	**-25.8%**	**1.0%**
Undergraduate	**148**	34	114	**118**	20	98	**161**	21	140	**194**	31	163	**153**	21	132	**3.4%**	-38.2%	15.8%
Graduate	**343**	83	260	**291**	59	232	**423**	104	319	**317**	70	247	**304**	63	241	**-11.4%**	-24.1%	-7.3%
Ph.D.	**7**	2	5	**16**	6	10	**10**	4	6	**8**	2	6	**12**	3	9	**71.4%**	50.0%	80.0%
Other	**3**	1	2	**3**	0	3	**5**	1	4	**2**	1	1	**5**	2	3	**66.7%**	100.0%	50.0%
COLLEGE OF ENGINEERING	**284**	**253**	**31**	**256**	**222**	**34**	**271**	**225**	**46**	**239**	**202**	**37**	**165**	**137**	**28**	**-41.9%**	**-45.8%**	**-9.7%**
Undergraduate	**188**	170	18	**179**	154	25	**186**	157	29	**174**	145	29	**124**	102	22	**-34.0%**	-40.0%	22.2%
Graduate	**90**	78	12	**74**	65	9	**78**	62	16	**59**	52	7	**34**	29	5	**-62.2%**	-62.8%	-58.3%
Doctor of Engineering	**6**	5	1	**3**	3	0	**7**	6	1	**6**	5	1	**7**	6	1	**16.7%**	20.0%	0.0%
COLLEGE OF LAW	**254**	**155**	**99**	**241**	**131**	**110**	**263**	**144**	**119**	**235**	**123**	**112**	**232**	**130**	**102**	**-8.7%**	**-16.1%**	**3.0%**
Graduate	**0**	0	0	**2**	1	1	**4**	1	3	**1**	1	0	**1**	1	0	**N/A**	N/A	N/A
Juris Doctor	**254**	155	99	**239**	130	109	**259**	143	116	**234**	122	112	**231**	129	102	**-9.1%**	-16.8%	3.0%
COLLEGE OF URBAN AFFAIRS	**109**	**54**	**55**	**91**	**36**	**55**	**113**	**51**	**62**	**151**	**58**	**93**	**111**	**52**	**59**	**1.8%**	**-3.7%**	**7.3%**
Undergraduate	**33**	16	17	**23**	9	14	**36**	18	18	**57**	25	32	**41**	21	20	**24.2%**	31.3%	17.6%
Graduate	**72**	37	35	**66**	25	41	**74**	31	43	**91**	31	60	**70**	31	39	**-2.8%**	-16.2%	11.4%
Ph.D.	**4**	1	3	**2**	2	0	**3**	2	1	**3**	2	1	**0**	0	0	**-100.0%**	-100.0%	-100.0%

Table 10. Degrees Awarded By Race, Fall 1996 – Fall 2000

	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	% Change
WHITE	**2,080**	**1,864**	**2,220**	**2,063**	**1,695**	**-18.5%**
Undergraduate	1,150	1,074	1,209	1,188	962	-16.3%
Graduate and Professional	682	563	762	632	508	-25.5%
Doctorate	248	227	249	243	225	-9.3%
BLACK	**331**	**318**	**413**	**430**	**362**	**9.4%**
Undergraduate	232	207	266	264	212	-8.6%
Graduate and Professional	81	95	126	153	127	56.8%
Doctorate	18	16	21	13	23	27.8%
HISPANIC	**64**	**78**	**81**	**65**	**51**	**-20.3%**
Undergraduate	37	36	46	48	32	-13.5%
Graduate and Professional	23	32	31	15	14	-39.1%
Doctorate	4	10	4	2	5	25.0%
ASIAN	**105**	**114**	**140**	**111**	**89**	**-15.2%**
Undergraduate	39	57	62	56	44	12.8%
Graduate and Professional	55	47	66	47	37	-32.7%
Doctorate	11	10	12	8	8	-27.3%
NATIVE AMERICAN	**20**	**12**	**12**	**11**	**7**	**-65.0%**
Undergraduate	2	8	6	7	2	0.0%
Graduate and Professional	8	2	5	4	5	-37.5%
Doctorate	10	2	1	0	0	-100.0%

Student Residence Distributions By Zip Code

The distribution of student residences by zip code for the city of Cleveland, Cuyahoga County, and the Cleveland metropolitan area are shown in Figures 1 through 3. As shown in Figure 1, 3,244 students, or slightly more than 21 percent, lived within the city of Cleveland. Zip codes that account for most students were 44102 (409 students or 2.7 percent) and 44111 (383 students or 2.5 percent). Both zip codes are located on the city's west side. On the southern side of the city, combining zip codes 44109 and 44105 accounted for 584 students, or 3.8 percent. Zip code 44106 on the city's east side accounted for 272 students, or 1.8 percent. Since zip codes overlap political boundaries, some of the students included in the above statistics actually live in suburban communities. However, the reverse is also true. Some students who were classified as living in the suburbs actually reside in Cleveland.

As seen in Figure 2, almost 80 percent of all CSU students lived in Cuyahoga County, with 58 percent from suburban communities. Lakewood had by far the most students (7.1 percent, or 1,088 students). Other suburban locations with high student concentrations include parts of the western suburbs of Fairview Park, North Olmsted, and Westlake (4.5 percent, or 692 students); Parma, Parma Heights, Middleburg Heights, and North Royalton on the southwest side (2.6 percent, or 407 students); and the Heights area to the east of Cleveland including parts of Cleveland Heights, Shaker Heights, University Heights, South Euclid, and Mayfield Heights (12.2 percent, or 1,884 students). More than one out of four students lived in one of these areas. Table 11 lists student residences by zip codes.

As expected, almost 96 percent of all CSU students lived within the Cleveland PMSA. Figure 3 shows the highest concentration of students from outside Cuyahoga County was the Mentor area (Lake County) with 320 students, or 2.1 percent. Other areas outside Cuyahoga County with some student concentrations included Elyria in Lorain County and Brunswick in Medina County.

Figure 1. Student Residences by ZIP Code, Fall 2000

City of Cleveland

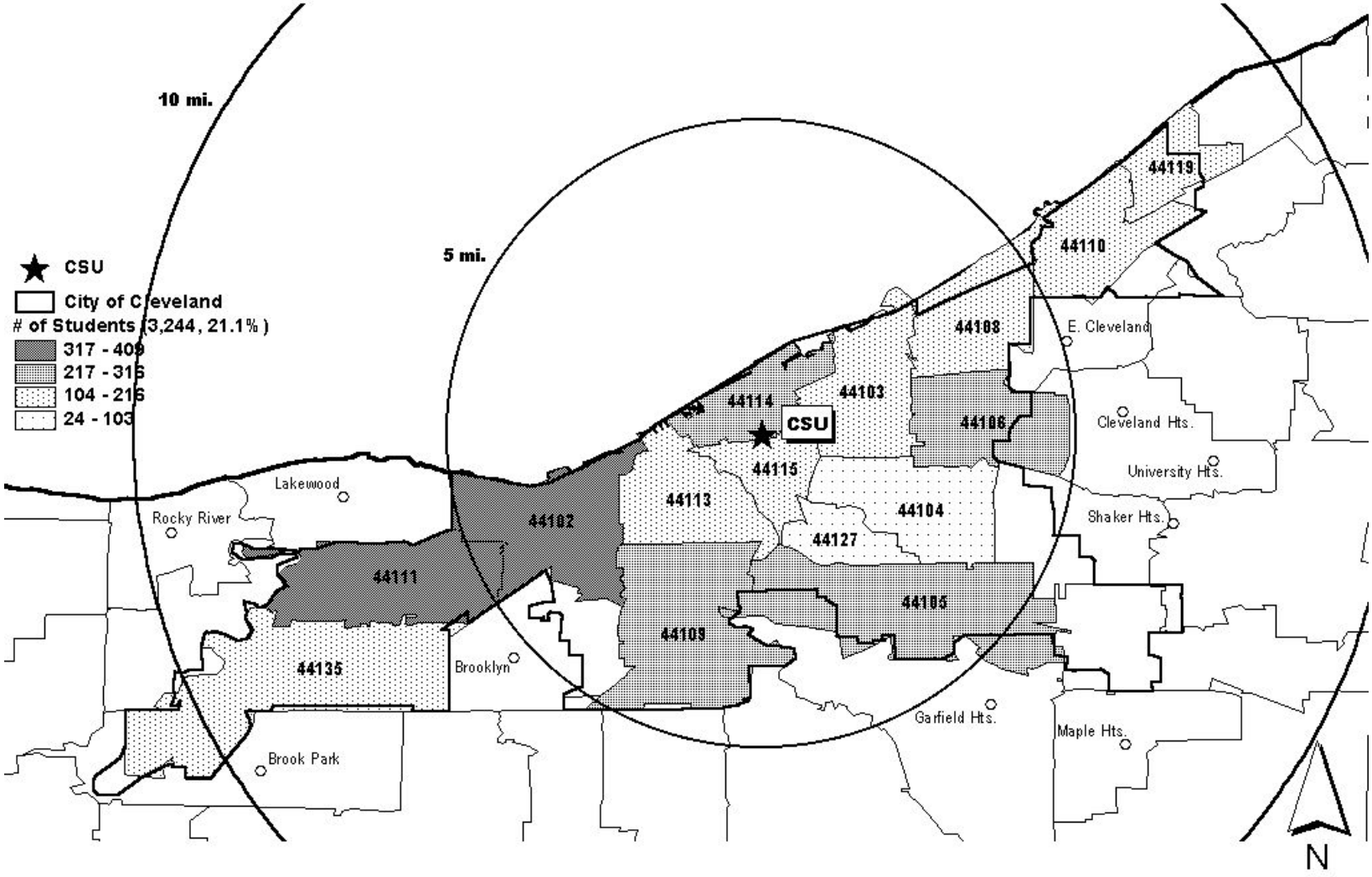


Figure 2. Student Residences by ZIP Code, Fall 2000

Cuyahoga County

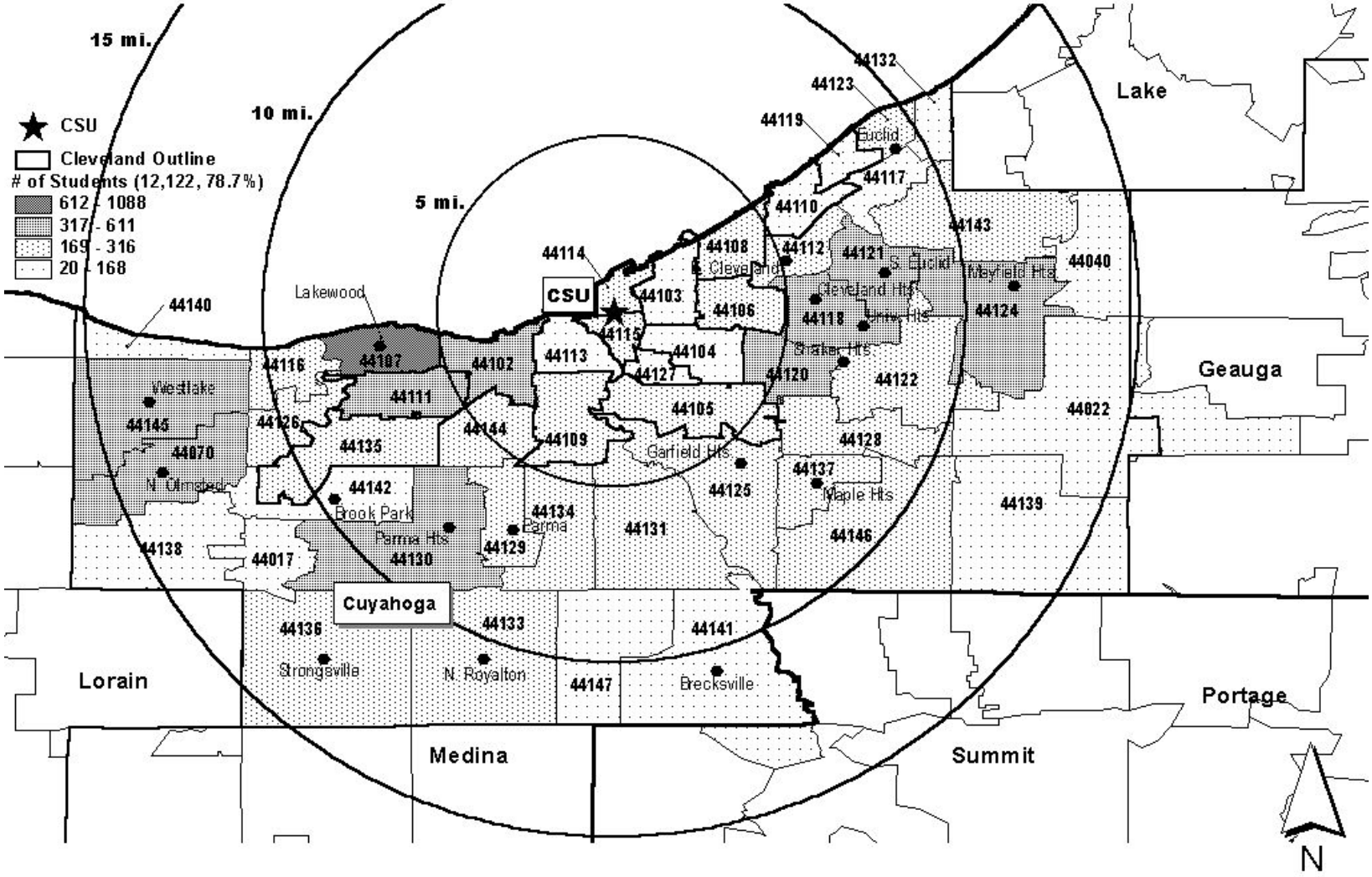


Figure 3. Student Residences by ZIP Code, Fall 2000

Cleveland PMSA

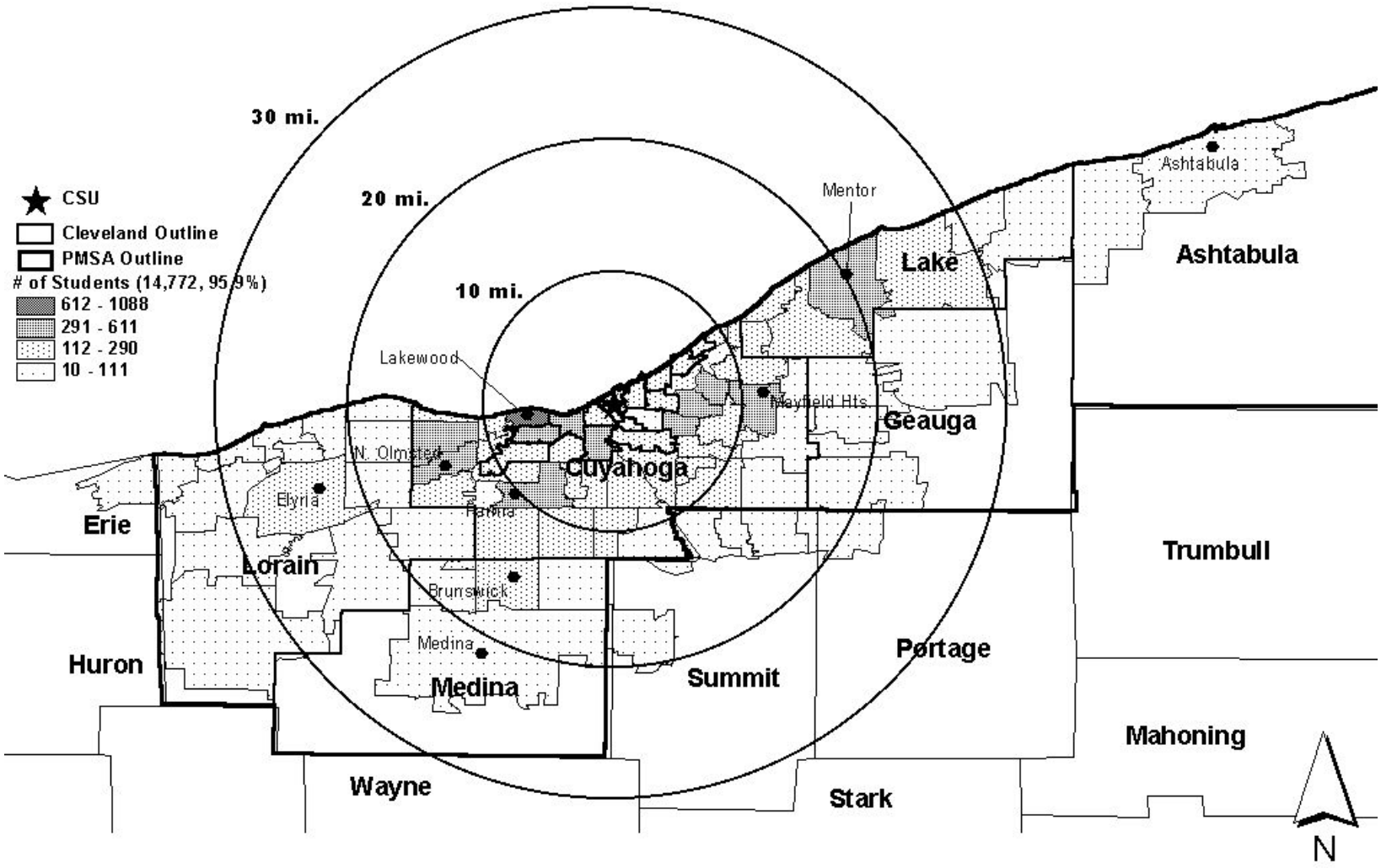


Table 11. Student Residences By leading Zip Codes, Fall 2000

Zip Code	City	Total	%	Cum. %
44107	Cleveland, Lakewood, Rocky River	**1,088**	7.1%	7.1%
44118	Beachwood, Cleveland Hts., East Cleveland, Shaker Hts., South Euclid, University Hts.	**611**	4.0%	11.0%
44120	Cleveland, Cleveland Hts., Shaker Hts.	**468**	3.0%	14.1%
44121	Beachwood, Cleveland, Cleveland Hts., East Cleveland, Euclid, Lyndhurst, South Euclid, University Hts.	**464**	3.0%	17.1%
44102	Brooklyn, Cleveland	**409**	2.7%	19.7%
44130	Berea, Brook Park, Brooklyn, Cleveland, Middleburg Hts., North Royalton, Parma, Parma Hts.	**407**	2.6%	22.4%
44111	Brooklyn, Cleveland, Fairview Park, Lakewood, Linndale	**383**	2.5%	24.9%
44070	Brook Park, Fairview Park, North Olmsted, Westlake	**348**	2.3%	27.1%
44145	Bay Village, Fairview Park, North Olmsted, Rocky River, Westlake	**344**	2.2%	29.4%
44124	Beachwood, Gates Mills, Highland Hts., Hunting Valley, Lyndhurst, Mayfield Hts., Mayfield, Moreland Hills, Pepper Pike, Richmond Hts., South Euclid	**341**	2.2%	31.6%
44060	Grand River, Kirtland, Kirtland Hills, Mentor, Mentor-on-the-Lake, Willoughby	**320**	2.1%	33.6%
44109	Brooklyn Hts., Cleveland, Cuyahoga Hts., Parma	**316**	2.1%	35.7%
44134	Brooklyn Hts., Cleveland, North Royalton, Parma, Seven Hills	**290**	1.9%	37.6%
44122	Beachwood, Cleveland, Lyndhurst, Orange, Pepper Pike, Shaker Hts., South Euclid, University Hts., Warrensville Hts., Woodmere	**280**	1.8%	39.4%
44136	Berea, Middleburg Hts., North Royalton, Parma, Strongsville	**275**	1.8%	41.2%
44106	Cleveland, Cleveland Hts., East Cleveland, Shaker Hts.	**272**	1.8%	42.9%
44128	Beachwood, Bedford Hts., Cleveland, Garfield Hts., Maple Hts., North Randall, Orange, Shaker Hts., Warrensville Hts.	**271**	1.8%	44.7%
44105	Cleveland, Cuyahoga Hts., Garfield Hts., Newburgh Hts.	**268**	1.7%	46.4%
44114	Cleveland	**247**	1.6%	48.0%
44125	Brooklyn Hts., Cleveland, Cuyahoga Hts., Garfield Hts., Independence, Maple Hts., Valley View, Walton Hills	**241**	1.6%	49.6%

DIVISION OF CONTINUING EDUCATION

By providing superior educational opportunities for adult learners, the Division of Continuing Education (CE) has become the largest service provider of its kind in Northeast Ohio. CE educates, on average, almost 11,000 adults each year in more than 800 seminars, workshops, short courses, and conferences. It is nationally recognized for innovation in adult education.

Many CE programs satisfy certification and licensing requirements. Others courses enable professionals to increase their job skills, receive training in new technologies, and build communication and leadership abilities. All of CE's programs help individuals and organizations enhance their productivity.

Training Facilities

The Joseph E. Cole Center for Continuing Education is conveniently located in downtown Cleveland. The Cole Center was specifically designed for adult learning. Features include on-site parking; meeting rooms; a 4,600 square-foot ballroom and exhibit hall; 77-seat lecture hall; eight classrooms offering flexible room arrangements and ergonomically designed furniture; two state-of-the-art computer labs; fully furnished lounge areas; and dining and breakout areas.

Programs

The Division of Continuing Education offers noncredit programs in seven major areas: Business and Management; Computer Training; Engineering and Construction; Hazardous Materials; Landscape Horticulture; Nursing and Health Care; and the Certified Employee Benefit Specialist (CEBS) program. The programs are designed to enable adults to keep up to date in their professions, acquire new knowledge, develop new skills, and enter new careers. Classes are offered at times and places convenient to adults, including off-campus sites. CE also offers custom-designed programs for business, industry, government, health, and community organizations.

Business and Management

Supervisory skills, conflict resolution, customer relations, marketing, and problem-solving are just a few of the important subjects covered in classes that focus on management, finance, communications, human resources and development, and ISO-9000 and QS-9000 standards. A Train the Trainer certificate program is also offered as part of the Business and Management program.

Computer Training

CE offers state-of-the-art computer training in databases and spreadsheets, the Internet, networks, operating systems, programming, desktop publishing, and word processing.

Engineering and Construction

An array of technical classes that meet the certification and skill-enhancement needs of engineering, construction, and contracting professionals are offered. Classes include HVAC design, OSHA standards, general and advanced electrical codes applications, electrical construction estimating, Ohio Basic Building Code, and plumbing codes.

Hazardous Materials (HazMat)

Emergency responders or employees who may encounter dangerous substances on the job benefit from OSHA-based safety courses. Topics include hazardous waste and emergency operations, confined space entry and rescue tactics, and the handling of hazardous materials.

Landscape and Horticulture

This program provides a variety of learning opportunities for landscape professionals in such areas as horticulture and landscape design and operations. Homeowners can earn a certificate in Landscape Horticulture.

Nursing and Health Care

This program helps professionals expand the scope of their practice, keep up with current trends, learn new skills, prepare for certification exams, review fundamentals, and deal with changes in health care delivery. Classes also provide approved contact hours necessary for license renewal.

Certified Employee Benefit Specialist (CEBS) Program

The CEBS program provides a comprehensive curriculum covering the financial, legal, and organizational framework of employee benefits. The program is a 10-course curriculum developed by the International Foundation of Employee Benefits Plans (IFEPB) and the Wharton School at the University of Pennsylvania.

Student Headcount, FY 1997 – FY 2001

Total student headcount in the continuing education division declined from FY97 through FY00. During this period, total enrollment decreased by almost 45 percent (as seen in Table 12). A decline of more than 4,000 students between FY99 and FY00 was due primarily to an enrollment decrease in the Hazardous Materials (HazMat) program. However, CE experienced a 40 percent increase in enrollment in FY01 that partially offset the losses in the three previous fiscal years. The increase was mainly seen in the business and management, HazMat, and nursing and health care programs.

Over the five-year period, the HazMat program holds the largest share of total enrollment (42 percent). This is followed by Computer Training, 24 percent, and Nursing and Health Care, 13.5 percent. A total of 54,697 adults enrolled in a continuing education course from FY97 through FY01.

Table 12. Continuing Education Student Headcount, FY97 – FY01

Program	FY97	FY98	FY99	FY00	FY01
Business & Management	1,714	1,345	1,409	1,074	1,640
Computer Training	3,309	2,450	2,775	2,291	2,467
Engineering & Construction	265	1,263	282	248	266
Hazardous Materials	5,862	5,419	5,391	2,345	4,074
Landscape Horticulture	155	78	110	76	67
Nursing & Health Care	1,715	1,711	1,452	1,055	1,451
CEBS	80	50	79	54	62
Prep Courses	107	97	102	139	168
Total	**13,207**	**12,413**	**11,600**	**7,282**	**10,195**

Prep courses are those that prepare students to take certification tests such as LSAT, GMAT, GRE, CPA, etc.

DISTANCE LEARNING

Cleveland State University offers a number of credit courses at locations other than the main campus. These courses are generally of three types: courses delivered at off-campus sites; courses taught online (Internet-based); and courses using interactive video. The number of enrollees across all distance learning categories increased from spring 2000 to fall 2001 (Table 13).

Courses Taught at Off-Campus Sites

CSU instructors teach at a variety of locations in the northeast Ohio area other than the university's main campus. The College of Business Administration offers an MBA program that is designed to meet the needs of the business community and non-traditional students. This exclusive off-site program offers the convenience of classes in the workplace. Convenient locations are available on both the east and west sides of Cleveland.

As expected, the largest number of distance learners are enrolled in classes that are taught off-site. Here, an increase of 25 percent, or 150 students, was seen during the study period. The spring 2001 semester saw the largest enrollment with 837 students. The largest concentration of students was in graduate-level education courses, where 333 students were enrolled in fall 2001. The next largest group was undergraduate Arts and Sciences students. A high mark was reached in spring 2001 when 202 students were enrolled.

Courses Taught Online (Internet-Based)

Online courses are available to students anywhere and at any time that they have access to a computer and the Internet. All course information, resources, exercises, and other elements are available to students virtually on demand. Students are also provided ways of interacting with the instructor and discussing questions and issues with other students in the course. CSU's Health Sciences Department offers an online master's degree program in health science. All courses are offered through a structure called WebCT.

Web-based courses posted a 98 percent increase in enrollment during the study period, reaching a high point of 180 students in fall 2001. The College of Arts and Sciences had the highest

enrollments, with undergraduate courses showing a slightly higher number of students. The Business School had the second highest number of students in web-based courses, all at the undergraduate level.

Courses Taught Using Interactive Video

Interactive video courses are taught using two-way interactive television systems. Classrooms at each location have cameras and monitors as well as audio systems so the instructor and all of the students can be seen and heard. Students can ask questions of the instructor and become involved in discussions with classmates in their own room as well as those at a distance. Cleveland State and the University of Akron jointly developed an innovative master's program in social work that is taught exclusively through distance learning via two-way interactive television.

The most technology-rich category, interactive video courses, posted the lowest enrollment of the three distance learning categories. Nonetheless, an increase of 49 percent was seen across the time period, with spring 2001 having the highest number of students at 75. The colleges of Arts and Sciences and Education dominated enrollment. In Arts and Sciences, all interactive video courses were taught at the undergraduate level whereas in Education all courses were at the graduate level.

Table 13. Distance Learning Enrollment, Spring 2000 – Fall 2001

College	Off-Campus Courses				Web-Based Courses				Interactive Video Courses			
	Spring 00	Fall 00	Spring 01	Fall 01	Spring 00	Fall 00	Spring 01	Fall 01	Spring 00	Fall 00	Spring 01	Fall 01
Arts & Sciences	**179**	**198**	**232**	**199**	**42**	**54**	**81**	**70**	**4**	**13**	**27**	**26**
Undergraduate	167	194	202	182	32	28	50	30	4	13	27	26
Graduate	12	4	30	17	10	26	31	40	0	0	0	0
Business	**132**	**192**	**179**	**132**	**34**	**0**	**35**	**49**	**0**	**0**	**0**	**0**
Undergraduate	0	0	0	0	34	0	35	49	0	0	0	0
Graduate	132	192	179	132	0	0	0	0	0	0	0	0
Education	**243**	**293**	**346**	**339**	**9**	**29**	**22**	**19**	**35**	**46**	**44**	**28**
Undergraduate	12	9	46	6	0	5	0	0	0	1	0	0
Graduate	231	284	300	333	9	24	22	19	35	45	44	28
Engineering	**7**	**2**	**8**	**1**	**0**	**0**	**0**	**42**	**0**	**0**	**0**	**0**
Undergraduate	0	0	0	0	0	0	0	0	0	0	0	0
Graduate	7	2	8	1	0	0	0	42	0	0	0	0
Urban Affairs	**37**	**93**	**72**	**77**	**6**	**0**	**17**	**0**	**2**	**0**	**4**	**7**
Undergraduate	0	16	0	32	6	0	17	0	2	0	4	7
Graduate	37	77	72	45	0	0	0	0	0	0	0	0

CSU REVENUES, FY 1997 – FY 2001

An analysis of CSU's revenues provides insight into how its operations are financed. Table 14 shows CSU revenues by source for fiscal years 1997 through 2001. Total revenues increased across each of the five fiscal years, except for FY 1999. During this period, total revenues increased by almost $25 million or 13 percent. The decrease in FY 1999 was due to an $18 million drop in state construction funds from the previous year. Construction funding rose by almost $10 million in FY 2000. Figures shown in Table 14 have not been adjusted for inflation.

Across the study period, state appropriations were the university's largest single source of revenue, averaging just over 36 percent per year. Total state appropriations increased by $13.5 million, or 21 percent, during the period. The second largest source of revenue was tuition and fees paid by students. This source accounted for approximately 33 percent of University income. Even though student headcount remained almost unchanged during this period, tuition receipts increased by almost $13 million, or 22 percent.

State construction funds have gradually decreased as a revenue source. These funds decreased from $30 million, or 16 percent, in FY 1997 to $18 million, or 8.6 percent in FY 2001. However, grants and contracts have increased. The total value of grants and contracts increased from $20.5 million, or 10.9 percent, in FY 1997 to $27.4 million, accounting for 12.9 percent of total revenues in FY 2001. Grants and contracts generated at the federal level account for a majority of the revenues collected within this category.

Annual gifts to the university more than doubled during the study period, from $1.6 million to $3.4 million. Endowment and investment income also increased substantially, rising from $2.6 million to $3.7 million, or over 42 percent.

Table 14. CSU Revenues By Source, FY 1997 – FY 2001

Source of Revenue	FY 1997		FY 1998		FY 1999		FY 2000		FY 2001	
	$	%	$	%	$	%	$	%	$	%
State Appropriations	$64,206,756	34.2%	$67,201,826	35.0%	$68,686,435	38.8%	$72,750,901	37.1%	$77,665,070	36.5%
State Construction Funds	$30,061,923	16.0%	$24,037,808	12.5%	$6,604,068	3.7%	$16,289,865	8.3%	$18,294,353	8.6%
Tuition and Fees	$57,344,272	30.6%	$61,102,122	31.9%	$62,184,541	35.1%	$65,590,698	33.5%	$70,116,329	33.0%
Federal Grants and Contracts	$11,825,870	6.3%	$13,446,208	7.0%	$13,837,750	7.8%	$13,984,121	7.1%	$15,178,559	7.1%
State Grants and Contracts	$5,874,926	3.1%	$7,058,058	3.7%	$5,370,331	3.0%	$7,385,097	3.8%	$9,033,925	4.3%
Local Grants and Contracts	$458,290	0.2%	$275,005	0.1%	$175,683	0.1%	$478,284	0.2%	$629,096	0.3%
Private Grants and Contracts	$2,379,800	1.3%	$2,293,350	1.2%	$2,260,764	1.3%	$2,114,935	1.1%	$2,574,565	1.2%
Gifts	$1,624,474	0.9%	$2,287,310	1.2%	$2,849,583	1.6%	$3,328,638	1.7%	$3,451,238	1.6%
Endowment and Investment Income	$2,581,213	1.4%	$2,952,875	1.5%	$2,903,920	1.6%	$2,864,919	1.5%	$3,679,469	1.7%
Other Revenues	$11,291,528	6.0%	$11,100,827	5.8%	$12,144,029	6.9%	$11,292,230	5.8%	$11,876,566	5.6%
Total	**$187,649,052**	**100.0%**	**$191,755,389**	**100.0%**	**$177,017,104**	**100.0%**	**$196,079,688**	**100.0%**	**$212,499,170**	**100.0%**

CSU EXPENDITURES, FY 1997 – FY 2001

University expenditures increased across the past five fiscal years, reaching their highest level ($207.5 million) in FY 2001. Increases were observed in each year except for FY 1999. Overall, expenditures increased by $26.1 million, or 14 percent, during the study period (Table 15). The $8.5 million decrease in FY 1999 was the result of a decline in spending on capital projects. Figures shown in Table 15 have not been adjusted for inflation.

CSU is similar to other businesses in that its greatest expenditure is for employee wages and benefits. During the five-year study period, spending in this category rose from $97.8 million to $121.6 million, an increase of $23.8 million, or 24 percent. Spending on wages and benefits, as a percentage of the budget, increased from 53.9 percent to 58.6 percent. Health care expenditures increased by only 10 percent, rising from $4.9 million in FY 1997 to $5.4 million in FY 2001. In contrast, wages and salaries rose by more than 28 percent.

Scholarships and fellowships increased by $4.4 million, or over 33 percent, from 1997 to 2001. As a percentage of the university budget, scholarships and fellowships rose from 7.3 percent to 8.5 percent. Spending for equipment, supplies, and library books increased by $2.3 million, or 23 percent.

Increases in utility expenditures were $433,000, or nine percent. Finally, spending for outside services, both within and outside the Cleveland metropolitan area, rose $4.7 million, or 44 percent during the five-year study period.

Table 15. CSU Expenditures By Source, FY 1997 – FY 2001

Type of Expenditure	FY 1997		FY 1998		FY 1999		FY 2000		FY 2001	
	$	%	$	%	$	%	$	%	$	%
Salaries & Wages	$75,519,590	41.6%	$80,582,040	42.6%	$86,254,940	47.7%	$94,535,914	46.8%	$96,812,262	46.7%
Health Care	$4,962,836	2.7%	$4,828,801	2.6%	$5,591,544	3.1%	$5,420,541	2.7%	$5,443,830	2.6%
Other Benefits	$17,331,000	9.6%	$18,374,320	9.7%	$16,446,464	9.1%	$18,591,562	9.2%	$19,376,788	9.3%
State Funded Construction Projects	$30,061,923	16.6%	$24,037,808	12.7%	$6,604,068	3.7%	$16,289,865	8.1%	$18,294,353	8.8%
Outside Services	$10,781,682	5.9%	$12,461,042	6.6%	$13,648,638	7.6%	$16,121,595	8.0%	$15,514,945	7.5%
Utilities	$4,685,263	2.6%	$4,384,642	2.3%	$5,103,801	2.8%	$5,110,760	2.5%	$5,117,881	2.5%
Equipment, Supplies, Library Books	$9,941,642	5.5%	$14,007,887	7.4%	$12,399,689	6.9%	$12,129,337	6.0%	$12,229,171	5.9%
Communications	$5,908,318	3.3%	$6,669,355	3.5%	$6,746,721	3.7%	$7,152,644	3.5%	$6,592,201	3.2%
Scholarships & Fellowships	$13,179,561	7.3%	$13,950,824	7.4%	$14,913,585	8.3%	$15,892,239	7.9%	$17,593,734	8.5%
Other Expenses	$9,070,661	5.0%	$9,868,350	5.2%	$12,967,730	7.2%	$10,879,470	5.4%	$10,537,978	5.1%
Total	**$181,442,476**	**100.0%**	**$189,165,069**	**100.0%**	**$180,677,180**	**100.0%**	**$202,123,927**	**100.0%**	**$207,513,143**	**100.0%**

INCOME TAXES PAID, FY 1997 – FY 2001

More than $1.8 million in income taxes were paid to the city of Cleveland by CSU faculty and staff in FY 2001. From 1997 to 2001, the city's tax revenue from the university totaled $8.7 million. Cleveland enjoyed tax increases of more than $300,000, or 20.5 percent, during this period. As seen in Table 16, tax monies paid to the city reached $1.9 million in FY 2000, but decreasing slightly in FY 2001.

In fiscal year 2001, university employees paid $2.9 million in income taxes to the State of Ohio, an increase of almost 32 percent over five years. During this time period, the state collected $12.9 million in taxes from CSU faculty and staff. Local and state income taxes paid during FY 2001 amounted to $4.7 million, an increase of 27 percent between 1997 and 2001.

Table 16. Income Taxes Paid By CSU Faculty and Staff

Income Tax Recipient	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
City of Cleveland	$1,539,962	$1,635,341	$1,745,214	$1,941,189	$1,855,087
State of Ohio	$2,182,016	$2,438,361	$2,677,312	$2,784,458	$2,872,114
Total	**$3,721,978**	**$4,073,702**	**$4,422,526**	**$4,725,647**	**$4,727,201**

CSU ECONOMIC IMPACT ON THE CLEVELAND REGION

ECONOMIC IMPACT BASED ON CSU SPENDING PATTERNS

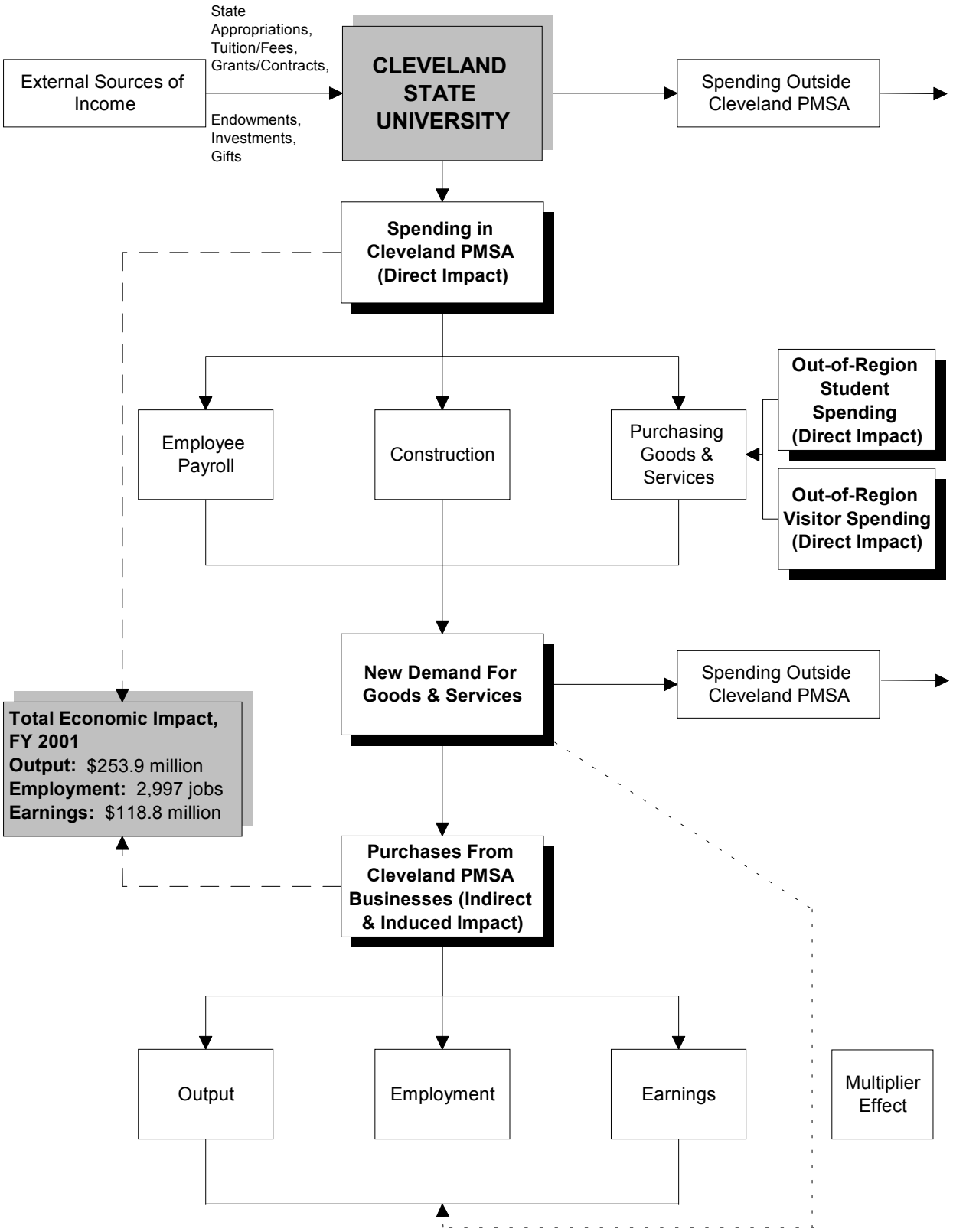
This section discusses the total economic impact of CSU on the Cleveland primary metropolitan statistical area (PMSA) during FY 2001. Impact is measured in terms of output (gross receipts or sales), employment, and earnings. Within each of these categories, estimated values for direct, indirect, and induced impacts are provided. Direct impact refers to the initial value of goods and services, including labor, purchased by the university within the PMSA. Indirect impact measures the value of labor and production needed to produce the goods and services required by CSU. Induced impact measures the change in spending by local households due to increased earnings by employees in local industries who produce goods and services for CSU.

Methodology

Economic impact analysis takes into account inter-industry relationships within a region, that is, the buy-sell relationships among companies located in the same region. These relationships largely determine how a regional economy responds to changes in economic activity. Input-output (I-O) models estimate inter-industry relationships in a region, state, or country by measuring the industrial distribution of inputs purchased and outputs sold by each industry. Thus, by using I-O models, it is possible to calculate how the impact of one dollar or one job "ripples" throughout the local economy, creating additional expenditures and jobs. The economic multiplier measures the ripple effect that an initial expenditure has on the local economy.[4] Figure 4 illustrates the aggregated process by which CSU affects the local economy through its own spending in the Cleveland PMSA, spending by university visitors from outside the region, and spending by students from outside the region.

[4] For example, suppose that company XYZ sells $1 million worth of product. From the revenues, the company takes a profit, pays its suppliers and workers, and covers production costs. Once the suppliers and employees receive their payments, they will spend a portion of the money in the local economy purchasing goods and services, while another portion of the monies will be spent outside the local economy. By evaluating the chain of local purchases that result from the initial infusion of $1 million, it is possible to estimate a regional economic multiplier.

Figure 4: CSU Economic Impact on the Cleveland PMSA, FY 2001



This study utilizes regional I-O multipliers from the Regional Industrial Multiplier System (RIMS II) model developed by the U.S. Department of Commerce, Bureau of Economic Analysis. RIMS II provides regional industry multipliers for output, employment, and earnings that are used to estimate economic impact. This report uses RIMS II final demand multipliers to estimate CSU's impact on the Cleveland PMSA economy based on its spending patterns and those of university visitors and students who come from outside the region. RIMS II multipliers are available for about 500 detail industries and 38 aggregated industries. Households are included as an industry.

For each economic measure (output, employment, and earnings), RIMS II calculates a single value for the indirect and induced impacts. More sophisticated models, such as IMPLAN (IMpact Analysis for PLANing), provide users with discrete values for indirect and induced impacts.

When conducting economic impact analysis, the selection of a geographic region to study is important. RIMS II multipliers become larger as the geographic area under consideration increases. The result is a larger impact for a larger region. For this study, the Cleveland PMSA was selected because of CSU's mission as an urban university and the fact that 96 percent of CSU students live in the Cleveland metropolitan area. The disadvantage to this selection is lower impact numbers. For example, university spending on goods and services in the state of Ohio, but outside the Cleveland PMSA, totaled $8.4 million in FY 2001. Had this spending been included in the analysis, the impact values would have been larger. A search of the literature shows that many large public universities, when conducting impact studies, use the entire state in which they are located as the geographic region.

Accounting for the Substitution Effect

If CSU did not exist, which category of students would continue to expend their resources at other educational institutions in the region? The answer is full-time, undergraduate students who are in the traditional college age group of 18 to 24 years. Since the "traditional" student would still spend his or her education dollars at other regional colleges or universities, CSU cannot be seen as the generator of economic development for these students. This is known as the

substitution effect. The result is that in calculating economic impact values, expenditures by CSU must be reduced by a proportion that is equal to the number of traditional students, or in this case by 25 percent. Tables 17 through 19 and A-1 through A-3 (Appendix 1) reflect this reduction.

Convincing arguments can be made to support the hypothesis that students in all other demographic categories would not spend their money on education related pursuits if CSU did not exist. Hence, their expending resources at CSU add to the university's economic impact on the region.

Economic Impact on Output (Spending)

This study uses final demand multipliers for output to estimate economic impact on Cleveland PMSA output. These multipliers measure the effect of CSU spending on gross receipts or sales in the PMSA. They provide a quantitative measure of the total change in output in regional industries for each additional final-demand dollar expended by CSU.

First, CSU expenditures are divided into spending on goods and services purchased from companies located in the PMSA and spending for goods and services from businesses located elsewhere. Second, local spending is categorized into industries. The RIMS II I-O model is used to calculate final demand output multipliers for each of these industries.

The total indirect and induced impact on output within the Cleveland metropolitan area is estimated by summing individual industries' impact. These are calculated by multiplying CSU local spending in each industry (direct impact) by its corresponding multiplier. For example, as indicated in Table A-1, Appendix 1, the indirect and induced output impacts of CSU spending on building maintenance and repair in FY 2001 is $645,828 ($302,978 x 2.1316). The total output impact for each industry is the sum of the direct (CSU spending on this industry), indirect, and induced impacts.

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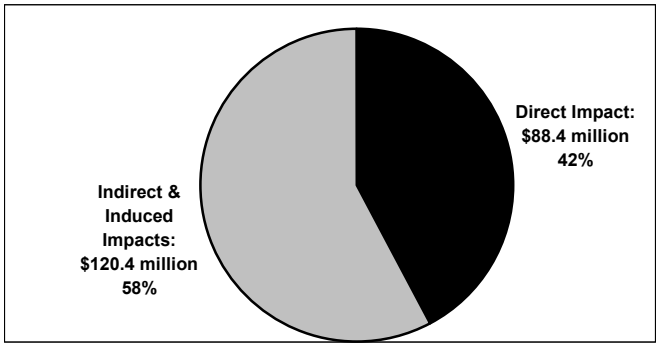
Table 17 includes output impacts by aggregated industry group. Table A-1, Appendix 1, shows output impacts by detail industry including the output multiplier for each. The relative size of direct versus indirect and induced impacts are detailed in Figure 5.

Table 17. Cleveland PMSA Output Impact Based on CSU Spending, FY 2001

Industry	CSU Spending	Impact
Horticulture	$61,770	$134,029
Construction	$3,392,564	$7,579,476
Manufacturing	$883,262	$1,715,707
Transportation, Communications & Utilities	$758,737	$1,542,759
Retail & Wholesale Trade	$226,883	$426,873
Finance & Real Estate	$21,956	$37,052
Lodging Services	$169,892	$341,765
Building Services	$273,774	$514,148
Business Services	$4,524,281	$9,072,473
Entertainment Services	$229,591	$518,887
Automotive Services	$69,236	$145,553
Healthcare Services	$124,752	$259,037
Colleges, Universities & Schools	$784,222	$1,783,702
Membership Organizations	$119,087	$271,087
Local Government Enterprise	$146,386	$324,083
Households	$76,705,813	$95,782,548
Totals	**$88,492,202**	**$120,449,178**
Direct Impact	**$88,492,202**	
Indirect and Induced Impact	**$120,449,178**	
Total Impact	**$208,941,380**	

Spending on manufacturing industries includes purchases only of goods produced locally; spending on goods purchased locally but produced elsewhere is excluded. Retail and wholesale trade is calculated by multiplying spending on goods purchased locally, but manufactured outside of the Cleveland PMSA, by their respective retail and wholesale margins. Transportation margins for goods manufactured outside the Cleveland PMSA are included under the transportation, communications, and utilities industry.

Figure 5. Cleveland PMSA Output Impact, FY 2000



In FY 2001, CSU generated nearly $209 million in spending throughout the Cleveland PMSA. Of this amount, about $88 million resulted from direct spending impacts, and over $120 million resulted from indirect and induced spending impacts throughout the regional economy.

Economic Impact On Employment

CSU's economic activities in the Cleveland PMSA affect employment beyond the university's 1,271 full-time equivalent employees (direct impact)[5]. Spending by CSU creates jobs in industries from which the university purchases goods and services (indirect impact). In addition, monies spent by CSU employees and employees of those companies the university does business with create jobs in a variety of other industries (induced impact).

Employment impact by aggregated industry groups is shown in Table 18. Table A-2, Appendix 1, lists employment impact by detail industry. In Table A-2, RIMS II multipliers are multiplied by spending in 1997 dollars.[6] For example, each $1 million spent by CSU on construction generated just over 22 jobs in the PMSA economy. Thus, the university's spending of just over $3 million (in 1997 dollars) on building construction projects generated the creation of 68 indirect and induced jobs throughout the region in FY 2001 (according to Table 18).

Summing the number of jobs created through indirect and induced employment impacts with the number of CSU employees provides an estimate of the total employment impact on the Cleveland PMSA. Figure 6 shows the relative size of direct employment impact versus indirect and induced impacts.

[5] Due to the substitution effect (see pg. 38), the number of full-time equivalent employees (1,695) was multiplied by 75 percent to obtain the direct impact employment figure of 1,271.

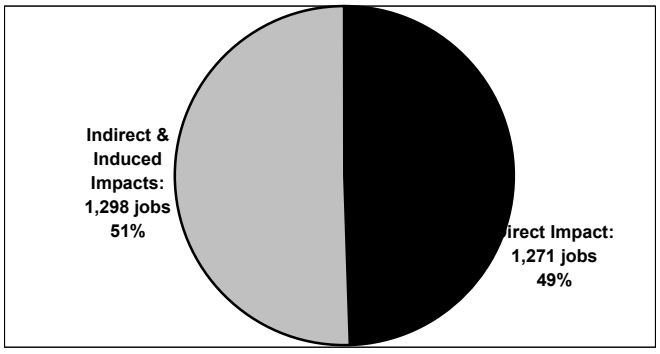
[6] To estimate CSU's employment impact, university spending is deflated to 1997 dollars because the associated multipliers are calculated based on PMSA spending in 1997 dollars. Also, employment impacts are based on the number of jobs created per one million dollars in spending.

Table 18. Cleveland PMSA Employment Impact Based On CSU Spending, FY 2001

Industry	CSU Spending	Impact
Horticulture	$55,661	3
Construction	$3,057,039	68
Manufacturing	$795,907	15
Transportation, Communications & Utilities	$683,699	11
Retail & Wholesale Trade	$204,445	5
Finance & Real Estate	$19,784	0
Lodging Services	$153,089	5
Building Services	$246,698	10
Business Services	$4,076,830	95
Entertainment Services	$206,885	8
Automotive Services	$62,388	2
Healthcare Services	$112,415	3
Colleges, Universities & Schools	$706,662	29
Membership Organizations	$107,309	2
Local Government Enterprise	$131,909	2
Households	$69,119,608	1,040
Total	**$79,740,325**	**1,298**
Direct Impact	**1,271**	
Indirect and Induced Impact	**1,298**	
Total Impact	**2,569**	

Spending on manufacturing industries includes purchases of goods produced locally; spending on goods purchased locally but produced elsewhere is excluded.
Retail and wholesale trade is calculated by multiplying spending on goods purchased locally, but manufactured outside the Cleveland PMSA, by their respective retail and wholesale margins.
Transportation margins for goods manufactured outside the Cleveland PMSA are included under the transportation, communications, and utilities industry.

Figure 6. Cleveland PMSA Employment Impact, FY 2001



In FY 2001, 2,569 jobs were created through CSU's activities. Of these, 1,271 resulted from direct impact (full-time equivalent CSU employees) and 1,298 were created from indirect and induced impacts.

Economic Impact On Earnings

Every new job created by CSU's purchase of goods and services from businesses in the Cleveland PMSA generated new earnings for local households. The earnings multiplier for each industry, shown in Table A-3, Appendix 1, estimates the total change in earnings that occurs within locally employed households for each additional dollar of goods and services delivered to CSU. For example, the $302,978 spent by the university on building maintenance and repair generated an additional $193,452 in indirect and induced earnings by households employed locally by businesses in a variety of industries.

Adding the indirect and induced impacts generated by the different spending categories to the payroll received by CSU full-time equivalent employees results in the total earnings impact. Aggregated industry earnings impact is detailed in Table 19.

Table 19. Cleveland PMSA Earnings Impact Based On CSU Spending, FY 2001

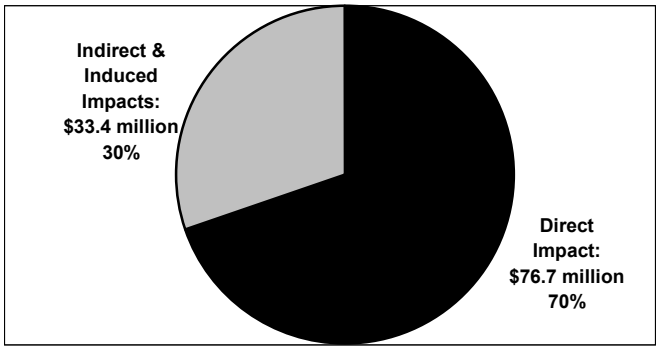
Industry	CSU Spending	Impact
Horticulture	$61,770	$52,369
Construction	$3,392,564	$2,151,322
Manufacturing	$883,262	$465,875
Transportation, Communications & Utilities	$758,737	$354,890
Retail & Wholesale Trade	$226,883	$126,330
Finance & Real Estate	$21,956	$7,133
Lodging Services	$169,892	$100,154
Building Services	$273,774	$178,900
Business Services	$4,524,281	$3,062,549
Entertainment Services	$229,591	$161,742
Automotive Services	$69,236	$38,813
Healthcare Services	$124,752	$86,495
Colleges, Universities & Schools	$784,222	$610,256
Membership Organizations	$119,087	$76,523
Local Government Enterprise	$146,386	$80,615
Households	$76,705,813	$25,880,541
	$88,492,202	**$33,434,504**

Direct Impact	**$76,705,813**
Indirect and Induced Impact	**$33,434,504**
Total Impact	**$110,140,317**

Spending on manufacturing industries only includes purchases of goods produced locally; spending on goods purchased locally but produced elsewhere is excluded. Retail and wholesale trade is calculated by multiplying spending on goods purchased locally, but manufactured outside the Cleveland PMSA, by their respective retail and wholesale margins. Transportation margins for goods manufactured outside the Cleveland PMSA are included under the transportation, communications, and utilities industry.

Figure 7 shows the relative size of direct earnings impact versus indirect and induced impacts.

Figure 7. Cleveland PMSA Earnings Impact, FY 2001



In FY 2001, CSU spending on university-related labor and goods and services generated more than $110 million in earnings for Cleveland PMSA households. Of this amount, nearly $77 million were considered direct impact, that is, earnings distributed as payroll and healthcare benefits to CSU employees. An additional $33.4 million were considered indirect and induced impact, or earnings paid to local households working in other industries in the PMSA.

OUT-OF-REGION (OOR) STUDENTS' ECONOMIC IMPACT ON THE CLEVELAND REGION

This section details the total economic impact on the Cleveland PMSA by students who came from out of the region (OOR) to attend classes at CSU during FY 2001. The same methodology that was used to calculate the university's economic impact will be utilized here. RIMS II final demand multipliers are used to estimate impact in terms of output, employment, and earnings.

Like many other urban universities, CSU is regarded as a commuter school. With more than 90 percent of the student body having lived in the Cleveland metropolitan area prior to enrollment, the reputation is well-deserved. However, in FY 2001, an estimated 634 students from outside the Cleveland PMSA chose to attend CSU. About half of OOR students come from abroad. Most others come from elsewhere in the state of Ohio, but do not live within easy commuting distance of the university. Some, however, come from other states. Fifty-six percent of OOR students in fy01 were undergraduates. Thirty-two percent were graduate students and 12 percent were law students.

Economic Impact on Output (Spending)

Final demand output multipliers measure the effect of spending by students from outside the region (OOR) on gross receipts or sales in the Cleveland PMSA. Industries listed are those accessed by OOR students for their day-to-day living necessities. These range from rental and tuition payments to gasoline or clothing purchases and recreational activities. Data listed in Table 20 are derived from information provided by the CSU Department of Residence Life.

To calculate indirect and induced output impacts, student spending within each industry is multiplied by the corresponding output multiplier (see Table 20). For example, the indirect and induced impacts of student spending on amusement and recreational services in FY 2001 were $1.9 million ($1,002,238 x 1.9278). The total output impact is the summation of the direct (actual student spending), indirect, and induced impacts. Table 20 shows the breakdown by detail industry.

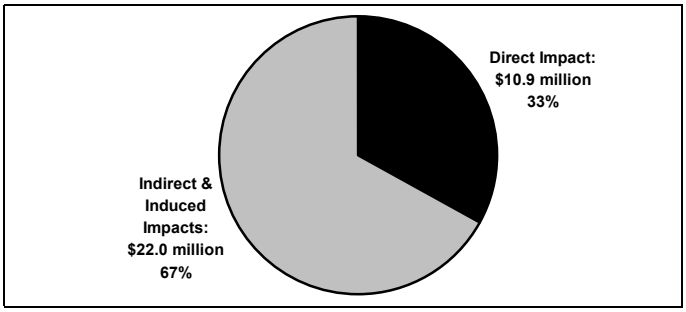
Table 20. Cleveland PMSA Output Impact Based On OOR Student Spending, FY 2001

Detail Industry	Student Spending	Multiplier	Impact
Transportation	$19,643	2.1218	$41,679
Retail Trade	$662,209	1.9391	$1,284,089
Banking	$228,240	1.8422	$420,464
Owner Occupied Dwellings	$2,132,440	1.2404	$2,645,079
Auto Repair Shops & Services	$149,010	2.1336	$317,928
Amusement & Recreation Services	$1,002,238	1.9278	$1,932,114
Colleges & Universities	$6,787,702	2.2706	$15,412,156
Totals	**$10,981,482**		**$22,053,509**
Direct Impact	**$10,981,482**		
Indirect and Induced Impact	**$22,053,509**		
Total Impact	**$33,034,991**		

Retail and transportation are calculated by multiplying spending on goods purchased locally but manufactured outside of the Cleveland PMSA by their respective retail and transportation margins.

Figure 8 illustrates the relative size of direct output impact versus indirect and induced impacts.

Figure 8. Cleveland PMSA Output Impact Based on OOR Student Spending, FY 2001



In FY 2001, students from outside the region generated more than $33 million in spending throughout the Cleveland PMSA. Of this amount, almost $11 million resulted from direct spending impacts, and about $22 million resulted from indirect and induced spending impacts throughout the regional economy.

Economic Impact on Employment

CSU students who come from outside the region live in the Cleveland PMSA while attending the university. Like every other household, they spend money on ordinary living expenses such as buying clothes and putting gas in their cars. Their spending on goods and services creates jobs in the Cleveland area economy.

Employment impact by industry is shown in Table 21. Here, RIMS II multipliers were multiplied by out-of-region (OOR) student spending in 1997 dollars.[7] For example, each $1 million spent by OOR students on amusement and recreational services generated more than 41 jobs in the PMSA economy. Thus, OOR student spending of $900,000 (in 1997 dollars) created an indirect and induced impact of 37 jobs in FY 2001. Summing the indirect and induced employment impacts from all spending categories results in a total impact of 304 jobs. For this analysis, there was no direct employment impact because OOR students were assumed not to hold employment with the university.

Table 21. Cleveland PMSA Employment Impact Based On OOR Student Spending, FY 2001

Detail Industry	Student Spending (in 1997 dollars)	Multiplier	Impact
Transportation	$17,700	21.5304	0
Retail Trade	$596,717	32.5978	19
Banking	$205,667	16.4316	3
Owner Occupied Dwellings	$1,921,542	2.7909	5
Auto Repair Shops & Services	$134,273	25.0768	3
Amusement & Recreation Services	$903,117	41.0206	37
Colleges & Universities	$6,116,398	38.4418	235
Total			**304**
Total Impact	**304**		

Retail and transportation are calculated by multiplying spending on goods purchased locally but manufactured outside of the Cleveland PMSA by their respective retail and transportation margins.

[7] To estimate employment impact, OOR student spending is deflated to 1997 dollars because the associated multipliers are calculated based on PMSA spending in 1997 dollars. Also, employment impacts are based on number of jobs created per $1 million in spending.

Economic Impact On Earnings

Students who came from outside the region to attend CSU bring with them purchasing power. Their buying of goods and services creates jobs throughout the Cleveland PMSA economy. Every job created generates new earnings for local households.

Earnings multipliers for each detail industry, shown in Table 22, estimate the total change in earnings that accrue to households employed locally for each additional dollar of goods and services delivered to OOR students. For example, the $1 million spent by OOR students on amusement and recreational services generated an additional $574,000 in indirect and induced earnings by households employed by local businesses in a variety of industries. Summing the indirect and induced earnings impact from all spending categories results in a total impact of $6.4 million. For this analysis, there is no direct earnings impact because OOR students are not employees of the university.

Table 22. Cleveland PMSA Earnings Impact Based On OOR Student Spending, FY 2001

Detail Industry	Student Spending	Multiplier	Impact
Transportation	$19,643	0.559	$10,980
Retail Trade	$662,209	0.5918	$391,895
Banking	$228,240	0.4566	$104,214
Owner Occupied Dwellings	$2,132,440	0.0645	$137,542
Auto Repair Shops & Services	$149,010	0.5872	$87,499
Amusement & Recreation Services	$1,002,238	0.5727	$573,982
Colleges & Universities	$6,787,702	0.7495	$5,087,383
Total			**$6,393,496**
Total Impact	**$6,393,496**		

Retail and transportation are calculated by multiplying spending on goods purchased locally but manufactured outside of the Cleveland PMSA by their respective retail and transportation margins.

OUT-OF-REGION (OOR) VISITORS' ECONOMIC IMPACT ON THE CLEVELAND REGION

This section discusses the total economic impact on the Cleveland PMSA by visitors who came from outside the region (OOR) to attend events and conferences at CSU during fiscal year 2001. The same methodology that was used to calculate the university's economic impact was utilized here. RIMS II final demand multipliers were used to estimate impact in terms of output, employment, and earnings.

OOR visitors to the university can generally be placed in one of two groups. The first group includes those who attend events at the CSU Convocation Center. The second group is comprised of people who attend meetings and conferences sponsored by the university's six colleges.

The CSU Convocation Center, which was built in 1991, has a seating capacity of 15,000 and parking spaces for 9,000 cars. With its arena and conference pavilion facilities, the Convocation Center is the perfect alternative to the city's larger venues for many meeting groups. It is home to CSU men's and women's basketball teams and the Cleveland Crunch/Force soccer team. In addition, it attracts events from popular entertainment to antique shows to religious conventions. In FY 2001, the Convocation Center hosted almost 500,000 visitors.

The university's six colleges regularly sponsor meetings and conferences that attract people from across the United States. They range from Banking Law Conferences sponsored by the Cleveland-Marshall College of Law to Technology in Urban Education Summits hosted by the College of Education. Although the number of attendees was down for FY 2001 (the year on which this analysis is based), conference attendance picked up significantly in FY 2002. For example, the Maxine Goodman Levine College of Urban Affairs' sponsorship of the Association of Collegiate Schools of Planning combined with the St. Thyagaraja Music Festival sponsored by the Music Department booked almost 2,500 hotel room nights in downtown Cleveland.

Economic Impact on Output (Spending)

Final demand output multipliers measure the effect of spending by out-of-region (OOR) visitors on gross receipts or sales in the Cleveland PMSA. The Convention & Visitor's Bureau of Greater Cleveland provided information related to affected industries and daily expenditures per visitor. The CSU Convocation Center and each of the university's six colleges supplied information regarding the number of visitors and time spent in Cleveland.

To calculate indirect and induced output impacts, visitor spending within each industry is multiplied by the corresponding output multiplier (see Table 23). For example, the indirect and induced impacts of visitor spending for hotel services in FY 2001 were over $3 million ($1,565,410 x 1.9436). The total output impact is the summation of the direct (actual visitor spending), indirect, and induced impacts. Table 23 provides the breakdown by detail industry.

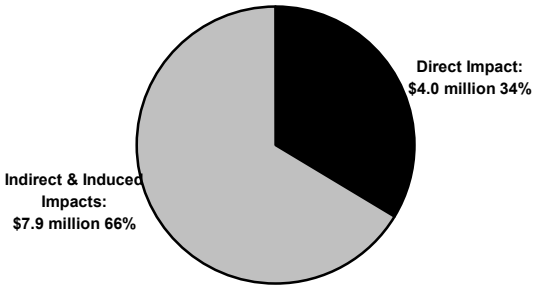
Table 23. Cleveland PMSA Output Impact Based On OOR Visitor Spending, FY 2001

Detail Industry	Visitor Spending	Multiplier	Impact
Food Preparation, n.e.c	$55,320	1.891	$104,610
Passenger Transportation	$43,960	2.0196	$88,782
Transportation	$3,248	2.1218	$6,892
Retail Trade	$83,636	1.9391	$162,179
Hotels	$1,565,410	1.9436	$3,042,531
Eating & Drinking Places	$1,472,878	1.9604	$2,887,430
Automotive Rental	$174,000	2.0102	$349,775
Entertainers	$142,247	2.308	$328,306
Professional Sports	$66,940	2.3702	$158,661
Amusement & Recreation Services	$420,875	1.9278	$811,363
Total	**$4,028,514**		**$7,940,528**
Direct Impact	**$4,028,514**		
Indirect and Induced Impact	**$7,940,528**		
Total Impact	**$11,969,042**		

Retail and transportation are calculated by multiplying spending on goods purchased locally but manufactured outside of the Cleveland PMSA by their respective retail and transportation margins.
n.e.c.: not elsewhere classified

Figure 9 shows the relative size of direct output impact versus indirect and induced impacts.

Figure 9. Cleveland PMSA Output Impact Based On OOR Visitor Spending, FY 2001



In FY 2001, visitors to CSU coming from outside the region generated almost $12 million in spending throughout the Cleveland PMSA. Of this amount, just over $4 million resulted from direct spending impacts, and almost $8 million resulted from indirect and induced spending impacts throughout the regional economy.

Economic Impact on Employment

Visitors who came from outside the region to CSU for business or pleasure often need to spend one or more nights in one of Cleveland's hotels. While in town, they spend money at restaurants, stores, entertainment venues, and for transportation services. Their spending on goods and services creates jobs in the Cleveland area economy.

Employment impact by industry is shown in Table 24. Here, RIMS II multipliers are multiplied by OOR visitor spending in 1997 dollars.[8] For example, each $1 million spent by OOR visitors on hotel services generates just over 30 jobs in the PMSA economy. Thus, OOR visitor spending of $1.4 million (in 1997 dollars) created an indirect and induced impact of 42 jobs in FY 2001. Summing the indirect and induced employment impacts from all spending categories results in a total impact of 125 jobs. For this analysis, there was no direct employment impact because OOR visitors are not locally employed.

Table 24. Cleveland PMSA Employment Impact Based On OOR Visitor Spending, FY 2001

Detail Industry	Visitor Spending (in 1997 dollars)	Multiplier	Impact
Food Preparation, n.e.c	$49,849	12.2481	1
Passenger Transportation	$39,612	33.4557	1
Transportation	$2,927	21.5304	0
Retail Trade	$75,364	32.5978	2
Hotels	$1,410,591	30.1267	42
Eating & Drinking Places	$1,327,210	40.247	53
Automotive Rental	$156,791	18.4478	3
Entertainers	$128,179	37.0136	5
Professional Sports	$60,320	24.948	2
Amusement & Recreation Services	$379,250	41.0206	16
Total			**125**
Employment Impact	**125**		

Retail and transportation are calculated by multiplying spending on goods purchased locally, but manufactured outside of the Cleveland PMSA, by their respective retail and transportation margins.
n.e.c.: not elsewhere classified

[8] To estimate employment impact, OOR visitor spending is deflated to 1997 dollars because the associated multipliers are calculated based on PMSA spending in 1997 dollars. Also, employment impacts are based on number of jobs created per $1 million in spending.

Economic Impact On Earnings

Visitors who came from outside the region to CSU for academic conferences or to attend an event at the Convocation Center spend money during their stay in Cleveland. Purchasing goods and services creates jobs throughout the Cleveland PMSA economy. Every job created generates new earnings for local households.

Earnings multipliers for each detail industry, shown in Table 25, estimate the total change in earnings to households employed locally for each additional dollar of goods and services delivered to OOR visitors. For example, the $1.5 million spent by OOR visitors on hotel services generated an additional $905,000 in indirect and induced earnings by households employed by local businesses in a variety of industries. Summing the indirect and induced earnings impact from all spending categories results in a total impact of $2.3 million. For this analysis, there is no direct earnings impact because OOR visitors were not locally employed.

Table 25. Cleveland PMSA Earnings Impact Based On OOR Visitor Spending, FY 2001

Detail Industry	Visitor Spending	Multiplier	Impact
Food Preparation, n.e.c	$55,320	0.3349	$18,527
Passenger Transportation	$43,960	0.6255	$27,497
Transportation	$3,248	0.559	$1,816
Retail Trade	$83,636	0.5918	$49,496
Hotels	$1,565,410	0.5786	$905,746
Eating & Drinking Places	$1,472,878	0.5474	$806,253
Automotive Rental	$174,000	0.4445	$77,343
Entertainers	$142,247	0.7289	$103,684
Professional Sports	$66,940	1.0906	$73,005
Amusement & Recreation Services	$420,875	0.5727	$241,035
Total			**$2,304,401**
Earnings Impact	**$2,304,401**		

Retail and transportation are calculated by multiplying spending on goods purchased locally but manufactured outside of the Cleveland PMSA by their respective retail and transportation margins.

CSU ECONOMIC IMPACT ON THE CLEVELAND PMSA: SUMMARY

Economic activity generated by the university, students coming from outside the region to attend CSU, and visitors to CSU from outside the region produced the following economic impacts in the Cleveland PMSA during FY 2001:

- Total Output Impact: $253.9 million
- Total Employment Impact: 2,997 jobs
- Total Earnings Impact: $118.8 million

Table 26. Total CSU Impact On Cleveland PMSA, FY 2001

Category	Total Output Impact	Total Employment Impact	Total Earnings Impact
CSU Spending	$208,941,380	2,568 jobs	$110,140,317
OOR Student Spending	$33,034,991	304 jobs	$6,393,496
OOR Visitor Spending	$11,969,042	125 jobs	$2,304,401
Total	**$253,945,413**	**2,997 jobs**	**$118,838,214**

STATE TAX BENEFITS FROM LIFETIME EARNINGS CHANGE

Many people consider the quality of life returns generated by CSU to local communities as far more valuable and enduring than the quantifiable economic impact benefits. The intangibles that constitute a high quality of life are due in part to the investment made in higher education by the taxpayers of the state of Ohio. It is possible to calculate a return on taxpayer investment. In its simplest form, this return is the increase in taxes paid by a CSU graduate as a result of his or her higher earnings.

As seen in Table 27, the average college graduate earns an annual income above a comparable high school graduate. According to 2000 U.S. Census Bureau statistics, the median annual earnings of a high school graduate were $24,267. This compares to $40,314 for a person holding a bachelor's degree and $48,972 for a person with a master's degree.

Data published by the Tax Foundation[9] indicate that in fiscal year 2000, persons living in the state of Ohio paid $63 in state taxes per $1,000 of personal income. State taxes include general sales, income, motor fuels, tobacco, and alcohol taxes. Sales and income taxes account for almost 70 percent of all taxes collected. This means that a person with a high school diploma paid, on average, $1,529 in state taxes. In contrast, a person holding a bachelor's degree paid $2,540 in state taxes, a $1,011 premium over a high school graduate. A person with a master's degree paid $3,085 in state taxes, a $1,556 premium.

Assuming a retirement age of 65, a high school graduate has a working life of 47 years. A person holding a bachelor's degree will work 43 years until retirement, and a person with a master's degree will work 41 years. This results in lifetime state taxes paid by a high school graduate of $71,863. A person with a bachelor's degree will pay $109,220, or $37,000 more than the high school graduate; and a person holding a master's degree will pay $126,485, or $55,000 more than a high school graduate. For purposes of simplicity, tax rates and earnings are held constant throughout a person's working life. These reported figures do not represent the present value or constant dollar tabulation of taxes paid. However, no adjustment was made to reflect the raises or increments to their annual salaries that people would receive each year. For

[9] http://www.taxfoundation.org

purposes of this analysis it was assumed that the annual increments would offset the present value calculation. However, readers are reminded that the projected higher state tax revenues are estimates that include neither the raises workers would expect nor present value calculations.

How much money are Ohio taxpayers receiving in return for their investment?

In FY 2000, CSU received $72,750,901 in state appropriations. This means that the state's investment in each student is approximately $4,700 annually. Assuming that it takes four years for a person to earn a bachelor's degree and two additional years to earn a master's degree, taxpayers invest approximately, $19,000 in an individual's undergraduate education and $28,000 if an individual earns both an undergraduate degree and a master's degree. Therefore, based on lifetime income taxes paid to the state, a holder of a bachelor's degree will return to taxpayers about 5.8 times the amount that he or she received. A master's degree holder will return about 4.5 times the amount that he or she received.

By aggregating the additional earning power of CSU graduates in FY 2000, state revenue gains are far more impressive than shown on a per student basis in Table 27. In FY 2000, 1,404 undergraduate degrees and 923 master's degrees were awarded. However, only 885 undergraduate degree holders and 683 master's degree recipients will be considered.[10] The result was an annual tax premium to the state of almost $900,000[11] by persons holding bachelor's degrees and just over $1 million[12] by persons holding master's degrees. Taking the weighted average of all CSU graduates in FY 2000 generates an annual state tax benefit of almost $970,000. Assuming a working career of 40 years, state tax revenues will increase by $39 million as a result of CSU's FY 2000 graduates. Each year, this same level of return is produced over the working lifetime of each graduate.

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[10] The reduction in the number of bachelor's degree holders reflects the 20 percent alumni who are employed outside the Cleveland PMSA. It also takes into account the substitution effect: CSU is not seen as a generator of economic development for full-time students in the traditional college age group because they would have attended other colleges in the region if CSU did not exist. The result is that in calculating any economic impact values, this category of students must be removed. In this case, 37 percent of undergraduate alumni fall under this category. Since this alumni category is also the most mobile, it is assumed the 20 percent of undergraduate alumni who work outside the region fall within this group. The reduction in the number of master's degree recipients reflects the 26 percent alumni who are employed outside the Cleveland PMSA. CSU alumni contribution to the regional labor force is discussed in detail in the following section.

[11] (885 graduates x $1,011) = $894,735

[12] (683 graduates x $1,556) = $1,062,748

Table 27. State Revenue Gains From a CSU Graduate

	High School	Bachelor's Degree	Master's Degree
Average Annual Earnings	$24,267	$40,314	$48,972
Annual Tax Revenue to the State	$1,529	$2,540	$3,085
Annual Revenue Difference Between High School and College Graduate		$1,011	$1,556
Lifetime Tax Revenue to the State	$71,863	$109,220	$126,485
Annual Per Student Cost to State Taxpayers		$4,722	$4,722
Total Per Student Cost to State Taxpayers		$18,888	$28,332
Taxpayer Return		$90,332	$98,153
Return Ratio		5.8	4.5

CLEVELAND STATE UNIVERSITY'S VALUE TO THE REGION

HOUSEHOLD INCOME BY CENSUS TRACT IN WHICH CSU STUDENTS RESIDE

As part of its mission as an urban university, Cleveland State creates an opportunity for people to improve their earning power. The results in this section illustrate the university's role in helping people achieve more substantial incomes.

Methodology

Cleveland State's Department of Institutional Research (IR) provided a dataset containing detailed information for each of the 10,227 undergraduate students enrolled at CSU in fall 2000. Information included academic level, major, age, race, gender, and home address (street name, number, city, state, and zip code). In order to maintain privacy, IR deleted student names.

The objective in using the dataset was to identify the socio-economic backgrounds of students. In order to meet this objective, a geocoding[13] operation was undertaken using the Arc View Geographic Information System (GIS). First, the home address of each student was assigned to a census tract. Next, the median income level per census tract was determined using Census 2000 data, and appended to the student. Finally, the number and percentage of students living in census tracts at or below the poverty level, within 1.5 times the poverty level, and within two times the poverty level were identified. The U.S. Census Bureau reported that the poverty threshold for a family of four was a median annual income of $17,463.

Of the 10,227 undergraduate students, 8,588 were geocoded, a matching success rate of 84 percent (see top row of Table 28). The PMSA-related value of 8,588 includes both Cuyahoga County and the city of Cleveland. The county-related value of 7,155 includes the city of Cleveland. Addresses of the remaining 1,639 students could not be matched to the Cleveland PMSA street database. The income analyses was conducted at the PMSA, county, and city geographic levels. To further refine the analysis, students residing in the city of Cleveland were categorized by race.

[13] Geocoding is the process of assigning geographic identifiers (codes) to map features and data records. The resulting geocodes permit data to be linked geographically.

Income Analysis at the PMSA, County, and City Levels

The city of Cleveland had the highest concentration of undergraduate students living in census tracts in which the median income was at or below the poverty level of $17,463. As seen in Table 28, 10.5 percent, or 206 students, were in this category. This compares to only three percent of students in Cuyahoga County and 2.5 percent in the Cleveland PMSA. County-related values include the city of Cleveland; PMSA-related values include both Cuyahoga County and the city of Cleveland. This means that, excluding the city of Cleveland, only 11 students living in Cuyahoga County or 12 students living in the PMSA reside in census tracts where incomes were at or below the poverty level.

The city also had the highest concentration of students living in census tracts where incomes were 1.5 or two times the poverty level, $26,195 and $34,926 respectively. Of the CSU students who lived in the city of Cleveland, more than 33 percent reside in census tracts with median household incomes of less than or equal to $26,195. This compares to 271 such students in Cuyahoga County or 282 such students in the metropolitan area, excluding the city of Cleveland. At two times the poverty level, 65 percent, or just under 1,300 students live in census tracts within the city of Cleveland where median household incomes are less than or equal to $34,926. This compares with 795 county residents and 915 PMSA residents.

Approximately 13 percent of students living in the city of Cleveland, who were represented in the above analysis under the category "Not Applicable," did not report their race on university-initiated forms. In the right-hand column of Table 28, records for these students have been removed, and they were not represented in the racial composition analysis that follows.

Racial Composition Analysis at the City Level

Of the five racial groups represented in this study, African Americans had the highest concentration of students living in census tracts within the city of Cleveland where incomes levels were at or below the poverty level. As seen in the right-hand column of Table 28, over 57 percent of African-American students living in the city of Cleveland, reside in census tracts where the median income is at or below $17,463 annually. This compares with 27.4 percent of white students and 10 percent or less for all other racial groups.

African-Americans also represented the largest racial concentration of students living in census tracts within the city of Cleveland where incomes are at or below 1.5 times the poverty level, at just over 54 percent. White students represented the second highest concentration at almost 31 percent. About seven percent of Hispanic and Asian/Pacific Islanders living in the city reside in census tracts where median incomes were at $26,195 or less.

The percentage of both white and African-American students residing in census tracts located in the city of Cleveland where incomes were at or below two times the poverty level ($34,926) was about equal, between 42 and 45 percent. All other racial groups had a significantly lower percentage of students in this category, at or below seven percent.

Table 28. Household Income By Census Tract In Which CSU Students Reside, Fall 2000

	PMSA		COUNTY		CITY		CITY - BY REPORTED RACE	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
UNDERGRADUATES (10,227)								
Total Geocoded Addresses	8,588		7,155		1,962		1,700	16.6%
POVERTY THRESHOLD LEVEL ($17,463)								
<1 ($17,463)	218	2.5%	217	3.0%	206	10.5%	168	9.9%
<1.5 ($26,195)	935	10.9%	924	12.9%	653	33.3%	554	32.6%
<2 ($34,926)	2,192	25.5%	2,072	29.0%	1,277	65.1%	1,104	64.9%
RACE (< $17,463)								
White					46	22.3%	46	27.4%
Black					96	46.6%	96	57.1%
Hispanic					7	3.4%	7	4.2%
Asian/Pacific Islander					17	8.3%	17	10.1%
American Indian/Alaskan Native					2	1.0%	2	1.2%
Not Applicable					38	18.4%		
RACE (< $26,195)								
White					171	26.2%	171	30.9%
Black					301	46.1%	301	54.3%
Hispanic					42	6.4%	42	7.6%
Asian/Pacific Islander					37	5.7%	37	6.7%
American Indian/Alaskan Native					3	0.5%	3	0.5%
Not Applicable					99	15.2%		
RACE (< $34,926)								
White					464	36.3%	464	42.0%
Black					494	38.7%	494	44.7%
Hispanic					82	6.4%	82	7.4%
Asian/Pacific Islander					60	4.7%	60	5.4%
American Indian/Alaskan Native					4	0.3%	4	0.4%
Not Applicable					173	13.5%		

CSU ALUMNI CONTRIBUTION TO THE REGIONAL LABORFORCE

Almost 96 percent of all CSU students lived in the Cleveland metropolitan area prior to beginning their collegiate careers. Upon graduation, most alumni choose to remain in Greater Cleveland to pursue their professional careers. In this section, data related to alumni who graduated in FY 2000 were analyzed. First, data showing the number of alumni who work in Northeast Ohio is presented. Next, alumni employment by major industrial sectors is discussed. Finally, average earnings data of CSU graduates by college is analyzed.

Methodology

This analysis is based on a student database received from the Ohio Board of Regents through CSU's Office of Institutional Research. Information used includes student's date of graduation, academic major, type of degree, place of employment, and earnings. Data are available for students who graduated between fall 1998 and spring 2001. However, this analysis only utilizes data on alumni from FY 2000 (those students who graduated between summer 1999 and spring 2000).

In order to account for CSU graduates who only work in the Cleveland metropolitan area, the student database was matched against an employment and earnings database (ES202) maintained by the Center for Economic Development at the Maxine Goodman Levin College of Urban Affairs. The merging of the two databases allowed for the analysis of the contribution of CSU graduates to the laborforce in the Cleveland area.

Alumni Working in Northeast Ohio

In fiscal year 2000, the university graduated 2,591 students. Table 29 shows that 2,000 of these alumni, or more than 77 percent, accepted professional employment in Greater Cleveland. Of the 1,400 undergraduates, more than 80 percent were pursuing careers in the area, and almost 74 percent of the 1,187 graduate and law students were working in Northeast Ohio. Engineering, business, and the sciences had the lowest percentage of graduate degree recipients working in the metropolitan area.

The College of Education had the highest proportion of their alumni working in Greater Cleveland at 86 percent. This percentage is about the same for undergraduate and graduate degree recipients. In contrast, about 67 percent of engineering and law graduates were working in Northeast Ohio. Only 49 percent of graduate engineering students stayed in this area compared to almost 73 percent of engineering undergraduates.

The Colleges of Arts & Sciences, Business, and Urban Affairs each had between 75 percent and 78 percent of their alumni working in the metro area. Within this group, the biggest division was in the College of Arts and Sciences where more than 87 percent of arts graduate students stayed in Northeast Ohio compared to only 55.6 percent of science graduate students. The business school also showed a sharp split with more than 85 percent of undergraduate alumni remaining in Greater Cleveland compared to approximately 68 percent of the graduate students. In urban affairs, almost 71 percent of undergraduate and 79 percent of graduate degree recipients were pursuing careers in the metropolitan area.

Table 29. CSU Alumni Employed in Northeast Ohio by College, FY 2000

College	# of Graduates	# Working in NEO	% Working in NEO
Arts & Sciences	**923**	**720**	**78.0%**
Arts Undergraduate	594	459	77.3%
Arts Graduate	112	98	87.5%
Sciences Undergraduate	154	128	83.1%
Sciences Graduate	63	35	55.6%
Business	**686**	**525**	**76.5%**
Undergraduate	338	289	85.5%
Graduate	348	236	67.8%
Education	**474**	**408**	**86.1%**
Undergraduate	153	133	86.9%
Graduate	321	275	85.7%
Engineering	**165**	**110**	**66.7%**
Undergraduate	124	90	72.6%
Graduate	41	20	48.8%
Law	**232**	**156**	**67.2%**
Undergraduate	0	0	0.0%
Graduate	232	156	67.2%
Urban Affairs	**111**	**84**	**75.7%**
Undergraduate	41	29	70.7%
Graduate	70	55	78.6%

Alumni Employment By Major Industrial Sectors

The service sector industries employ the highest concentration of CSU alumni. Four of the six university colleges -- Arts & Sciences, Business, Education, and Law -- have more graduates employed in service industries than any other industrial sector (see Table 30). The service industries that employ the highest number of CSU graduates include educational services, health services, business services, social services, legal services, and engineering and management services. More than half of the alumni who graduated in FY 2000 were employed in one of these six industries.

The primary colleges whose graduates work in the manufacturing sector were engineering and business. Fifty-three percent of undergraduate engineering alumni and 65 percent of graduate engineering alumni work in manufacturing. Close to one-fourth of graduate business alumni also work in this sector.

Other industry sectors that employ substantial concentrations of graduates include retail trade; finance, insurance and real estate (FIRE); and public administration. Within this group, the highest concentration is in FIRE, which employs more than 170 alumni. Retail trade and public administration each employ about 150 graduates.

As expected, more than 90 percent of alumni of the College of Education work in the service industries. Engineering graduates were predominant in the manufacturing sector followed by the service sector. Forty percent of urban affairs alumni were employed in public administration positions with 38 percent working in the service industries. Business graduates were evenly distributed among the manufacturing, FIRE, and service sectors. Graduates of the Colleges of Law and Arts & Sciences found employment predominantly in the service industries.

Two industry sectors, agriculture, forestry and fishing (SICs 01-10) and mining (SICs 10-14) do not employ any university alumni.

Table 30. Percent of CSU Alumni Employed by Major Industry Sector in Northeast Ohio, FY 2000

		Arts		Sciences		Business		Education		Engineering		Law		Urban Affairs	
SIC's	Description	Ugrad	Grad	Ugrad	Grad	Ugrad	Grad	Ugrad	Grad	Ugrad	Grad	Ugrad	Grad	Ugrad	Grad
15-17	Construction	1.3%	0.0%	2.2%	0.0%	1.7%	0.4%	0.8%	0.4%	3.3%	0.0%	0.0%	1.9%	3.4%	1.8%
20-39	Manufacturing	6.8%	8.9%	2.9%	3.4%	15.6%	23.8%	0.0%	0.9%	53.3%	65.0%	0.0%	3.2%	0.0%	1.8%
40-49	Transp, Public Utilities	3.6%	1.3%	2.9%	0.0%	2.8%	3.2%	1.5%	0.4%	0.0%	0.0%	0.0%	0.0%	6.9%	5.5%
50-51	Wholesale Trade	2.6%	2.5%	3.2%	0.0%	11.1%	5.8%	0.0%	0.0%	8.9%	0.0%	0.0%	0.6%	6.9%	0.0%
52-59	Retail Trade	12.7%	7.6%	11.5%	10.2%	9.7%	3.2%	5.3%	1.7%	2.2%	5.0%	0.0%	3.8%	13.8%	0.0%
60-67	FIRE	8.8%	7.6%	7.9%	5.1%	23.5%	12.3%	0.8%	0.9%	0.0%	5.0%	0.0%	5.1%	3.4%	5.5%
70-89	Services	53.2%	68.4%	62.4%	78.0%	32.2%	48.4%	91.0%	91.0%	28.9%	20.0%	0.0%	70.5%	24.1%	45.5%
91-97	Public Administration	11.0%	3.8%	7.2%	3.4%	3.5%	2.9%	0.8%	4.7%	3.3%	5.0%	0.0%	14.7%	41.4%	40.0%

Largest Alumni Employers By 2-Digit SICs, FY 2000

The largest alumni employers by 2-digit industry SICs for each college are shown in Table 31. In the third column, SIC codes for each category (arts undergraduate, arts graduate, etc.) are listed in descending order of total employment.

Educational services was the largest employer of arts-related alumni from the College of Arts and Sciences at both the undergraduate and graduate levels. This industry employed more than 19 percent of undergraduate alumni and almost 45 percent of graduate alumni. Other major employers of arts undergraduates include social services, human resource administration, health services, and business services. These industries combined for an additional 30 percent of alumni. At the graduate level, social services and health services employed almost 25 percent of the alumni.

Science-related alumni from the College of Arts and Sciences, at both the undergraduate and graduate levels, were employed primarily in health services. This industry employed over 45 percent of undergraduate alumni and almost 26 percent of graduate alumni. At the undergraduate level, engineering and management services and educational services employed an additional 18 percent of the graduates.

Twenty-three percent of business school alumni at the undergraduate level were employed in business services and depository institutions. Another 16 percent worked in wholesale trade, management services, and non-depository institutions. The health service industry was the largest employer of graduate business alumni at 11 percent. Other large employers included business services, fabricated metal products, wholesale trade, and depository institutions. These four industries employed 25 percent of the graduate alumni.

More than 83 percent of alumni from the College of Education were employed in either teaching or administrative positions in Cleveland area schools. At the graduate level, education alumni also worked in social and health service-related industries. Engineering graduates were employed in a wide variety of manufacturing industries and as consultants. At both the undergraduate and graduate levels, just over 50 percent of engineering alumni worked in one of

the following industries: industrial machinery; electronic and electric equipment; transportation equipment; instruments and related products; and engineering consultants.

Fifty-three percent of law school graduates worked in legal services. Another 20 percent of law alumni were employed in one of the following industries: educational services, justice, public order and safety, and human resource administration. At both the undergraduate and graduate levels, just over 50 percent of urban affairs alumni worked in one of the following industries: human resources administration; justice, public order, and safety; and educational services. In addition, 11 percent of urban affairs graduate alumni were employed in health services.

Table 31. Largest Alumni Employers by 2-Digit SIC, FY 2000

College	Total Graduates	Largest Employers by 2-Digit SIC
Arts & Sciences	**720**	
Arts Undergraduate	459	82, 83, 94, 80, 73
Arts Graduate	98	82, 83, 80
Sciences Undergraduate	128	80, 87, 82
Sciences Graduate	35	80
Business	**525**	
Undergraduate	289	73, 60, 50, 87, 61
Graduate	236	80, 73, 34, 50, 60
Education	**408**	
Undergraduate	133	82, 58, 59
Graduate	275	82, 83, 80, 94, 79
Engineering	**110**	
Undergraduate	90	87, 37, 36, 38, 50
Graduate	20	35, 37, 38, 87
Law	**156**	
Undergraduate	0	N/A
Graduate	156	81, 94, 82, 92
Urban Affairs	**84**	
Undergraduate	29	92, 94, 82
Graduate	55	94, 82, 92, 80

34 Fabricated Metal Products
35 Industrial Machinery and Equipment
36 Electronic and Other Electric Equipment
37 Transportation Equipment
38 Instruments and Related Products
50 Wholesale Trade - Durable Goods
51 Wholesale Trade - Nondurable Goods
58 Eating and Drinking Places
59 Miscellaneous Retail
60 Depository Institutions
61 Nondepository Institutions
73 Business Services
79 Amusement and Recreation Services
80 Health Services
81 Legal Services
82 Educational Services
83 Social Services
87 Engineering and Management Services
92 Justice, Public Order and Safety
94 Administration of Human Resources

Average Alumni Salaries By College, FY 2000

Students coming to study and obtain a degree at CSU are motivated by the opportunity to broaden their intellectual, social, and employment horizons. The latter translates into career opportunities that yield lifetime earnings far in excess of those earned by persons who do not hold a four-year college degree.

Average annual salaries listed in tables 32 and 33 were the weighted averages of employer-reported earnings for the first full quarter of employment following graduation during FY 2000. For example, the average salary of $39,989 (shown in Table 33) for undergraduate engineering alumni were the weighted average of salaries paid to all graduates of the six departments within Fenn College. Table 32 summarizes average annual earnings by degree level calculated across all colleges. The table indicates that annual earnings increase with level of education.

Table 32. Annual Earnings by Degree Level, FY 2000

DEGREE LEVEL	ANNUAL EARNINGS
BACHELOR	$27,701
MASTER	$42,775
PH.D.	$48,005
LAW	$46,308

As seen in Table 33, graduates of the Cleveland Marshall College of Law posted the highest starting salaries across the six university colleges at $46,308. Alumni of the College of Engineering were paid the second highest salaries with average earnings of $41,926. Undergraduate engineering alumni earned just under $40,000, while graduate alumni posted starting salaries of just over $50,000. At the undergraduate level, the highest salaries were paid to industrial/manufacturing and electrical engineers. Earnings here were over $52,000 per year. Mechanical and industrial/manufacturing engineers had the highest earnings for graduate level alumni. Both disciplines exceed $60,000 annually.

Business school graduates had annual earnings of $39,653. Graduate level alumni were paid substantially higher salaries than their undergraduate counterparts at $50,212 compared to $31,000. Average annual earnings were $52,000 for MBA graduates and $45,000 for alumni working in computer information science. At the undergraduate level, computer information

science alumni earned just more than $40,000 annually. Persons working in marketing were paid more than the undergraduate average of $31,000.

The average salary for alumni of the College of Education was $38,565. Graduate level alumni who specialized in education administration had the highest annual earnings of $51,000. Graduate alumni involved in curriculum and instruction averaged $45,000 in earnings while those specializing in counseling and guidance services were paid salaries of about $37,000. At the undergraduate level, all alumni holding teaching positions earned an average salary of $28,600.

Undergraduate alumni from the Urban Affairs College posted average annual earnings of $31,000. At the graduate level, alumni working in the area of public administration were paid salaries of $40,000. The average salary for all graduates of the Urban Affairs College was $36,756.

Starting salaries paid to alumni from the College of Arts and Sciences range from slightly more than $23,000 for an arts undergraduate to $37,500 for a science alumnus with a graduate level degree. The average salary across the college is $25,066. At the graduate level, the highest salaries were paid to alumni working in community health and chemistry; salaries exceeded $50,000, reaching a high of almost $97,000. Alumni with graduate degrees in mathematics and communications had average salaries of about $40,000. At the undergraduate level, nurses earned the highest salaries, averaging $37,400. Undergraduate alumni who majored in either physical and occupational therapy or mathematics had average earnings of $33,000. Economics graduates earned slightly less than $30,000 annually.

Table 33. Average Alumni Salaries by College, FY 2000

College	# Working in NEO	Average Salary
Arts & Sciences	**720**	**$25,066**
Arts Undergraduate	459	$23,141
Arts Graduate	98	$26,736
Sciences Undergraduate	128	$27,280
Sciences Graduate	35	$37,537
Business	**525**	**$39,653**
Undergraduate	289	$31,030
Graduate	236	$50,212
Education	**408**	**$38,565**
Undergraduate	133	$28,594
Graduate	275	$43,388
Engineering	**110**	**$41,926**
Undergraduate	90	$39,989
Graduate	20	$50,646
Law	**156**	**$46,308**
Undergraduate	0	N/A
Graduate	156	$46,308
Urban Affairs	**84**	**$36,756**
Undergraduate	29	$31,006
Graduate	55	$39,788

SIGNIFICANT COMMUNITY PARTNERSHIPS

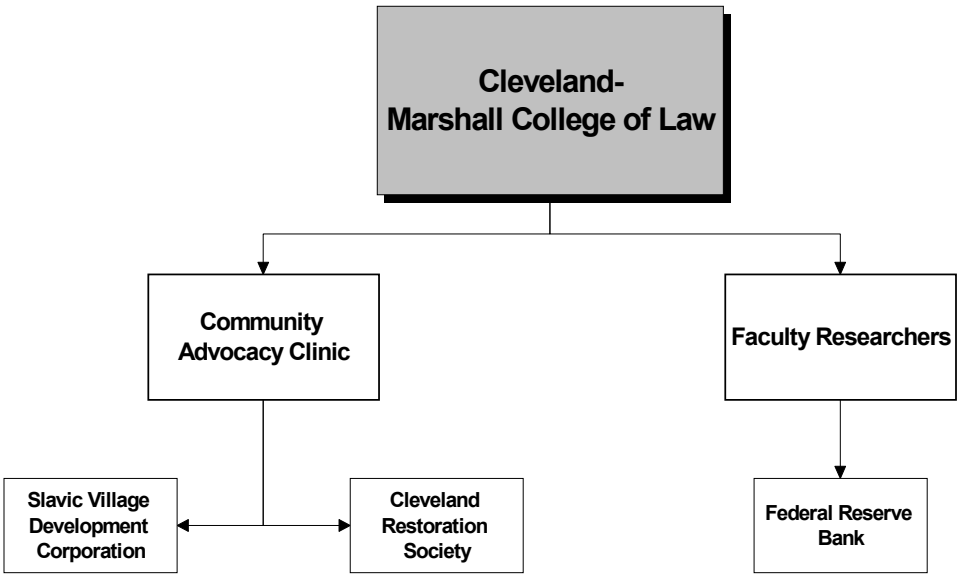
Each of the university's six colleges, together with the Advanced Manufacturing Center, the Environmental Science, Technology, and Policy Institute, and the Biomedical and Health Institute have established ongoing partnerships or strategic alliances with the Greater Cleveland community. Partners come from school systems, research institutions, private sector corporations, and community development groups. Measurable impact varies as much as the partnerships or alliances themselves. In some cases, it is not easily quantifiable. In other cases, the partnership or alliance's most significant impact is changing people on a personal level and how they feel about themselves and their community.

For this study, a partnership or alliance is defined as an on-going collaboration between the university and an organization located within the Cleveland metropolitan area. Both internal and external collaborators contribute to the effort. Work takes place either at CSU and/or the collaborator's facilities.

Following numerous meetings with college representatives, it became obvious that there are far more partnerships or alliances than could possibly be highlighted in this study. Those included are thought to best exemplify the diverse community outreach established by CSU faculty and staff. The information presented here is based on interviews and written materials provided by CSU and its collaborators. Appendix 2 includes a list of interviewees.

CLEVELAND-MARSHALL COLLEGE OF LAW

Cleveland-Marshall College of Law, which traces its roots back to 1897, has a rich history of community outreach through clinical education and individual research efforts. Recent examples include nuisance abatement in Cleveland's Slavic Village and co-op to condominium conversions in the East Boulevard Historic District. Both were accomplished with help from the school's Community Advocacy Clinic. In addition, a strategic alliance was formed with the Federal Reserve Bank of Cleveland to help fight predatory lending.



The Community Advocacy Clinic

The Community Advocacy Clinic (CAC) was established in 1994 as an outgrowth of Cleveland-Marshall's Law and Public Policy Clinic. CAC's mission is to provide pro bono legal services to neighborhood and community-based nonprofit organizations in the city of Cleveland. Kermit Lind serves as the Clinic's staff attorney and manages day-to-day operations.

Slavic Village Development Corporation

The Community Advocacy Clinic (CAC) assisted the Slavic Village Development Corporation in dealing with a large number of abandoned properties that had become a nuisance. A single investor purchased the properties, which included 11 structures containing 30 apartments, during 1997. Unfortunately, the properties were used in a flipping scheme - the practice of buying damaged property and then financing it at a huge mark-up without significant rehabilitation. The

only tenants the investor attracted were considered high-risk. After taking the equity out of the properties in cash, the investor simply walked away from his investment. The distressed properties could not even be given away because of large liens encumbering titles.

Squatters began moving into some of the apartments, turning them into drug houses. People used the yards for dumps, and others stripped aluminum siding off the houses. Fear began to permeate the neighborhood, so much so, that one person actually quit his job so that he could remain on a 24-hour-a-day fire watch. It was at this point that Tony Brancatelli, Executive Director, Slavic Village Development Corporation (SVD), approached CAC to determine if an expedient remedy was available. Kermit Lind suggested filing a nuisance abatement action against the investor. SVD, which had never before taken action against multiple abandoned properties simultaneously, thought it was an innovative way of attacking the problem and gave the go-ahead for CAC to proceed with the filing.

The judge in the case appointed SVD as temporary receiver. With authority vested in them, SVD evicted all tenants, had the properties condemned, notified all lien holders, and secured the properties. Of the 11 properties, six have been demolished. The vacant lots, all with clean titles, have been placed in a land bank. Two houses have been completely restored, one of which sold for $90,000. A third is partially restored. The remaining two houses are condemned.

The impact on Slavic Village has been significant. Blighted properties have been rehabilitated or removed. Cleveland police and fire departments save money, and possibly lives, because drug dealing and arson activity has been reduced, and SVD and the community are now much more aware of real estate investment fraud and how to deal with it.

Cleveland Restoration Society

Co-op residents in the East Boulevard Historic District approached the Cleveland Restoration Society (CRS) in 1992 for help in restoring their buildings. Very little investment had been made in them over the years because banks do not provide rehab loans to co-ops. CRS was very anxious to work with residents because of the architectural significance of the buildings. However, progress moved slowly due to financial limitations of elderly residents on fixed

incomes. One of the residents, retired Judge Lillian Burke, believed that conversion of her building into a condominium was the first step in the restoration process. She approached CAC for help, who in turn partnered with CRS to turn Judge Burke's vision into reality.

While CAC handled all the legal work for creating a condominium and condominium owners' association, CRS facilitated the contracting of survey, architectural, and title work. Heather Rudge, CRS's Director of Technical Services, managed the process. Market value for this work is estimated at $4,500 per unit. Thanks to the generosity of donors, each resident paid only $525. The two-year conversion process was successfully completed in 2000.

Impact on the residents included a significant overnight increase in the value of their estates. The conversion also provided them with the ability to obtain mortgages and loans through CRS's low-interest loan program with Key Bank or other financial institution for rehab work. In addition, residents are able to take advantage of market forces should they decide to sell.

The partnership between CAC and CRS did not end with the completion of Judge Burke's building. Of the dozen buildings in the immediate area, a second has been successfully converted, and several other buildings are currently in process.

Federal Reserve Bank of Cleveland

The law school has a strategic alliance with the Federal Reserve Bank of Cleveland (Fed) to combat predatory and subprime lending.

Subprime loans differ from conventional loans in that they typically carry high-than-normal interest rates and are usually given to borrowers with blemished credit histories. A subprime loan is considered predatory if it has excessive points and fees, balloon payments, advance payments, pre-payment penalties, financed insurance, or is made without due regard to borrowers' ability to repay. In practice, unscrupulous lenders lure marginal borrowers into home or home improvement loans with hidden costs and high interest rates by engaging in deception or fraud, manipulating borrowers through aggressive sales tactics, or taking unfair advantage of a borrower's lack of understanding of loan terms.

Predatory lending started in the early 1990s and quickly became a serious problem. Factors that influenced the rise in predatory lending range from securitization of home mortgages to well-intentioned legislation that had unexpected consequences. In Cleveland, the rate of foreclosure skyrocketed after predatory lending practices became common. The reason for this is that predatory lenders often insist on loan terms that borrowers cannot afford. This can ultimately result in default by the borrowers. Lenders tend to abandon houses that they have foreclosed upon, resulting in the devaluation of homes and entire neighborhoods.

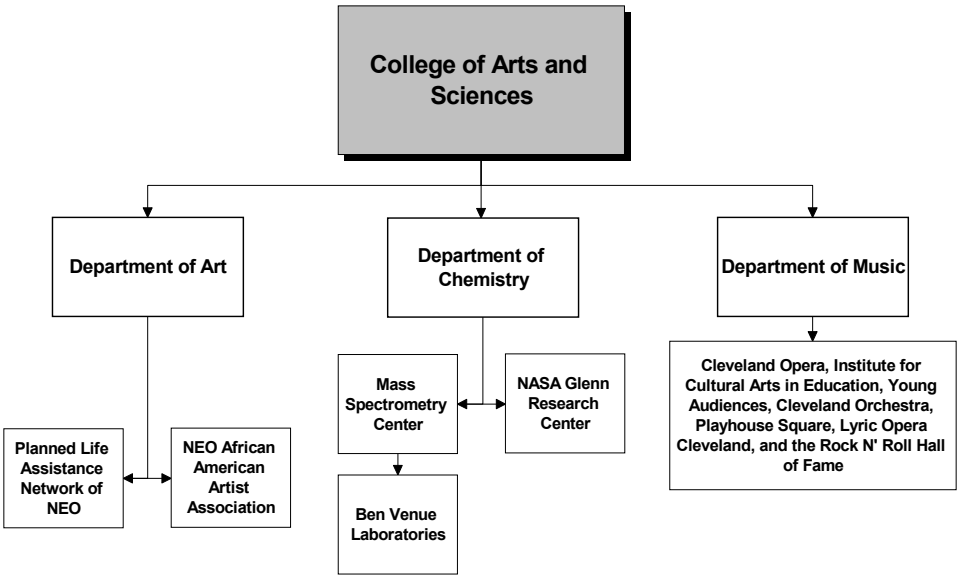
Ruth Clevenger, Assistant Vice President and Community Affairs Officer for the Federal Reserve Bank of Cleveland, became concerned about predatory lending because her department is responsible for identifying local credit market opportunities within the bank's district and for encouraging public/private community development partnerships. Ruth contacted Cleveland-Marshall Law School professors Patricia McCoy and Kathleen Engel because of their interest in studying predatory lending. The two institutions have worked very hard to build what Ms. Clevenger likes to call "a critical mass of thought leadership on this issue" that is aimed at understanding and addressing all aspects of predatory lending.

Since the Fed cannot actively support specific legislative actions, it helps legal scholars like Professors McCoy and Engel to develop and pursue research. Cleveland Fed President, Jerry L. Jordan, sees the bank serving as a partnership builder. Its role is not to dictate solutions, but rather to facilitate the search for solutions. Ms. Clevenger believes that by working with institutions like the Cleveland-Marshall Law School, an environment can be created where ideas will surface that could lead to the elimination of abusive lending practices.

The CSU-Fed alliance was strengthened in January 2002 with the appointment of Professor McCoy to the Consumer Advisory Council. The Council advises the Federal Reserve Board on the exercise of its responsibility under the Consumer Credit Protection Act and on other matters in the area of consumer financial services.

COLLEGE OF ARTS AND SCIENCES

The College of Arts and Sciences, with 21 departments, is the largest of CSU's six colleges. In fall 2001, Arts and Sciences accounted for 56 percent of full-time equivalent students across the university. In this section, partnerships established by the Departments of Art, Chemistry, and Music will be highlighted.



Department of Art

Outreach activities by the Department of Art extend far beyond a formal collaboration with a specific organization. Rather, the department sees itself as having a partnership with the Greater Cleveland community through activities hosted by their Art Gallery. Under the leadership of Director Robert Thurmer, the gallery features world-class thematic art exhibitions and related educational programs. Community-based exhibitions, student art shows, and programs dealing with important social issues related to the university's urban mission round out the schedule.

The Art Gallery serves Greater Cleveland in the largest possible terms. It provides a forum for community artists to display their work and share their achievements. Professional artists often feel as if the gallery is their own personal space. Through the numerous exhibitions and other programs, participants gain a sense of ownership in CSU. Because no other arts-based

organization in the Cleveland area would welcome some of the exhibits hosted by the Art Gallery, there would be a void in the community if it did not exist.

A diverse group of community organizations either sponsor or contribute art to be exhibited in the gallery. They include war veterans, professional sports teams, social service agencies, labor groups, and many others. The Art Gallery hosts about eight exhibitions per year with annual attendance in the tens of thousands. The Planned Life Assistance Network and the Northeast Ohio African American Artist Association are recent sponsors.

Planned Life Assistance Network of Northeast Ohio, Inc. (PLAN)

PLAN is a private, nonprofit, home-based provider of social services to people recovering from neurobiological (mental) illnesses. It was formed by a group of concerned parents in 1988. These parents were anxious about the future well-being of their adult-aged children should they move out of town or die. Most have been hospitalized one or more times prior to beginning their relationship with the organization. Currently, PLAN serves about 130 clients from every socio-economic level and from across the Greater Cleveland area.

Service providers are called family advocates. They work with clients in their homes, doing whatever is necessary to help them through their recovery process. This ranges from simply talking with them to teaching them how to clean their room to helping them gain confidence using public transportation in preparation for returning to work. In addition to home-based care, PLAN provides social and recreational opportunities. Over 50 hours of activities are scheduled each month including supper clubs, bowling, picnics, volleyball, and movies.

One of PLAN's most successful recreation activities is their Art Studio. The studio enables clients to paint, draw, and work in clay in a bright, creative atmosphere that encourages socialization and provides an avenue for self-expression.

Judy Masnick, a family advocate, collaborated with Robert Thurmer to use the CSU Art Gallery as a space to exhibit works by PLAN clients. The first show featuring works by PLAN clients was in December 1999. The exhibition was appropriately named RECOVERY. It featured 35 works by 19 artists and poets. At the opening reception, artists discussed their work and what it

meant to have them displayed in a prestigious gallery. During the two-month exhibit, several works were purchased.

The impact on the artists exceeded expectations. Many felt empowered by showing off their creative abilities. RECOVERY provided them the motivation to see a project through to completion, which is very difficult for people with mental illnesses. Visitors saw the exhibit as a celebration of the creativity and strength of people who have endured many years of suffering.

Through the exhibit, the community received an education about the personal lives of the artists. Myths and stereotypes regarding mental illness continue to persist, branding those who suffer from mental illness as flawed, lazy, or even dangerous. RECOVERY helped to dispel some of these stereotypes. The exhibit was so successful that PLAN has sought other venues to display its clients' work.

Northeast Ohio African American Artist Association (NOAA)

The Northeast Ohio African-American Artist Association (NOAA) is a self-funding, non-profit organization based at Karamu House, Cleveland's nationally famous African American Cultural Center. NOAA was incorporated in 1997. The group's mission is to enhance and promote the creative expressions of African American artists and to expose and attract inner-city families to the arts through education and training, art exhibits, and cultural exchange.

The group's president is one of its founders, Mustafa Griffin. Griffin, who graduated from the Cleveland Institute of Art, and wood carver Harry Washington organized NOAA because they found that Cleveland did not have a place where artists could come together to talk, learn from each other, and attract other people to the arts.

In 1999, Robert Thurmer invited NOAA to stage an exhibition at the CSU Art Gallery. The exhibit, which opened in February 2000, presented 42 works by 16 artists including fabric art, woodcarvings, and paintings. Even though the art works stimulated all visitors, African-Americans were particularly moved because of their personal relationships with many of the exhibitors. African-Americans felt that their art community was finally being represented in public and recognized for its high quality.

Department of Chemistry

Research initiatives by the Department of Chemistry's 22 faculty members cover a wide spectrum from energy to environmental issues to disease detection and pharmaceuticals. Partnerships have been established with well-known Cleveland institutions such as NASA and the Cleveland Clinic Foundation. Long-term working relationships have been formed with both small and large drug companies like Ben Venue. The department is also home to the Mass Spectrometry Center, a valuable resource to Cleveland's biomedical research community.

NASA Glenn Research Center

The partnership between CSU's Department of Chemistry and the NASA Glenn Research Center (GRC) began in the 1988 with Dr. Al Hepp of GRC (then NASA Lewis Research Center – LeRC) and Dr. Stan Duraj, future Department Chair.

A formal partnership was initiated in 1990 when GRC awarded Dr. Hepp a three-year, $180,000 Director's Discretionary Fund project to work with Dr. Duraj and CSU students for the development of chemical methods to produce photovoltaic materials. This was followed-up by a second three-year project in the amount of $430,000 from the Defense Advanced Projects Agency (DARPA) to develop chemical vapor deposition precursors at several universities including CSU. As a result of this partnership, Drs. Duraj and Hepp jointly published more than 30 papers in addition to giving numerous presentations at technical association meetings. In addition, several CSU chemistry graduates have gone on to work at GRC.

After Dr. Duraj became department chairman in the late 1990s, a more broad-based partnership with GRC began to evolve. Over the past few years, hundreds of thousands of dollars in GRC funding has been awarded to CSU to upgrade labs for NASA projects. Currently, Dr. David Hehemann and Dr. Jerry Harris are the principal researchers. Both hold the title "Scholar-in-Residence." The emphasis of the joint research is the development and processing of new materials for energy conversion and storage, particularly solar cells and batteries. More specifically, Dr. Hehemann's work focuses on the analysis and characterization of advanced

materials for aerospace applications. Dr. Harris concentrates his efforts on materials for thin-film solar cells for space power.

Currently, materials used for thin-film solar cells only allow for 10 percent conversion of radiant energy in space. Researchers at CSU are working to develop new materials and devices that will garner conversion rates of between 20 and 25 percent. To achieve this, scientists are working with compounds of copper indium (and gallium) and selenium (and sulfur). Once a material is developed, it is then sent to GRC for characterization, device fabrication, and testing. On the energy storage front, several smaller projects are geared towards producing materials for lower-cost, better performing thin-film Li ion batteries. Low-cost electrolyte materials are being developed for Li ion batteries based on polysaccharides.

The partnership between GRC and CSU serves as a forum for new ideas and the development of new technologies. In addition to aerospace, results of the joint research will be used in defense and energy applications. Commercialization of the technology is still in its infancy. CSU students are integrally involved in research efforts. They are given the opportunity to work side-by-side with internationally renowned scientists on real world projects. This is great preparation for the job market and gives them a head start in landing excellent jobs after graduation. Chemistry graduates are in demand at well-known Cleveland institutions such as UCAR, GoodYear, Sherwin Williams, Lubrizol, Cleveland Clinic, and smaller companies in addition to NASA GRC itself.

Mass Spectrometry Center

The Mass Spectrometry Center (MSC) is the flagship facility established by Biomedical Research Cleveland (BRC), a consortium that facilitates joint biomedical research initiatives. CSU's Dr. David Anderson serves as director and CSU's Dr. Xiang Zhou is the operations manager. Participants include Cleveland Clinic Foundation, University Hospitals, Metro Health Systems, Case Western Reserve University, and Cleveland State University.

MSC, which opened in 1997, is housed in CSU's Department of Chemistry. CSU was selected because it was the only institution employing two Ph.D. mass spectrometrists at the time. MSC

is currently operating at capacity with over 50 users. Its very presence facilitates collaboration among users and helps attract research grants.

The use of mass spectrometry in biomedical research has grown significantly in the past decade due to the development of technology that allows precise identification of chemical compounds. Using this technology, a compound can be fragmented to allow measurement of individual molecular masses, thereby identifying its exact structure. Mass spectrometry can now profile multiple biological compounds simultaneously. The impact of this technology is highly significant. Many diseases are characterized by defects in protein, DNA, or other molecules. Mass spectrometry analysis plays a critical role in determining the structure of defective molecules. Its use has resulted in advances in the understanding of disease mechanisms, the early detection of disease markers, and aids in designing more effective drugs and treatment strategies.

Currently, a large group of researchers are identifying specific compounds pertinent to cardiovascular disease, cancer, diabetes, and asthma using mass spectrometry. One CSU researcher recently discovered a breakthrough marker, lysophosphatitic acid (LPA), for ovarian cancer. Markers can be thought of as tests that are used to screen for a disease in its early stages. LPA substantially exceeds the performance of the current marker.

Research is not the only activity occurring at MSC. Its interaction with industry is growing rapidly. Many regional biomed firms use the facility to characterize compounds and work with MSC staff to develop new analytical methods. Among the well-known users are Ben Venue, Gliatech, Copernicus Therapeutics, Scott Laboratories, and Curragh Chemistries.

Ben Venue Laboratories

Based in Bedford, Ohio, Ben Venue Laboratories develops and manufactures injectable pharmaceuticals for drug companies worldwide. The company manufactures about 200 drugs. The company is focused in two areas: manufacture of pharmaceutical dosage forms of name brand drugs for major pharmaceutical companies and generic injectable dosage forms that are sold by Ben Venue's Bedford Laboratories Division.

The company's quality control group is responsible for monitoring the entire production process, from formulation to final product testing. According to group manager Keith Rapp, Ben Venue was one of the first users of MSC.

Ben Venue's primary use of MSC's equipment is for confirming the chemical structure of reference material obtained from secondary sources in the event that compendial reference material is not available. The company has also found MSC to be a valuable resource in identifying unknown compounds observed during routine HPLC analysis for products undergoing shelf life stability studies. Ben Venue's relationship with MSC has resulted in an uninterrupted supply of quality pharmaceuticals in the marketplace.

Department of Music

Professor Howard Meeker, Director of Instrumental Music, saw a need for a venue where the community is welcome not only to experience the musical arts, but also to interact and learn from the artists themselves. Professor Meeker's vision became reality when the Community Music Enrichment Program (CMEP) was initiated in 2000.

CMEP is a collaboration of arts organizations, including Cleveland Opera, Institute for Cultural Arts in Education (ICARE), Young Audiences, The Cleveland Orchestra, Playhouse Square Foundation, Lyric Opera Cleveland, and the Rock 'n Roll Hall of Fame in partnership with the CSU Music Department. Funding comes from the university, foundations, and individuals committed to sharing Professor Meeker's vision. CMEP aims to increase public awareness, understanding, and appreciation for the musical arts through a diverse array of educational outreach workshops, clinics, master classes, and instructional performances.

Professional development for teachers, especially related to integrating music and the arts into the curriculum, was very high on Professor Meeker's list when he developed the initial CMEP proposal. The Summer Music & Arts Institute is the result. The institute offers courses for both music and general classroom teachers seeking ways of integrating the arts into the curriculum, as well as courses for the curious layperson. Joan Katz Napoli, Director of Educational Programs

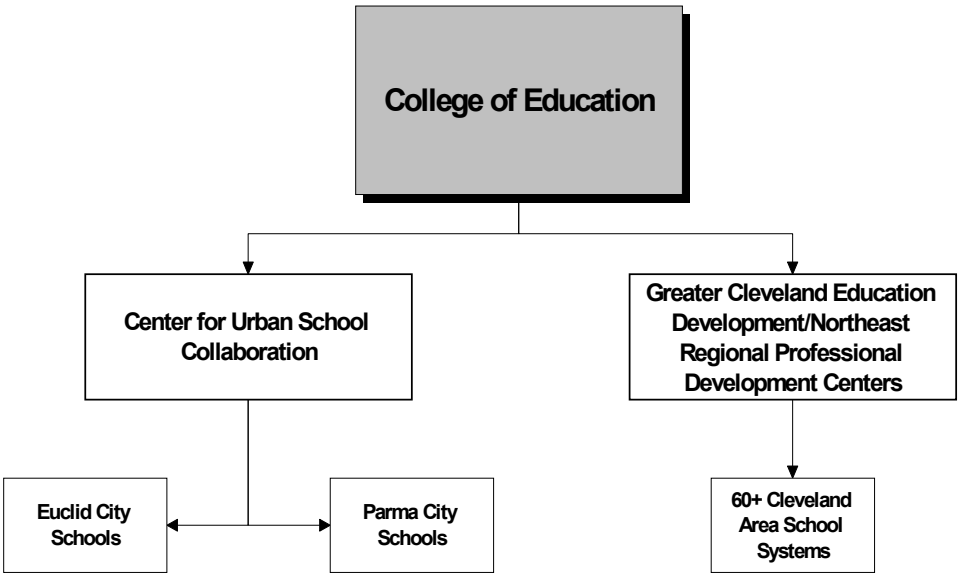
for the Cleveland Orchestra, sees the institute as a unique set of programs that provides a critical mass of content and coursework that shows teachers how to achieve this integration. An example is the orchestra's *Meeting Ohio Proficiencies Through Music* workshop. Here, teachers are exposed to a set of music-based activities and resources that can assist them in various education proficiencies through experiential, motivational, and creative approaches encompassing multiple styles of learning.

Kay Shames, CMEP Director, sees the program as a convener for the community. Events are planned that cannot be found elsewhere in Greater Cleveland. The programming brings many people to CSU for the first time. These visitors not only experience music as both entertainment and art, but also learn of the many other activities that occur on campus. This provides an opportunity for everyone in the community to be part of the life of the university, resulting in Cleveland State becoming a worthy destination in itself.

CMEP has proven to be a mutually beneficial partnership for Cleveland area teachers, arts organizations, and the university. Arts organizations believe community outreach is a serious obligation. Through CEMP they are able to work one-on-one with teachers in areas of professional development. CSU provides the facilitation, venue, and graduate credit, in addition to having faculty members who assist in teaching efforts.

COLLEGE OF EDUCATION

The College of Education's mission extends far beyond training students to be competent professional educators. Through the Center for Urban School Collaboration, the college helps school districts maximize student achievement in complex urban environments. It also provides leadership in professional development through the Greater Cleveland Education Development Center and the Northeast Regional Professional Development Center, both of which are housed on the CSU campus.



Center for Urban School Collaboration

The Center for Urban School Collaboration (CUSC) was organized in 1997 by Dr. Jay McLoughlin, Dean, College of Education. CUSC's mission is to focus faculty/staff capabilities on the needs of its five district partners in order to maximize student achievement. Partnering districts include Cleveland Municipal, East Cleveland, Euclid, Cleveland Heights/University Heights, and Parma. During CUSC's organizational process, four areas of focus were identified: teacher recruitment, preparation and retention; professional development; assessment and accountability; and health and human services. Katie Robinson was named Executive Director in 1998.

CUSC is particularly proud of their professional development initiatives. Part of this effort involves the Speaker Series. Here, experts from around the nation are brought in to discuss relevant education issues. The speakers have the opportunity to dialogue with faculty members and students. An open community forum is provided for the speakers to address other educators and the community. A recent presenter was Dr. Gloria Ladson-Billings, University of Wisconsin-Madison. Dr. Ladson-Billings has written eloquently about successful teachers of African-American children, focusing on how these teachers plan, teach, and interact with children in their classrooms.

Euclid City Schools

Poverty is the main problem in educating children, according to Dr. Kurt Stanic, Superintendent, Euclid City Schools. Fifty percent of Euclid students come from homes where incomes are at or below the poverty level. Compounding the problem is the fact that many children come from single-parent homes or homes where parents rarely, if ever, read to their children. To help compensate for these problems, the district partnered with CUSC to implement the work of nationally known experts Dr. Patricia Edwards and Dr. Ron Ferguson, and Dr. Douglas Clay, CSU's Director of Assessment and Accountability

Superintendent Stanic is a strong believer in using statistical-based decision-making to help improve education outcomes. Dr. Clay's method of disaggregating test data and extracting useful information, often presented graphically, to identify specific areas of instructional weakness has been used in over 100 schools throughout Greater Cleveland. In Euclid, for example, a team led by Dr. Clay found a unit within the geometry curriculum that needed attention. Armed with this information, school personnel formulated ways to improve instruction. Dr. Stanic credits Dr. Clay with helping to raise Euclid's proficiency scores.

Dr. Patricia Edwards, Michigan State University, is an internationally known scholar/author in the areas of family literacy and parent involvement. Dr. Edwards developed a model focusing on effective book-reading behaviors aimed at children and families considered "at-risk." Here, parents teach other parents how to read aloud to their children. She has shown that low-income mothers can assist other low-income parents in sharing books with their children. The Euclid

school district, together with CUSC, is working with Dr. Edwards to develop instructional strategies for reading.

Even though Euclid's proficiency test scores have gone up overall, a disparity between African American and white test scores still exists. CUSC helped raise funding to contract the services of Dr. Ron Ferguson, a Harvard-based authority on the "achievement gap." Euclid purchased a survey tool from Dr. Ferguson that measures student/teacher perceptions of one another. Results of the survey will be used to help develop more effective instructional methods aimed at specific racial groups.

Dr. Stanic sums up the impact of CUSC on Euclid city schools in two words, "improved instruction." The superintendent readily admits that he was somewhat hesitant at the beginning of the collaboration, but now agrees that CUSC is a great partner and bestows on them the title of area coordinator for urban school districts. Dr. Stanic continues, "because of the partnership, Euclid is more focused as a school district with easily understood goals." In the end, the measurable impact of the partnership is Euclid's rise from state-rated academic emergency to academic watch, and the anticipated rating of continuous improvement.

Parma City Schools

Most Greater Clevelanders do not think of suburban Parma as being home to an urban school district. In fact, Parma City Schools is one of the top performing urban districts in the State of Ohio.

Dr. Doug Clay's work in assessment and accountability plays a prominent role in CUSC's partnership with Parma Schools. According to Dr. Craig Phillips, Director, Staff Development, Dr. Clay has the ability to engage educators in a true dialogue. This ability makes extracting useful information out of raw proficiency and non-proficiency test data a productive and enjoyable experience. The result is true data-based decision-making by school personnel.

In order to improve Parma's test scores, it was important that all staff learn to link instructional data with the Ohio Department of Education content standards and effective instructional

practices. Dr. Clay's method has proven valuable in allowing staff to use data and assessment to inform instruction.

According to Dr. Phillips, one of the greatest benefits of active participation in CUSC is networking. If a district is facing any education-related issue, CUSC has a contact that can provide help. Parma administrators found that they are not alone in the problems they face. Through CUSC, school personnel can form collaborations with other member districts. In addition, CUSC has been very helpful in assisting Parma schools in teacher retention and recruitment strategies.

Dr. Phillips believes the area of greatest impact resulting from the Parma/CUSC partnership is improved instruction through data and standard-based decision-making. The result is higher testing outcomes. Finally, with CUSC's support, Parma officials are able to take the state's education vision and integrate it within their neighborhood schools.

Greater Cleveland Education Development Center (GCEDC) and Northeast Regional Professional Development Center (NRPDC)

GCEDC and NRPDC are viewed as a seamless system of two organizations whose focus is professional development for Northeast Ohio educators. GCEDC operates bottom-up in that members provide direction for the center's programming. NRPDC is a top-down organization in which state education officials have leverage in determining center activities. Both centers are housed at CSU's College of Education. Jean Wynne serves as Director for both.

GCEDC was established in 1983 in response to the need to bring together the resources of area school districts and CSU's College of Education to deal with mutual staff development and research issues. The GCEDC governing board is composed of four superintendents from across Northeast Ohio. Dr. Dennis Kowalski, Superintendent, Strongsville City Schools, serves as chair. About 60 school districts and independent schools are members. Each district appoints a liaison to the GCEDC.

Representatives are responsible for the Center's development programming based on input from individual teachers or schools. Programming falls under four general categories: refined

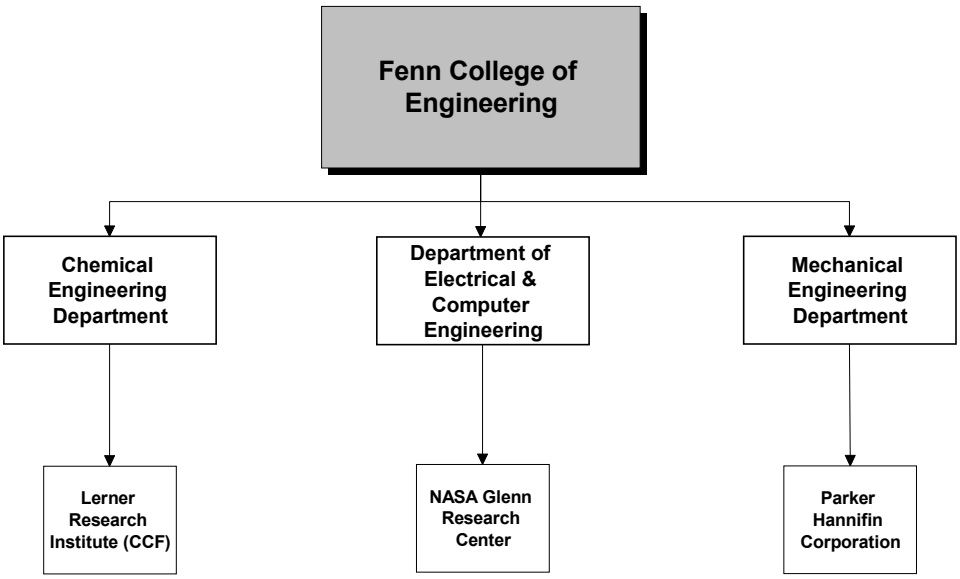
teaching strategies; classroom management and motivation; response to state mandates; and leadership training for administrators. Leadership training is relatively new and expanding in scope. In addition to the general categories, EDC also addresses current and emerging education issues such as proficiency testing.

GCEDC helps districts create an environment that is appropriate to learning so that students are prepared to meet state requirements and are equipped for the rigors of higher education. The basic mission of GCEDC is to help teachers and administrators grow professionally.

In 1992, the Ohio Department of Education funded the establishment of 12 regional professional development centers across the state. GCEDC was awarded a grant to develop a center for the northeast region. The resulting NRPDC is designed to provide ongoing support to schools and districts as they engage in education improvement efforts. Specific goals include furthering school renewal through continuous improvement planning; facilitating implementation of model curricula; integrating appropriate technologies into instruction; and providing support for new teachers in their entry year. The center is very active in intervening in school districts that have been placed on academic watch or academic emergency. Sandy Jaroscak, Director, Curriculum and Professional Development, Lake County Educational Service Center, serves as chair of the NRPDC Governing Board.

FENN COLLEGE OF ENGINEERING

Fenn College is a well-established institution with a 77-year history of excellence. Historically, the college has partnered with businesses and research organizations to provide faculty and students the opportunity to work with cutting-edge technologies that have commercial applications. Current partnering organizations include Lerner Research Institute, NASA Glenn Research Center, and Parker Hannifin.



Department of Chemical Engineering

The Department of Chemical Engineering, with nine full-time faculty members, publishes more than 20 articles per year in refereed journals and receives over $800,000 a year in the form of sponsored funds from state, federal, and private sources. The undergraduate program includes one of the most successful cooperative education programs in the country and has recently received a six-year ABET accreditation.

Lerner Research Institute

In 1998, the Chemical Engineering Department formed a partnership with the Lerner Research Institute, the research enterprise at The Cleveland Clinic Foundation (CCF). The outcome is a Ph.D. program in Applied Biomedical Engineering (ABE) in addition to extensive joint research activities. As the program name implies, its focus is on application. Other biomed programs

train students for employment in pure research. This program trains students to work in industry. There is only one other known program of its type in the country.

CCF approached Fenn because of their need to establish ties with a local university and Fenn's reputation for "hands-on," practical programs. The partnership greatly benefits both parties. Fenn receives the prestige of a formal relationship with the world-famous Cleveland Clinic, plus the opportunity to build a world-class Ph.D. program in a high-tech field. CCF has ready access to the graduate students they require. ABE co-directors are Dr. Ananth Annapragada (Fenn College) and Dr. Ivan Vesely (Lerner Research Institute).

Research activities by the 20 participating CSU and CCF faculty are extensive. Research topics include artificial heart valves, drug delivery systems, magnetic resonance imaging, biomedical imaging, tissue engineering, real-time 3D ultrasound data, microelectromechanical systems, and cell research. A complete descriptive listing is available at: www.csuohio.edu/ccfabm.

The ABE partnership will have an immediate impact. According to a study by Cypress Research, businesses in Northeast Ohio project a 14 percent annual increase in biomedical engineering employment, or 70 new jobs per year. Recently, more than 70 percent of these employees had to be recruited from outside Ohio. This represents a competitive disadvantage to the region. The partnership will begin providing employers with engineers who are trained to think like biologists. Since the ABE program is forward thinking and non-traditional due to its application emphasis, graduates make a seamless transition into industry. The program is also unique in its focus on economic development, as graduate engineers can help create future biomed start-ups in Greater Cleveland.

Two-thirds of the current 24 students in the ABE program, are from out-of-state, many from foreign countries. The first graduate successfully defended his dissertation in 2001 and has accepted a position at CCF. The economic impact of these students is easily seen: living expenses, a $20,000 state subsidy per student per year, and the $12,000 per year tuition. There is a sense on the part of ABE administrators that many of the foreign students will remain in the

Cleveland area after graduation due to their desire to live in the U.S. Typical starting salaries nationwide are in the $65,000 to $75,000 range.

Department of Electrical and Computer Engineering

The Department of Electrical and Computer Engineering is the largest of the academic departments in Fenn College, in both number of faculty and graduate students. Graduate programs emphasize a blend of practical experience and academic achievement. The programs are inter-disciplinary and closely related to advances in technology. Faculty research is often sponsored by organizations seeking to explore farsighted technological challenges. High efficiency solar cells, computer networks, communication systems, and artificial neural networks are just a few areas recently investigated.

NASA Glenn Research Center

NASA Glenn Research Center (GRC) has been engaged in the development of satellite communication technologies and their commercial applications for the last 30 years. With the advent of the Internet, GRC took on a role developing and demonstrating technologies to provision Internet services via its own Advanced Communication Technology Satellite (ACTS). Successes in the commercial sector led to a change in direction of its technical program. To meet NASA's future needs, development of space communication architectures and technologies are now based on Internet technologies. In 1996, Fenn College, through the efforts of Dr. Vijaya Konangi, Department of Electrical and Computer Engineering, saw an opportunity for collaboration with NASA in their development efforts and formed a partnership with GRC.

Today, 150 engineers and scientists are engaged in space communications research at GRC. Many of these personnel are CSU graduates. According to Dr. Kul Bhasin, Space Base Technology Manager, GRC has identified Fenn College as the place to recruit qualified workers.

From NASA’s perspective, each spacecraft is seen as a node in a vast computer network. The objective is to develop a network topology that supports reliable, secure, Internet-like communications across space and down to the desktop computers of scientists and engineers. However, problems in transmitting data in space are far different from those on earth.

Dr. Konangi, along with several graduate students and their GRC colleagues, are investigating spacecraft communication network topologies using advanced simulation tools. This work has potential applications in the health care and communications industries.

In addition, Dr. Konangi's team is designing and testing communication systems for different types of small robots that can be networked in a wireless manner. The robots will be used for scientific explorations under extreme planetary environments. They must be able to gather and transmit significant amounts of information-rich data. This work has applications in earth-bound instruments, controls, and robotics.

Another application of Dr. Konangi's work involves the Federal Aviation Administration (FAA). The FAA is in the process of upgrading its air traffic control systems. They have contracted with NASA to develop networking technologies for air traffic management control. Two CSU graduate students are currently working on this project.

Since NASA-developed technology is in the public domain, program managers like Dr. Bhasin see themselves as angel investors in their external partners. The hope is that the partner would facilitate transfer of the technology for commercial development. This can be done via a start-up company or through GRC's Commercial Technology Office. Currently, GRC and Dr. Konangi are developing relationships with two large Cleveland-area companies to utilize the communications network technology. One medical device company is exploring ways of using the technology to allow their products to communicate information to a remote location.

Department of Mechanical Engineering

The Department of Mechanical Engineering prepares students for a wide variety of technical and professional areas including aeronautics, aerospace, power generation, energy conversion and conservation, transportation, manufacturing, product design, robotics and controls, and others. Because of the breadth of the curriculum, graduates have the adaptability and flexibility to become part of the newest and exciting emerging technologies.

Parker Hannifin Corporation

Parker Hannifin is the world's leading diversified manufacturer of motion and control technologies with annual sales of $6 billion. The company, with headquarters in Mayfield Heights, Ohio, employs more than 45,000 people in 46 countries around the world.

Almost every industry uses motion control, a technology that involves moving components and products from point A to point B. Accuracy in time and space is critical in most applications. Parker realized that in order to maintain their competitive edge, they needed employees who could problem-solve using motion control's tri-technologies: hydraulics, pneumatics, and electro-mechanical. This resulted in the idea of locating motion and control labs at select universities. The first was constructed 10 years ago. Currently, there are nine across the U.S. including one at Fenn College. Dr. Mounir Ibrahim, Mechanical Engineering Chair, was instrumental in securing the lab for Fenn. Dr. William Atherton is responsible for lab course development and instruction.

Recent engineering graduates typically possess a high degree of technical skills, but are not very adept at solving customers' problems. Parker's goal is to hone the problem-solving skills of future engineers using the tri-technologies while they are still in school. The motion and control lab helps Fenn produce problem-solvers for industry. When newly hired engineers go through their initial training, they get much more out of it because they have already seen and used real world equipment to solve real world problems. This results in higher productivity in a shorter time period, benefiting Parker or another employer, and their customers.

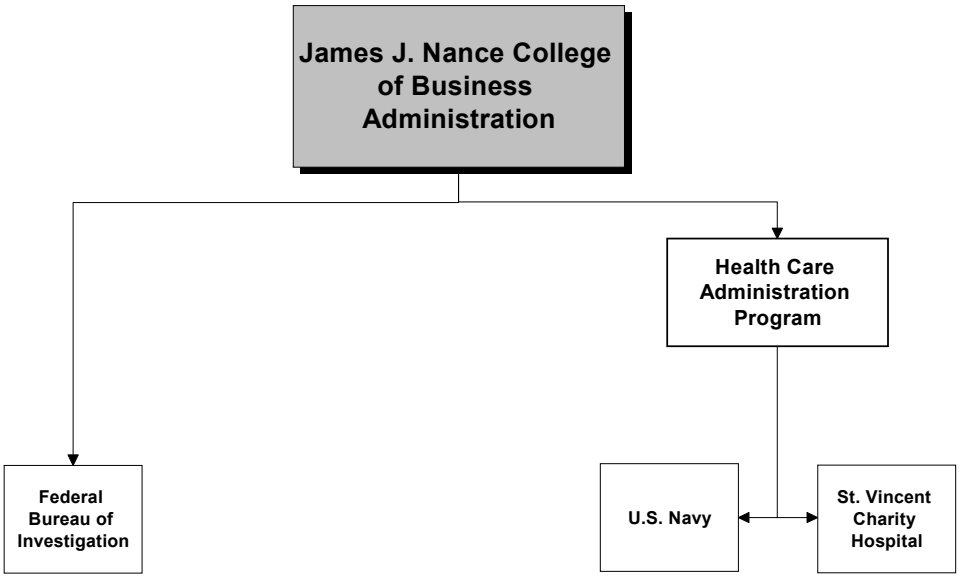
The Parker lab also has a direct impact on Fenn College. As its reputation grows within industry circles, users of Parker equipment increasingly come to Fenn with their application problems. This brings in revenues and provides students with even more opportunities to engage in problem-solving. In addition, the potential for securing National Science Foundation grants to conduct research increases.

Parker believes that the schools housing their labs are unusual in that these institutions listen closely to the needs of industry. The company requires that representatives from each school

visit Parker annually to report on lab usage, number of students, and types of classes being offered. During these meetings, school representatives convey to Parker their capabilities and needs. In turn, Parker is straightforward in their assessment and informs the schools of new skills that industry requires. The company believes this candid exchange leads to research requests coming to the schools from industry.

JAMES J. NANCE COLLEGE OF BUSINESS ADMINISTRATION

CSU's College of Business Administration has an established partnership with the Cleveland office of the Federal Bureau of Investigation (FBI) that is aimed at protecting people and businesses from cyber crime. In addition, strategic alliances have been formed with St. Vincent Charity Hospital and the U.S. Navy through the college's Health Care Administration program.



Federal Bureau of Investigation

Computer-related crime is a growing problem in Cleveland. Primary criminal activities include intrusions, hacking, pornography, and fraud. Even though the FBI's National Computer Crimes Squad (NCCS) is available to investigate major crimes, many local special agents are not fully prepared to assist them. In response, the Cleveland FBI office approached CSU's College of Business in the summer of 2000 to develop a computer-training course specifically designed for their special agents. Keith Slotter, Assistant Special Agent in Charge, brought in some of the FBI's technical personnel along with David Strothcamp, an information systems specialist from the Cleveland Clinic Foundation, to help establish the curriculum.

The course, which is titled *Computer Training for the FBI*, is divided into two sections. The first provides background information on computers and networking systems. The second focuses on investigating computer crime. Specific topics include computer hardware and software, the

Internet and intranets, how networks work, computer hacking and cyber terrorism, forensic investigation procedures, e-mail, and legal issues.

Community impact is made through the increased skill level of the agents, who achieve a higher level of understanding of computer systems. This increases their effectiveness in investigating cyber crime. Sixty-six agents have already completed the course. Response by attendees has been very positive, so much so that other FBI offices are looking at the program. Beginning this year, other federal agencies will begin taking the class. A more advanced class plus the possibility of attending via teleconferencing are in the discussion phase.

Dr. Mike Lin, Associate Professor of Computer & Information Science, has recently been appointed to facilitate the CSU-FBI partnership. Dr. Lin sees the course as only the beginning of a much broader initiative leading CSU to become a center for computer security. No other university in the region has significant expertise in this field. Three areas of specialization envisioned by Dr. Lin include: intrusions, including computer viruses and unauthorized access into a company's computer system; theft, including the interception and stealing of money transfers; and pornography, especially related to children.

The computer crime course is one of four partnering activities between the Business School and the FBI. Agents are guest speakers in marketing and accounting classes. Topics range from ethics to corporate fraud. CSU students also serve as interns in the local office. Here they are assigned to assist in major undercover investigations. Many of these students are considering careers with the FBI. Finally, CSU personnel participate in the Citizens' FBI Academy. The academy's mission is to provide education and awareness of bureau operations and jurisdiction and to build relationships and partnerships in outreach and crime prevention efforts. It is structured as nine, three-hour sessions held at the Cleveland headquarters.

Health Care Administration Program

Since its establishment in 1982, the Business College's Health Care Administration Program (HCA) has developed a record of excellence. HCA is a specialization within the Master of Business Administration program. It is designed to provide graduate education for individuals

interested in preparing for or furthering their careers in the management and administration of all health care delivery entities. CSU is the only accredited program in Northeast Ohio and one of three Accrediting Commission on Education for Health Services Administration (ACEHSA) accredited programs in the State of Ohio. In addition, the MBA in Health Care Administration is one of 13 programs in the nation to achieve dual accreditation from ACEHSA and AACSB (Association to Advance Collegiate Schools of Business International). Dr. Brenda Marshall is the program's director.

St Vincent Charity Hospital

The Central neighborhood, which borders Cleveland's downtown business district, has the highest concentration of public housing in Cuyahoga County. St. Vincent Charity Hospital is situated on Central's western edge. The hospital's outreach staff has the responsibility of furthering its mission of serving Central's economically disadvantaged residents. Peter Whitt, Community Outreach Social Worker Specialist, was given the assignment to structure the hospital's Health Advocacy Program, a health intervention service that focuses on preventative health care for neighborhood residents.

The collaboration between St. Vincent and CSU's HCA program began in summer 2001. Dr. Marshall thought that her students could provide valuable input because of their backgrounds as practicing physicians and other health care providers. The students eagerly took on the challenge of addressing questions regarding how health care intervention could be implemented and who should be affected. In the fall, students presented their recommendations to St. Vincent personnel. Some of the content was incorporated into the hospital's planning process.

The St. Vincent/CSU alliance reaps benefits to both partners. Student-designed plans supported the vision and structure of Mr. Whitt's program. It provided the hospital with the confidence that the direction in which they were heading was correct. The hospital provided the students an opportunity to put their classroom learning into practice in a real world application. The work done by CSU developed into an ongoing resource tool.

St. Vincent has received a grant that will allow it to begin implementing the Health Advocacy Program. About 400 families in the Central neighborhood are targeted for intervention services including connection with primary care physicians, flu and pneumonia shots for at-risk persons, immunization shots for children, behavioral changes aimed at preventative health care, and diet considerations.

An open level of communication exists between CSU and St. Vincent Hospital. Any support that is seen as mutually beneficial continues to take place.

United States Navy

LT. Kathy Schnapp is a 20-year Navy veteran and a professional health care administrator. She currently serves as the Navy's Health Services Collegiate Program recruiter in northern Ohio. Currently, the Navy only accepts graduates of ACEHSA accredited universities into their own Health Care Administration (HCA) program. CSU is only one of three universities in the State of Ohio to hold the ACEHSA accreditation.

CSU graduates entering the Navy's HCA program first attend Officer Indoctrination School (OIS). OIS teaches basic officer skills and provides an introduction to Navy life and military protocol. Their first assignment is typically at a large naval facility in the continental U.S. The remainder of an officer's three-year commitment can be at various naval facilities across the world. CSU students who sign a Navy contract are provided free medical and dental care in addition to a $2,000 monthly stipend while attending school. This covers tuition plus a little extra income for living expenses.

It's usually difficult to break into the HCA field in the private sector without demonstrable experience in a health care setting. In contrast, the Navy places many participants into management and leadership rolls immediately, providing the experience that the private sector demands.

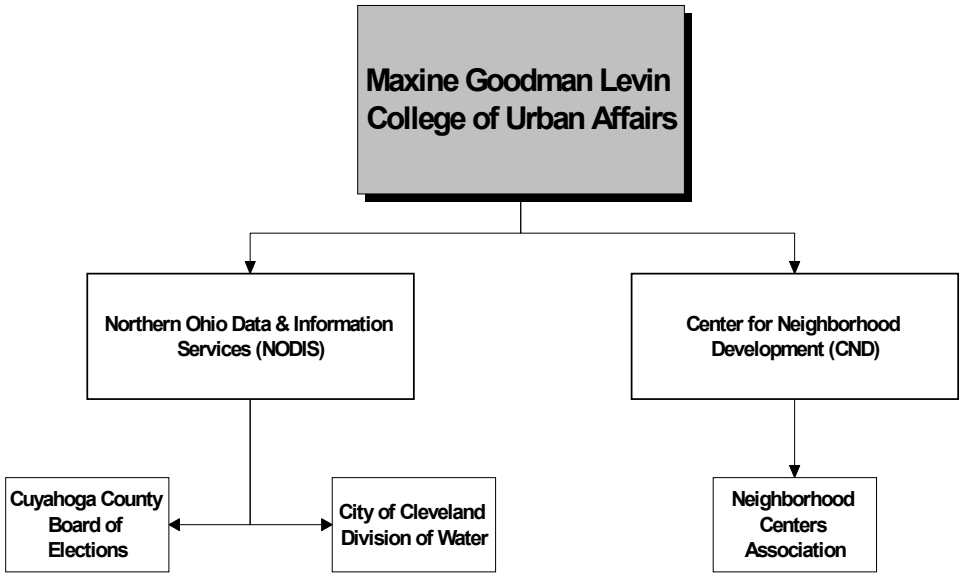
The CSU/Navy alliance will have a long-term impact on the community. Upon leaving military service, those who choose to return to Cleveland come back as experienced HCA professionals.

Their experience will be critically important to the effective and efficient delivery of health care services.

After only one year of existence, the CSU/Navy alliance has produced one commissioned officer who is now working in Bethesda, Maryland. Two other students are currently in process. The Navy's goal is to graduate four students into their program per year.

MAXINE GOODMAN LEVIN COLLEGE OF URBAN AFFAIRS

The Maxine Goodman Levin College of Urban Affairs has an outstanding record of working with private, nonprofit, and public sector organizations in Greater Cleveland through their research centers and community outreach programs. An on-going partnership exists between the Center for Neighborhood Development and the Neighborhood Centers Association that is aimed at leadership skill-building in community activists. The Northern Ohio Data & Information Service has worked extensively with Ohio's 88 county boards-of-election in revising voting precinct boundaries and with the Cleveland Division of Water in development of a geographic information system.



Center for Neighborhood Development

The Center for Neighborhood Development provides assistance to nonprofit neighborhood-based development organizations, helping them implement a broad range of housing and economic development projects. Philip Star is the Center's director.

Neighborhood Centers Association

The Greater Cleveland Neighborhood Centers Association (NCA) is the first metropolitan-wide organization in the country with responsibility for planning, coordinating, and budgeting neighborhood centers' work. NCA provides services to more than 75,000 residents in Cuyahoga County. Services range from early childhood programs through elderly escort services and transportation. Jacquie Gillon is the center's community organizer.

In 1992, NCA approached the Center for Neighborhood Development (CND) for help in establishing a program to build leadership and conflict resolution skills in neighborhood activists. Program alumni would have a built-in network of fellow activists to assist them in working on common issues and providing needed support. The NCA-CND partnership resulted in the creation of Neighborhood Leadership Cleveland (NLC). Community residents, NCA board members, and agency directors contributed to NLC's design.

NLC participants are primarily residents of the city of Cleveland and its first ring suburbs. However, there have been students from as far as Chardon and Medina. In spring 2002, NLC graduated its 500th participant.

In 1995, the second graduating class of NLC established the Greater Cleveland Neighborhood Forum. The forum acts as a clearinghouse for setting a needs agenda for people in city neighborhoods and provides an action blueprint to meet these needs. Over time, several themes have emerged from the needs agenda: youth and education, health and the environment, and jobs and economic development. The need for good paying jobs is always number one on the agenda. Past forum activities included facilitation of a partnership between Shore Bank and the Kellogg Foundation focusing on workforce development in the Glenville neighborhood. It was also instrumental in formulating plans for a new Juvenile Justice Center that was presented to Cuyahoga County Commissioners.

Apart from the forum, one NLC graduate facilitated the opening of Freedom School in the Fairfax neighborhood. Here parents work 10 hours per week in return for free tuition. The school, which was four years in the making, currently has 50 students enrolled.

Northern Ohio Data & Information Service

The Northern Ohio Data & Information Service (NODIS) serves as a regional affiliate of the U.S. Census Bureau and provides northern Ohio residents access to census and other data resources. It also provides geographic information systems (GIS) services and training. Dr. Mark Salling is Director.

Cuyahoga County Board of Elections

A fortuitous meeting in 1991 involving James Tilling, former chief of staff, Ohio General Assembly Majority Caucus; Mark Salling; and former Levin College Dean, David Sweet, was the beginning of a partnership involving Levin College, governmental agencies within Ohio, and Ohio University (OU) that continues today. The Legislative Services Commission (LSC) needed assistance developing a 1990 common redistricting database for Ohio. NODIS was able to use its census and geographic information systems (GIS) expertise to help produce the database that all interested parties used in the 1991 redistricting process. The Institute for Local Government Administration and Rural Development (ILGARD) at OU was brought in as a partner.

NODIS and ILGARD spent the summer and early fall of 1991 on the project. Substantial investments were made in GIS resources, including computers, plotters, and software. At CSU, about 25 students were hired to work on digitizing 15,000 precincts in the state. The experience raised the GIS skill levels of students and staff alike.

Prior to the 2001 redistricting effort, NODIS and ILGARD were awarded a $488,000 contract by LSC to assist each of the 88 county boards-of-election in revising voting precinct boundaries so that, geographically, precincts are made up of combinations of whole census blocks. This work greatly facilitates the political redistricting process. In addition, NODIS and ILGARD received a $260,000 contract from the state to construct the 2001 common redistricting database.

Expertise among faculty, staff, and students in the use of GIS technology grew significantly due to the state projects. As a result, over $2.5 million worth of grants and contract funding related to this expertise has been awarded to the college over the past 10 years.

As a result of LSC-related projects, the Cuyahoga County Board of Elections has adopted GIS technology, received training from NODIS, and is revising precincts electronically on a city-by-city basis. The county will be able to save taxpayer money by reducing the number of precincts in a district. Other Ohio counties are also adopting GIS technology with NODIS' assistance.

City of Cleveland – Division of Water

In the late 1990s, the city of Cleveland's Division of Water (CWD) embarked on an ambitious project to upgrade its distribution system documentation through the development of a GIS. The GIS would be integrated with a computer-based hydraulic simulation model and water quality model. Simulation is used for performance assessment, asset management, distribution system design, and maintenance. The quality model is used to analyze water degradation across the system.

Metcalf & Eddy, the project's prime contractor, awarded NODIS a $400,000 contract to perform portions of the project. NODIS' responsibilities included software evaluation and recommendations; basemap evaluation (base mapping consists of the county's digital orthophotography, associated planimetry, and cadastral databases); database design and facilitation including all relational aspects; special mapping; GIS tools development; and management of the digital conversion of distribution infrastructure maps. In addition, NODIS created a demand allocation tool that allows consumption data from the billing database to be imported into the hydraulic model and was instrumental in integrating software components.

One of the biggest impacts of the project on CWD's 400,000 customers is the immense timesaving related to information gathering. A task that would have taken weeks to complete can now be done in a matter of hours. This efficiency, combined with the ability to monitor trends, is a great help in quickly identifying problems, leading to improved asset management. From an analytical perspective, CWD engineers will be able to anticipate the effects caused by a disruption occurring anywhere within the distribution system. This ability provides the basis for more effective decision-making, leading to even higher system performance and efficiency.

CSU'S CENTERS AND INSTITUTES

Many research initiatives and academic programs are spread across multiple departments, colleges, and institutions. To provide a coordinating and support structure for research, application, and inter-collegiate education, the university established the following organizations: Advanced Manufacturing Center; Environmental Science, Technology, and Policy Institute; and Biomedical and Health Institute (BAHI).

Advanced Manufacturing Center

The Advanced Manufacturing Center (AMC) is a partnership between CSU and CAMP Inc. It was created in 1984 to strengthen and grow regional companies through the development and installation of manufacturing technologies. To support their dual mandate of technology support and education for Northeastern Ohio, AMC employs 30 technical staff and 20 undergraduate engineering students complemented by professors and subcontractors. Dr. Phillip Sanger is Director.

AMC's focus on technology support comes through the provision of custom solutions to manufacturers in the areas of process improvement, automated machine systems, and new product development. A niche area for AMC is glass-forming technology, led by Dr. Rimon Rekhson. Here, glass-processing problems for all industry segments, including flat glass, optical and structural fiber, and container and sealed products, are solved.

Today, many young people have little knowledge of engineering or manufacturing as a career option. Most parents and teachers have no exposure to the highly technical manufacturing world. AMC's K-to-Gray education program is dedicated to providing awareness of engineering activities for teachers and students through summer camps aimed at middle school students and an undergraduate work-study program.

Since 1999, AMC's contribution to the Greater Cleveland economy has been significant. AMC's delivery of more than $10 million of automated technology through 300 fixed price contracts generated a customer economic impact of $78.2 million in sales and the retention or

creation of over 700 jobs. AMC provided over $600,000 in work-study wages and thousands of hours of hands-on, practical experience for CSU undergraduate engineering students. In addition, $2 million in industrial contracts were secured for CSU faculty. Finally, more than 170 teachers and 21,000 parents and students were involved in science, math, engineering, and technology (SMET) education.

AMC's customer base is truly diverse. Customers range from steel makers to producers of chocolate candy. One of their success stories is Squareshot Golf.

Squareshot Golf

Squareshot Golf is a startup company nurtured by AMC. Founded by entrepreneur, Tom Moran, the company's primary product is a mechanical golf instructor. Moran formerly owned a manufacturing firm in which motion control technology was integral to the manufacturing process. After selling the firm in the mid 1990s, Moran began thinking about how he could apply motion control technology to more human endeavors, such as swinging a golf club.

Using the expertise of an orthopedic surgeon and several Professional Golfers' Association (PGA) participants, Moran analyzed golf swings using stick-figure robot golfers that he constructed in his home. In 1997, Moran had an initial design in place for a machine called a Lateral Vertical Rotator (LVR). At this same time, Moran's wife sustained a serious back injury, causing him to consider more closely how his work related to orthopedic issues.

Mr. Moran then partnered with AMC to take the project from concept stage into design, engineering, and prototype construction. Several iterations of the machine were built. Each time, Moran did the design work at home, received feedback from the PGA, and then had AMC refine the design and engineer it for manufacturability. As the design evolved, LVR was renamed the ProMotion player development machine. Moran's wife began using LVR prototypes for her rehabilitation. This caused Moran to think in much broader terms about health/rehab applications for the human motion technology he helped develop.

Finally, in January 2001, AMC began a production run of 25 machines that would be sold on the open market. By year's end, 15 were sold at a unit price of $12,000. Satisfied customers have nicknamed the machine Mighty Mo. Local golf facilities that use Mighty Mo include Firestone Country Club, Canterbury Golf Club, and Mayfield Country Club. Golf clubs in Arizona and California have also purchased units.

AMC is not the only partner that Moran has at CSU. The Applied Health Sciences (AHS) Department worked with him to confirm the accuracy and repetitive nature of the golf swing motion engendered by Mighty Mo. In addition, LVR became part of a clinical trial involving stroke rehabilitation conducted by Professor Ann Karas, Director of the Motion Analysis Lab within the AHS Department. Here, stroke victims are given help in redeveloping their motor skills.

Mr. Moran is a staunch AMC supporter because of their willingness to work with the unconventional entrepreneur. He feels that AMC understand the needs of a start-up organization and provides the forum required for success. In addition, he sees AMC as providing CSU engineering students with the opportunity to be integrally involved in the development phase of a new product, an invaluable experience for a young engineer.

Environmental Science, Technology, and Policy Institute

The Environmental Science, Technology, and Policy Institute's (ESTPI) mission is to improve the region's problem-solving capabilities with regard to environmental questions. Ultimately, ESTPI is striving to become the principal regional resource and focal point of information and research on environmental issues for government, industry, and the public. A partnership with the Cuyahoga Valley National Park and John Carroll University are one means of fulfilling their mission. Beth Cline is the Institute's Director.

Cuyahoga Valley National Park and John Carroll University

The Cuyahoga Valley National Park (CVNP) is a natural attraction for people who conduct research in the areas of ecology, geology, and environmental biology. Researchers see the park as an undisturbed laboratory covering 32,000 acres. Michael Walton, CSU Biology Professor, is one such scientist. Dr. Walton, together with a graduate student, conducted a study that assessed

the coyote population in the park. The personal relationship that developed between Dr. Walton and CVNP formed the basis for a partnership between CSU's Environmental Science, Technology, and Policy Institute (ESTPI) and the National Park. The partnership has been expanded to include John Carroll University (JCU).

CVNP owns many historic buildings that are spread across its land. They approached ESTPI to determine their interest in using one of them as a research base. ESTPI selected an old homestead in Peninsula. After a $100,000 renovation, the homestead became the Woodlake Environmental Field Station, the centerpiece of the partnership. The park maintains the outside and ESTPI is responsible for the interior. Beth Cline is the field station's Board Chairman and oversight manager. Other board members include Mike Gates (CSU), Mike Walton (CSU), Miles Coburn (JCU), Jeff Johansen (JCU), Garree Williamson (CVNP), and Meg Plona (CVNP).

Although Woodlake is not used on a daily basis, it is utilized for teaching and research. The farmhouse has a modern kitchen and sleeping accommodations for several people in the event that a research project involves extensive nighttime work. In addition, there is ample laboratory and meeting space. A grant from the National Science Foundation (NSF) that is being used to implement a five-year strategic plan assures that Woodlake's potential will be realized.

Results of joint studies conducted by CSU, JCU, and the National Park help shape policies that assist park personnel improve the management of CVNP's assets. Some of their research focuses on proactive problem-solving. An example is assessing coyote and deer populations in the park and potential damage caused by these animals to park property and the surrounding area.

The partnership has had a tangible impact on CSU students and people living in and around CVNP. Students working at Woodlake with park scientists learn how to apply their academic training to real life issues and problems. Research results assist park neighbors with environmental issues such as water quality. This assures quality-of-life improvements not only for area residents, but people living in other parts of Northeast Ohio.

Through ESTPI's outreach programs, people from urban areas are introduced to the park. These programs have a way of changing the participant's value systems and lives for the better on a very personal level.

Biomedical and Health Institute

The Biomedical and Health Institute (BAHI) was initiated in December 2001. Its purpose is to enhance and integrate the areas of biomedical and health sciences and health policy and management in order to promote research and education to address critical issues and foster regional economic development. The mission of BAHI is to establish CSU as a leader in research, development, and technology transfer in biomedicine, biotechnology, and health care including commercialization of products and technologies to foster economic growth in the region and state.

PARTNERSHIP SUMMARY

The number and diversity of organizations that have established relationships with CSU surprises many people, both internal and external to the university. Unfortunately, this study can only provide a snapshot of CSU's extensive community outreach. As shown in figures 10 and 11, the university serves almost every type of organization, from the U.S. military to private sector corporations to neighborhood community development organizations and more.

Representatives of some organizations felt that their relationship with CSU is not really a partnership, but rather a strategic alliance or working relationship. However, no matter what term the external 'partner' used to describe the relationship, three themes emerged from almost every conversation. First, the external organizations see value in working with CSU. Second, they see CSU as a 'hands-on' university – a place where things get done. Finally, they believe the university is a very valuable resource in the city that more people need to discover.

Figure 10. CSU Significant Community Partnerships and Strategic Alliances

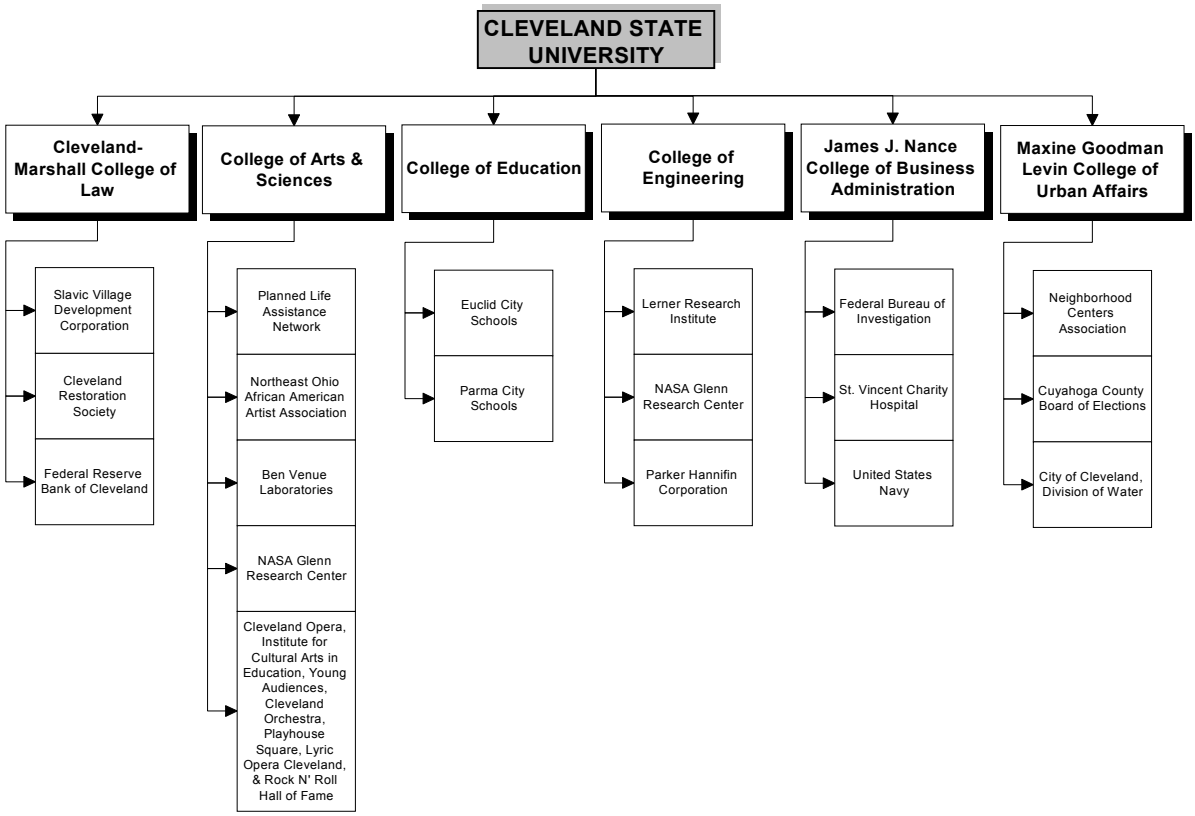
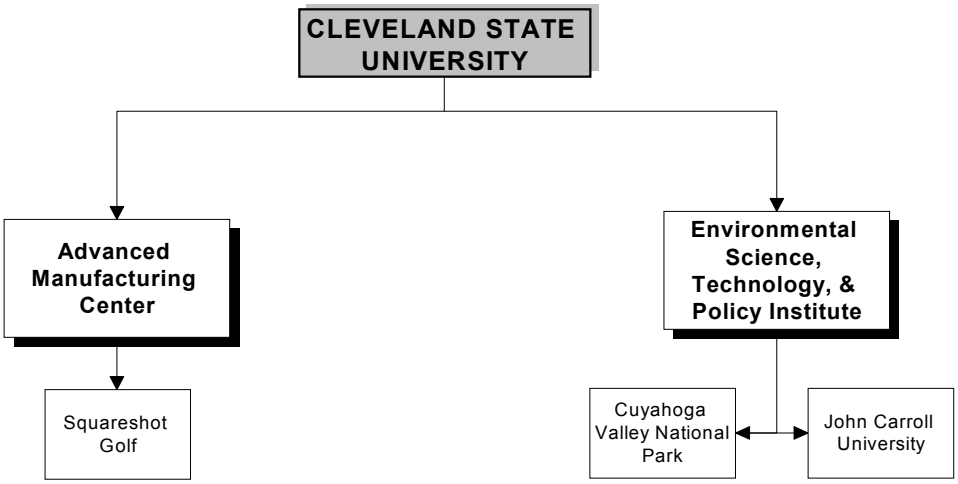


Figure 11. CSU Significant Community Partnerships and Strategic Alliances



DISTINGUISHED ALUMNI OF THE CLEVELAND STATE UNIVERSITY

In its 38-year history, CSU has graduated thousands of students who have gone on to distinguish themselves in their chosen fields. Alumni who are profiled in this section represent the private, nonprofit, and public sectors. Some are well known, while others have worked quietly behind the scenes during their careers. One common trait shared by all these alumni is their excellent representation of the university throughout the years.

Deans of the six university colleges were asked to nominate alumni whom they felt contributed significantly to the community. Information presented here was received from the respective college or CSU's Alumni Association Office.

CLEVELAND-MARSHALL COLLEGE OF LAW

George W. White, United States District Judge, Retired

After graduating from the Cleveland-Marshall College of Law in 1955, Judge White opened a general law practice and became a Domestic Relations Referee in the Cuyahoga County Court of Common Pleas. He was an attorney with the Civil Branch of the Legal Aid Society and from 1963 to 1968 served as a Cleveland City Councilman for the Lee-Harvard neighborhood. In 1968, he was elected judge of the Court of Common Pleas. In 1980, President Carter appointed him judge for the U.S. District Court of Northern Ohio in Cleveland, where he became Chief Judge. After stepping down from the bench, Judge White remains active. Currently, he works as an attorney for the law firm of Berger & Zavesky Co., and serves as director of the Cleveland Browns Foundation. Judge White has been particularly dedicated to improving the quality of life in Northeast Ohio's black community. He was instrumental in organizing the United Black Fund of Cleveland, Inc., which raises and grants money to nonprofit groups, such as the Cleveland Food Basket Program, the East Side Catholic Shelter, and Karamu House.

Robert Goldberg, President, Ohio Savings Bank

Mr. Goldberg is a 1965 graduate of Cleveland-Marshall College of Law. He is President of Ohio Savings Bank, one of the fastest-growing and most profitable financial institutions in the country. Ohio Savings Bank has grown from a local savings and loan to a nationally recognized leader in retail banking, wholesale mortgage lending, and construction lending. Mr. Goldberg is active in the Northeast Ohio community. He has served as chair of Jewish Community Federation and as a board member of the Cleveland-Cuyahoga County Port Authority. He is a member of the Cleveland State University Foundation and the Euclid Avenue Task Force of the Greater Cleveland Growth Association.

Joseé C. Feliciano, Trial Lawyer, Baker & Hostetler

A 1975 graduate of Cleveland-Marshall College of Law, Mr. Feliciano has served the city of Cleveland as Chief Prosecuting Attorney and is presently an active trial lawyer engaged primarily in general corporate litigation at the law firm of Baker & Hostetler. He is a past chair of the American Bar Association's section on Dispute Resolution, former President of the Cleveland Bar Association, former Chair of the Hispanic Leadership Development Program, and was a founder of the Ohio Hispanic Bar Association.

Lesley Brooks Wells, United States District Judge, Northern District of Ohio

A 1974 graduate, Judge Wells is noted for her ability to explain constitutional rights in plain language and strives to empower every individual with the capacity to participate in the law. Her cases range from felonies to serious civil suits, which include disputes over environmental issues like toxic waste disposal. Throughout her career, Judge Wells has been at the forefront of positive change. She was the first judge in Northeast Ohio to issue orders to board up crack houses. As a member of the Legal Aid Society, she worked to make acts of domestic violence enforceable with legal action. At the Domestic Division of the Common Pleas Court, she set aside a room in the courthouse specifically for children of divorce cases, so they would not be exposed to the disputes of the courtroom. She has been recognized by the Women's City Club with an award for Compassionate Judicial Service, and has also received an Award for Outstanding Service to WomenSpace, which assists organizations like the Girl Scouts and the Rape Crisis Center. Judge Wells has also served as an adjunct professor and member of the

visiting committee to both the Maxine Goodman Levin College of Urban Affairs and the Cleveland-Marshall College of Law. Currently, she holds the position of United States District Judge, U.S. District Court, Northern District of Ohio.

COLLEGE OF ARTS AND SCIENCES

Nche Zama, M.D., Ph.D., Chief, Cardiothoracic Surgery, Guthrie Clinic

Dr. Nche Zama has earned international acclaim in the field of cardiothoracic surgery. After graduating from CSU with a degree in chemistry in 1983, Dr. Zama went on to earn a medical degree at the University of Cincinnati. He has made significant contributions in new techniques for bloodless open-heart surgery. While serving as a visiting scholar at the University of Paris, he worked alongside the developer of the Carpentier artificial heart valve. Dr. Zama recently led a worldwide conference and visited various medical centers, teaching his techniques to performers of heart surgery in third world countries. Currently, Dr. Zama serves as Chief, Section of Cardiothoracic Surgery at the Guthrie Clinic in Sayre, Pennsylvania.

Raymond L. Pianka, Judge, Cleveland Municipal Housing Court

Raymond Pianka has ceaselessly devoted his talents to the development of Cleveland's communities. Before graduating in 1973 with a bachelor's degree in political science, Judge Pianka helped found the Detroit Shoreway Community Development Corporation, one of the first such groups in Cleveland. He is also the founder and first president of the Cleveland Neighborhood Development Corporation, a citywide trade association for neighborhood-based community development corporations. In 1985, he was elected to the Cleveland City Council where he served 10 years, sponsoring legislation to improve the quality of life in neighborhoods. Judge Pianka has been presiding over the Cleveland Municipal Housing Court for the past seven years, initiating programs such as the Selective Intervention Program, which provides assistance for homeowners facing hardships instead of facing prosecution. His innovative ideas have been replicated across the country.

Maria Isabel Boss, Executive Director, Cleveland Scholarship Program

Maria Isabel Boss came to the United States from Columbia as an American Field Service student and decided to make America her home. She graduated from the College of Arts and Sciences in 1977. Ms. Boss is now Executive Director of the Cleveland Scholarship Program, Inc. (CSP). CSP is recognized as one of the nation's most successful private-sector initiatives in helping students from a metropolitan area find opportunities to further their education beyond high school. Before joining CSP, Ms. Boss was executive assistant to the Director of the Cuyahoga County Department of Entitlement Services. Her responsibilities included monitoring the Department's $51 million budget. Ms. Boss serves as a trustee for the National Conference of Christians and Jews and the Cleveland International Program. She has also worked with Esperanza, Inc., the Children's Museum, the Women's Community Foundation Creative Philanthropy, and the Hispanic Leadership Program. Additionally, Ms. Boss has shown her commitment to CSU through her service on the Alumni Association Board of Trustees.

Mary Grimm, Author, Associate Professor, Case Western Reserve University

A native Clevelander, Mary Grimm has authored a list of published stories that have appeared in popular magazines like *The New Yorker* and *Redbook*. In 1993, a collection of her short stories and a novel were published by Random House. As a 1989 recipient of a master's degree in English, Ms. Grimm contributes back to the educational role that helped advance her career. She teaches in the English Department at Case Western Reserve University and has conducted workshops at the Antioch Writers' Conference. She has spoken at the Midwest Writers' Conference and the Northwest Writers' Forum in Toledo, Ohio. Ms. Grimm views all her accomplishments as her real success story. She believes that the most important aspect of her education has been to learn how to think and how to fit herself into the world.

COLLEGE OF EDUCATION

Dr. Carolyn Jefferson-Jenkins, President, League of Women Voters of the U.S.
One of the first graduates of CSU's urban education program, Dr. Jefferson-Jenkins earned her Ph.D. in 1991, and has dedicated herself to education and democratic values ever since. As both a teacher and school administrator, she has worked in the East Cleveland, Cleveland, and Cleveland Heights-University Heights school districts for over 20 years. She is now in her second term as president of the League of Women Voters of the United States, the first African American to head the 80-year-old organization. In addition, Dr. Jefferson-Jenkins has served as senior associate for America's Choice Schools at the National Center on Education in the Economy in Washington, D.C. She has also served a vital role in numerous voter enfranchisement campaigns and was listed in the 2001 edition of *Who's Who in America*.

Joseph Bergant II, Superintendent, Fairport Harbor Schools
Since receiving his master of education degree in 1984, Joseph Bergant has worked tirelessly to expand the definition of a vibrant community. As former principal of Royalview Elementary School in Willowick, Mr. Bergant constantly brought in performing arts groups that added to the cultural experiences of his students. Under his leadership, Royalview received an International Invitational School Award and a National Blue Ribbon School Award. Royalview was also named an OAESA Hall of Fame School. In 1998, Mr. Bergant was named Superintendent of the Fairport Harbor Schools.

Katie Shorter Robinson, Executive Director, Center for Urban School Collaboration
Katie Shorter Robinson received her master of education degree in 1973. Since then, she has been recognized as a dedicated, committed, and competent educator. Ms. Robinson has excelled as a teacher, reading specialist, and principal and distinguished herself as a respected leader in the Euclid City Schools, having served as Director of Human Resources. Among the many awards she has received are the National Science Award as Principal of Canterbury School and the Golden Achievement Award from the National School Public Relations Association. In 1998, Ms. Robinson was named Executive Director of the Center for Urban School Collaboration (CUSC) at CSU. CUSC's mission is to focus faculty/staff capabilities on the

needs of urban school districts in order to maximize student achievement. She has also served on several boards and organizations, including the Teaching Leadership Consortium at CSU, the John Carroll Center for Professional Development, the Women's City Club, The Links, Delta Sigma Theta Sorority, and Antioch Baptist Church. Ms. Robinson is also an alumna of Leadership Cleveland, Class of 1990.

Nicole Howell Crawford, Founder and Executive Director, Broken Connections

Nicole Howell Crawford decided to start Broken Connections, a nonprofit homeless shelter in East Cleveland, after working briefly as a volunteer helping the chemically dependent. Started in 1996, the shelter has helped more than 20 homeless women with children find a home. Ms. Crawford lives at the shelter, but manages it as just part of her schedule. She also works full-time at the Ohio Lottery Commission as an administrative assistant and attends school part-time. A consummate servant to the disadvantaged, Ms. Crawford has made numerous personal sacrifices on behalf of the shelter, including refinancing her home twice to keep its operation afloat. She recently won a grant from the Job Corps to renovate the home. Ms. Crawford is a 1994 graduate of the College of Education.

FENN COLLEGE OF ENGINEERING

Donald E. Washkewicz, President and CEO, Parker Hannifin Corporation

Donald Washkewicz joined Parker Hannifin after graduating from Fenn College in 1972 with a bachelor's degree in mechanical engineering. His first assignment was to develop new hoses, for which he earned three patents. As general manager of the Parflex Division, the small business unit grew to a workforce of 400 people with more than $100 million in annual sales. Upon becoming President and Chief Operating Officer in February 2000, Mr. Washkewicz was instrumental in acquiring Youngstown-based Commercial Intertech and the Gresen Hydraulic unit from Dana Corp. These deals were worth $473 million and $128 million, respectively. After 28 years of hard work and dedication, Mr. Washkewicz acceded to the position of President and CEO in July 2001, and now heads the executive and visionary directives of the $6 billion a year company.

Stephen L. Guard, Civil Section Manager, CT Consultants, Inc.

Stephen Guard received a bachelor's degree in civil engineering in 1981. Currently, he is the Civil Section Manager for CT Consultants, Inc. Mr. Guard has extensive experience in the engineering and management phases of private and public works environmental projects including surveying, planning, design, and construction administration. His professional accomplishments include innovative technology design for the Philip Q. Maiorana Wastewater Treatment Plant and an energy-efficient aeration system for the Fremont, Ohio Wastewater Treatment Plant. Mr. Guard has served as village engineer for North Perry, Ohio, and, in addition to his duties at CT Consultants, currently serves as the city engineer for Eastlake, Ohio. With all his professional commitments, Mr. Guard still finds time to be active in civic and community organizations including the Kiwanis, the Eastlake Chamber of Commerce, and as a coach for Christian Youth Organization sports.

George J. Palko, President, Great Lakes Construction

George Palko is a two-time CSU alumnus, earning a bachelor's degree in Civil Engineering in 1988 and a MBA in 1993. As a student in CSU's cooperative education program, Mr. Palko received hands-on training at the Great Lakes Construction Company. Upon graduation, he continued to work for the firm, progressing from in-house engineer to superintendent of various

projects including the $7.8 million Ohio Department of Transportation Project I-90 and the $9 million ODOT S.R. 2 Project in Lorain and Erie Counties. In August 1997, Mr. Palko was named president of Great Lakes Construction. As president, he has quadrupled the number of co-op students the firm employs and serves as a member of Fenn College's Visiting Committee. In addition, Mr. Palko has taught a class in Construction Planning and Estimating as an adjunct faculty member.

Dr. George Y. Baaklini, NASA Glenn Research Center

Dr. George Baaklini holds three degrees from Fenn College including a doctorate in civil engineering-structural mechanics, which was awarded in 1991. He has been a research scientist, Group Leader, and Project Manager at NASA Glenn Research Center since 1988. After earning his Ph.D., Dr. Baaklini became an adjunct faculty member in the College of Graduate Studies where he taught Nondestructive Evaluation, a course he developed for master's and doctoral students. Through the years, he has supervised two Ph.D. students, seven master's students, and three graduate projects. He is now advising two students. A member of Civil Engineering's Visiting Committee, he uses his knowledge from industry to advise the department on curriculum and planning issues. Through Dr. Baaklini's efforts, more than $1.9 million in research funds have come to Fenn College and its faculty.

JAMES J. NANCE COLLEGE OF BUSINESS ADMINISTRATION

Lloyd G. Trotter, President and CEO, GE Industrial Systems

Lloyd Trotter began his career at GE before receiving his bachelor's degree in 1973. Since his start as a field service engineer in 1970, Mr. Trotter has risen to the position of President and CEO of GE Industrial Systems, a $6 billion business that employs 40,000 people in over 90 manufacturing facilities worldwide. He credits his academic experience at CSU with giving him a competitive advantage in the work place and commends the faculty for fostering and shaping leadership traits. Mr. Trotter refers to CSU as the "Harvard of the Midwest" and attributes the skills he acquired while a student to accelerating his career. He is active in many professional and community organizations and is known for his commitment to volunteerism and mentoring.

Monte Ahuja, Chairman and CEO, Transtar Industries

Monte Ahuja's plans for venturing into the world of business emerged from a class project in the entrepreneurship course he took as part of his MBA program, from which he graduated in 1975. As founder of Transtar Industries, Mr. Ahuja took what started out as a business with two employees and virtually no capital and turned it into the world's leading distributor of automotive transmission kits and components. He is grateful for the individual attention and analytical guidance afforded to him by his professors and praises the curriculum as both enlightening and practical. Although he received his engineering degree from Ohio State, he refers to CSU as his alma mater and describes it as the place where he learned to transform his dreams into reality. Mr. Ahuja served as Chairman of CSU's Board of Trustees from 1992 to 1998. During its dedication in 1999, the new business school building was officially named Monte Ahuja Hall. With all his professional commitments, Mr. Ahuja still finds time to be active in the community, engaging in a variety of cultural activities, youth counseling, and scholarship programs.

Lauren Wolf, Partner, Deloitte and Touche

Now a partner in a global professional services organization that serves approximately one-fifth of the world's largest companies, Lauren Wolf stresses the flexibility of CSU course schedules as making the acquisition of her education possible. She also notes the proximity of the university

to downtown as facilitating her interactions and involvement with the business community. In addition to making sure that graduates understand the mechanics of business management, she cites the theory and creativity stressed by her professors as integral to her success in business.

James T. Guzowski, President, Carnegie Tax and Financial Planning, Ltd.

Prior to becoming president of Carnegie Tax in 2001, Mr. Guzowski was a tax partner with KPMG LLC, a national certified public accounting firm. During his career at KPMG, he served a wide variety of individual and closely held business clients, assisting them with their tax, estate, and financial planning needs. Mr. Guzowski received his BBA degree in Accounting in 1974 and has received the Personal Financial Specialist designation from the American Institute of Certified Planners. He currently serves as Chair of the Business College's Visiting Committee and is a trustee for Alexia Manor Housing Corporation. Mr. Guzowski is a past trustee of St. Alexis Hospital Medical Center and Junior Achievement of Cleveland.

MAXINE GOODMAN LEVIN COLLEGE OF URBAN AFFAIRS

Randell McShepard, Director of Community Affairs, RPM, Inc.

Randell McShepard graduated in 1998 with a master's degree in urban studies. He began his career at Vocational Guidance Service, the oldest and second-largest vocational rehabilitation facility in the country. Within two years, Mr. McShepard had assumed leadership of the Training Services Department, where he more than doubled the budget and staff. He also initiated the highly successful Job Match, which links job-seeking residents of the Central and Fairfax neighborhoods with employers in the Midtown Corridor. From 1998-2001, Mr. McShepard served as executive director of City Year Cleveland, part of a 13-city national community service program for young adults. Under his leadership, 250 young adults performed over 425,000 hours of community service throughout Greater Cleveland. One of *Cleveland Magazine's* Most Interesting People for 1999, Mr. McShepard is active in a number of organizations, including the Neighborhood Centers Association and the Rock and Roll Hall of Fame and Museum Community Advisory Board.

Dennis J. Roche, Chief Operating Officer, Greater Cleveland Growth Association

Dennis Roche is a three-time graduate of Cleveland State. He earned a bachelor's degree in English from the College of Arts and Sciences in 1970, a master's degree in urban studies in 1974 from the Maxine Goodman Levin College of Urban Affairs, and a master of accountancy and financial information systems in 1985 from the College of Business.

A respected community leader and financial expert for the past 25 years, he has worked tirelessly for the betterment of Greater Cleveland. Since 1996, Mr. Roche has been the chief operating officer of the Greater Cleveland Growth Association. He has also served as assistant general manager for finance and administration at the Greater Cleveland Regional Transit Authority, where he implemented the first computerized budget system and published the first comprehensive annual financial report for a transit authority in Ohio. As director of the Office of Budget and Management for Cuyahoga County, he designed and implemented the current county budget process. His county budget plans have won three national awards of excellence. Mr. Roche is a member of the Visiting Committees of both the Maxine Goodman Levin College of Urban Affairs and the College of Education. He also serves on the boards of Lakewood

Hospital, the Citizens League, St. Edward High School, the Old Stone Foundation, Park Works, and several other community boards.

Jane L. Campbell, Mayor, City of Cleveland, Ohio

After graduating in 1980 with a master's degree in urban studies, Jane Campbell centered her professional career on developing neighborhoods and helping others. During her 12 years in the Ohio House of Representatives, she dedicated herself to working on behalf of children, families, and seniors. State House highlights include helping pass the Patient Abuse and Neglect in Nursing Home legislation; adopting the Job Daycare Licensing Bill; and supporting the passage of the Adult Care Licensing Bill to ensure quality service to the aged, blind, and disabled. In 1996, Mayor Campbell was elected Cuyahoga County Commissioner. As Commissioner, she chaired both the Welfare Reform: Next Step Task Force for the National Association of Counties (NACO) and the Human and Youth Committee. In November 2001, Ms. Campbell was elected the 55th Mayor of Cleveland.

Vicki Eaton Johnson, Executive Director, Fairfax Renaissance Development Corp.

Vicki Eaton Johnson graduated in 1992 with a master's degree in Public Administration. Ms. Johnson is recognized as one of Cleveland's most impressive young leaders in the areas of housing and community development. She began her career in 1991 as director of housing at Hough Area Partners in Progress, Inc. From 1995-97, she was manager of single family housing for the city of Cleveland's Department of Community Development. Since 1997, Ms. Eaton Johnson has been the executive director of the Fairfax Renaissance Development Corporation, located in the city's federally funded empowerment zone. Through implementation of a master plan for the neighborhood, she has promoted both housing and commercial development. Two of her most notable projects are Beacon Place at Church Square and Bicentennial Village. In 2000, *Cleveland Magazine* selected Ms. Johnson as one of Cleveland's "40 under 40" emerging leaders. Her board affiliations include Karamu House and Senior Outreach Services.

CONCLUSIONS

Throughout this study a substantial effort was made to illustrate (1) the net economic impact of Cleveland State University, (2) the extensive importance of CSU alums to the regional economy, (3) the less tangible but equally important contributions to the region through partnerships and leadership, and (4) the extra tax revenue produced for the state of Ohio from graduates of CSU. In each of the economic impact and tax effect calculations, the net results are based on estimates of the students who would not have attended a university (or graduate school) if CSU did not exist. In this manner the results reported here are the net gains for the region and the State of Ohio. Any economic effects from students who could have attended other universities if CSU did not exist are eliminated.

Listed below are the net economic contributions of Cleveland State University to the regional economy.

- Net Output Impact: $254 million
- Net Employment Impact: 2,997 jobs
- Net Total Earnings Impact: $119 million
- Lifetime State Tax Increase Per Graduating Class: $39 million

CSU CONTRIBUTION TO THE REGIONAL LABOR FORCE

The University is a major contributor to the Greater Cleveland economy through its role of educating the professional workforce. In fiscal year 2000, CSU graduated 2,591 students. Two thousand of these alumni hold professional positions in Greater Cleveland. Of the 1,400 individuals who received undergraduate degrees, more than four-fifths are pursuing careers in the region and almost 74 percent of the 1,187 individuals with graduate and law degrees are also working in Northeast Ohio. Starting salaries of all of these graduates support the expectation of lifetime earnings that are far in excess of those earned by persons holding a high school diploma:

Degree Level	Annual Earnings
Bachelor	$27,701
Master	$42,775
Ph.D.	$48,005
Law	$46,308

MISSION GOAL: STUDENTS

Cleveland State is committed to recruiting, instructing, retaining, and graduating a diverse student population primarily from the metropolitan area. Demographic data shows that 79 percent of CSU students live in Cuyahoga County and 96 percent reside in the six-county metropolitan area. Almost one out of four students is a member of a minority racial group. CSU led Ohio and the U.S. in the percent enrollment of African American students. In addition, the number and share of African American graduate students attending CSU increased significantly. By 2000, 16 percent of all graduate students were African American, rising from 11 percent in 1996.

CSU serves both college-age and older students. In fall 2000, more than one-fifth of all students were at least 35 years old and approximately nine percent were 45 or older. In 2000, women accounted for almost 57 percent of the student body.

MISSION GOAL: RESEARCH

In addition to serving a diverse student body, Cleveland State is committed to basic, theoretical, and applied research. The partnerships between the university and the NASA Glenn Research Center and the Cleveland Clinic Foundation are only two examples of this commitment. CSU faculty and graduate students from the colleges of Arts and Sciences, Business, and Engineering work side by side with world-class scientists in diverse areas ranging from space communications to drug delivery systems.

With the formation of the Biomedical and Health Institute (BAHI) in December 2001, the university took a major step in establishing itself as a leader in research, development, and technology transfer in biomedicine, biotechnology, and health care. Currently, over $27 million in research grants exist between CSU and its research partners. These high-profile research partnerships should not overshadow the many efforts by faculty and staff across the university. From efforts at eliminating predatory lending to improving education outcomes, CSU researchers have a far-reaching influence on people and institutions in Greater Cleveland.

MISSION GOAL: COMMUNITY OUTREACH

CSU is committed to strengthening current partnerships with educational, business, industrial, legal, civic, cultural, and government organizations. All six colleges, the Biomedical and Health Institute, the Environmental Science, Technology, and Policy Institute, and the Advanced Manufacturing Center are dedicated to this mission goal. From the hundreds of area teachers who learn how to integrate music and the arts into their curriculum through the Community Music Enrichment Program to the millions of dollars of automated technology that has been delivered through the Advanced Manufacturing Center, CSU is committed to working with all segments of the community to improve the lives of people.

APPENDIX 1: CSU ECONOMIC IMPACT

Table A-1. Cleveland PMSA Output Impact Based On CSU Spending, FY 2001

Detailed Industry	CSU Spending	Multiplier	Impact
Landscape & horticultural services	$61,770	2.1698	$134,029
Office, industrial & commercial construction	$3,089,585	2.2442	$6,933,647
Building maintenance & repair	$302,978	2.1316	$645,828
Bottled & canned drinks	$23,101	1.9048	$44,002
Food preparations, n.e.c.	$94,551	1.891	$178,796
Commercial printing	$645,657	1.932	$1,247,409
Bookbinding & related work	$61,183	1.93	$118,083
Industrial inorganic & organic chemicals	$24,403	2.1339	$52,073
Pipe, valves & fittings	$15,554	2.1941	$34,126
Industrial & commercial machinery	$18,814	2.1908	$41,217
Transportation	$27,137	2.1218	$57,580
Warehousing & storage	$11,170	1.9969	$22,305
Freight forwarders & other transportaion services	$14,969	2.2424	$33,565
Arrangement of passenger transportation	$12,989	1.9494	$25,320
Communication services, n.e.c.	$49,842	1.7728	$88,360
Cable & other pay TV	$15,288	1.7846	$27,283
Radio & TV broadcsating	$18,249	2.013	$36,735
Natural gas distribution	$130,717	1.6247	$212,376
Water supply & sewerage systems	$426,416	2.1636	$922,593
Sanitary services	$51,962	2.2448	$116,643
Wholesale trade	$116,755	1.8271	$213,323
Retail trade	$110,129	1.9391	$213,550
Credit agencies	$3,726	2.2006	$8,199
Real estate managers & operators	$18,230	1.5827	$28,852
Hotels	$83,846	1.9436	$162,962
Other lodging places	$49,599	1.9909	$98,747
Laundry, cleaning & garment services	$36,447	2.1965	$80,056
Electrical Repair Shops	$27,611	1.9115	$52,779
Miscellaneous repair shops	$66,514	1.8701	$124,387
Building services	$97,082	1.9351	$187,864
Personnel supply services	$68,635	1.7236	$118,299
Computer & data processing services	$565,149	2.0293	$1,146,857
Protective services	$66,638	1.8096	$120,587
Miscellaneous equipment rental	$15,929	1.7911	$28,531
Commercial photography & photofinishing	$22,844	1.874	$42,809
Other business services	$283,968	1.8142	$515,175
Management and consulting services	$1,894,859	1.9737	$3,739,884
Advertising	$1,108,820	2.0626	$2,287,051
Legal services	$512,204	2.1073	$1,079,368
Engineering & architectural services	$67,803	2.1095	$143,030
Eating & drinking places	$28,032	1.9604	$54,954
Automotive Rental & Leasing	$11,428	2.0102	$22,972
Automotive repair shops & services	$53,606	2.1336	$114,373
Auto parking & car washes	$4,202	1.9533	$8,208
Theatrical producers, bands and entertainers	$198,233	2.308	$457,521
Physical fitness facilities	$5,349	2.1565	$11,535
Amusement & recreation services	$3,326	1.9278	$6,412
Doctors & dentists	$4,561	2.1796	$9,941
Hospitals	$85,091	2.0953	$178,290
Other medical & health services	$29,752	1.9922	$59,271

Table A-1. Cleveland PMSA Output Impact Based On CSU Spending, FY 2001

(continued)

Elementary & secondary schools	$499,597	2.2767	$1,137,432
Colleges & universities	$284,625	2.2706	$646,270
Business associations & professional organizations	$101,883	2.2544	$229,685
Other membership organizations	$17,204	2.4066	$41,402
Local government enterprise	$146,386	2.2139	$324,083
Household Industry	$76,705,813	1.2487	$95,782,548
Totals	**$88,492,202**		**$120,449,176**
Direct Impact	**$88,492,202**		
Indirect and Induced Impact	**$120,449,176**		
Total Impact	**$208,941,378**		

Notes:
Direct impact refers to the initial value of goods and services, including labor, purchased by the university within the PMSA. Indirect impact measures the value of labor and production needed to produce the goods and services required by CSU. Induced impact measures the change in spending by local households due to increased earnings by employees in local industries producing goods and services for CSU.
n.e.c.: not elsewhere classified

Table A-2. Cleveland PMSA Employment Impact Based On CSU Spending, FY 2001

Detailed Industry	CSU Spending	Multiplier	Impact
Landscape & horticultural services	$55,661	51.6208	3
Office, industrial & commercial construction	$2,784,026	22.266	62
Building maintenance & repair	$273,014	23.1691	6
Bottled & canned drinks	$20,816	9.8997	0
Food preparations, n.e.c.	$85,200	12.2481	1
Commercial printing	$581,801	19.0474	11
Bookbinding & related work	$55,132	30.6069	2
Industrial inorganic & organic chemicals	$21,989	12.5146	0
Pipe, valves & fittings	$14,015	17.4438	0
Industrial & commercial machinery	$16,953	24.2872	0
Transportation	$24,454	21.5304	1
Warehousing & storage	$10,065	21.8599	0
Freight forwarders & other transportaion services	$13,488	29.0207	0
Arrangement of passenger transportation	$11,704	32.9353	0
Communication services, n.e.c.	$44,913	12.0283	1
Cable & other pay TV	$13,776	11.4574	0
Radio & TV broadcsating	$16,445	18.1497	0
Natural gas distribution	$117,789	6.5346	1
Water supply & sewerage systems	$384,243	18.4478	7
Sanitary services	$46,823	17.9664	1
Wholesale trade	$105,208	17.206	2
Retail trade	$99,237	32.5978	3
Credit agencies	$3,358	30.0886	0
Real estate managers & operators	$16,427	14.7703	0
Hotels	$75,553	30.1267	2
Other lodging places	$44,694	27.3606	1
Laundry, cleaning & garment services	$32,843	47.1435	2
Electrical Repair Shops	$24,881	28.4658	1
Miscellaneous repair shops	$59,936	25.6894	2
Building services	$87,481	49.5141	4
Personnel supply services	$61,847	43.5585	3
Computer & data processing services	$509,256	21.6905	11
Protective services	$60,047	44.5972	3
Miscellaneous equipment rental	$14,354	18.6668	0
Commercial photography & photofinishing	$20,585	20.7507	0
Other business services	$255,884	21.7585	6
Management and consulting services	$1,707,458	21.3731	36
Advertising	$999,158	25.3963	25
Legal services	$461,547	23.956	11
Engineering & architectural services	$61,097	25.6777	2
Eating & drinking places	$25,260	40.247	1
Automotive Rental & Leasing	$10,298	18.4478	0
Automotive repair shops & services	$48,304	25.0768	1
Auto parking & car washes	$3,787	37.02	0
Theatrical producers, bands and entertainers	$178,628	37.0136	7
Physical fitness facilities	$4,820	53.2081	0
Amusement & recreation services	$2,997	41.0206	0
Doctors & dentists	$4,110	25.238	0

Table A-2. Cleveland PMSA Employment Impact Based On CSU Spending, FY 2001 (continued)

Hospitals	$76,675	25.5836	2
Other medical & health services	$26,810	24.9595	1
Elementary & secondary schools	$450,187	43.744	20
Colleges & universities	$256,475	38.4418	10
Business associations & professional organizations	$91,807	22.415	2
Other membership organizations	$15,502	35.5308	1
Local government enterprise	$131,909	18.5908	2
Household Industry	$69,119,608	15.0403	1,040
Total			**1,298**
Direct Impact	**1,271**		
Indirect and Induced Impact	**1,298**		
Total Impact	**2,569**		

Notes:
Direct impact refers to the number of full-time equivalent CSU employees on January 1, 2001. Source: *Crain's Cleveland Business Book of Lists*. Indirect impact refers to the number of jobs created in local industries that are producing the goods and services required by CSU. Induced impact refers to the number of jobs created in the local economy due to increased earnings by CSU employees and employees in local industries producing goods and services for CSU. Spending amounts are in 1997 dollars. Employment impacts are based on number of jobs created per $1 million dollars in spending.
n.e.c.: not elsewhere classified

Table A-3. Cleveland PMSA Earnings Impact Based On CSU Spending, FY 2001

Detailed Industry	CSU Spending	Multiplier	Impact
Landscape & horticultural services	$61,770	0.8478	$52,369
Office, industrial & commercial construction	$3,089,585	0.6337	$1,957,870
Building maintenance & repair	$302,978	0.6385	$193,452
Bottled & canned drinks	$23,101	0.2945	$6,803
Food preparations, n.e.c.	$94,551	0.3349	$31,665
Commercial printing	$645,657	0.5451	$351,948
Bookbinding & related work	$61,183	0.6936	$42,436
Industrial inorganic & organic chemicals	$24,403	0.4429	$10,808
Pipe, valves & fittings	$15,554	0.5594	$8,701
Industrial & commercial machinery	$18,814	0.7183	$13,514
Transportation	$27,137	0.559	$15,170
Warehousing & storage	$11,170	0.505	$5,641
Freight forwarders & other transportaion services	$14,969	0.6703	$10,033
Arrangement of passenger transportation	$12,989	0.6054	$7,863
Communication services, n.e.c.	$49,842	0.4107	$20,470
Cable & other pay TV	$15,288	0.3222	$4,926
Radio & TV broadcsating	$18,249	0.5746	$10,486
Natural gas distribution	$130,717	0.2167	$28,326
Water supply & sewerage systems	$426,416	0.5226	$222,845
Sanitary services	$51,962	0.5606	$29,130
Wholesale trade	$116,755	0.5238	$61,156
Retail trade	$110,129	0.5918	$65,174
Credit agencies	$3,726	0.7425	$2,767
Real estate managers & operators	$18,230	0.2395	$4,366
Hotels	$83,846	0.5786	$48,513
Other lodging places	$49,599	0.4683	$23,227
Laundry, cleaning & garment services	$36,447	0.7796	$28,414
Electrical Repair Shops	$27,611	0.6344	$17,517
Miscellaneous repair shops	$66,514	0.5711	$37,986
Building services	$97,082	0.7143	$69,346
Personnel supply services	$68,635	0.6657	$45,690
Computer & data processing services	$565,149	0.7277	$411,259
Protective services	$66,638	0.6921	$46,120
Miscellaneous equipment rental	$15,929	0.4979	$7,931
Commercial photography & photofinishing	$22,844	0.5397	$12,329
Other business services	$283,968	0.5073	$144,057
Management and consulting services	$1,894,859	0.6218	$1,178,223
Advertising	$1,108,820	0.7063	$783,159
Legal services	$512,204	0.8525	$436,654
Engineering & architectural services	$67,803	0.7548	$51,178
Eating & drinking places	$28,032	0.5474	$15,345
Automotive Rental & Leasing	$11,428	0.4445	$5,080
Automotive repair shops & services	$53,606	0.5872	$31,477
Auto parking & car washes	$4,202	0.5367	$2,255
Theatrical producers, bands and entertainers	$198,233	0.7289	$144,492
Physical fitness facilities	$5,349	0.7429	$3,974
Amusement & recreation services	$3,326	0.5727	$1,905
Doctors & dentists	$4,561	0.9091	$4,146

Table A-3. Cleveland PMSA Earnings Impact Based On CSU Spending, FY 2001 (continued)

Hospitals	$85,091	0.6893	$58,653
Other medical & health services	$29,752	0.6629	$19,722
Elementary & secondary schools	$499,597	0.7945	$396,930
Colleges & universities	$284,625	0.7495	$213,326
Business associations & professional organizations	$101,883	0.6317	$64,359
Other membership organizations	$17,204	0.707	$12,163
Local government enterprise	$146,386	0.5507	$80,615
Household Industry	$76,705,813	0.3374	$25,880,541
Total			**$33,434,503**
Direct Impact	**$76,705,813**		
Indirect and Induced Impact	**$33,434,503**		
Total Impact	**$110,140,316**		

Notes:
Direct impact refers to payroll and health related benefits earned by CSU's faculty, staff, and student employees. Indirect impact refers to the change in earnings that occur in Cleveland PMSA households employed by industries that deliver the goods and services required by CSU. Induced impact refers to the change in earnings by households employed by Cleveland PMSA businesses in a variety of industries.
n.e.c.: not elsewhere classified

APPENDIX 2: SIGNIFICANT COMMUNITY PARTNERSHIP INTERVIEWEES

CLEVELAND-MARSHALL COLLEGE OF LAW

Name	Organization	Title
Brancatelli, Tony	Slavic Village Development Corp.	Executive Director
Clevenger, Ruth	Federal Reserve Bank of Cleveland	Assistant Vice President and Community Affairs Officer
Lind, Kermit	CSU	Staff Attorney, Community Advocacy Clinic
McCoy, Patricia	CSU	Professor
Rudge, Heather	Cleveland Restoration Society	Director of Technical Services

COLLEGE OF ARTS AND SCIENCES

Name	Organization	Title
Anderson, David	CSU	Director, Mass Spectrometry Center
Duraj, Stan	CSU	Chair, Department of Chemistry
Griffin, Mustafa	Northeast Ohio African American Artist Association	President
Hepp, Al	NASA Glenn Research Center	Senior Research Scientist
Katz-Napoli, Joan	The Cleveland Orchestra	Director of Educational Programs
Masnick, Judy	Planned Life Assistance Network of Northeast Ohio	Family Advocate
Mauersberger, George	CSU	Chair, Department of Art
Meeker, Howard	CSU	Director of Instrumental Music
Rapp, Keith	Ben Venue Laboratories	Manager, Quality Control
Shames, Kay	CSU	Director, Community Music Enrichment Program
Thurmer, Robert	CSU	Art Gallery Director

COLLEGE OF EDUCATION

Name	Organization	Title
Clay, Douglas	CSU	Director, Assessment and Accountability, Center for Urban School Collaboration
Phillips, Craig	Parma City Schools	Director, Staff Development
Kowalski, Dennis	Strongsville City Schools	Superintendent
Robinson, Katie	CSU	Executive Director, Center for Urban School Collaboration
Stanic, Kurt	Euclid City Schools	Superintendent
Wynne, Jean	CSU	Director, Greater Cleveland Education Development Center and Northeast Regional Professional Development Center

FENN COLLEGE OF ENGINEERING

Name	Organization	Title
Annapragada, Ananth	CSU	Associate Professor, Applied Biomedical Engineering and ABE Co-Director
Bhasin, Kul	NASA Glenn Research Center	Space Base Technology Manager
Ibrahim, Mounir	CSU	Chair, Department of Mechanical Engineering
Konangi, Vijaya	CSU	Associate Professor, Electrical & Computer Engineering
Schrader, Larry	Parker Hannifin Corporation	Global Motion & Control Training Manager
Vesely, Ivan	Cleveland Clinic Foundation	Associate Staff and ABE Co-Director

JAMES J. NANCE COLLEGE OF BUSINESS ADMINISTRATION

Name	Organization	Title
Lin, Mike	CSU	Associate Professor, Computer and Information Science
Marshall, Brenda	CSU	Director, Health Care Administration Program
Schnapp, Kathy	United States Navy	LT, Medical Programs Placement and Financial Assistance Coordinator
Slotter, Keith	Federal Bureau of Investigation	Assistant Special Agent in Charge
Whitt, Peter	St. Vincent Charity Hospital	Community Outreach Social Worker Specialist

MAXINE GOODMAN LEVIN COLLEGE OF URBAN AFFAIRS

Name	Organization	Title
Colletta, Mike	Cuyahoga County Board of Elections	Information Systems Administrator
Gillon, Jacquie	Neighborhood Centers Association	Community Organizer
Haddad, Pierre	City of Cleveland	Consulting Engineer, Division of Water
Sabur, Muqit	Center for Families and Children	Facilitator
Salling, Mark	CSU	Director, Northern Ohio Data & Information Service
Star, Philip	CSU	Director, Center for Neighborhood Development

ADVANCED MANUFACTURING CENTER

Name	Organization	Title
Moran, Thomas	Squareshot Golf	President and Chief of Product Development
Sanger, Phillip	Advanced Manufacturing Center	Director

ENVIRONMENTAL SCIENCE, TECHNOLOGY, AND POLICY INSTITUTE

Name	Organization	Title
Cline, Elizabeth	Environmental Science, Technology and Policy Institute	Director
Williamson, Garree	Cuyahoga Valley National Park	Resources Management Specialist