

**ANALYSIS OF THE ECONOMIC IMPACT  
OF THE BIOSCIENCES AND HEALTHCARE SECTORS  
IN THE NEW ORLEANS REGION**

Prepared for

The New Orleans Regional Planning Commission

Prepared by

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June 30, 2009



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*Institute for Economic Development and Real Estate Research*

August 27, 2009

Mr. Walter Brooks, Executive Director  
Ms. Caitlin Cain, Program Manager, Economic Development  
New Orleans Regional Planning Commission  
1340 Poydras Street, Suite 2100  
New Orleans, LA 70112

Dear Mr. Brooks and Ms. Cain,

We are pleased to present our final report “Analysis of the Economic Impact of the Biosciences and Healthcare Sectors in the New Orleans Region. We hope the results of this research effort for the New Orleans Regional Planning Commission are helpful and informative, particularly to the unfolding efforts focused on redevelopment of the New Orleans Medical District.

We have enjoyed working with RPC staff on this project and look forward to the opportunity of being of assistance to you in the future.

Sincerely,

Ivan J. Miestchovich, Jr., Ph.D.  
Director and Associate Professor

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## Executive Summary

By their very nature, the bioscience and healthcare sectors overlap since research skills and training are similar even though products and services provided or produced by these sectors may be quite different. Similar research skills and training may result in products that range from biofuels to pharmaceuticals to new surgical procedures. The two sectors also extend across the public, private, and nonprofit sectors with some employers dependent on public funding while others are driven by profit—two very different economic frameworks. It should also be noted, that several other employment sectors are also important to and impacted by both biosciences and healthcare. For example, this would include, but not necessarily limited to, legal and professional services and finance. Within these are specializations that may focus on the bioscience and healthcare sectors as vital components of fully integrated clusters of economic activity. These specializations, however, require a certain critical mass of economic activity that has probably not been fully reached in the New Orleans region, particularly within the bioscience sector. The reestablishment of the Downtown Medical District anchored by prominent institutions such as Tulane, LSU Health Sciences and the Veterans Administration will be significant in building such a critical mass, particularly legal and financial services focused on intellectual property and technology commercialization.

Biosciences as a sector make up a relatively small share of total wage and salary employment in the New Orleans region. The 2,752 jobs counted in this sector accounted for 0.65 of the five parish's total employment for the same period.

Biosciences, however, produced jobs with higher average wages and thus the ability to generate greater indirect and induced economic impacts throughout the region. At an average \$55,745 salary level in 2007, biosciences was 22.8% higher than the five parish's overall average wage of \$45,415 for the same period.

Higher average wages paid by biosciences employers are directly related to the demands faced by workers within this sector in terms of academic preparation and research productivity. With the exception of 2006, the year immediately following Hurricane Katrina, both academic degrees awarded by local institutions and academic R&D expenditures have either steadily grown or maintained a consistent output level. Total academic R&D expenditures grew to \$517.7 million in 2007 among local institutions engaged in biosciences research, while the number of bioscience-related degrees awarded totaled 2,712 in the same year.

Venture and risk capital to support entrepreneurial initiatives in biosciences, however, can be characterized as paltry, at best. Louisiana lags well behind other states in attracting venture capital in

general and for biosciences-related enterprises in particular. Potentially, this is the most significant missing link in providing the support infrastructure that is so necessary to the “care and feeding” of the biosciences sector. This is a significant public policy issue that needs to be addressed if biosciences in the region is going to reach its potential.

Attracting support for investment in the sector can be linked to the fact that biosciences produces a significant economic impact for the region. This is best evidenced by a job multiplier of just under 2.6 and is directly related to the comparatively high wage levels generated in biosciences enterprises. This alone should provide sufficient fuel for public policy discussions focused on attracting more risk capital to support bioscience initiatives and investments.

Healthcare as an economic sector accounts for a comparatively large share of total wages and salary employment in the New Orleans region. The 39,856 jobs counted in this sector in 2007 made up 8.5% of the combined total employment for the five parish area.

Unlike biosciences, however, the healthcare sector as a whole produces jobs that on average pay less than the region wide typical wage level. In 2007, the \$37,712 average healthcare wage was 83% of the region’s overall average of \$45,415. However, it should be noted that many healthcare focused job positions require significantly less academic preparation and can very often be staffed by individuals with limited, if any, specialized technical training. This would include, for example, many hospital support staff positions in areas like maintenance, janitorial, security and general clerical.

The dramatic effect of Hurricane Katrina on healthcare employment can be seen between 2004 and 2007. While the healthcare industry in the New Orleans region showed tepid 737% growth between 2001 and 2004, to 51,999, total healthcare employment dropped to 39,233 or by more than 23% between 2001 and 2004. Employment change was not uniform. Orleans and Jefferson employment dropped by 48.4% and 2.6% respectively, and healthcare employment in St. Tammany Parish grew 12.3%. These trends generally follow the pattern of population redistribution post-Katrina and indicate that healthcare workers have skills that are easily portable to other locations where needs exist. Many healthcare workers also enjoy the ability to take existing skills and add more training to move up the ladder of economic opportunity within this sector. This is greatly facilitated the availability of a wide range of educational and workforce training programs at New Orleans area colleges, universities and community colleges. In fact local colleges, universities and community colleges award each year an average of 2,800 certificates, associates, bachelor, masters, Ph.D., MD and PharD in the healthcare and biosciences fields.

Like biosciences, basic and applied research are hallmarks of a healthy and growing healthcare sector. Prior to Katrina, NIH funding for local entities steadily grew each year from 2000 through 2005.

LSUHSC and Tulane accounted for significant shares of these research awards and continue to do so in the region's post-Katrina era. Although the storm's disruptions put a kink in annual NIH funding levels for 2006 and 2007, preliminary information for 2008 and 2009 show that these research investments may be recovering well and starting to approach pre-storm levels. With the tidal wave of Federal stimulus funding in the pipeline, previously unsuccessful applicant researchers might find their projects receiving grant awards.

As a sector accounting for almost one of every eleven jobs in the region, healthcare generates significant economic impact for the New Orleans area. At 2007 employment levels, the sector's total output is estimated at \$9.2 billion and supports or provides the economic underpinning for approximately 78,691 jobs throughout the region across a very wide range of business sectors. When an LSU/VA anchored medical complex is assumed, the potential incremental economic effects of healthcare growth over a five year period are sizeable. The incremental total output resulting from this potential growth is estimated at \$371.6 million with enough economic stimulus to support another 3,130 jobs throughout the region. The rebuilding of the region's healthcare infrastructure is vitally important to its long term recovery, its economic diversification and its ability to offer a competitively advantageous quality of life.

This very basic analysis indicates that the potential economic impact of the LSU/VA campus is significant for the region. Alternatively, not rebuilding these major anchors for the Medical District implies significant foregone economic opportunities for the region in terms of total output, jobs, capital investment and value added. The role of the LSUHSC and VA as major catalysts for the healthcare economic engine of the New Orleans region should remain at the forefront of the area's economic development strategy. And, because of the all but inseparable relationship to biosciences, these catalytic core projects are obviously essential to a successful roll out of a comprehensive strategy to position the region within the biotech world.

## **Section I – Introduction**

### **Purpose and Scope**

The New Orleans Regional Planning Commission (NORPC) contracted with the University of New Orleans (UNO) through its Institute for Economic Development and Real Estate Research (Institute) to analyze the Biosciences and Healthcare sectors in the New Orleans region. This analysis was done, in part, to inform the updating of the regional Comprehensive Economic Development Strategy (CEDS) and to provide a framework for understanding the dynamics and potentials these sectors offer economically in the on-going and unfolding redevelopment of the New Orleans Medical District post-Katrina.

This study relies primarily on secondary sources of information generally available to the public as well as proprietary datasets that were purchased specifically to supplement information gaps inherent in other sources. This was particularly true for employment trend information at the four and five digit NAICS (North American Industrial Classification System) code levels for the Bioscience and Healthcare sectors. The information acquired is drawn from the ES 202 employment and wage data series.

The Institute relied on primary information gathered by telephone and email requests. This information included construction and development cost estimated for the BioInnovation Center and Louisiana Cancer Research Center as well as estimated of the number of jobs these facilities would likely create upon completion and in their normalized operating status.

For purposes of this analysis, the New Orleans Region is coterminous with the NORPC's jurisdiction as an Economic Development Administration (EDA) designated Economic Development District (EDD). This district encompasses the following five parishes: Jefferson, Orleans, Plaquemines, St. Bernard and St. Tammany.

### **Sector Descriptions and Definitions**

The bioscience and healthcare sectors are recognized globally as key drivers of the economy. Locally, bioscience and healthcare have been identified as industries that have substantial potential for growth in metropolitan New Orleans and as such are the focus of this study. The Battelle Technology Partnership Practice prepared a report titled *Technology, Talent and Capital: State Bioscience Initiatives* that addressed these sectors, particularly Biosciences, nationally and inventoried state programs. This

report, which provided technical guidance for this research effort identified five primary employment sectors that comprise the bioscience industry. They include the following:

1. Agricultural feedstock and chemicals
2. Drugs and pharmaceuticals
3. Medical devices and equipment
4. Research, testing and medical laboratories
5. Management, scientific and technical consulting services

Based upon a review of relevant NAICS categories, the Institute identified five sectors that comprise the majority of the job and economic activities encompassed within the healthcare sector. They include the following:

1. Ambulatory healthcare services
2. Hospitals
3. Scientific research and development services
4. Other professional services
5. Manufacturing: pharmaceutical, medicine, medical equipment, and related supplies

By their very nature, the bioscience and healthcare sectors overlap since research skills and training are similar even though products and services provided or produced by these sectors may be quite different. Similar research skills and training may result in products that range from biofuels to pharmaceuticals to new surgical procedures. The two sectors also extend across the public, private, and nonprofit sectors with some employers dependent on public funding while others are driven by profit—two very different economic frameworks. It should also be noted, that several other employment sectors are also important to and impacted by both biosciences and healthcare. For example, this would include, but not necessarily limited to, legal and professional services and finance. Within these are specializations that may focus on the bioscience and healthcare sectors as vital components of fully integrated clusters of economic activity. These specializations, however, require a certain critical mass of economic activity that has probably not been fully reached in the New Orleans region, particularly within the bioscience sector. The reestablishment of the Downtown Medical District anchored by prominent institutions such as Tulane, LSU Health Sciences and the Veterans Administration will be

significant in building such a critical mass, particularly legal and financial services focused on intellectual property and technology commercialization.

It is fairly widely accepted, that among other things one of the many casualties of Hurricane Katrina was availability of reliable data. The New Orleans area lost many people and businesses after the storm. Those who stayed suffered from lengthy dislocations, multiple moves, and shut downs of one type or another. This made collecting accurate employment information to analyze trends very difficult. Analysis of these highly specialized employment sectors was made more challenging by these disruptive forces. However, the trends illustrated in this report rely on the most current and accurate information available from secondary sources, including proprietary information and datasets previously discussed.

### **Economic Impact Modeling Using IMPLAN**

The analysis of economic benefits or impacts of overall sectors and individual projects relies primarily on the simulation results provided by the IMPLAN model. IMPLAN is an effective tool for reasonably establishing the economic benefits of a new investment in a community across a wide spectrum of economic sectors. The impacts estimated by the model are expressed in terms of new jobs added, total output, total value added and total employee compensation.

The IMPLAN software was originally developed by the USDA Forestry Service to perform impact analysis for planning purposes. It has been refined and expanded over the past twenty years to enhance its application in the measurement of potential economic benefits resulting from a wide variety of public and private sector investments. IMPLAN's database includes state and county (parish) level data for 528 industrial and business sectors as well as demographic variables such as population, households and income. Of critical importance is the model's treatment of the interaction between the 528 business and industrial sectors at both the state and local level. The national, state and local level data allow for quantifying the effects of adding jobs or final demand in any industry and for the modeling of these changes in net new investment across all 528 business and industry sectors.

IMPLAN uses social accounting matrices, or a set of social accounts, to generate multipliers and describe economic relationships. Social accounts trace monetary flows between sectors and institutions in the economy. These monetary flows occur because of the final demand for goods and services or the producers' intermediate demand for goods and services. Final demand is demand generated by consumers while producers' demand is the necessary trading and interaction that takes place in order to meet final consumer demand.

IMPLAN's modeling allows one to define given trade areas and to model transactions or investments in relevant industries. The Institute used IMPLAN to model the investments in the BioInnovation and Cancer Research Centers on relevant business and industrial sectors in the five parish New Orleans region. Although some of the investment's economic benefits are likely to "leak" out of the region to adjoining parishes, the focus of benefits measurement is on the region to allow for a fair comparison to the anticipated costs that may have to be absorbed as a consequence of financing structures used or other incentives offered to facilitate their development and operation going forward.

The IMPLAN multipliers are based on data from the Bureau of Labor Statistics (U.S. Department of Labor), the U.S. Census Bureau and other government agencies. Most importantly, the IMPLAN version (2007) used in this analysis relies on data series that have been updated through the end of 2006. As such, the data at the state and parish levels reflect the economic and demographic dislocations and shifts produced in 2005 by the dual natural disasters of Hurricanes Katrina and Rita. The multipliers are stated in 2006 dollars so all economic impacts in this report are based on 2006 dollars for comparison purposes. IMPLAN's four output measurements are the following:

Total Output is the overall value of the transactions that result from the investment. Total output is roughly equivalent on a local level to Gross Domestic Product or Gross State Product or in the case of the New Orleans area the gross regional product. These are measurements that gauge total economic activity in a country, state or locally defined economic unit of analysis. It is considered the sum total of all the benefits accruing as a result of some new direct investment or a change in fiscal or economic policy designed to attract new investment or add new jobs.

Total Value Added is the amount by which citizens in the local or state economy are made wealthier as a result of a project investment both public and private. Value added takes the form of wages and salaries, income to business owners, business profits and sales taxes paid at the state and local levels. Since sales tax impacts are imbedded in the overall measure of Total Value Added, no separate accounting for this economic benefit is necessary.

Total Employment Added is measured in terms of full time equivalent (FTE) positions and extends across all business and industry sectors. The number of FTE jobs does not necessarily correspond to the exact number of workers being hired; however, it is the measurement of the net increase in employment in the defined geographic impact area – in this case, the five parish New Orleans region. In addition to full time positions added, this measure of employment considers fractional additions to jobs in the form of overtime, the combination or consolidation of part-time positions, bonuses and extra compensation for extra work. For example, in some sectors, the estimated

employment impacts result in fractional additions to the area's job base. In cases where there is 0.5 or less job added, the incremental benefit is assumed to accrue to an existing job that may now produce additional compensation or be combined at some point with another fractional job to result in one new FTE position.

Total Employee Compensation measures wage and salary payments including health and life insurance benefits, retirement contributions, and other non-cash transactions. In other words, it measures all payments made by employers to employees and is spread across all sectors directly or indirectly impacted by the proposed investment.

## Section II – The Biosciences Sector: Trends and Impact

Biosciences is an industry sector that has become a primary target of economic developers and the communities they represent throughout the U.S. over the past two decades. The allure of this sector is fairly simple to understand in that it is a clean industry that pays well above average wages and salaries. Also, it is an industry that once matured offers great opportunity for economic diversification through a wide range of entrepreneurial endeavors that can attract significant risk capital infusions into a local economy and a myriad of mutually beneficial relationships with universities, medical schools and research institutes across the public, private and nonprofit spectrum. According to a recently released report by the Biotechnology Industry Organization (*Technology, Talent and Capital: State Bioscience Initiatives, 2008*) there are nearly 1.3 million people directly employed in this sector in about 43,000 firms nationwide in 2006. This represents an employment growth rate of 5.7% since 2001 and a nearly 16% increase in the number of firms over the same 2001 to 2006 period. This sector is made up of primarily small, innovative, entrepreneurial firms involved in producing cutting edge technologies with a wide variety of human, animal and agricultural applications. When spin-offs and support employment for the basic biosciences sector are considered, total employment reaches an estimated 7.5 million. This same study also reaffirmed a very important finding of prior research: bioscience pays very well. Bioscience salaries averaged (in 2005) \$65,775 or \$26,000 higher than the average salary of all persons employed in the U.S., while in 2006 wages in biosciences averaged \$71,000 as compared to an overall U.S. average private sector wage of \$42,272.

For local economic developers, nurturing and growing biosciences clusters becomes a formidable “win, win, win” propositions once the core “fruit” of the cluster has firmly taken root as a permanent fixture in the community or region. The challenge, however, is sowing the seed on fertile ground (i.e. community intellectual infrastructure) and providing enough water and nutrients (i.e. money) to see some bioscience production. It is truly a matter of patience, determination and risk tolerance in the overall scheme of economic development “gardening.”

Like delicate flowers or vegetables, growing a biosciences business sector or entire cluster requires lots of care and feeding. However, competition among economic developers to attract and grow the biosciences sector is only going to become more fierce in the foreseeable future. State and local governments will put more resources (financial and otherwise) on the menu of incentives to attract, nurture and most importantly retain bioscience firms. However, communities that are most

successful in their efforts to cultivate the bioscience sector will need to build a critical mass consisting of eight key ingredients identified by the Battelle Technology Partnership Practice. These include:

- Engaged universities with active and committed leadership.
- Entrepreneurial cultures with intensive networking across sectors and industries.
- Available capital covering all stages of the business cycle.
- Discretionary federal or other research and development funding.
- A qualified workforce and available labor pool.
- Access to specialized facilities and equipment.
- Supportive business, tax and regulatory policies.
- Patience and a long term prospective.

### **Employment and Wage Trends**

Tables 2-1 and 2-2 summarize employment and wage growth trends in the biosciences sectors for the New Orleans region and state, respectively, while Tables 2-3 through 2-7 do the same for each of the area's five constituent parishes. Each table covers the years 2001, 2004 and 2007 allowing for trend analysis pre- and post-Katrina. The tables also address employment and wage trends for each of the five major sectors included within biosciences as well as 23 subsectors that provide a more detailed (5 digit NAICS code) profile of job categories that define this industry. For example, this includes jobs in activities such as pesticide and other chemical manufacturing (in Agricultural feeds tocks and chemicals), Research and Development in physical, engineering and life sciences (in Research, Testing and Medical Laboratories) and medical equipment and supplies manufacturing (in Medical Devices and Equipment).

From 2001 to 2004, total biosciences employment in the New Orleans region fell 10.1% from 2,664 to 2,394 while the number of establishments in the region rose from 354 to 410 or by 15.8%. Over this same pre-storm period the sector's average wage rose from \$38,072 to \$42,118 or by 10.6% with gross wages slipping from \$101.4 million to \$100.8 million.

Statewide, the biosciences sector in the 2001 to 2004 performed better than the New Orleans area. Total employment in biosciences edged down from 12,989 to 12,875 (or by just less than 1.0%) while the average wage for the sector grew from \$46,071 to \$52,906 or by 14.8% and statewide gross wages in biosciences rose 13.8% from \$598.4 million to \$681.2 million.

Average firm size at both the region and state levels are rather small at 7.5 and 11.1 jobs, respectively, in 2001 and generally become smaller by 2004 at 5.8 and 9.2, respectively. However, in both cases the number of establishments or firms rose during this pre-Katrina period. This is not unusual

for emergent technology based sectors where one measure of success is the number of entrepreneurial ventures spawned by research, development and product commercialization. As the sector grows and matures, the average size of firms will generally tend to get larger as these enterprises gain sounder financial footings even as new enterprises are added.

In the New Orleans region, the biosciences sector is geographically concentrated in Jefferson, Orleans and St. Tammany Parishes. In Jefferson, the sector grew from 1,107 workers in 151 firms in 2001 to 1,181 workers employed by 187 establishments in 2004. Over this same period the average wage for biosciences workers rose 15.5% from \$32,928 to \$38,026 as the sector's gross wage earnings grew from \$36.5 million to \$44.9 million. Subsectors accounting for the largest number of jobs in Jefferson are medical laboratories (452 in 2004), medical equipment manufacturing (189) and testing laboratories (187).

Biosciences employment in Orleans Parish was trending downward before the disruptions caused by Hurricane Katrina. From 2001 to 2004, the total number of jobs fell from 927 (in 118 firms) to 540 (in 111 firms) or by 41.7%. Over the same period, aggregate wage earnings for the sector fell by about one-third from just under \$37.0 million to about \$24.9 million. Average firm size slipped from about eight to five workers while average wage per worker rose from \$39,858 to \$46,043 or by 15.5%. During this period, subsectors accounting for the most significant job losses were nitrogenous fertilizer manufacturing (from 79 to 10), medical equipment and supplies manufacturing (from 74 to 40), testing laboratories (from 186 to 73) and medical laboratories (from 175 to 70).

In St. Tammany Parish, biosciences employment grew from 354 in 2001 to 472 in 2004 (or by one-third), while the number of firms grew from 66 to 90 and average firm size edged down from 5.4 to 5.2 workers. Gross wages earned grew by 35.2% from \$15.9 million to \$21.5 million as average wage per bioscience worker grew from \$44,961 to \$45,587 or by 1.4%.

From 2004 to 2007, the biosciences sector in the New Orleans region has seen growth in jobs, the number of firms and wages, both gross and average per position. Through the end of 2007, for example, the number of people employed in biosciences grew to 2,752 (up 15%) in 424 establishments (up 3.4%). At the same time both average wage and average firm size rose as did aggregate wages for the sector as a whole. Average wage rose to \$55,745 (up 32.4% since 2004), while average firm size reached 6.5 workers, up 12.1% from 2004.

Although some of these patterns might be affected by post-Katrina reporting and data collection disruptions, much of this distortion should have been mitigated by the time 2007 employment information was released. As such, these trends indicated a relatively robust profile of growth potential

for this emergent economic sector within the region. This most recent period of growth pushed biosciences employment 88 jobs (3.3%) above the 2001 level and the number of firms 70 (19.8%) higher. Similarly, the average 2007 wage in biosciences is 46.4% higher than reported near the beginning of the decade. The extent to which this kind of momentum can be maintained going forward is heavily dependent on the extent to which investments are made that help to attract and retain the intellectual and financial infrastructure that is so necessary to nurturing biosciences as an economic cluster.

Statewide, the number of jobs in biosciences grew to 14,481 in 2007 (up 12.5% over 2004 and 11.5% over 2001), while the number of firms reached 1,724 (up 22.7% over 2004 and 48.0% over 2001). (See Table 2-2). Average firm size continued to trend down, reaching 8.4 jobs in 2007, while average and gross wages both experienced robust growth. Average wages in the sector rose to \$61,035 (up 15.4% over 2004), while aggregate wages grew to \$883.9 million or by 29.8% over 2004. It is apparent that the biosciences initiatives and strategic positioning encouraged by state economic development policies in the mid- to late 1990's, are beginning to bear fruit. This is by no means a biosciences "boom," but the trends are indicative of policies and initiatives gaining some traction to fuel growth in a priority cluster of the state's economic development strategy (Louisiana Vision 2020 Master Plan for Economic Development, originally adopted by the State in 1999). At the same time, statewide initiatives are having their intended impact on nurturing and encouraging growth within niches of biosciences that are best suited and supported by local and regional strategic priorities and economic development infrastructure.

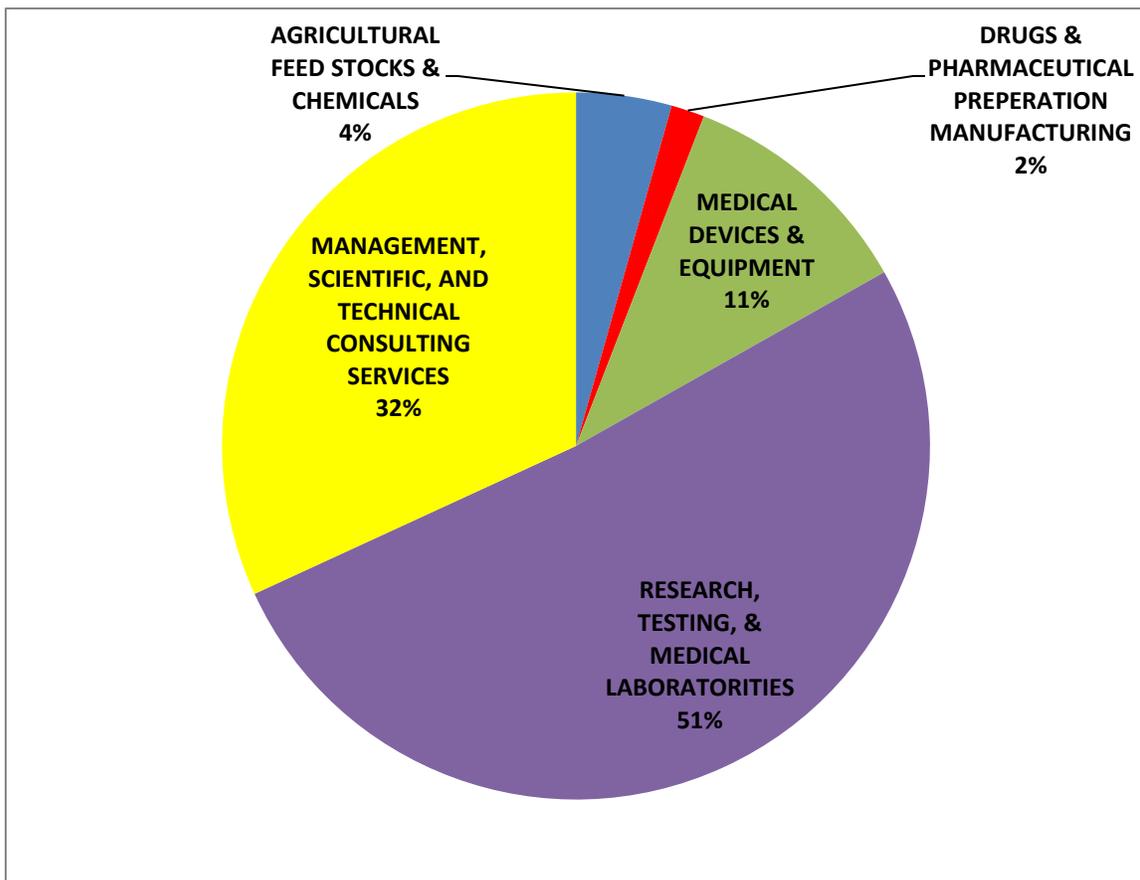
In Jefferson Parish, for example, biosciences employment grew to 1,355 (up 14.7% over 2004 and 22.4% over 2001), while average wage grew to \$49,653 (up 30.6% over 2004 and 50.8% over 2001). Although the number of bioscience firms in Jefferson only rose by two (to 89), average firm size rose from 6.3 to 7.2, while gross earnings increased to just under \$67.3 million or about 50%. Subsectors accounting for notable growth included diagnostic imaging centers (up 23.5% to 105 jobs), testing laboratories (up 61.5% to 302 jobs) and environmental consulting services (up 37.5% to 154 jobs). (See Table 2-3).

In Orleans Parish, biosciences employment grew to 619 even as the number of firms located in the parish fell from 111 to 102 between 2004 and 2007. This brought average firm size higher at 6.1 (compared to 4.9 in 2004) and pushed average wages per worker to \$63,558 (up 38.0% over 2004 and 59.5% over 2001). Gross wages grew to \$39.3 million in the sector, exceeding the 2001 level by 6.5%. Subsectors with notable growth in the City included environmental consulting services (136 jobs in 2007

versus 24 in 2004), testing laboratories (122 jobs versus 73) and nitrogenous fertilizer manufacturing (46 jobs versus 10). (See Table 2-4).

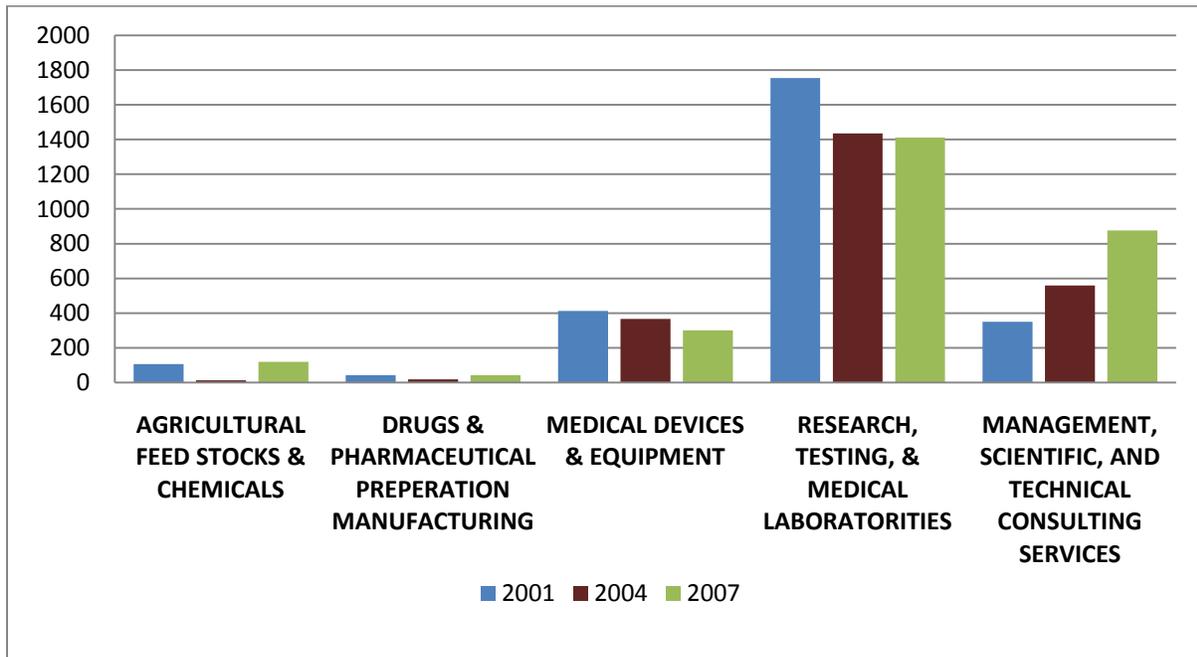
Through 2007, St. Tammany Parish's biosciences sector employment grew to 603 (up 27.8% over 2004), while the number of firms rose to 118 (up 31.1%) as average firm size remained largely unchanged at 5.1 workers (as compared to 5.2 in 2004). Gross wages in this sector of the parish's economy grew to \$38.6 million (up 79.5% over 2004), while the average wage grew 40.3% to \$63,960. Biosciences job growth in St. Tammany parish through 2007 was fairly well distributed across all of its subsectors. (See Table 2-7).

**Figure 2-1: Bioscience Covered Employment: 2007  
New Orleans Region**



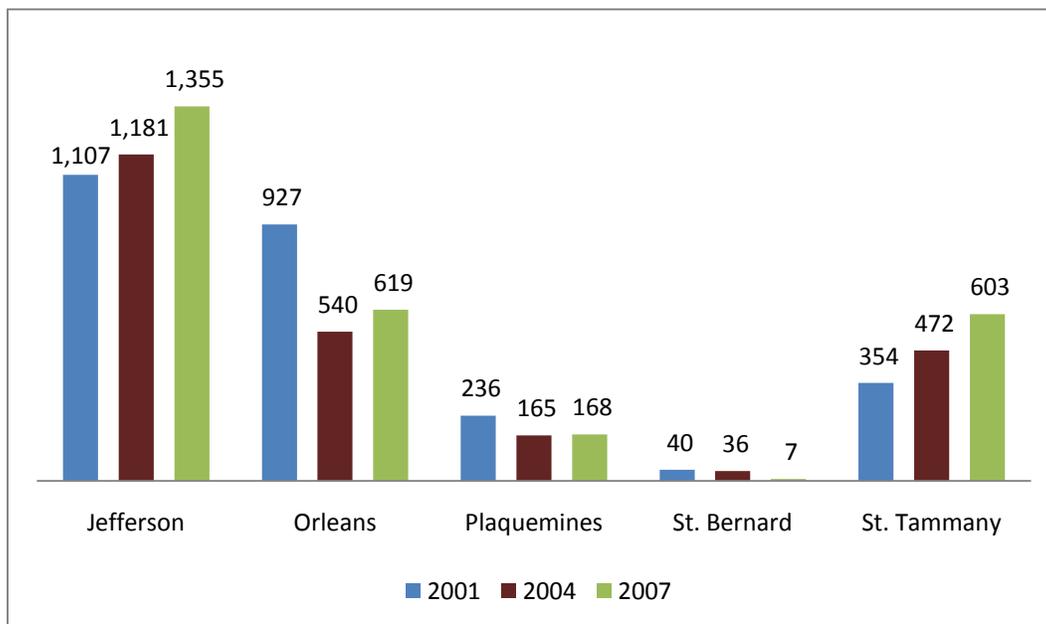
Source: Minnesota IMPLAN Group Quarterly Census of Employment and Wages Data Series and the Institute for Economic Development and Real Estate Research

**Figure 2-2: Bioscience Covered Employment, Number of Employees by Sector: 2001 - 2007  
New Orleans Region**



Source: Minnesota IMPLAN Group Quarterly Census of Employment and Wages Data Series and the Institute for Economic Development and Real Estate Research

**Figure 2-3: Bioscience Covered Employment, Number of Employees by Parish: 2001 - 2007  
New Orleans Region**



Source: Minnesota IMPLAN Group ES202 Employment Data Series and the Institute for Economic Development and Real Estate Research

**Table 2-1: Biosciences Establishments, Employment and Wages for 2001, 2003 and 2007: New Orleans Region  
Covered Employment and Wage Adjusted Annual Data**

NAICS	Description	2001				2004				2007						
		Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)	Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)	Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)
AGRICULTURAL FEED STOCKS & CHEMICALS																
311221	Wet corn milling	-	-	-	-	-	1	1	1.0	10,754	10,754	1	2	2.0	43,623	87,245
311222	Soy bean processing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
311223	Other oilseed processing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325193	Ethyl alcohol manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325199	All other basic organic chemical manufacturing	3	26	13.5	67,142	1,745,687	-	-	-	-	-	-	-	-	-	-
325221	Cellulosic Organic fiber manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325311	Nitrogenous fertilizer manufacturing	2	79	46.5	70,354	5,557,988	2	10	5.0	87,263	872,633	1	46	46.0	95,692	4,401,830
325312	Phosphatic fertilizer manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325314	Fertilizing (mixing only) manufacturing	1	1	1.4	22,338	22,338	1	3	3.0	38,254	114,763	-	-	-	-	-
325320	Pesticide and other chemical manufacturing	1	1	1.4	22,338	22,338	1	-	-	-	16,339	1	72	72.0	93,854	6,757,461
DRUGS & PHARMACEUTICAL PREPARATION MANUFACTURING																
3254	Drugs & Pharmaceuticals Preparation	11	42	12.7	45,868	1,926,448	8	19	2.4	69,438	1,319,316	6	42	7.0	61,200	2,570,379
MEDICAL DEVICES & EQUIPMENT																
334510	Electromedical and electrotherapeutic apparatus manufacturing	4	4	1.8	49,808	199,231	2	14	7.0	28,489	398,844	3	5	1.7	107,588	537,939
334516	Analytical laboratory instrument manufacturing	-	-	-	-	-	1	1	1.0	24,168	24,168	-	-	-	-	-
334517	Irradiation apparatus manufacturing	-	-	-	-	-	1	1	1.0	24,168	24,168	1	48	48.0	63,926	3,068,463
3391	Medical Equipment and Supplies Manufacturing	66	408	24.6	29,441	12,011,980	66	351	5.3	26,931	9,452,874	58	248	4.3	30,003	7,440,840
RESEARCH, TESTING, & MEDICAL LABORATORIES																
541380	Testing Laboratories	43	596	74.0	37,969	22,629,291	39	466	11.9	41,596	19,383,688	32	507	15.8	50,144	25,423,170
541710	Research and development in the physical, Engineering, and Life Sciences	34	249	15.1	51,022	12,704,439	44	240	5.5	58,684	14,084,242	-	-	-	-	-
541711	Research and development in Biotechnology	-	-	-	-	-	-	-	-	-	-	12	51	4.3	83,253	4,245,895
541712	Research and development in the physical, Engineering, and Life Sciences (except Biotechnology)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
621511	Medical Laboratories	44	737	101.5	32,555	23,992,857	48	566	11.8	37,641	21,304,611	43	215	5.0	72,578	15,604,192
621512	Diagnostic Imaging Centers	25	171	18.8	29,721	5,082,362	29	163	5.6	39,883	6,500,981	44	435	9.9	45,524	19,802,898
MANAGEMENT, SCIENTIFIC, AND TECHNICAL CONSULTING SERVICES																
541620	Environmental Consulting Services	44	118	8.8	47,147	5,565,375	39	171	4.4	47,240	8,077,997	45	391	8.7	46,578	18,211,940
541690	Other Scientific and Technical Services	78	232	14.7	42,954	9,965,291	128	388	3.0	49,603	19,246,003	146	486	3.3	73,270	35,609,222
	<b>New Orleans Region Total</b>	<b>354</b>	<b>2,664</b>	<b>7.5</b>	<b>38,072</b>	<b>101,423,625</b>	<b>410</b>	<b>2,394</b>	<b>5.8</b>	<b>42,118</b>	<b>100,831,381</b>	<b>424</b>	<b>2,752</b>	<b>6.5</b>	<b>55,745</b>	<b>153,409,560</b>

Source: Minnesota IMPLAN Group ES 202: Employment Data Series and the Institute for Economic Development and Real Estate Research

**Table 2-2: Biosciences Establishments, Employment and Wages for 2001, 2003 and 2007: Louisiana  
Covered Employment and Wage Adjusted Annual Data**

NAICS	Description	2001					2004					2007				
		Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)	Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)	Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)
311221	Wet corn milling	-	-	-	-	-	1	1	1.0	14,965	14,965	1	119	119.0	57,581	6,852,131
311222	Soy bean processing	5	34	6.4	37,832	1,286,286	2	39	19.5	44,162	1,722,326	3	17	5.7	23,929	406,786
311223	Other oilseed processing	-	-	-	-	-	1	16	16.0	35,083	561,326	2	51	25.5	34,956	1,782,759
325193	Ethyl alcohol manufacturing	-	-	-	-	-	-	-	-	-	-	2	11	5.5	54,647	601,115
325199	All other basic organic chemical manufacturing	13	1,362	104.8	73,563	100,192,885	16	1,314	82.1	82,812	108,815,354	18	1,485	82.5	110,021	163,380,494
325221	Cellulose Organic fiber manufacturing	2	1	0.4	55,495	55,495	-	-	-	-	-	-	-	-	-	-
325311	Nitrogenous fertilizer manufacturing	13	1,663	127.9	68,731	114,299,280	11	1,012	92.0	75,174	76,075,853	10	653	65.3	86,659	56,588,471
325312	Phosphatic fertilizer manufacturing	7	586	87.5	56,906	33,346,969	2	449	224.5	77,321	34,717,013	3	410	136.7	85,035	34,864,267
325314	Fertilizing (mixing only) manufacturing	3	78	23.6	39,153	3,053,911	8	104	13.0	49,661	5,164,739	6	133	22.2	56,628	7,531,502
325320	Pesticide and other chemical manufacturing	13	727	55.9	71,423	51,924,168	11	1,347	122.5	83,008	111,812,084	9	1,123	124.8	90,921	102,104,399
DRUGS & PHARMACEUTICAL PREPARATION MANUFACTURING																
3254	Drugs & Pharmaceuticals Preparation	24	289	12.0	39,969	11,550,913	17	265	15.6	41,870	11,095,508	15	242	16.1	45,003	10,890,745
3254	Manufacturing															
MEDICAL DEVICES & EQUIPMENT																
334510	Electromedical and electrotherapeutic apparatus manufacturing	7	9	1.3	64,146	577,311	4	7	1.8	74,188	519,313	6	7	1.2	91,614	641,298
334516	Analytical laboratory instrument manufacturing	1	10	10.0	48,768	487,679	3	19	6.3	54,642	1,038,195	2	47	23.5	50,734	2,384,488
334517	Irradiation apparatus manufacturing	1	-	-	-	10,746	2	1	0.5	28,553	28,553	3	72	24.0	54,368	3,914,522
3391	Medical Equipment and Supplies Manufacturing	155	1,100	7.1	26,311	28,942,370	155	1,023	6.6	25,667	26,257,640	149	851	5.7	30,472	25,931,292
RESEARCH, TESTING, & MEDICAL LABORATORIES																
541380	Testing Laboratories	170	2,400	14.1	36,057	86,537,777	167	2,414	14.5	40,923	98,789,143	192	2,995	15.6	48,352	144,813,458
541710	Research and development in the physical, Engineering, and Life Sciences	77	570	7.4	47,959	27,336,634	93	503	5.4	55,556	27,944,907	-	-	-	-	-
541711	Research and Development in Biotechnology	-	-	-	-	-	-	-	-	-	-	25	101	4.0	49,769	5,036,629
541712	Research and development in the physical, Engineering, and Life Sciences (except Biotechnology)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
621511	Medical Laboratories	107	1,714	16.0	28,988	49,685,071	118	1,383	11.7	34,980	48,377,779	95	458	4.8	60,924	27,903,030
621512	Diagnostic Imaging Centers	88	759	8.6	28,914	21,945,757	114	782	6.9	38,698	30,261,641	131	921	7.0	41,783	38,482,428
541620	MANAGEMENT, SCIENTIFIC, AND TECHNICAL CONSULTING SERVICES	200	976	4.9	40,388	39,418,776	176	868	4.9	45,846	39,794,599	185	1,347	7.3	54,402	73,279,312
541690	Environmental Consulting Services	279	711	2.5	39,052	27,765,888	504	1,328	2.6	43,807	58,176,142	752	2,145	2.9	59,462	127,545,802
541690	Other Scientific and Technical Services															
<b>Louisiana Total</b>		<b>1,165</b>	<b>12,989</b>	<b>11.1</b>	<b>46,071</b>	<b>598,417,926</b>	<b>1,405</b>	<b>12,875</b>	<b>9.2</b>	<b>52,906</b>	<b>681,167,080</b>	<b>1,724</b>	<b>14,481</b>	<b>8.4</b>	<b>61,035</b>	<b>883,854,436</b>

Source: Minnesota IMPLAN Group ES 2002 Employment Data Series and the Institute for Economic Development and Real Estate Research

**Table 2-3: Biosciences Establishments, Employment and Wages for 2001, 2003 and 2007: Jefferson Parish  
Covered Employment and Wage Adjusted Annual Data**

NAICS	Description	2001				2004				2007						
		Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)	Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)	Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)
AGRICULTURAL FEED STOCKS & CHEMICALS																
311221	Wet corn milling	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
311222	Soy bean processing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
311223	Other oilseed processing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325193	Ethyl alcohol manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325199	All other basic organic chemical manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325221	Cellulose Organic fiber manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325311	Nitrogenous fertilizer manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325312	Phosphatic fertilizer manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325314	Fertilizing (mixing only) manufacturing	1	1	1.4	22,338	22,338	-	-	-	-	-	-	-	-	-	-
325320	Pesticide and other chemical manufacturing	1	1	1.4	22,338	22,338	1	-	-	-	16,339	1	72	72.0	93,854	6,757,461
DRUGS & PHARMACEUTICAL PREPARATION MANUFACTURING																
3254	Drugs & Pharmaceutical Preparation Manufacturing	3	10	3.3	65,798	657,978	2	1	0.5	32,678	32,678	1	7	7.0	35,111	245,776
MEDICAL DEVICES & EQUIPMENT																
	Electromedical and electrotherapeutic apparatus manufacturing	3	3	1.0	56,770	170,310	1	1	1.0	28,489	28,489	2	5	2.5	100,538	502,692
334510	Analytical laboratory instrument manufacturing	-	-	-	-	-	1	1	1.0	24,168	24,168	-	-	-	-	-
334517	Irradiation apparatus manufacturing	-	-	-	-	-	1	1	1.0	24,168	24,168	1	48	48.0	63,926	3,068,463
3391	Medical Equipment and Supplies Manufacturing	29	179	6.2	24,496	4,384,867	37	189	5.1	25,675	4,852,582	26	133	5.1	27,063	3,599,441
RESEARCH, TESTING, & MEDICAL LABORATORIES																
541380	Testing Laboratories	24	213	8.9	32,881	7,003,701	20	187	9.4	33,691	6,300,133	24	302	12.6	46,071	13,913,539
541710	Research and development in the physical, engineering, and life sciences	10	22	2.2	40,395	888,680	15	25	1.7	45,432	1,135,798	-	-	-	-	-
541711	Research and development in biotechnology	-	-	-	-	-	-	-	-	-	-	3	4	1.3	57,854	231,416
	Engineering, and life sciences (except biotechnology)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
541712	Biotechnology	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
621511	Medical Laboratories	18	406	22.6	32,550	13,215,099	24	452	18.8	38,779	17,528,211	11	21	1.9	80,465	1,689,762
621512	Diagnostic Imaging Centers	13	109	8.4	29,339	3,197,958	14	85	6.1	38,485	3,271,188	21	327	15.6	45,073	14,738,940
MANAGEMENT, SCIENTIFIC, AND TECHNICAL CONSULTING SERVICES																
541620	Environmental Consulting Services	22	81	3.7	44,555	3,608,966	24	112	4.7	48,518	5,434,053	17	105	6.2	50,240	5,275,210
541690	Other Scientific and Technical Services	28	82	2.9	39,989	3,279,094	47	127	2.7	49,301	6,261,265	25	154	6.2	47,753	7,354,029
	<b>Jefferson Parish Total</b>	<b>151</b>	<b>1,107</b>	<b>7.3</b>	<b>32,928</b>	<b>36,451,329</b>	<b>187</b>	<b>1,181</b>	<b>6.3</b>	<b>38,026</b>	<b>44,909,072</b>	<b>189</b>	<b>1,355</b>	<b>7.2</b>	<b>49,653</b>	<b>67,280,076</b>

Source: Minnesota IMPLAN Group ES 2002 Employment Data Series and the Institute for Economic Development and Real Estate Research

**Table 2-4: Biosciences Establishments, Employment and Wages for 2001, 2003 and 2007: Orleans Parish  
Covered Employment and Wage Adjusted Annual Data**

NAICS	Description	2001					2004					2007				
		Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)	Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)	Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)
AGRICULTURAL FEED STOCKS & CHEMICALS																
311221	Wet corn milling	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
311222	Soy bean processing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
311223	Other oilseed processing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325193	Ethyl alcohol manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325199	All other basic organic chemical manufacturing	1	1	1.0	20,296	20,296	-	-	-	-	-	-	-	-	-	-
325221	Cellulose Organic fiber manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325311	Nitrogenous fertilizer manufacturing	2	79	46.5	70,354	5,557,988	2	10	5.0	87,263	872,633	1	46	46.0	95,692	4,401,830
325312	Phosphatic fertilizer manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325314	Fertilizing (mixing only) manufacturing	-	-	-	-	-	1	3	3.0	38,254	114,763	-	-	-	-	-
325320	Pesticide and other chemical manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DRUGS & PHARMACEUTICAL PREPARATION MANUFACTURING																
3254	Drugs & Pharmaceuticals Preparation	4	24	6.0	43,507	1,053,772	2	10	5.0	59,714	597,142	2	26	13.0	52,977	1,377,407
MEDICAL DEVICES & EQUIPMENT																
334510	Electromedical and electrotherapeutic apparatus manufacturing	1	1	0.8	28,921	28,921	1	13	13.0	28,489	370,355	1	-	-	35,247	35,247
334516	Analytical laboratory instrument manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
334517	Irradiation apparatus manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3391	Medical Equipment and Supplies Manufacturing	16	74	4.6	28,220	2,088,297	9	40	4.4	28,747	1,149,889	8	11	1.4	59,484	654,322
RESEARCH, TESTING, & MEDICAL LABORATORIES																
541380	Testing laboratories	10	186	18.6	31,180	5,799,412	7	73	10.4	48,088	3,510,445	3	122	40.7	63,697	7,770,997
541710	Research and development in the physical, Engineering, and Life Sciences	21	221	10.5	51,415	11,362,733	22	166	7.5	55,767	9,257,299	-	-	-	-	-
541711	Research and Development in Biotechnology	-	-	-	-	-	-	-	-	-	-	5	14	2.8	70,015	980,213
541712	Research and development in the physical, Engineering, and Life Sciences (except Biotechnology)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
621511	Medical Laboratories	15	175	11.7	25,519	4,465,833	11	70	6.4	20,870	1,460,878	9	85	4.5	76,925	6,538,629
621512	Diagnostic Imaging Centers	8	41	5.1	30,656	1,256,887	7	22	3.1	50,865	1,119,029	5	20	4.0	44,425	1,510,442
MANAGEMENT, SCIENTIFIC, AND TECHNICAL CONSULTING SERVICES																
541620	Environmental Consulting Services	11	19	1.7	52,618	999,739	6	24	4.0	49,511	1,188,254	8	136	17.0	38,891	5,289,194
541690	Other Scientific and Technical Services	29	106	3.7	40,701	4,314,328	43	109	2.5	47,911	5,222,294	41	125	3.0	74,482	9,310,227
<b>Orleans Parish Total</b>		<b>118</b>	<b>927</b>	<b>7.9</b>	<b>39,858</b>	<b>36,948,206</b>	<b>111</b>	<b>540</b>	<b>4.9</b>	<b>46,043</b>	<b>24,862,581</b>	<b>102</b>	<b>619</b>	<b>6.1</b>	<b>63,558</b>	<b>39,342,638</b>

Source : Minnesota IMPLAN Group ES 202 Employment Data Series and the Institute for Economic Development and Real Estate Research

**Table 2-5: Biosciences Establishments, Employment and Wages for 2001, 2003 and 2007: Plaquemines Parish  
Covered Employment and Wage Adjusted Annual Data**

NAICS	Description	2001				2004				2007						
		Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)	Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)	Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)
AGRICULTURAL FEED STOCKS & CHEMICALS																
311221	Wet corn milling	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
311222	Soy bean processing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
311223	Other oilseed processing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325193	Ethyl alcohol manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325199	All other basic organic chemical manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325221	Cellulose Organic fiber manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325311	Nitrogenous fertilizer manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325312	Phosphatic fertilizer manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325314	Fertilizing (mixing only) manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325320	Pesticide and other chemical manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DRUGS & PHARMACEUTICAL PREPARATION MANUFACTURING																
3254	Drugs & Pharmaceuticals Preparation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3254	Manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MEDICAL DEVICES & EQUIPMENT																
334510	Electromedical and electrotherapeutic apparatus manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
334516	Analytical laboratory instrument manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
334517	Irradiation apparatus manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3391	Medical Equipment and Supplies Manufacturing	1	-	-	-	4,768	-	-	-	-	-	-	-	-	-	-
RESEARCH, TESTING, & MEDICAL LABORATORIES																
541380	Testing Laboratories	4	143	35.8	58,787	8,406,594	7	148	21.1	53,792	7,961,204	-	-	-	-	-
541710	Engineering, and Life Sciences Research and development in the physical, Research and Development in Biotechnology Research and development in the physical, Engineering, and Life Sciences (except Biotechnology)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
541711	Engineering, and Life Sciences Research and development in the physical, Research and development in the physical, Engineering, and Life Sciences (except Biotechnology)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
541712	Biotechnology	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
621511	Medical Laboratories	2	92	57.5	22,881	2,105,955	1	6	6.0	48,572	291,431	1	44	44.0	58,026	2,553,156
621512	Diagnostic Imaging Centers	-	-	-	-	-	-	-	-	-	-	1	34	34.0	35,682	1,213,198
MANAGEMENT, SCIENTIFIC, AND TECHNICAL CONSULTING SERVICES																
541620	Environmental Consulting Services	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
541690	Other Scientific and Technical Services	5	1	0.2	61,609	61,609	3	-	-	-	7,076	4	65	65.0	45,866	2,981,281
	<b>Plaquemines Parish Total</b>	<b>11</b>	<b>236</b>	<b>22.1</b>	<b>44,822</b>	<b>10,578,026</b>	<b>12</b>	<b>165</b>	<b>13.8</b>	<b>51,920</b>	<b>8,566,780</b>	<b>9</b>	<b>168</b>	<b>18.7</b>	<b>46,131</b>	<b>7,750,081</b>

Source: Minnesota IMPLAN Group ES 202 Employment Data Series and the Institute for Economic Development and Real Estate Research

**Table 2-6: Biosciences Establishments, Employment and Wages for 2001, 2003 and 2007: St. Bernard Parish  
Covered Employment and Wage Adjusted Annual Data**

NAICS	Description	2001				2004				2007						
		Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)	Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)	Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)
311221	Wet corn milling	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
311222	Soy bean processing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
311223	Other oilseed processing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325193	Ethyl alcohol manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325199	All other basic organic chemical manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325221	Cellulose Organic fiber manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325311	Nitrogenous fertilizer manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325312	Phosphatic fertilizer manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325314	Fertilizing (mixing only) manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325320	Pesticide and other chemical manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325400	DRUGS & PHARMACEUTICAL PREPARATION MANUFACTURING	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3254	Drugs & Pharmaceuticals Preparation Manufacturing	1	1	1.0	10,373	10,373	1	1	1.0	21,591	21,591	1	1	1.0	21,591	21,591
334510	Electromedical and electrotherapeutic apparatus manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
334516	Analytical laboratory instrument manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
334517	Irradiation apparatus manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3391	Medical Equipment and Supplies Manufacturing	4	22	5.5	30,862	678,974	6	25	4.2	26,090	652,248	4	3	0.8	28,012	84,036
541380	RESEARCH, TESTING, & MEDICAL LABORATORIES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
541710	Testing Laboratories	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
541711	Research and development in the physical, Engineering, and Life Sciences	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
541711	Research and Development in Biotechnology	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
541712	Research and development in the physical, Engineering, and Life Sciences (except Biotechnology)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
621511	Medical Laboratories	1	2	2.9	24,353	48,705	1	3	3.0	48,356	145,069	1	3	3.0	48,356	145,069
621512	Diagnostic Imaging Centers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
81	MANAGEMENT, SCIENTIFIC, AND TECHNICAL CONSULTING SERVICES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
541620	Environmental Consulting Services	1	1	1.7	34,104	34,104	1	7	7.0	21,742	152,192	1	1	1.0	40,443	40,443
541690	Other Scientific and Technical Services	2	14	5.8	54,118	757,656	1	7	7.0	21,742	152,192	1	1	1.0	40,443	40,443
	<b>St. Bernard Parish Total</b>	<b>9</b>	<b>40</b>	<b>4.6</b>	<b>38,245</b>	<b>1,529,812</b>	<b>10</b>	<b>36</b>	<b>3.6</b>	<b>27,096</b>	<b>975,473</b>	<b>6</b>	<b>7</b>	<b>1.2</b>	<b>67,015</b>	<b>469,105</b>

Source: Minnesota IMP PLAN Group ES 202 Employment Data Series and the Institute for Economic Development and Real Estate Research

**Table 2-7: Biosciences Establishments, Employment and Wages for 2001, 2003 and 2007: St. Tammany Parish Covered Employment and Wage Adjusted Annual Data**

NAICS	Description	2001				2004				2007						
		Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)	Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)	Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)
AGRICULTURAL FEED STOCKS & CHEMICALS																
311221	Wet corn milling	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
311222	Soy bean processing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
311223	Other oilseed processing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325193	Ethyl alcohol manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325199	All other basic organic chemical manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325221	Cellulose Organic fiber manufacturing	2	25	12.5	69,016	1,725,391	-	-	-	-	-	-	-	-	-	-
325311	Nitrogenous fertilizer manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325312	Phosphatic fertilizer manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325314	Fertilizing (mixing only) manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325320	Pesticide and other chemical manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DRUGS & PHARMACEUTICAL PREPARATION MANUFACTURING																
3254	Drugs & Pharmaceuticals Preparation Manufacturing	3	7	2.3	29,189	204,325	3	7	2.3	95,415	667,905	3	9	3.0	105,244	947,196
MEDICAL DEVICES & EQUIPMENT																
	Electromedical and electrotherapeutic apparatus manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
334510	Analytical laboratory instrument manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
334516	Irradiation apparatus manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3391	Medical Equipment and Supplies Manufacturing	16	133	8.3	36,504	4,855,074	14	97	6.9	28,847	2,798,155	19	100	5.3	30,681	3,068,065
RESEARCH, TESTING, & MEDICAL LABORATORIES																
541380	Testing Laboratories	5	54	10.8	26,289	1,419,584	5	58	11.6	27,791	1,611,906	4	80	20.0	42,425	3,394,008
541710	Research and development in the physical, Engineering, and Life Sciences	3	6	2.4	75,504	453,026	7	49	7.0	75,329	3,691,145	-	-	-	-	-
541711	Research and Development in Biotechnology	-	-	-	-	-	-	-	-	-	-	4	33	8.3	91,947	3,034,266
54172	Research and development in the physical, Engineering, and Life Sciences (except Biotechnology)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
621511	Medical Laboratories	9	62	6.9	67,067	4,158,165	11	38	3.5	53,150	2,019,718	13	40	3.1	58,508	2,340,318
621512	Diagnostic Imaging Centers	4	21	5.3	29,882	627,517	7	53	7.6	37,089	1,965,695	8	58	7.3	35,537	2,061,120
MANAGEMENT, SCIENTIFIC, AND TECHNICAL CONSULTING SERVICES																
541620	Environmental Consulting Services	10	17	1.7	54,151	920,566	8	24	3.0	47,859	1,148,621	11	36	3.3	71,873	2,587,436
541690	Other Scientific and Technical Services	14	29	2.1	53,538	1,552,604	34	145	4.3	52,436	7,603,176	43	180	4.2	90,141	16,225,361
<b>St. Tammany Parish Total</b>		<b>66</b>	<b>354</b>	<b>5.4</b>	<b>44,961</b>	<b>15,916,252</b>	<b>90</b>	<b>472</b>	<b>5.2</b>	<b>45,587</b>	<b>21,517,075</b>	<b>118</b>	<b>603</b>	<b>5.1</b>	<b>63,960</b>	<b>38,567,660</b>

Source: Minnesota IMPLAN Group ES 202 Employment Data Series and the Institute for Economic Development and Real Estate Research

## **Research Investment, Patents and Education**

A healthy biosciences sector is built on a foundation of strong basic research and access to an educated and well-trained workforce. Table 2-8 through 2-10 summarize trends that address these issues: academic research and development (R&D) funding, patents awarded and degrees awarded by local colleges and universities in bioscience related fields.

In the New Orleans metropolitan area, total academic-based R&D research expenditures grew from \$375.3 million in 2001 to \$507.6 million in 2005, or by more than 35.3% (see Table 2-8). These are the combined expenditures for all of the research institutions listed. The University of New Orleans and the Louisiana State University Health Sciences Center, both part of the LSU system, do not have individual listings for R&D expenditures. The National Science Foundation (NSF) aggregates the entire LSU System when calculating R&D expenditures. Since the beginning of the decade, the LSU System entities have accounted for about 70% to 72% of the region's total R&D expenditures. Overall, LSU System schools increased R&D expenditures by just under 33% between 2001 and 2005, or from \$268.9 million to \$356.8 million and gave the system a ranking of 36<sup>th</sup> in the U.S. All other universities in the New Orleans area combined, including Tulane, increased R&D expenditures from \$106.4 million in 2001 to almost \$147.5 million in 2005, or by 38.6%. Tulane, with the second largest share of R&D expenditures in the region, experienced a 39.3% growth as funding grew from \$99.8 million in 2001 to just under \$139 million in 2005.

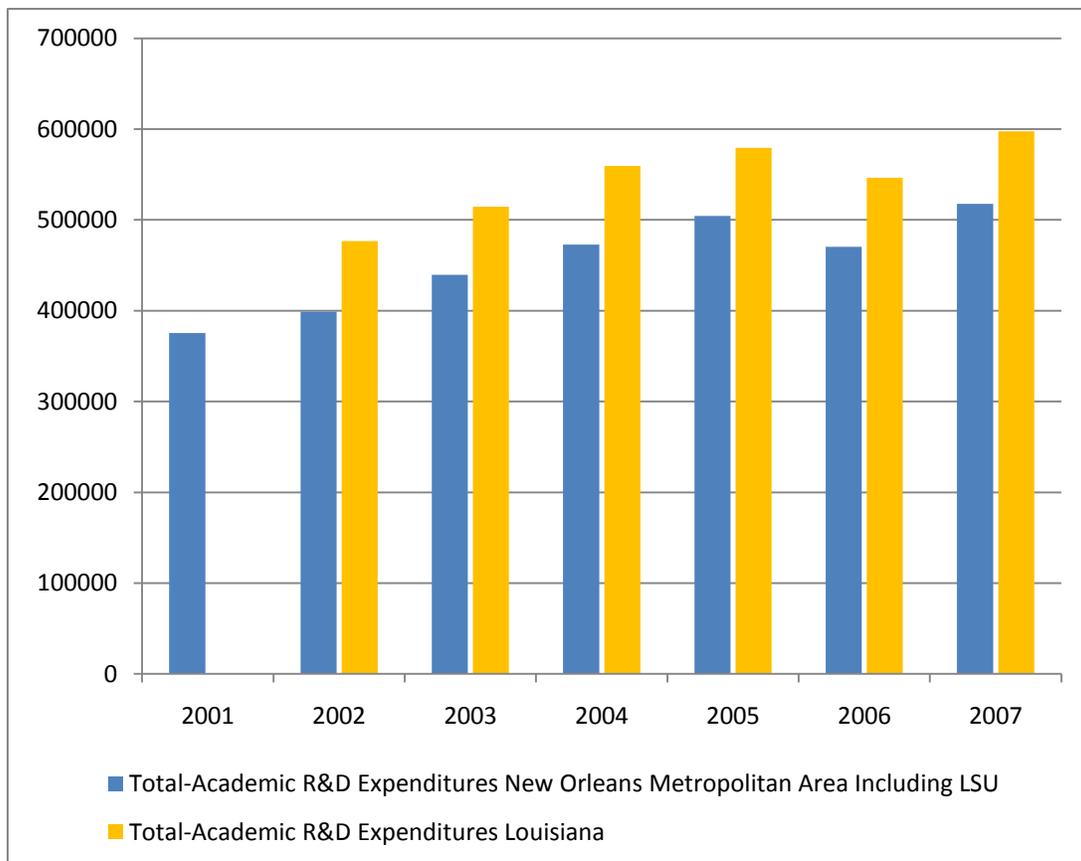
Although total academic R&D in the New Orleans region dropped to \$470.5 million in 2006 (or by 6.7%), the decrease could be considered relatively modest given the post-Katrina disruptions most institutions confronted. In 2007, total funding rose to \$517.7 million (or by 10%) reaching its highest aggregate level over the period analyzed. Although LSU system wide funding rose to \$372.4 million, its ranking dropped from 36<sup>th</sup> to 40<sup>th</sup> in the U.S. At Tulane, funding rose from \$114.4 million to \$137.1 million (or by just under 20%), while its national ranking slipped from 103 in 2005 to 110 in 2007. However, given the significant disruptions caused by the storm, these ranking slippages should be considered modest at best. The ability of LSU and Tulane to hold their standings speaks well of their resiliency in the face of significant operational challenges faced by both institutions.

Table 2-9 summarizes academic research and development expenditures reported by the NSF particular to biosciences and healthcare for New Orleans area institutions. The information covers the 2001 to 2005 period only since reports for 2006 and later are either incomplete or unavailable. From 2001 to 2005, bioscience/healthcare research expenditures by academic institutions in the region grew from \$259.2 million to \$392.3 million or by 51.2%. Bioscience specific R&D expenditures ranged from

70.2% to 78.1% of aggregate expenditures during this five year period. For the period as a whole, biosciences research accounted for just over 75% of total academic R&D expenditures in the region. If this share was held constant for 2006 and 2007, biosciences R&D expenditures in the New Orleans area would have totaled \$337.8 and \$388.3 million, respectively.

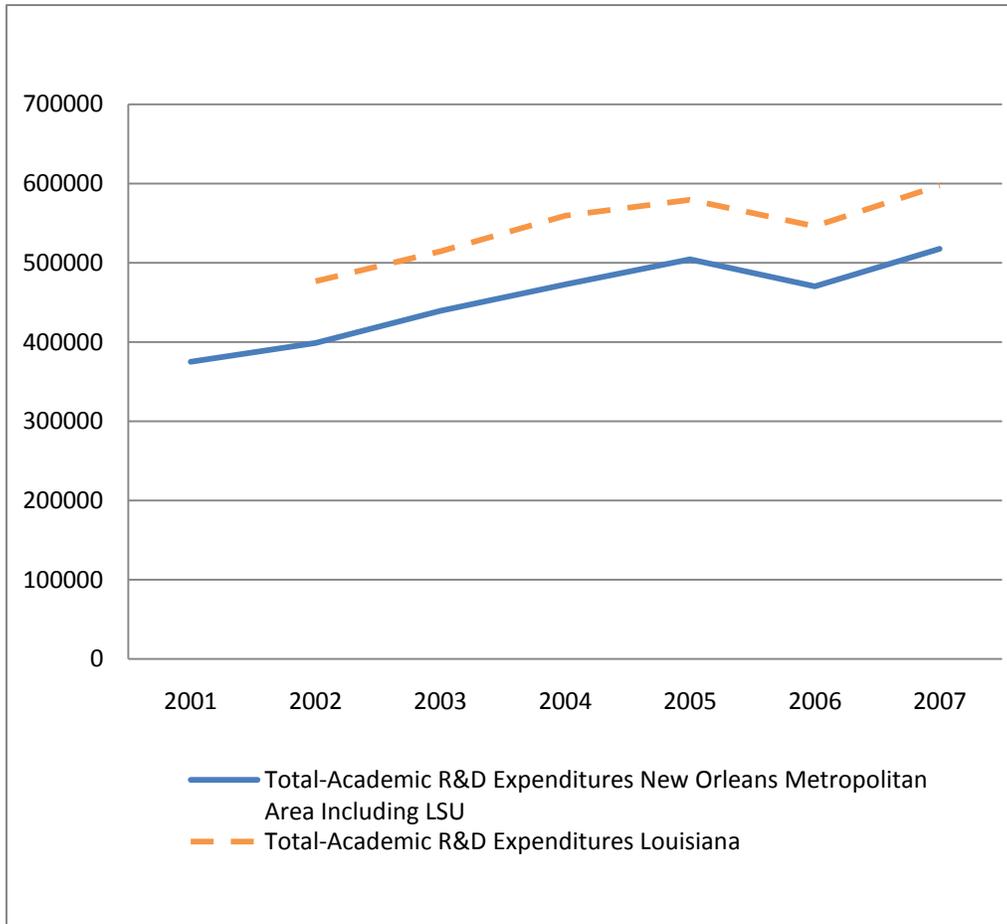
LSU System-wide bioscience research typically represented about two-thirds of the region-wide total expenditures and grew from \$172.4 million in 2001 to \$259.0 million in 2005 or 50.2%. Tulane accounted for the second largest expenditures in bioscience and healthcare related R&D during the 2001 to 2005 period and saw funding grow from \$82.2 million to \$127.6 million or by 55.2%. During this same five year period, biosciences related research expenditures at Xavier University grew from \$4.3 million in 2001 to \$5.3 million in 2005.

**Figure 2-4: Total Academic Research and Development Expenditures: 2001 - 2007  
New Orleans Metropolitan Area and Louisiana  
(Thousands of Dollars)**



Source: National Science Foundation

**Figure 2-5: Total Academic Research and Development Expenditures: 2001 - 2007  
New Orleans Metropolitan Area and Louisiana  
(Thousands of Dollars)**



Source: National Science Foundation

**Table 2-8: Total Academic Research and Development Expenditures:  
New Orleans Metropolitan Area  
2001 – 2007  
Thousands of Dollars (000)**

Institution	2001	2002	2003	2004	2005	US Ranking 05	2006	2007	US Ranking 07
LSU System all Campuses	268,911	287,363	314,446	341,634	356,828	36	348,797	372,421	40
Tulane	99,761	102,998	117,709	123,667	138,959	103	114,397	137,107	110
Xavier	5,113	6,413	5,515	5,585	5,972	307	3,982	4,394	343
SUNO	680	937	680	680	587	541	592	592	657
Loyola University	459	486	513	540	567	545	567	372	408
Dillard	349	528	668	679	1,401	-	2,123	2,846	381
Total-Academic R&D Expenditures New Orleans Metropolitan Area Including LSU	375,273	398,725	439,531	472,785	504,314	-	470,458	517,732	-
Total-Academic R&D Expenditures New Orleans Metropolitan Area excluding LSU	106,362	111,362	125,085	131,151	147,486	-	121,661	145,311	-
Total-West South Central (nine regions)	NA	3,434,897	3,758,178	3,904,480	4,154,415	-	4,352,399	4,552,010	9
Total-Academic R&D Expenditures Louisiana	NA	476,785	514,403	559,372	579,476	-	546,263	597,522	26
Total R&D Research Expenditures - US	32,823,937	36,405,220	40,100,324	43,257,731	45,792,673	-	47,742,832	49,430,767	-

Source: National Science Foundation

**Table 2-9: Total Academic Research and Development Expenditures  
Specific to Bioscience  
2001 – 2005  
Thousands of Dollars (000)**

Institution	2001	2002	2003	2004	2005
LSU System all Campuses	172,427	187,927	220,155	247,181	259,021
Tulane	82,179	91,230	103,919	112,868	127,557
Xavier	4,311	5,386	5,069	4,940	5,291
Southern University N.O.	NA	NA	NA	NA	NA
Loyola University	317	339	362	385	408
Dillard	-	-	-	-	-
Total Academic R&D Expenditures New Orleans Metropolitan Area	259,234	284,882	329,505	365,374	392,277

Fields included in Bioscience:

Life Sciences	Mathematical Sciences	Psychology
Agricultural Sciences	Chemistry	Bioengineering/Biomedical

Source: National Science Foundation

Patents issued are very often an outgrowth of academic R&D investments. These intellectual property (IP) assets are the seedbed of entrepreneurial initiatives that very often attract risk capital and ultimately spawn new businesses and jobs. Table 2-10 summarizes the number of biosciences related patents issued in the New Orleans area and the state as a whole over the 2002 to 2007 period. Appendix Table A-1 describes the nature of each patent issued in the New Orleans area. Overall, there are seven categories in which bioscience patents are included. These are agricultural bioscience, biochemistry, biotechnology, drugs and pharmaceuticals, surgical and medical equipment and other bioscience related.

From 2002 to 2007 there were 134 bioscience patents issued in the New Orleans region. This accounted for 5.2% of the 2,573 patents issued statewide during the same period. Biotechnology with 48 patents accounted for the largest share of the region’s protected IP during this period. The patents issued for biotechnology in the New Orleans area accounted for almost three-fourths of the 65 patents issued statewide in this category, while biochemistry patents issued represented about 10% of the 418 granted statewide in this same category.

On a statewide basis, the surgical and medical equipment category had 969 patents issued (37.7% of the total), while drugs and pharmaceuticals accounted for 23.6% of the statewide total with 606 patents issued.

**Table 2-10: Bioscience Related Patents Issued Louisiana and New Orleans Region 2002 – 2007**

Category	Patents	
	Louisiana	New Orleans Area
Agricultural Bioscience	54	3
Biochemistry	418	42
Biotechnology	65	48
Drugs and Pharmaceuticals	606	1
Surgical and Medical Instruments	969	15
Other Medical Equipment	221	11
Other Bioscience Related	240	14
<b>Total</b>	<b>2,573</b>	<b>134</b>

Source: U.S. Patent Office

Bioscience-related degrees awarded in a region are an essential component of its intellectual and workforce infrastructure. Degree productivity at various institutions is very often directly linked to their research missions and indicative of administrative and faculty commitment to fulfillment of these missions. This academic productivity is also highly valued by those engaged in creating and financing bioscience start-ups since this process provides a steady stream of workers needed at all levels of the enterprise. Table 2-11 summarizes degrees and certificates awarded by institutions of higher education in the New Orleans region for academic years 2002 – 2003 to 2007 – 2008. Table 2-12 provides a more detailed profile of degrees awarded just for the 2007 – 2008 academic year.

Over the six academic years covered, the ten institutions operating in the New Orleans region awarded a total of 17,064 bioscience-related associate, undergraduate, graduate degrees and/or certificates, an average of about 2,845 per year. Typical annual output ranges from 2,700 to 2,775 degrees and certificates with a peak of 3,529 in the 2006 – 2007 academic year. This peak, however, is an aberration caused by Katrina in that many students who could have graduated in 2005 – 2006 were unable to do so due to storm-related campus closings and other disruptions. In 2007 – 2008, degree output returned to a more normal 2,712.

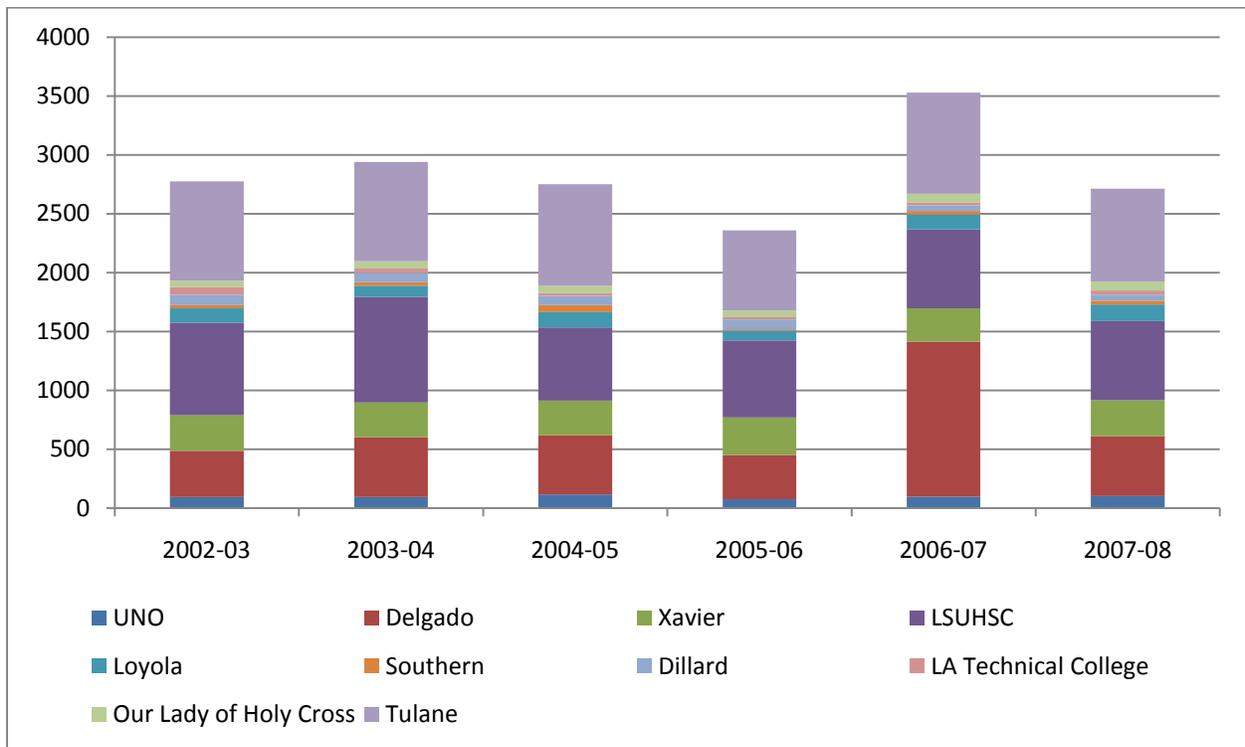
LSU Health Sciences Center (LSUHSC) and Tulane account for the largest bioscience-related degree productivity in the region. Tulane, with 4,879 degrees awarded, accounted for 28.6% of the aggregate degree productivity within the region, followed by 4,301 degrees awarded by LSUHSC or about 25.2% of the total for the six year period. Both institutions have significant commitments to graduate education in the biosciences field as evidenced by the master's and doctoral level output at both. This is particularly true in the health professions and related clinical sciences category as well as in the biological and biomedical sciences category, particularly for Tulane University.

The next highest share of total output of bioscience related graduates over these six academic years was produced by Delgado Community College. All of this institution's output is categorized as either certificates or associate degrees. This two year community college is strongly committed to workforce development within bioscience and healthcare-related professions as indicated by the 3,603 graduates (21.1% of the six year total) it produced.

Xavier University, which is a private historically black college, has one of the premier pre-medical programs in the country and one of only two pharmacy schools in the state. During the six year period analyzed, Xavier produced 1,797 bioscience-related graduates and accounted for one in every ten of the region's total graduate output for the period. On average, this relatively small institution is producing just under 300 bioscience graduates annually.

Two other institutions producing notable levels of biosciences graduates are Loyola University and the University of New Orleans (a campus of the LSU System). Loyola, for example, produced 698 bioscience-related graduates during these six academic years (about 4.1% of the regional total), while UNO's bioscience-related degree output totaled 577 or 3.4% of the region's total. UNO's graduates are heavily concentrated in biology/biological sciences and chemistry, while Loyola's degree productivity was focused in health professions and related clinical sciences, particularly at the undergraduate and master's levels.

**Figure 2-6: Degrees Awarded by New Orleans Colleges**



Source: National Center for Educational Statistics. Web page accessed March 31, 2009

**Table 2-11: Degrees Awarded by Colleges and Universities in the New Orleans  
Metropolitan Area  
Academic Year 2002 – 2003 to Academic Year 2007 - 2008**

<b>Institution</b>	<b>2002-03</b>	<b>2003-04</b>	<b>2004-05</b>	<b>2005-06</b>	<b>2006-07</b>	<b>2007-08</b>
<b>University of New Orleans</b>						
Biology/Biological Sciences						
Bachelor	67	59	78	50	70	75
Masters	8	7	8	2	6	6
Ph.D.	1	0	0	2	2	5
<i>Category Subtotal</i>	<i>76</i>	<i>66</i>	<i>86</i>	<i>54</i>	<i>78</i>	<i>86</i>
Chemistry						
Bachelor	8	7	13	9	9	6
Masters	4	9	8	4	7	1
PhD	7	13	7	7	2	10
<i>Category Subtotal</i>	<i>19</i>	<i>29</i>	<i>28</i>	<i>20</i>	<i>18</i>	<i>17</i>
<b>Total</b>	<b>95</b>	<b>95</b>	<b>114</b>	<b>74</b>	<b>96</b>	<b>103</b>
<b>Delgado</b>						
Agriculture, agriculture operations and related sciences						
Certificate <1 Year						
Certificate 1-2 Years	0	2	1	2	4	2
Associate	2	2	1	4	3	5
<i>Category Subtotal</i>	<i>2</i>	<i>4</i>	<i>2</i>	<i>6</i>	<i>7</i>	<i>7</i>
Engineering technologies/technicians	0	0	0	0	0	9
Biomedical Technology/Technician	0	0	0	0	0	0
<i>Category Subtotal</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>9</i>
Health professions and related clinical sciences						
Certificate <1 Year	0	0	0	0	682	365
Certificate 1-2 Years	83	103	128	87	107	0
Certificate 2-4 Years	17	16	0	0	0	0
Associate	289	385	375	283	521	125
<i>Category Subtotal</i>	<i>389</i>	<i>504</i>	<i>503</i>	<i>370</i>	<i>1,310</i>	<i>490</i>
<b>Total</b>	<b>391</b>	<b>508</b>	<b>505</b>	<b>376</b>	<b>1,317</b>	<b>506</b>
<b>Xavier</b>						
Biological and biomedical sciences						
Bachelor	181	175	175	185	146	137
Masters	0	0	0	0	0	0
PhD	0	0	0	0	0	0
<i>Category Subtotal</i>	<i>181</i>	<i>175</i>	<i>175</i>	<i>185</i>	<i>146</i>	<i>137</i>
Health professions and related clinical sciences						
Bachelor	4	11	11	3	8	7
Masters	0	11	11	6	7	10
PhD	0	0	0	0	0	0
Professional Degree	117	96	96	126	122	152
<i>Category Subtotal</i>	<i>121</i>	<i>118</i>	<i>118</i>	<i>135</i>	<i>137</i>	<i>169</i>
<b>Total</b>	<b>302</b>	<b>293</b>	<b>293</b>	<b>320</b>	<b>283</b>	<b>306</b>

**Table 2-11 (continued): Degrees Awarded by Colleges and Universities in the New Orleans Metropolitan Area Academic Year 2002 – 2003 to Academic Year 2007 - 2008**

Institution	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
<b>LSUHSC</b>						
Biological and biomedical sciences						
Associate	0	0	0	0	0	0
Bachelor	0	0	0	0	0	0
Masters	14	17	3	7	13	2
PhD	12	26	13	6	9	11
Professional Degree	0	0	0	0	0	0
Category Subtotal	26	43	16	13	22	13
Health professions and related clinical sciences						
Certificate	0	0	0	0	0	11
Associate	5	5	6	4	7	5
Bachelor	329	340	231	227	259	244
Masters	112	169	135	176	165	168
PhD	7	12	9	5	4	74
Professional Degree	307	328	225	228	214	155
Category Subtotal	760	854	606	640	649	657
Multi/interdisciplinary studies						
Associate	0	0	0	0	0	0
Bachelor	0	0	0	0	0	0
Masters	0	0	0	1	2	1
PhD	3	1	2	1	1	1
Professional Degree	0	0	0	0	0	0
Category Subtotal	3	1	2	2	3	2
<b>Total</b>	<b>786</b>	<b>897</b>	<b>622</b>	<b>653</b>	<b>671</b>	<b>672</b>
<b>Tulane</b>						
Biological/Medical Engineering						
Associate	0	0	0	0	0	0
Bachelor	40	47	36	27	50	36
Masters	8	11	6	2	15	4
PhD	2	8	2	3	3	2
Professional Degree	0	0	0	0	0	0
Category Subtotal	50	66	44	32	68	42
Biological and biomedical sciences						
Associate	0	0	0	0	0	0
Bachelor	112	76	84	47	113	85
Masters	109	104	116	69	130	116
PhD	22	22	39	22	29	40
Professional Degree	0	0	0	0	0	0
Category Subtotal	243	202	239	138	272	241
Health professions and related clinical sciences						
Associate						
Bachelor	0	0	0	0	0	7
Masters	347	361	342	311	260	231
PhD	7	16	13	14	24	20
Professional Degree	152	156	146	150	144	156
Category Subtotal	506	533	501	475	428	414
Multi/interdisciplinary studies						
Associate	0	0	0	0	0	0
Bachelor	39	35	61	29	66	63
Masters	2	5	17	5	21	25
PhD	2	4	1	1	5	4
Professional Degree	0	0	0	0	0	0
Category Subtotal	43	44	79	35	92	92
<b>Total</b>	<b>842</b>	<b>845</b>	<b>863</b>	<b>680</b>	<b>860</b>	<b>789</b>

**Table 2-11 (continued): Degrees Awarded by Colleges and Universities in the New Orleans Metropolitan Area  
Academic Year 2002 – 2003 to Academic Year 2007 - 2008**

<b>Institution</b>	<b>2002-03</b>	<b>2003-04</b>	<b>2004-05</b>	<b>2005-06</b>	<b>2006-07</b>	<b>2007-08</b>
<b>Loyola</b>						
Biological and biomedical sciences						
Associate	0	0	0	0	0	0
Bachelor	41	26	41	34	30	17
Masters	0	0	0	0	0	0
PhD	0	0	0	0	0	0
Professional Degree	0	0	0	0	0	0
<i>Category Subtotal</i>	<i>41</i>	<i>26</i>	<i>41</i>	<i>34</i>	<i>30</i>	<i>17</i>
Health professions and related clinical sciences						
Associate						
Bachelor	58	41	53	26	26	46
Masters	22	28	35	22	69	80
PhD	0	0	0	0	0	0
Professional Degree	0	0	0	0	0	0
Certificate above bachelors	0	1	0	1	1	0
<i>Category Subtotal</i>	<i>80</i>	<i>70</i>	<i>88</i>	<i>49</i>	<i>96</i>	<i>126</i>
<b>Total</b>	<b>121</b>	<b>96</b>	<b>129</b>	<b>83</b>	<b>126</b>	<b>143</b>
<b>Southern University at New Orleans</b>						
Biological and biomedical sciences						
Associate	0	0	0	0	0	0
Bachelor	22	12	22	7	18	11
Masters	0	0	0	0	0	0
PhD	0	0	0	0	0	0
Professional Degree	0	0	0	0	0	0
<i>Category Subtotal</i>	<i>22</i>	<i>12</i>	<i>22</i>	<i>7</i>	<i>18</i>	<i>11</i>
Health professions and related clinical sciences						
Associate	4	9	31	3	10	16
Bachelor	2	9	8	2	3	4
Masters	0	0	0	0	0	0
PhD	0	0	0	0	0	0
Professional Degree	0	0	0	0	0	0
Certificate above bachelors	0	0	0	0	0	0
<i>Category Subtotal</i>	<i>6</i>	<i>18</i>	<i>39</i>	<i>5</i>	<i>13</i>	<i>20</i>
<b>Total</b>	<b>28</b>	<b>30</b>	<b>61</b>	<b>12</b>	<b>31</b>	<b>31</b>
<b>Dillard</b>						
Biological and biomedical sciences						
Associate	0	0	0	0	0	0
Bachelor	10	40	40	42	18	29
Masters	0	0	0	0	0	0
PhD	0	0	0	0	0	0
Professional Degree	0	0	0	0	0	0
<i>Category Subtotal</i>	<i>10</i>	<i>40</i>	<i>40</i>	<i>42</i>	<i>18</i>	<i>29</i>
Health professions and related clinical sciences						
Associate	0	0	0	0	0	0
Bachelor	78	37	37	42	30	23
Masters	0	0	0	0	0	0
PhD	0	0	0	0	0	0
Professional Degree	0	0	0	0	0	0
Certificate above bachelors	0	0	0	0	0	0
<i>Category Subtotal</i>	<i>78</i>	<i>37</i>	<i>37</i>	<i>42</i>	<i>30</i>	<i>23</i>
<b>Total</b>	<b>88</b>	<b>77</b>	<b>77</b>	<b>84</b>	<b>48</b>	<b>52</b>

**Table 2-11 (continued): Degrees Awarded by Colleges and Universities in the New Orleans Metropolitan Area  
Academic Year 2002 – 2003 to Academic Year 2007 - 2008**

<b>Institution</b>	<b>2002-03</b>	<b>2003-04</b>	<b>2004-05</b>	<b>2005-06</b>	<b>2006-07</b>	<b>2007-08</b>
<b>Louisiana Technical College--Jefferson Campus</b>						
Health professions and related clinical sciences						
Certificate <1	0	0	0	0	1	27
Certificate 1-2 years	67	37	25	18	23	7
Associate	0	0	0	0	0	0
<i>Category Subtotal</i>	67	37	25	18	24	34
<b>Total</b>	<b>67</b>	<b>37</b>	<b>25</b>	<b>18</b>	<b>24</b>	<b>34</b>
<b>Our Lady of Holy Cross</b>						
Biological and biomedical sciences						
Associate	0	0	0	0	0	0
Bachelor	8	6	6	7	12	12
Masters	0	0	0	0	0	0
PhD	0	0	0	0	0	0
Professional Degree	0	0	0	0	0	0
<i>Category Subtotal</i>	8	6	6	7	12	12
Health professions and related clinical sciences						
Associate	0	0	0	0	0	0
Bachelor	8	52	52	42	56	56
Masters	38	4	4	9	5	8
PhD	0	0	0	0	0	0
Professional Degree	0	0	0	0	0	0
<i>Category Subtotal</i>	46	56	56	51	61	64
<b>Total</b>	<b>54</b>	<b>62</b>	<b>62</b>	<b>58</b>	<b>73</b>	<b>76</b>
<b>New Orleans Metropolitan Area Total</b>	<b>2,774</b>	<b>2,940</b>	<b>2,751</b>	<b>2,358</b>	<b>3,529</b>	<b>2,712</b>

Source: National Center for Educational Statistics. Web page accessed March 31, 2009.

**Table 2-12: Higher Education Degrees Awarded by Institutions in the New Orleans Metropolitan Area  
2007 - 2008**

UNIVERSITY OF NEW ORLEANS								
	Certificate	Associate	Bachelor	Masters	PhD	MD	PharmD	Total
Biology/Biological Sciences, General	na	na	75	6				
Conservation Biology	na	na			5			
<i>Category subtotal</i>	<i>na</i>	<i>na</i>	<i>75</i>	<i>6</i>	<i>5</i>			
Chemistry, General	na	na	6	1	10			
<b>UNO total</b>	<b>na</b>	<b>na</b>	<b>81</b>	<b>7</b>	<b>15</b>			<b>103</b>
DELGADO								
	Certificate	Associate	Bachelor	Masters	PhD	MD	PharmD	Total
<i>Agriculture, agriculture operations, and related sciences</i>								
Applied Horticulture/Horticulture Operations, General	2	5	na	na	na			
<i>Category subtotal</i>	<i>2</i>	<i>5</i>	<i>na</i>	<i>na</i>	<i>na</i>			
<i>Engineering technologies/technicians</i>								
Biomedical Technology/Technician	9		na	na	na			
<i>Category subtotal</i>	<i>9</i>		<i>na</i>	<i>na</i>	<i>na</i>			
<i>Health professions and related clinical sciences</i>								
Clinical/Medical Laboratory Technician	2		na	na	na			
Diagnostic Medical Sonography/Sonographer & Ultrasound Technician		11	na	na	na			
Dietetic Technician (DTR)	7		na	na	na			
Emergency Medical Technology/Technician (EMT Paramedic)	3	16	na	na	na			
Health Information/Medical Records Technology/Technician	11	4	na	na	na			
Licensed Practical/Vocational Nurse Training		40	na	na	na			
Massage Therapy/Therapeutic Massage		12	na	na	na			
Medical Radiologic Technology/Science - Radiation Therapist		0	na	na	na			
Nuclear Medical Technology/Technologist		6	na	na	na			
Nursing/Registered Nurse (RN, ASN, BSN, MSN)	265		na	na	na			
Occupational Therapist Assistant	4		na	na	na			
Ophthalmic Technician/Technologist		10	na	na	na			
Pharmacy Technician/Assistant		9	na	na	na			
Physical Therapist Assistant	14		na	na	na			
Radiologic Technology/Science - Radiographer	37		na	na	na			
Respiratory Care Therapy/Therapist	14		na	na	na			
Surgical Technology/Technologist		17	na	na	na			
Veterinary/Animal Health Technology/Technician/Veterinary Assistant	8		na	na	na			
<i>Category subtotal</i>	<i>365</i>	<i>125</i>	<i>na</i>	<i>na</i>	<i>na</i>			
<b>Delgado Total</b>	<b>376</b>	<b>130</b>	<b>na</b>	<b>na</b>	<b>na</b>			<b>506</b>
XAVIER								
	Certificate	Associate	Bachelor	Masters	PhD	MD	PharmD	Total
<i>Biological and biomedical sciences</i>								
Biochemistry	na	na	2					
Biology/Biological Sciences, General	na	na	131					
Microbiology, General	na	na	4					
<i>Category subtotal</i>	<i>na</i>	<i>na</i>	<i>137</i>					
<i>Health professions and related clinical sciences</i>								
Community Health Services/Liaison/Counseling	na	na		8				
Mental Health Counseling/Counselor	na	na		2				
Pharmacy (PharmD [USA], PharmD or BS/BPharm [Canada])	na	na					152	
Speech-Language Pathology/Pathologist	na	na	7					
<i>Category subtotal</i>	<i>na</i>	<i>na</i>	<i>7</i>	<i>10</i>				
<b>Xavier Total</b>	<b>na</b>	<b>na</b>	<b>144</b>	<b>10</b>			<b>152</b>	<b>306</b>

**Table 2-12 (continued): Higher Education Degrees Awarded by Institutions in the  
New Orleans Metropolitan Area  
2007 - 2008**

LSU HEALTH SCIENCES								
	Certificate	Associate	Bachelor	Masters	PhD	MD	PharmD	Total
<i>Biological and biomedical sciences</i>								
Anatomy				0	0			
Biochemistry				1	1			
Biostatistics				0	0			
Human/Medical Genetics				0	6			
Medical Microbiology and Bacteriology				0	1			
Pathology/Experimental Pathology				0	0			
Pharmacology				0	3			
Physiology, General				1	0			
<i>Category subtotal</i>				2	11			
<i>Health professions and related clinical sciences</i>								
Adult Health Nurse/Nursing				1				
Audiology/Audiologist and Hearing Sciences					7			
Audiology/Audiologist and Speech-Language Pathology/Pathologist				11				
Cardiovascular Technology/Technologist			7					
Clinical Laboratory Science/Medical Technology/Technologist			22					
Dental Clinical Sciences, General (MS, PhD)								
Dental Hygiene/Hygienist			41					
Dental Laboratory Technology/Technician		5	7					
Dentistry (DDS, DMD)						58		
Endodontics/Endodontology (Cert, MS, PhD)	2							
Family Practice Nurse/Nurse Practitioner				3				
Health Services/Allied Health/Health Sciences, General				2				
Maternal/Child Health and Neonatal Nurse/Nursing				0				
Medicine (MD)						155		
Nurse Anesthetist				43				
Nursing Administration (MSN, MS, PhD)				4				
Nursing Science (MS, PhD)					9			
Nursing/Registered Nurse (RN, ASN, BSN, MSN)			162					
Occupational Therapy/Therapist				22				
Orthodontics/Orthodontology (Cert, MS, PhD)	4							
Pediatric Dentistry/Pedodontics (Cert, MS, PhD)	3							
Physical Therapy/Therapist				39	0			
Prosthodontics/Prosthodontology (Cert, MS, PhD)	2							
Psychiatric/Mental Health Nurse/Nursing				0				
Public Health, General (MPH, DPH)				20				
Public Health/Community Nurse/Nursing				11				
Vocational Rehabilitation Counseling/Counselor			5	12				
<i>Category subtotal</i>	11	5	244	168	74	155		
<i>Multi/interdisciplinary studies</i>								
Neuroscience				1	1			
<i>Category subtotal</i>				1	1			
<b>LSUHSC total</b>	<b>11</b>	<b>5</b>	<b>244</b>	<b>171</b>	<b>86</b>	<b>155</b>		<b>672</b>

**Table 2-12 (continued): Higher Education Degrees Awarded by Institutions in the  
New Orleans Metropolitan Area  
2007 - 2008**

TULANE								
	Certificate	Associate	Bachelor	Masters	PhD	MD	PharmD	Total
<i>Biological and biomedical sciences</i>								
Anatomy	na	na		0	3			
Animal Genetics	na	na		14	1			
Animal Physiology	na	na			0			
Biochemistry	na	na	3	1	4			
Biology/Biological Sciences, General	na	na	20	3	4			
Biostatistics	na	na			4			
Cell/Cellular Biology and Anatomical Sciences, Other	na	na	62	36	17			
Epidemiology	na	na		29	3			
Immunology	na	na		2	2			
Parasitology	na	na		0	0			
Pharmacology	na	na		31	2			
<i>Category subtotal</i>	<i>na</i>	<i>na</i>	<i>85</i>	<i>116</i>	<i>40</i>			
<i>Engineering</i>								
Biomedical/Medical Engineering	na	na	36	4	2			
<i>Category subtotal</i>	<i>na</i>	<i>na</i>	<i>36</i>	<i>4</i>	<i>2</i>			
<i>Health professions and related clinical sciences</i>								
Environmental Health	na	na	4	35	2			
Health Professions and Related Clinical Sciences, Other	na	na	3	12	1			
Health/Health Care Administration/Management	na	na		51	5			
Medicine (MD)	na	na			na	156		
Public Health, General (MPH, DPH)	na	na		62	2			
Public Health, Other	na	na		71	10			
<i>Category subtotal</i>	<i>na</i>	<i>na</i>	<i>7</i>	<i>231</i>	<i>20</i>	<i>156</i>		
<i>Multi/interdisciplinary studies</i>								
Neuroscience	na	na	63	22	4			
Nutrition Sciences	na	na		3				
<i>Category subtotal</i>	<i>na</i>	<i>na</i>	<i>63</i>	<i>25</i>	<i>4</i>			
<b>Tulane Total</b>	<b>na</b>	<b>na</b>	<b>191</b>	<b>376</b>	<b>66</b>	<b>156</b>		<b>789</b>

LOYOLA								
	Certificate	Associate	Bachelor	Masters	PhD	MD	PharmD	Total
<i>Biological and biomedical sciences</i>								
Biology/Biological Sciences, General			17					
<i>Category Subtotal</i>			<i>17</i>					
<i>Health professions and related clinical sciences</i>								
Music Therapy/Therapist		1	1					
Nursing, Other		45	79					
<i>Category Subtotal</i>		<i>46</i>	<i>80</i>					
<b>Loyola Total</b>		<b>46</b>	<b>97</b>					<b>143</b>

SOUTHERN UNIVERSITY OF NEW ORLEANS								
	Certificate	Associate	Bachelor	Masters	PhD	MD	PharmD	Total
<i>Biological and biomedical sciences</i>								
Biology/Biological Sciences, General			11					
<i>Category Subtotal</i>			<i>11</i>					
<i>Health professions and related clinical sciences</i>								
Health Information/Medical Records Administration/Administrator			0	0				
Substance Abuse/Addiction Counseling			16	4				
<i>Category Subtotal</i>			<i>16</i>	<i>4</i>				
<b>Southern University Total</b>			<b>27</b>	<b>4</b>				<b>31</b>

**Table 2-12 (continued): Higher Education Degrees Awarded by Institutions in the  
New Orleans Metropolitan Area  
2007 - 2008**

<b>DILLARD</b>								
	Certificate	Associate	Bachelor	Masters	PhD	MD	PharmD	Total
<i>Biological and biomedical sciences</i>								
Health professions and related clinical sciences								
Medicinal and Pharmaceutical Chemistry (MS, PhD)			12					
Nursing/Registered Nurse (RN, ASN, BSN, MSN)								
Occupational Therapy/Therapist								
Physical Therapy/Therapist								
Pre-Medicine/Pre-Medical Studies								
Public Health Education and Promotion								
Public Health, General (MPH, DPH)			11					
Public Health, Other								
<i>Category subtotal</i>			23					
<i>Biological and biomedical sciences</i>								
Biology/Biological Sciences, General			29					
<i>Category subtotal</i>			29					
<b>Dillard Total</b>			<b>52</b>					<b>52</b>
<b>HOLY CROSS</b>								
	Certificate	Associate	Bachelor	Masters	PhD	MD	PharmD	Total
Biology/Biological Sciences, General			12					
<i>Category Subtotal</i>			12					
<i>Health professions and related clinical sciences</i>								
Health professions and related clinical sciences, other			21					
Marriage and Family Therapy/Counseling				8				
Nursing/Registered Nurse (RN, ASN, BSN, MSN)			35					
<i>Category Subtotal</i>			56	8				
<b>Holy Cross Total</b>			<b>68</b>	<b>8</b>				<b>76</b>
<b>LOUISIANA TECHNICAL COLLEGE</b>								
	Certificate	Associate	Bachelor	Masters	PhD	MD	PharmD	Total
<i>Health professions and related clinical sciences</i>								
Health Aide								
Licensed Practical/Vocational Nurse Training	7							
Medical/Nursing Assistant/Aide and Patient Care Assistant	19							
Phlebotomy/Phlebotomist	8							
<i>Category Subtotal</i>	34							
<b>Louisiana Technical College Total</b>	<b>34</b>							<b>34</b>
<b>Metropolitan New Orleans Grand Total</b>	<b>421</b>	<b>181</b>	<b>904</b>	<b>576</b>	<b>167</b>	<b>311</b>	<b>152</b>	<b>2,712</b>

Source: National Center for Educational Statistics. Web Page Accessed March 31, 2009

## **Venture Capital Investment**

Venture capital financing is particularly important to growing technology-based sectors such as biosciences. This investment money is especially prevalent in high technology, in which both the risk of loss and the potential for profit are considerable. However, venture capital funding in the bioscience industry as a whole has been low compared to other industries because development of bioscience products is a lengthy process. Bioscience investments require very patient capital. Technologies that have provided quick profitability have had the most success in attracting investment. Bioscience innovations, however, are typically subjected to very lengthy clinical trials and other testing that can extend as long as ten years, during which time ventures are experiencing significant cash burn rates and thus cumulative losses with little if any revenue. The result is significant cumulative losses covered by risk capital investments expecting extraordinary returns.

Compared to other technologies, bioscience related entrepreneurial spin-offs suffer from specific impairments which make the acquisition of funding and long-term success more difficult. Bioscience companies have comparatively long pre-launch stages before becoming profitable – between five and fifteen years— requiring sizeable investments in technology, equipment and highly educated and trained personnel. Bioscience start-ups usually face lengthy clinical or field trials that are very often regulated by one or more federal agencies (i.e. USDA, FDA, EPA, etc.) and subject to scrutiny on a wide range of technical and/or health-related issues. At any point along the path of regulatory approval, a start-up's technology, process or product could face challenges or additional hurdles that could extend its commercialization schedule and thus its launch as a profitable new enterprise. Quick entry of products into the marketplace is very rare in the realm of the biosciences. Even with significant investments, some bioscience companies may never become profitable and are sometimes forced to sell or license their new innovations. Bioscience companies must often prove they can generate results before receiving funding. Another barrier for bioscience companies is that bioscience has a specific scientific language. Because of this potential investors often must have bioscience expertise in order to clearly understand a business plan. Conversely, scientists rarely have the background to translate scientific language into business language and vice versa. Without a clear understanding of what they are investing in, potential investors are unlikely to offer funding. This high risk, capital intensive business has caused many venture capitalists to shy away from the industry and concentrate more on companies in technology sectors that have demonstrated a greater success rate, higher rates of return and shorter development periods.

During their lengthy pre-launch stage, bioscience start-ups are usually supported, particularly in the very early parts of this stage, by networks of resources providing grant and research funds from federal, state and local sources. They also rely heavily on bootstrapping support resources such as free technical advice and laboratory or incubator space offered by local universities, research centers or local or state economic development organizations. These make up an essential part of a local supporting infrastructure.

At the latter phases of an entity's pre-launch stage, the support of seed and formal venture capital becomes necessary to what hopefully will be a successful and profitable business. Thus, communities that are going to successfully compete to create and nurture a viable and sustainable bioscience cluster must provide access to well funded formal venture capital organizations as well as to active networks of risk tolerant seed or angel investors. Physical infrastructure and well intentioned public policy and funding are important but not sufficient in themselves. There needs to be a very active presence of private venture capital as evidenced by the experience and track records of successful bioscience clusters that have emerged in other parts of the U.S. over the past 15 to 20 years.

According to the Money Tree Report, a web-based service of PriceWaterhouseCooper, (<http://www.pwcmoneytree.com>) , which provides financial information regarding the venture capital industry, Louisiana has lagged far behind other states in terms of the availability of venture capital. By all historic measures (dollars committed and deals done), the State has attracted what could be best described as a microscopic share of total venture capital investments made in the U.S. over the past decade or so. And, when the focus is placed specifically on the biosciences sector, the evidence of risk capital support for new ventures is no more encouraging. Since the mid-1990's, venture capital investments in Louisiana have generally accounted for very small (under 0.05%) shares of total venture capital investments nationwide. Investments in Louisiana peaked in 1999 concurrent with the massive flows of venture capital placements nationwide during the dot.com era. In 1999, total venture capital investment in the U.S. was \$53.5 billion while, in Louisiana, it was \$295 million or about .006% of the total for that year. As venture capital slowly recovered from the dot.com bust, dollars committed and deals consummated began to grow and hold steady at a more sustainable pace. This is particularly true since about the first quarter of 2003. Since then, venture capital investments rose from \$19.6 billion in 2,887 deals (\$6.8 million per deal) to \$23.1 billion in the year 2005 for 3,164 deals (\$7.3 million per investment). Prior to the current economic and financial markets meltdown, venture capital investments in the U.S. grew to \$30.8 billion in 2007 among 3,994 deals (\$7.7 million per investment). This represented a strong (16.4%) gain over 2006, but may very well have been the last strong infusion of

venture capital for this decade. As the reality of unraveling financial markets became more apparent, funds for risk and venture capital began to retreat. In 2008, total venture capital investment fell 8.5% to \$28.2 billion in 3,884 deals (down 2.8%) or to about \$7.3 million per investment. And, if the first quarter of 2009 is any indication, attracting venture capital in the foreseeable future is going to be a significant hurdle for many emerging enterprises, no matter how promising they look. Through the first three months of 2009, venture capital investments in the U.S. totaled \$3.0 billion in 549 deals (about \$5.5 million per investment). If the first quarter's pace of activity is annualized, 2009 would end with venture capital investment in the U.S. totaling just over \$12.0 billion or a drop of 61% from the recent 2007 peak of \$30.8 billion. This would return total venture capital investment to levels more typical of the late 1980's to early 1990's. This would not bode well for states like Louisiana that have historically fed on the venture capital "crumbs" that happened to fall off the "feasting tables" of the well established techno-entrepreneurial corridors on the west and east coasts.

Within the biosciences sector nationwide, both the dollar volume and number of venture capital investments has steadily risen since 2003. Total investments have steadily risen since 2003. Total investment in this sector in 2003 reached \$3.65 billion among 317 deals (\$11.5 million per investment). This represented 18.6% of all venture capital investment committed that year as measured by PWC Moneytree. By 2005, venture capital investment in biosciences rose to \$3.93 billion among 382 deals (\$10.3 million per deal) representing 17.1% of total investment for the year. Trends from 2006 to 2008 illustrate the continued attraction and strength of this sector for venture capital investment. Total 2006 investment stood at \$4.58 billion among 452 deals (\$10.1 million per deal), while in 2007 biotech investments rose to \$5.26 billion or \$10.8 million per deal among 488 placements. Overall, biotech investments have consistently ranked second in both the number of deals closed and dollar volume of placements in the U.S. for the past eight to ten years. Whether the appetite of venture capitalists for these kinds of technology remains as strong going forward is difficult to anticipate. However, biosciences as a sector should continue to rank among the top five investment categories given the flow of new basic R&D in the field and the commitment of so many communities to provide the supporting infrastructure to grow and develop this economic cluster and its very diversified sectors.

In Louisiana, the story somewhat less encouraging. From 2005 to the 2008 total venture capital investment totaled just \$40.0 million in 24 deals included in the PWC Moneytree database. Within the biosciences sector, there were only six deals recorded between 2005 and 2008, with a total investment of just \$17 million. In the first quarter of 2009, there have been a total of three deals closed in the state totaling \$15 million, with only one bioscience-related investment of \$1.0 million. As of the end of 2008,

there were seven venture capital firms operating in Louisiana and one new angel investing firm that opened in New Orleans in 2009 — Angel Investing. Those operating in Louisiana include Advantage Capital Partners, Enhanced Capital Partners, and Stonehenge Capital Company, and as well as three Louisiana based firms, Louisiana Fund I, Louisiana Ventures (both operated by the Emerging Technology Center in Baton Rouge), and the Louisiana Technology Fund operated by the Louisiana Department of Economic Development. While having a presence or specifically located in Louisiana, the national firms fund companies from other parts of the country – typically within a self-defined region – as a matter of standard practice. The Louisiana based firms restrict their investments to companies that operate in the state. The national venture capital firms funded far more companies nationwide than those specifically located in Louisiana.

The Money Tree Report further reports that in Louisiana, the 10 deals negotiated in 2008 were in the Industrial/Energy, Biotechnology, Media Services, and IT Services sectors for a total of \$4 million dollars. Most of the funding went to one firm in the biotechnology sector. Since 1995, in addition to the four sectors mentioned above, deals were negotiated in the following sectors: Business Products and Services, Electronics/Instrumentation, Financial Services, Healthcare Services, Medical Devices and Equipment, and Networking and Equipment.

In an effort to attract more angel or pre-venture capital to Louisiana, particularly to support technology-based innovations, the state legislature created a tax credit program. It went into effect in 2005 and sunsets at the end of 2009. Under the program, investors can receive refundable Louisiana income or corporate franchise tax credits of up to 50% on the money invested in a business certified by Louisiana Economic Development as a Louisiana Entrepreneurial Business. The tax refundable tax credit is realized equally over a five year period.

Unfortunately, based on credits claimed and reported by the Louisiana Department of Revenue, the initiative has largely gone unnoticed as the following indicates:

<b>Year</b>	<b>Credits Claimed</b>
2005	0
2006	0
2007	201,410
2008	8,305

**Table 2-13: Total Venture Capital Investment – U.S., Louisiana and Biotech  
2005 to First Quarter 2009**

	Total Venture Capital U.S.		Biotech U.S.		Total Venture Capital LA		Biotech LA	
	Deals	Dollar Amount (Millions)	Deals	Dollar Amount (Millions)	Deals	Dollar Amount (Millions)	Deals	Dollar Amount (Millions)
2005	3,164	\$23,026	382	\$3,932	4	\$4	0	\$0
2006	3,696	26,485	452	4,575	3	11	2	9
2007	3,994	30,841	488	5,264	7	16	2	4
2008	3,884	28,227	491	4,549	10	9	2	4
Qtr 1-2009	549	3,004	81	577	3	15	1	1
<b>Total 2005 to Qtr 1-2009</b>	<b>15,287</b>	<b>\$111,583</b>	<b>1,894</b>	<b>\$18,897</b>	<b>27</b>	<b>\$55</b>	<b>7</b>	<b>\$18</b>

Source: Money Tree Report, PriceWaterhouseCooper

**Table 2-14: Total Venture Capital Investment by Quarter – U.S., Louisiana and Biotech  
First Quarter 2005 to First Quarter 2009**

	Total Venture Capital US		Biotech US		Total Venture Capital LA		Biotech LA	
	Deals	Dollar Amount (Millions)	Deals	Dollar Amount (Millions)	Deals	Dollar Amount (Millions)	Deals	Dollar Amount (Millions)
1-05	732	\$5,066	77	\$712	0	\$0	0	\$0
2-05	826	6,327	104	1,195	0	0	0	0
3-05	792	5,854	101	1,044	2	1	0	0
4-05	814	5,779	100	981	2	3	0	0
<b>Total</b>	<b>3,164</b>	<b>\$23,026</b>	<b>382</b>	<b>\$3,932</b>	<b>4</b>	<b>\$4</b>	<b>0</b>	<b>\$0</b>
1-06	875	\$6,352	97	\$905	0	\$0	0	\$0
2-06	963	7,111	124	1,305	0	0	0	0
3-06	909	6,649	106	1,156	1	0	1	0
4-06	949	6,373	125	1,209	2	11	1	9
<b>Total</b>	<b>3,696</b>	<b>\$26,485</b>	<b>452</b>	<b>\$4,575</b>	<b>3</b>	<b>\$11</b>	<b>2</b>	<b>\$9</b>
1-07	869	\$7,532	108	\$1,524	1	\$1	1	\$1
2-07	1,043	7,382	130	1,280	2	4	0	0
3-07	997	7,867	110	1,133	0	0	0	0
4-07	1,085	8,060	140	1,327	4	11	1	3
<b>Total</b>	<b>3,994</b>	<b>\$30,841</b>	<b>488</b>	<b>\$5,264</b>	<b>7</b>	<b>\$16</b>	<b>2</b>	<b>\$4</b>
1-08	997	\$7,741	132	\$1,083	2	\$1	0	\$0
2-08	1,051	7,573	124	1,073	2	3	0	0
3-08	970	7,256	121	1,318	3	1	1	0
4-08	866	5,657	114	1,075	3	4	1	4
<b>Total</b>	<b>3,884</b>	<b>\$28,227</b>	<b>491</b>	<b>\$4,549</b>	<b>10</b>	<b>\$9</b>	<b>2</b>	<b>\$4</b>
1-09	549	\$3,004	81	\$577	3	\$15	1	\$1
<b>Total Qtr 1-05 to Qtr 1-09</b>	<b>15,287</b>	<b>\$111,583</b>	<b>1,894</b>	<b>\$18,897</b>	<b>27</b>	<b>\$55</b>	<b>7</b>	<b>\$18</b>

Source: Money Tree Report, PriceWaterhouseCooper

## **Economic Impact of the Sector**

Table 2-15 summarizes the anticipated economic impacts of the biosciences sector on the New Orleans region. This analysis focuses on impacts generated by sector specific employment and wages in biosciences as of 2007 (Part A), the most recent year for which complete information is currently available, and also with a very modest 1% growth rate assumed for a five year period to 2012. (Part B of the table).

In baseline year 2007, the IMPLAN model estimates a total economic impact (as measured by total output) of the 2,752 individuals employed in biosciences at just under \$1.16 billion. This is comprised of \$608.7 million of direct impact and another \$224.2 million and \$323.8 million of indirect and induced impacts, respectively. In terms of employment, biosciences direct jobs support another 4,341 jobs through a combination of indirect and induced effects. This results in an overall employment multiplier of just under 2.58. This means that for every one job within biosciences another 1.58 workers are supported across a wide spectrum of business and industry sectors in the New Orleans region. This relatively high job multiplier is directly attributable to the comparatively high wages paid to workers in bioscience specific jobs.

Assuming a 1% compounded annual growth rate within biosciences sector employment over a five year period, total economic impact estimated by the IMPLAN model rises to about \$1.23 billion. The would include \$648.2 million of direct economic effects produced by an estimated 2,923 workers in biosciences as well as another \$239.3 million and \$344.6 million of indirect and induced effects, respectively. Additionally, the 2,923 direct jobs in biosciences would support another 1,612 indirect and 3,016 induced jobs within a wide range of business sectors throughout the New Orleans region. The sector specific output and job impacts are presented in Appendix tables A-3 through A-11.

**Tables 2-15 A-C: Bioscience Economic Impact**

**Table 2-15(A)  
Sector Economic Impact  
Baseline 2007**

**2006 Dollars (Except Employment)**

	<b>Direct</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total</b>
Output	\$ 608,702,428	\$ 224,240,103	\$ 323,802,717	\$1,156,745,238
Employment	2,752.0	1,507.0	2,834.1	7,094.0
Total Added Value	\$ 209,970,231	\$ 119,242,123	\$ 208,330,726	\$ 537,543,080

**Table 2-15(B)  
Incremental Sector Economic Impact  
Assuming 1% Growth for five years  
2006 Dollars (Except Employment)**

	<b>Direct</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total</b>
Output	\$ 38,596,970	\$ 14,388,073	\$ 20,359,024	\$ 73,344,067
Employment	170.2	96.2	178.3	444.6
Total Added Value	\$ 13,084,318	\$ 7,656,025	\$ 13,101,756	\$ 33,842,089

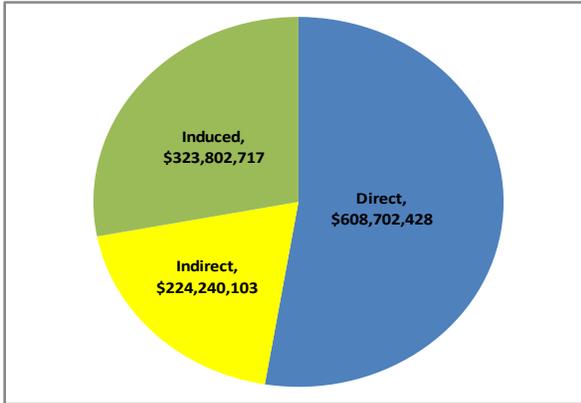
**Table 2-15(C)  
Total Sector Economic Impact  
Assuming 1% Growth for five years  
2006 Dollars (Except Employment)**

	<b>Direct</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total</b>
Output	\$ 648,172,741	\$ 239,270,839	\$ 344,588,731	\$1,232,032,330
Employment	2,923.0	1,611.9	3,016.0	7,550.8
Total Added Value	\$ 223,297,866	\$ 127,314,263	\$ 221,704,592	\$ 572,316,724

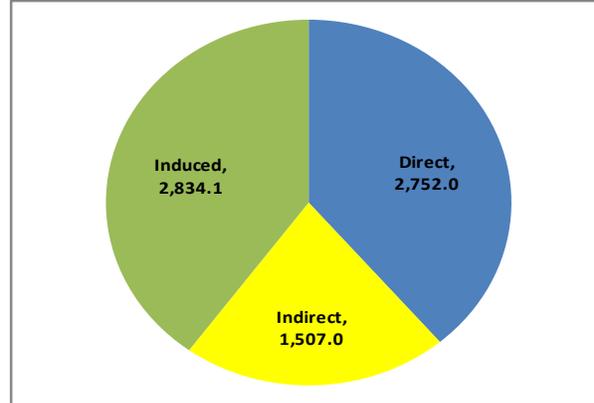
Source: Minnesota Implan Group and Institute for Economic Development and Real Estate Research

**Figures 2-7 A-C: Sector Economic Impact Baseline 2007**

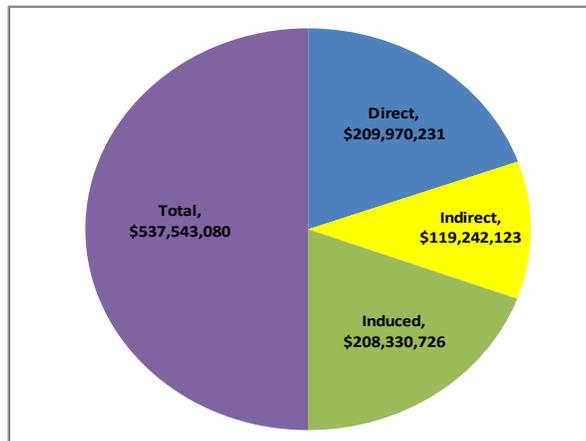
**Figure 2-7(A) - Output**



**Figure 2-7(B) - Employment**



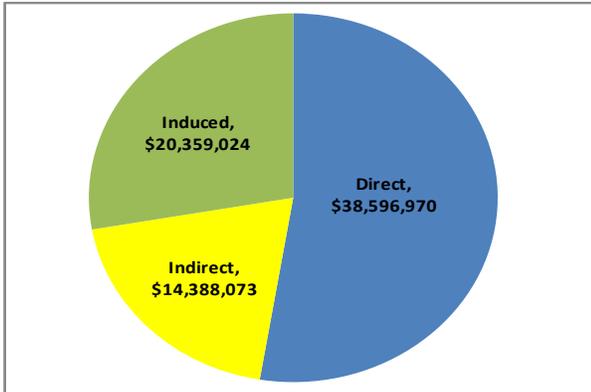
**Figure 2-7(C) - Total Added Value**



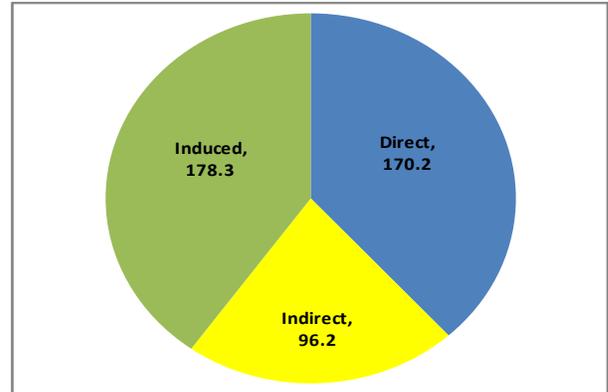
Source: Minnesota Implan Group and Institute for Economic Development and Real Estate Research

**Figures 2-8 A-C: Incremental Sector Economic Impact Assuming 1% Growth for Five Years**

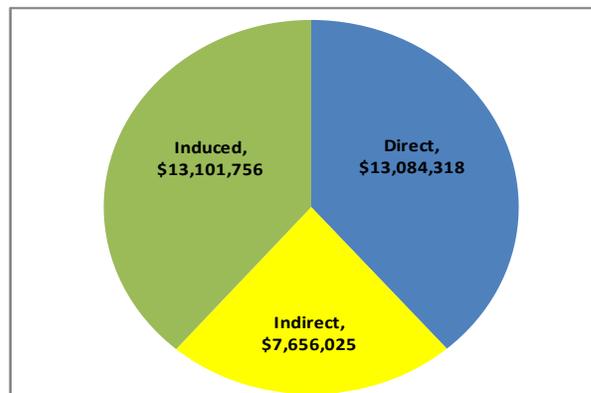
**Figure 2-8(A) - Output**



**Figure 2-8(B) - Employment**



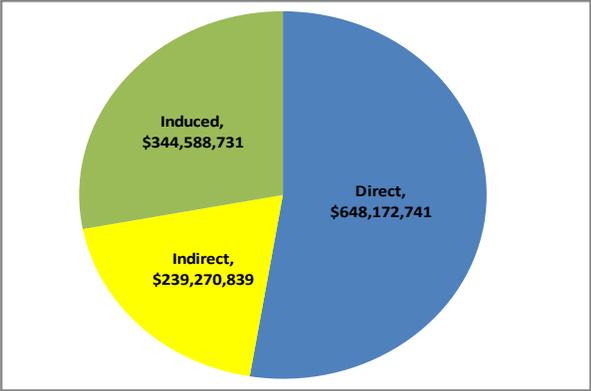
**Figure 2-8(C) - Total Added Value**



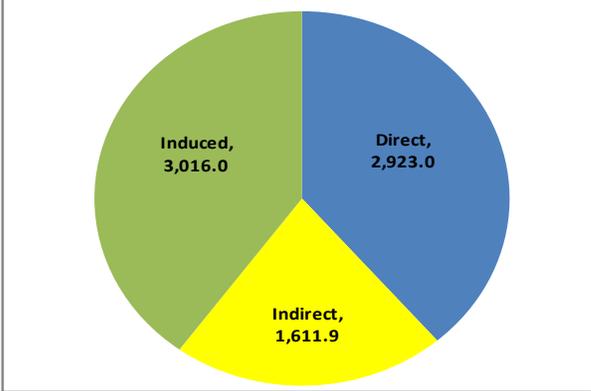
Source: Minnesota Implan Group and Institute for Economic Development and Real Estate Research

**Figures 2-9 A-C: Total Sector Economic Impact Assuming 1% Growth for Five Years**

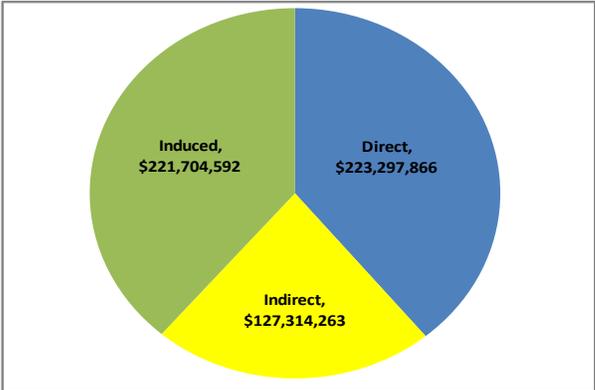
**Figure 2-9(A) - Output**



**Figure 2-9(B) - Employment**



**Figure 2-9(C) - Total Added Value**



Source: Minnesota Implan Group and Institute for Economic Development and Real Estate Research

## **Observations and Conclusions**

Biosciences as a sector make up a relatively small share of total wage and salary employment in the New Orleans region. The 2,752 jobs counted in this sector accounted for 0.65% of the five parish's total employment for the same period.

Biosciences, however, produced jobs with higher average wages and thus the ability to generate greater indirect and induced economic impacts throughout the region. At an average \$55,745 salary level in 2007, bioscience was 22.8% higher than the five parish's overall average wage of \$45,415 for the same period.

Higher average wages paid by biosciences employers are directly related to the demands faced by workers within this sector in terms of academic preparation and research productivity. With the exception of 2006 immediately following Hurricane Katrina, both academic degrees awarded by local institutions and academic R&D expenditures have either steadily grown or maintained a consistent output level. Total academic R&D expenditures grew to \$517.7 million in 2007 among local institutions engaged in biosciences research, while the number of bioscience-related degrees awarded totaled 2,712 in the same year.

Venture and risk capital to support entrepreneurial initiatives in biosciences, however, can be characterized as paltry, at best. Louisiana lags well behind other states in attracting venture capital in general and for biosciences-related enterprises in particular. Potentially, this is the most significant missing link in providing the support infrastructure that is so necessary to the "care and feeding" of the biosciences sector. This is a significant public policy issue that needs to be addressed if biosciences in the region is going to reach its potential.

Attracting support for investment in the sector can be linked to the fact that biosciences produces significant economic impact of the region. This is best evidenced by a job multiplier of just under 2.6 and is directly related to the comparatively high wage levels generated in biosciences enterprises. This alone should provide sufficient fuel for public policy discussions focused on attracting more risk capital to support bioscience initiatives and investments.

## Section III – The Healthcare Sector: Trends and Impact

Healthcare, including life sciences, and biosciences are, for the most part, joined at the hip. Job and occupational categories and descriptions very often overlap and individuals employed in both tend to migrate from one to the other rather seamlessly since their skills and academic preparations generally qualify most to function on either side (or both sides) of the sectoral divide. However, while biosciences is heavily focused on research and commercialization of technical innovations, healthcare is primarily focused on delivery of services to a regional population some of which may use many of the innovations generated by the biosciences sector's initiatives and innovations.

Delivery of healthcare services is a more labor intensive and facility dependent undertaking. The skills and preparation within healthcare are highly focused on delivery of safe, sound care to patients throughout the system in facilities that must meet high industry and regulatory standards. This usually entails significant investments in the state of the art equipment and continuous training for those directly and indirectly engaged in using this rapidly advancing technology.

And, although biosciences is a sector that receives significant attention within the economic development community, healthcare is usually one of the first things mentioned when those professionals are asked to describe their region's quality of life. In the post Katrina New Orleans region, rebuilding and continuous improvement of the healthcare sector is vitally important to attracting and retaining people, business and capital investment. The most visible and vital component of this rebuilding effort is the Downtown Medical District and the unfolding of an effective partnership going forward of three significant players: LSU Health Sciences, Tulane University and the Veterans Administration. Their presence and activities anchor and set the tone for healthcare in the New Orleans region.

### Employment and Wage Trends

Tables 3-1 and 3-2 summarize employment and wage growth trends in the healthcare and life sciences sectors for the New Orleans region and state, respectively, while Tables 3-3 through 3-7 do the same for each of the area's five constituent parishes. Each table covers the years 2001, 2004 and 2007 allowing for trend analysis pre- and post-Katrina. The tables also address employment and wage trends for each of the five major sectors included within healthcare as well as 20 subsectors that provide a more detailed (5 digit NAICS code) profile of job categories that define this industry. For example, this includes jobs in activities such as home healthcare and outpatient care centers (in Ambulatory

Healthcare Services), nursing care facilities and residential mental healthcare facilities (in Hospitals) and medical equipment and supplies manufacturing (in Medical Devices and Equipment).

From 2001 to 2004, total healthcare employment in the New Orleans region rose 7.7% from 48,303 to 57,999 while the number of establishments in the region rose from 2,669 to 2,735 or by 2.5%. Over this same pre-storm period the sector's average wage rose from \$32,034 to \$36,344 or by 13.5% with gross wages growing from \$1.6 billion to \$1.9 billion. Overall, the average size of establishments within the healthcare sector edged up from 18.0 to 19.0 workers per place of employment. Subsectors experiencing strong growth during this period included outpatient centers (up 22.74% to 1,623 jobs), home healthcare (up 13.6% to 3,137 jobs), general medical and surgical hospitals (up 16.55 to 16,287 jobs), psychiatric and substance abuse hospitals (up 25% to 1,277 jobs) and residential mental health facilities (up 25% also to 2,016 jobs). (See Table 3-1).

Statewide, the healthcare sector in the 2001 to 2004 period outpaced growth in the New Orleans area. Total employment in healthcare grew from 173,487 to 187,919 (or by 8.3%) while the statewide average wage for the sector grew from \$29,251 to \$32,567 or by 11.3% and statewide gross wages in healthcare rose 20.6% from \$5.1 billion to \$6.9 billion. For the most part, establishment size remained relatively stable at about 20 workers per place of employment. Subsectors with comparatively strong growth rates during this period include home healthcare (up 30.8% to 12,561 jobs), community care facilities for the elderly (up 23.4% to 6,144 jobs) and residential mental health facilities (up 13.2% to 8,168 jobs). (See Table 3-2).

In the New Orleans region, the healthcare sector, like biosciences is geographically concentrated in Jefferson, Orleans and St. Tammany Parishes. Combined these three parishes accounted for over 95% of the region's pre-Katrina healthcare employment in 2004 with a total of 49,545 jobs. When compared to 2001's three parish total of 46,107 jobs, this represents a growth rate of 7.5%.

In Jefferson, the sector grew from 15,642 workers in 1,070 establishments in 2001 to 19,482 workers employed by 1,139 establishments in 2004. Over this same period the average wage for Jefferson's healthcare workers rose 10.2% from \$33,092 to \$36,462 as the sector's gross wage earnings grew from \$527.6 million to \$710.4 million. Subsectors accounting for the largest number of healthcare jobs in Jefferson are general medical and surgical hospitals (5,722 in 2004), physicians office (3,867) and nursing care facilities (1,872).

Healthcare employment in Orleans Parish was also trending downward before the disruptions caused by Hurricane Katrina. From 2001 to 2004, the total number of jobs fell from 23,299 (in 988 establishments) to 22,072 (in 943 establishments) or by 5.3%. Over the same period, aggregate wage

earnings for the sector rose by 10.5% from just under \$ 747.6 million to about \$826.1 million. Average establishment size slipped from about 23.6 to 23.4 workers while average wage per worker rose from \$32,086 to \$37,428 or by 16.6%. During this period, subsectors accounting for the most significant job losses were general medical and surgical hospitals (down 1,007 or by 10.9%) and nursing care facilities which fell by 10.1% or 235 jobs. Over the same period, however, notable growth in Orleans Parish occurred in the home healthcare subsector (up 259 jobs or by 30.2%) and among community care facilities for the elderly which grew by 353 jobs or 53.2%.

In fast-growing St. Tammany Parish, healthcare employment grew from 6,866 in 2001 to 7,991 in 2004 (or by 16.4%), while the number of establishments grew from 500 to 554 and average size edged up from 13.7 to 14.4 workers. Gross wages earned grew by 28.8% from \$211.7 million to \$272.7 million as average wage per healthcare worker grew from \$30,829 to \$34,124 or by 10.7%). Subsectors with particularly strong growth included physicians offices (up 26.1% to 1,759 workers), general medical and surgical hospitals (up 29.1% to 1,955 jobs) and nursing care facilities (up 14.2% to 1,192 jobs). (See Table 3-7).

The impact of Hurricane Katrina on the healthcare sector in the New Orleans region has been profound and economically significant. This has been particularly true for Orleans Parish, but the storm's effects on the sector have rippled through virtually every part of the region's geography. Between 2004 and 2007, total employment in healthcare for the region as a whole fell from 51,999 to 39,856 or by 23.3%. Over this same period the number of establishments dropped to 2,504 (or by 8.5%), while average size trended downward as well to just under sixteen workers per establishment. And, although aggregate wages slipped to \$1.73 billion (or by 8.5%), average pay per worker in healthcare jumped 19.4% to \$43,385. Much of this increase can be attributed to the need of healthcare providers to increase pay levels to retain and attract qualified personnel.

Contraction within healthcare during this period is directly linked to the loss of critical physical infrastructure (i.e. hospital and other acute care facilities) as a result of Katrina's storm surge, most evidently in Orleans Parish. In the region as a whole, subsectors with notable job losses included physicians offices (down 2,977 jobs or 27.5%), general medical and surgical hospitals (down 4,280 jobs or 26.2%) and nursing care facilities (down 2,172 jobs or 36.3%).

Statewide, the number of jobs in healthcare fell to 185,821 in 2007 (down 1.1% from 2004), while the number of establishments reached 9,568 (up 4.2% over 2004). (See Table 3-2). Average firm size trended down slightly, reaching 19.4 jobs in 2007, while average and gross wages both experienced growth. The statewide average wage in the sector rose to \$37,172 (up 14.1% over 2004), while

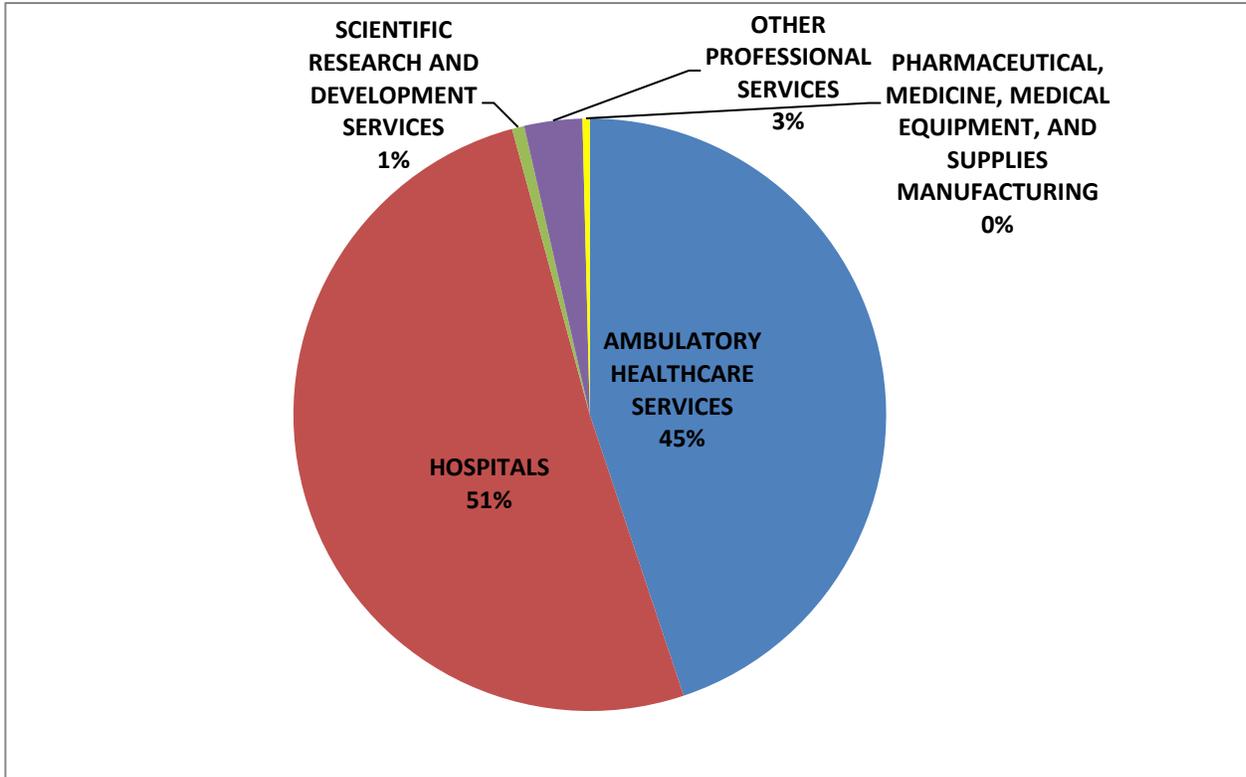
aggregate wages grew to \$6.9 billion or by 12.9% over 2004. For the most part, statewide job losses can be attributed to the storm induced shrinkage in the New Orleans region, particularly in Orleans Parish. This is most notable in the net loss of jobs within the physicians office and general medical and surgical hospitals subsectors. Employment categories exhibiting relatively strong growth statewide from 2004 to 2007 include home healthcare (up 4,769 jobs or 38%) and psychiatric and substance abuse hospitals that added just under 610 jobs (an increase of 33.4%).

In Jefferson Parish, healthcare employment fell to 18,968 (down 2.6% from 2004), while average wage grew to \$46,045 (or up by 26.3% over 2004). While the number of healthcare establishments in Jefferson only rose by one (to 1,140), average size fell from 17.1 to 16.6, while gross earnings increased to just under \$873.4 million or about 22.8%. Subsectors accounting for notable growth included physicians offices (up 5.5% or by 214 jobs) and psychiatric and substance abuse hospitals which nearly tripled to 456 jobs. (See Table 3-3).

In Orleans Parish, healthcare employment and establishments are both significantly below their pre-Katrina levels. As of 2007, there were 11,394 jobs in this sector (48.4% less than 2004) while the number of establishments stood at 646 (down 31.5% from 2004's level). Gross wages dropped to \$470.8 million in the sector, below the 2004 level by 43.0%. Average wages in healthcare, however, did continue to rise through 2007 reaching \$41,321 (an increase of 10.4% and 2004). The comparatively tepid rate of wage growth through 2007 can largely be attributed to the significantly diminished presence of higher paid healthcare workers such as physicians, dentists and other professionals who have not returned to the region or who have re-established practices in suburban parishes such as Jefferson or St. Tammany.

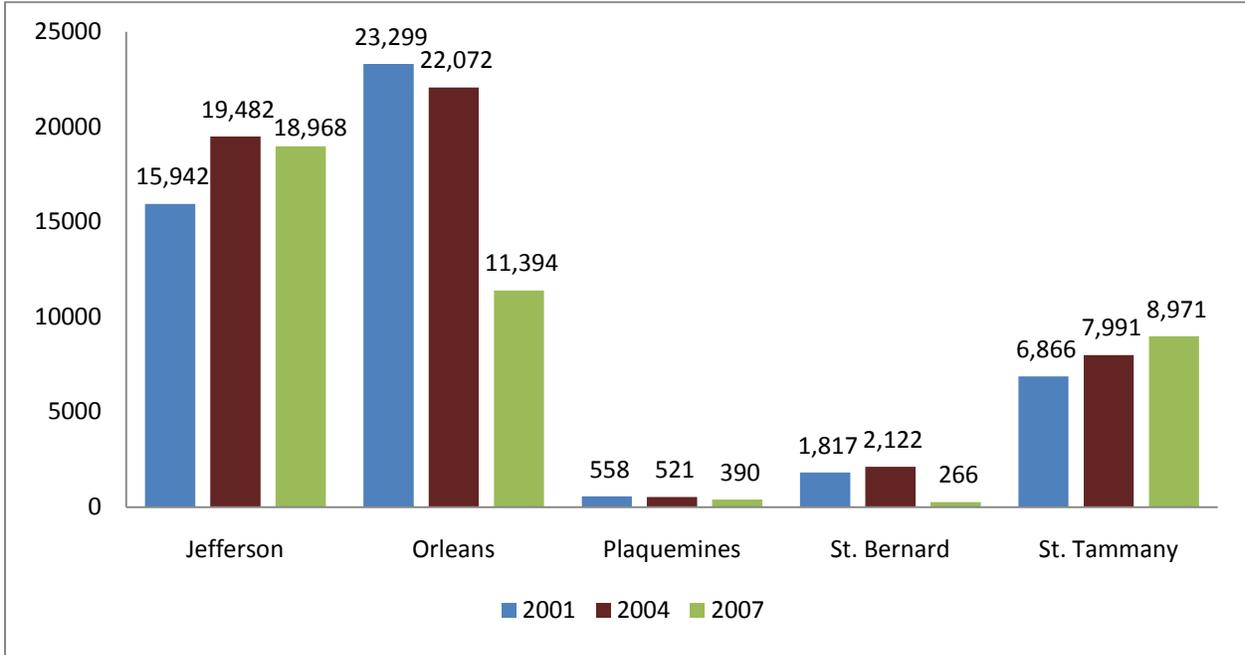
Through 2007, St. Tammany Parish's healthcare sector employment grew to 8,971 (up 12.3% over 2004), while the number of establishments rose to 674 (up 21.7%) as average size edged down from 14.4 to 13.3 workers. Gross wages in this sector of the parish's economy grew to \$365.6 million (up 34.1% over 2004), while the average wage grew 19.4% to \$49,750. Healthcare job growth in St. Tammany Parish through 2007 was most notable in three subsectors: physicians offices (up 419 jobs or 23.8%), dentists (up 165 or 25.2%) and home healthcare where employment more than doubled to 644 jobs. (See Table 3-7).

**Figure 3-1: Healthcare and Life Sciences Employment: 2007  
New Orleans Region**



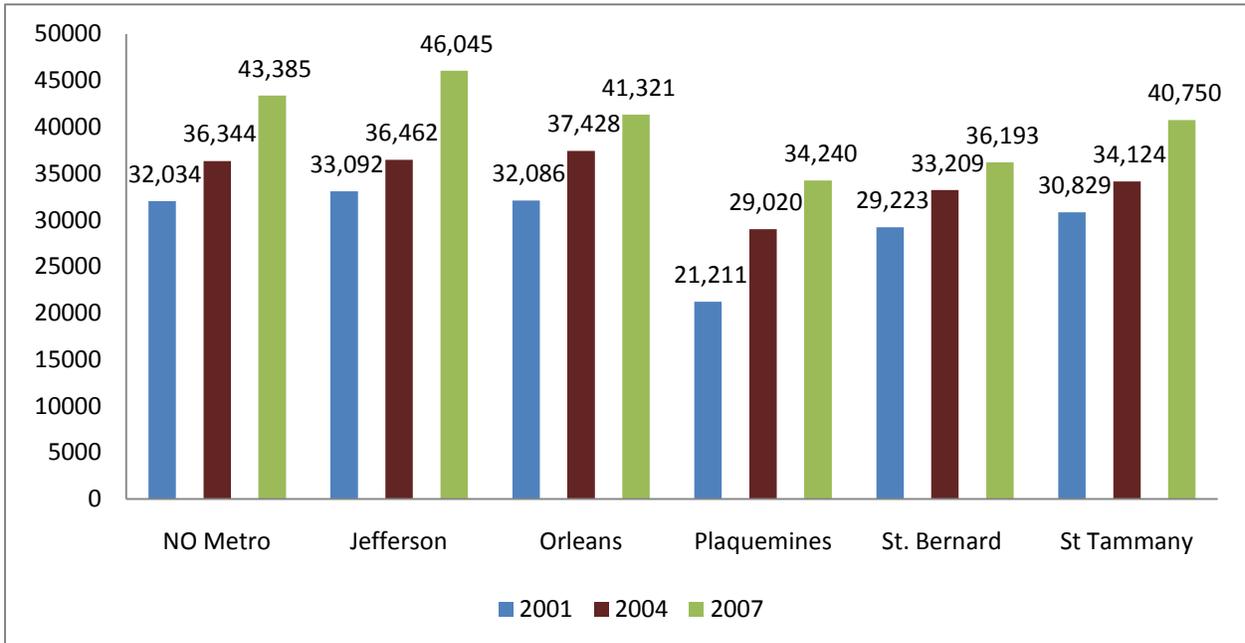
Source: Minnesota IMPLAN Group. Covered Employment and Wages Adjusted Data

**Figure 3-2: Healthcare and Life Sciences Employment: 2001 - 2007**  
**New Orleans Region**



Source: Minnesota IMPLAN Group. Covered Employment and Wages Adjusted Data

**Figure 3-3: Healthcare and Life Sciences Wages: 2001 - 2007**  
**New Orleans Region**



Source: Minnesota IMPLAN Group. Covered Employment and Wages Adjusted Data

**Table 3-1: Healthcare and Life Science Establishments, Employment and Wages for 2001, 2003 and 2007:  
New Orleans Region  
Covered Employment and Wage Adjusted Annual Data**

NAICS	Description	2001					2004					2007				
		Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)	Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)	Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)
<b>AMBULATORY HEALTHCARE SERVICES</b>																
6211	Offices of Physicians	1,052	10,266	9.8	52,503	538,994,322	1,129	10,811	9.6	58,966	637,476,878	991	7,834	7.9	63,228	495,330,138
6212	Offices of Dentists	482	2,734	5.7	27,910	76,307,082	490	2,957	6.0	32,192	95,191,799	453	2,690	5.9	38,261	102,921,184
6213	Offices of Other Health Care Practitioners	338	1,767	5.2	26,369	46,594,173	350	1,987	5.7	27,553	55,023,029	324	1,444	4.5	34,731	50,151,605
6214	Out Patient Care Centers	97	1,323	13.6	31,229	41,315,553	100	1,623	16.2	33,182	53,853,733	111	1,280	11.5	38,491	49,268,693
6215	Medical and Diagnostic Laboratories	69	908	13.1	32,021	29,075,219	76	729	9.6	38,141	27,805,056	75	640	8.5	46,017	29,450,984
6216	Home Healthcare	110	2,761	25.2	22,912	63,261,231	119	3,137	26.4	27,122	85,081,047	118	3,062	25.9	30,347	92,922,504
6219	Other Ambulatory Healthcare Services	61	912	14.9	26,598	24,257,587	46	654	14.2	33,915	22,180,495	54	933	17.3	28,742	26,816,296
<b>HOSPITALS</b>																
6221	General Medical and Surgical Hospitals	23	13,983	608.0	32,325	451,993,991	25	16,287	651.5	37,626	612,820,677	19	12,007	631.9	49,924	599,432,715
6222	Psychiatric and Substance Abuse Hospitals	9	1,022	113.5	26,900	27,489,990	8	1,277	159.6	31,511	40,228,856	6	1,129	188.2	37,951	42,843,895
6223	Other Hospitals	20	1,070	53.5	33,335	35,667,970	21	845	40.2	44,683	37,757,514	14	678	48.4	44,524	30,187,434
6231	Nursing Care Facilities	69	6,077	88.7	17,174	104,367,372	60	5,985	99.8	18,228	109,097,399	50	3,813	76.3	22,826	87,036,239
6232	Residential Mental Health Facilities	73	1,617	22.3	15,468	25,011,270	79	2,016	25.5	16,540	33,344,961	60	1,580	26.3	23,925	37,800,757
6233	Community Care Facilities for the Elderly	57	1,753	30.8	16,399	28,748,026	33	1,641	49.7	15,321	25,142,511	20	963	48.2	22,150	21,330,672
6239	Other Residential Care Facilities	18	482	26.5	18,476	8,905,585	9	269	29.9	18,175	4,889,162	7	119	17.0	19,372	2,305,772
<b>SCIENTIFIC RESEARCH AND DEVELOPMENT SERVICES</b>																
541710	Research and Development in the Physical, Engineering, and Life Sciences	34	249	7.4	51,022	12,704,479	44	240	5.5	58,684	14,084,242	-	-	-	-	-
541711	Research and Development in Biotechnology	-	-	-	-	-	-	-	-	-	-	12	51	4.3	83,253	4,245,895
541712	Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)	-	-	-	-	-	-	-	-	-	-	43	215	5.0	72,578	15,604,192
<b>OTHER PROFESSIONAL SERVICES</b>																
541940	Veterinary Services	111	1,106	10.0	20,872	23,084,337	109	1,350	12.4	22,196	29,965,041	109	1,261	11.6	27,822	35,083,998
3254	Pharmaceutical and Medicine Manufacturing	8	32	4.0	39,640	1,268,470	6	18	3.0	71,480	1,286,638	5	35	7.0	66,417	2,324,603
3391	Medical Equipment and Supplies Manufacturing	40	241	6.1	34,378	8,285,091	31	163	5.3	28,423	4,632,970	33	122	3.7	33,501	4,087,175
<b>New Orleans Region Total</b>		<b>2,669</b>	<b>48,303</b>	<b>18.1</b>	<b>32,034</b>	<b>1,547,331,748</b>	<b>2,735</b>	<b>51,999</b>	<b>19.0</b>	<b>36,344</b>	<b>1,889,862,008</b>	<b>2,504</b>	<b>39,856</b>	<b>15.9</b>	<b>43,385</b>	<b>1,729,144,001</b>

Source: Minnesota IMPLAN Group. Covered Employment and Wage Adjusted Data

**Table 3-2: Healthcare and Life Science Establishments, Employment and Wages for 2001, 2003 and 2007:**  
**Louisiana**  
**Covered Employment and Wage Adjusted Annual Data**

NAICS	Description	2001					2004					2007				
		Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)	Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)	Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)
AMBULATORY HEALTHCARE SERVICES																
6211	Offices of Physicians	3,261	29,268	9.0	53,065	1,553,113,919	3,509	31,928	9.1	57,037	1,821,072,055	3,548	31,355	8.8	59,884	1,877,664,503
6212	Offices of Dentists	1,474	8,615	5.8	28,235	243,241,689	1,496	9,176	6.1	31,631	290,247,718	1,485	9,404	6.3	36,501	343,255,355
6213	Offices of Other Health Care Practitioners	1,133	6,633	5.9	26,812	177,843,172	1,273	7,867	6.2	28,670	225,549,457	1,369	7,578	5.5	33,595	254,585,928
6214	Out Patient Care Centers	314	4,571	14.6	30,284	138,427,921	345	5,448	15.8	30,290	165,019,953	383	5,314	13.9	34,752	184,672,964
6215	Medical and Diagnostic Laboratories	195	2,473	12.7	28,965	71,630,828	232	2,165	9.3	36,323	78,639,420	247	2,214	9.0	39,481	87,411,936
6216	Home Healthcare	380	9,598	25.3	22,256	213,609,753	408	12,561	30.8	26,075	327,534,097	553	17,330	31.3	27,389	474,645,238
6219	Other Ambulatory Healthcare Services	184	3,957	21.5	27,625	109,311,470	164	4,086	24.6	29,495	119,040,018	159	4,429	27.9	36,752	162,775,455
HOSPITALS																
6221	General Medical and Surgical Hospitals	102	52,776	517.4	30,358	1,602,197,652	130	54,957	422.7	34,602	1,901,616,392	140	50,763	362.6	42,423	2,153,533,008
6222	Psychiatric and Substance Abuse Hospitals	38	1,971	51.9	25,113	49,498,018	29	1,822	62.8	29,828	54,345,886	39	2,431	62.3	31,056	75,497,997
6223	Other Hospitals	67	5,648	84.3	30,022	169,566,591	81	7,983	98.6	35,939	286,898,289	90	8,014	89.0	39,121	313,517,346
6231	Nursing Care Facilities	333	28,573	85.8	14,737	421,093,210	305	28,472	93.4	16,570	471,776,705	295	25,542	86.6	20,393	520,883,578
6232	Residential Mental Health Facilities	398	7,216	18.1	13,636	98,306,082	369	8,168	22.1	14,457	118,081,992	397	8,358	21.1	18,932	158,231,049
6233	Community Care Facilities for the Elderly	109	4,977	45.7	14,118	70,266,490	120	6,144	51.2	15,197	99,368,720	118	5,544	47.0	18,651	103,401,185
6239	Other Residential Care	74	2,194	29.6	15,548	34,111,548	62	1,831	29.5	16,900	30,943,983	59	2,002	33.9	18,107	36,249,216
SCIENTIFIC RESEARCH AND DEVELOPMENT SERVICES																
541710	Research and Development in the Physical, Engineering, and Life Sciences	77	570	7.4	47,959	27,336,634	93	593	5.4	55,556	27,944,907	-	-	-	-	-
541711	Research and Development in Biotechnology	-	-	-	-	-	-	-	-	-	-	25	101	4.0	49,769	5,026,629
541712	Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)	-	-	-	-	-	-	-	-	-	-	95	458	4.8	60,924	27,903,030
OTHER PROFESSIONAL SERVICES																
541940	Veterinary Services	388	3,058	7.9	17,839	54,551,569	399	3,570	8.9	19,751	70,512,645	402	3,891	9.7	23,440	91,206,286
PHARMACEUTICAL, MEDICINE, MEDICAL EQUIPMENT, AND SUPPLIES MANUFACTURING																
3254	Manufacturing	24	289	12.0	39,969	11,550,913	17	265	15.6	41,870	11,095,508	15	242	16.1	45,003	10,890,745
3391	Medical Equipment and Supplies Manufacturing	155	1,100	7.1	26,311	28,942,370	155	1,023	6.6	25,667	26,257,640	149	851	5.7	30,472	25,931,292
<b>Louisiana Total</b>		<b>8,706</b>	<b>173,487</b>	<b>19.9</b>	<b>29,251</b>	<b>5,074,689,829</b>	<b>9,187</b>	<b>187,919</b>	<b>20.5</b>	<b>32,567</b>	<b>6,119,945,385</b>	<b>9,568</b>	<b>185,821</b>	<b>19.4</b>	<b>37,172</b>	<b>6,907,282,740</b>

Source: Minnesota IMPLAN Group. Covered Employment and Wage Adjusted Data

**Table 3-3: Healthcare and Life Science Establishments, Employment and Wages for 2001, 2003 and 2007:**  
**Jefferson Parish**  
**Covered Employment and Wage Adjusted Annual Data**

NAICS	Description	2001					2004					2007				
		Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)	Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)	Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)
AMBULATORY HEALTHCARE SERVICES																
6211	Offices of Physicians	408	3,627	8.9	55,678	201,945,054	446	3,867	8.7	59,642	230,636,044	452	4,081	9.0	63,317	258,396,273
6212	Offices of Dentists	225	1,277	5.7	30,104	38,442,461	232	1,431	6.2	34,463	49,316,441	230	1,349	5.9	40,660	54,850,070
6213	Offices of Other Health Care Practitioners	134	679	5.1	27,255	18,506,386	149	797	5.3	30,488	24,259,053	143	712	5.0	35,520	25,260,257
6214	Out Patient Care Centers	32	451	14.1	28,480	12,844,558	38	759	20.0	33,989	25,797,969	52	763	14.7	37,537	28,640,952
6215	Medical and Diagnostic Laboratories	31	515	16.6	31,870	16,413,057	37	537	14.5	38,733	20,799,399	38	432	11.4	46,329	20,014,150
6216	Home Healthcare	49	1,319	26.9	26,219	34,562,988	47	1,471	31.3	28,821	42,396,154	57	1,689	29.6	33,412	56,432,035
6219	Other Ambulatory Healthcare Services	25	389	15.6	28,053	10,912,704	21	331	15.8	31,526	10,495,187	20	392	19.6	35,044	13,737,361
HOSPITALS																
6221	General Medical and Surgical Hospitals	6	2,941	516.0	34,917	102,690,013	5	5,722	1,144.4	38,094	217,975,955	4	5,238	1,309.5	57,974	303,665,887
6222	Psychiatric and Substance Abuse Hospitals	1	522	401.7	25,568	13,350,508	3	357	119.0	26,121	9,328,790	3	163	54.3	34,987	5,694,435
6223	Other Hospitals	6	544	90.7	27,742	15,091,735	8	136	17.0	35,855	4,876,338	8	456	57.0	40,883	18,642,857
6231	Nursing Care Facilities	18	1,870	103.9	15,768	29,485,340	17	1,872	110.1	18,070	33,827,153	16	1,770	110.6	21,997	38,933,934
6232	Residential Mental Health Facilities	20	609	30.5	14,797	9,011,583	28	1,002	35.8	16,868	16,901,985	26	980	37.7	23,471	23,002,022
6233	Community Care Facilities for the Elderly	26	367	14.1	14,814	5,436,620	13	359	27.6	13,340	4,788,922	5	209	41.8	19,238	4,020,648
6239	Other Residential Care Facilities	3	59	19.7	18,123	1,069,256	-	-	-	-	-	-	-	-	-	-
SCIENTIFIC RESEARCH AND DEVELOPMENT SERVICES																
541710	Research and Development in the Physical, Engineering, and Life Sciences	10	22	2.2	40,395	888,680	15	25	1.7	45,482	1,135,798	-	-	-	-	-
541711	Research and Development in Biotechnology	-	-	-	-	-	-	-	-	-	-	3	4	1.3	57,854	231,416
541712	Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)	-	-	-	-	-	-	-	-	-	-	11	21	1.9	80,465	1,689,762
OTHER PROFESSIONAL SERVICES																
541940	Veterinary Services	44	562	12.8	21,065	11,838,748	41	626	15.3	20,752	12,990,731	45	569	12.6	28,620	16,284,685
PHARMACEUTICAL, MEDICINE, MEDICAL EQUIPMENT, AND SUPPLIES																
3254	Pharmaceutical and Medicine Manufacturing	3	10	3.3	65,798	657,978	2	1	0.5	32,678	32,678	1	7	7.0	35,111	245,776
3391	Medical Equipment and Supplies Manufacturing	29	179	6.2	24,496	4,384,867	37	189	5.1	25,675	4,852,582	26	133	5.1	27,063	3,599,441
<b>Jefferson Parish Total</b>		<b>1,070</b>	<b>15,942</b>	<b>14.9</b>	<b>33,092</b>	<b>527,552,536</b>	<b>1,139</b>	<b>19,482</b>	<b>17.1</b>	<b>36,462</b>	<b>710,351,179</b>	<b>1,140</b>	<b>18,968</b>	<b>16.6</b>	<b>46,045</b>	<b>873,371,961</b>

Source: Minnesota IMPLAN Group. Covered Employment and Wage Adjusted Data

**Table 3-4: Healthcare and Life Science Establishments, Employment and Wages for 2001, 2003 and 2007:**  
**Orleans Parish**  
**Covered Employment and Wage Adjusted Annual Data**

NAICS	Description	2001				2004				2007						
		Estab.	Empl.	Ave. Firm Size	Total Wages (\$)	Estab.	Empl.	Ave. Firm Size	Total Wages (\$)	Estab.	Empl.	Ave. Firm Size	Total Wages (\$)			
AMBULATORY HEALTHCARE SERVICES																
6211	Offices of Physicians	414	4,883	11.8	49,371	241,077,915	430	4,705	10.9	59,729	281,024,080	277	1,448	5.2	58,905	85,294,427
6212	Offices of Dentists	139	694	5.0	25,587	17,757,657	127	718	5.7	29,027	20,841,547	88	454	5.2	36,521	16,580,403
	Offices of Other Health Care Practitioners	119	495	4.2	27,009	13,369,360	110	478	4.3	30,016	14,347,459	77	280	3.6	36,032	10,088,868
6214	Out Patient Care Centers	47	789	16.8	30,997	24,456,787	42	657	15.6	34,069	22,383,558	33	318	9.6	45,824	14,571,985
6215	Medical and Diagnostic Laboratories	23	216	9.4	26,494	5,722,720	18	92	5.1	28,042	2,579,907	14	54	3.9	55,270	2,984,572
6216	Home Healthcare	41	858	20.9	20,751	17,804,712	45	1,117	24.8	24,638	27,520,515	29	675	23.3	26,057	17,588,614
6219	Other Ambulatory Healthcare Services	27	365	13.5	24,336	8,882,502	16	155	9.7	30,826	4,778,047	12	22	1.8	37,544	825,972
HOSPITALS																
6221	General Medical and Surgical Hospitals	10	9,246	924.6	31,875	294,712,114	12	8,239	686.6	38,163	314,428,659	7	4,834	690.6	44,940	217,239,340
6222	Psychiatric and Substance Abuse Hospitals	5	455	85.8	29,268	13,309,444	2	649	324.3	34,759	22,545,609	2	851	425.6	40,449	34,426,768
6223	Other Hospitals	11	417	38.6	39,496	16,469,820	11	523	47.5	47,822	25,010,801	2	137	68.5	61,988	8,492,310
6231	Nursing Care Facilities	26	2,815	108.3	16,799	47,287,868	23	2,530	110.0	16,654	42,134,761	19	1,033	54.4	23,153	23,916,940
6232	Residential Mental Health Facilities	35	623	17.8	16,965	10,569,222	28	564	20.1	17,479	9,858,186	17	289	17.0	28,102	8,121,518
6233	Community Care Facilities for the Elderly	14	663	47.4	17,331	11,490,192	15	1,016	67.7	17,498	17,777,994	11	563	51.2	22,801	12,836,917
6239	Other Residential Care Facilities	9	253	28.1	18,940	4,766,615	7	191	27.3	18,570	3,546,831	5	116	23.2	19,209	2,228,262
SCIENTIFIC RESEARCH AND DEVELOPMENT SERVICES																
541710	Research and Development in the Physical, Engineering, and Life Sciences	21	221	10.5	51,415	11,362,773	22	166	7.5	55,767	9,257,299	-	-	-	-	-
541711	Research and Development in Biotechnology	-	-	-	-	-	-	-	-	-	-	5	14	2.8	70,015	980,213
541712	Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)	-	-	-	-	-	-	-	-	-	-	19	85	4.5	76,925	6,538,629
OTHER PROFESSIONAL SERVICES																
541940	Veterinary Services	27	208	7.7	25,852	5,377,217	24	222	9.3	28,432	6,312,005	19	184	9.7	32,997	6,071,526
PHARMACEUTICAL, MEDICINE, MEDICAL EQUIPMENT, AND SUPPLIES																
3254	Pharmaceutical and Medicine Manufacturing	4	24	6.0	43,307	1,053,772	2	10	5.0	59,714	597,142	2	26	13.0	52,977	1,377,407
3391	Medical Equipment and Supplies Manufacturing	16	74	4.6	28,220	2,088,297	9	40	4.4	28,747	1,149,889	8	11	1.4	59,484	654,322
	<b>Orleans Parish Total</b>	<b>988</b>	<b>23,299</b>	<b>23.6</b>	<b>32,066</b>	<b>747,556,987</b>	<b>943</b>	<b>22,072</b>	<b>23.4</b>	<b>37,428</b>	<b>826,094,289</b>	<b>646</b>	<b>11,394</b>	<b>17.6</b>	<b>41,321</b>	<b>470,818,993</b>

Source: Minnesota IMPLAN Group. Covered Employment and Wage Adjusted Data

**Table 3-5: Healthcare and Life Science Establishments, Employment and Wages for 2001, 2003 and 2007:**  
**Plaquemines Parish**  
**Covered Employment and Wage Adjusted Annual Data**

NAICS	Description	2001				2004				2007							
		Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)	Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)	Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)	
AMBULATORY HEALTHCARE SERVICES																	
6211	Offices of Physicians	7	46	6.6	30,962	1,424,237	7	38	5.4	34,191	1,299,252	4	16	4.0	28,911	462,577	
6212	Offices of Dentists	4	35	8.8	31,108	1,088,789	5	38	7.6	31,572	1,199,724	4	32	8.0	54,816	1,754,116	
6213	Offices of Other Health Care Practitioners	8	42	5.3	34,110	1,432,622	4	30	7.5	29,395	881,861	-	-	-	-	-	
6214	Out Patient Care Centers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6215	Medical and Diagnostic Laboratories	2	92	57.5	22,881	2,105,055	1	6	6.0	48,572	291,431	2	56	28.0	36,622	2,050,824	
6216	Home Healthcare	2	92	57.5	17,581	1,617,439	1	76	76.0	44,995	3,419,636	2	50	25.0	25,723	1,286,145	
6219	Other Ambulatory Healthcare Services	1	42	52.5	29,495	1,238,786	1	59	59.0	52,869	3,119,260	1	85	85.0	34,342	2,919,111	
HOSPITALS																	
6221	General Medical and Surgical Hospitals	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6222	Psychiatric and Substance Abuse Hospitals	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6223	Other Hospitals	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6231	Nursing Care Facilities	3	95	38.0	13,809	1,311,816	1	155	155.0	17,249	2,675,538	1	65	65.0	22,228	1,444,836	
6232	Residential Mental Health Facilities	3	95	38.0	13,809	1,311,816	3	51	17.0	14,897	759,753	1	34	34.0	20,514	697,470	
6233	Community Care Facilities for the Elderly	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6239	Other Residential Care Facilities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SCIENTIFIC RESEARCH AND DEVELOPMENT SERVICES																	
541710	Research and Development in the Physical, Engineering, and Life Sciences	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
541711	Research and Development in Biotechnology	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
541712	Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OTHER PROFESSIONAL SERVICES																	
541940	Veterinary Services	2	17	9.4	17,687	300,682	1	68	68.0	21,690	1,474,898	1	7	7.0	21,478	150,349	
PHARMACEUTICAL, MEDICINE, MEDICAL EQUIPMENT, AND SUPPLIES																	
3254	Pharmaceutical and Medicine Manufacturing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3391	Medical Equipment and Supplies Manufacturing	1	2	4.0	2,384	4,768	-	-	-	-	-	-	-	-	-	-	-
<b>Plaquemines Parish Total</b>		<b>30</b>	<b>558</b>	<b>18.4</b>	<b>21,211</b>	<b>11,836,010</b>	<b>24</b>	<b>521</b>	<b>21.7</b>	<b>29,020</b>	<b>15,119,353</b>	<b>18</b>	<b>390</b>	<b>21.7</b>	<b>34,240</b>	<b>13,353,560</b>	

Source: Minnesota IMPLAN Group. Covered Employment and Wage Adjusted Data

**Table 3-6: Healthcare and Life Science Establishments, Employment and Wages for 2001, 2003 and 2007:  
St. Bernard Parish  
Covered Employment and Wage Adjusted Annual Data**

NAICS	Description	2001				2004				2007						
		Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)	Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)	Estab.	Empl.	Ave. Firm Size	Average Wages (\$)	Total Wages (\$)
AMBULATORY HEALTHCARE SERVICES																
6211	Offices of Physicians	32	315	9.8	41,485	13,067,836	37	442	11.9	41,073	18,154,374	14	111	7.9	45,115	5,007,794
6212	Offices of Dentists	22	114	5.2	31,900	3,636,558	22	114	5.2	38,042	4,336,732	10	34	3.4	39,885	1,356,106
6213	Offices of Other Health Care Practitioners	10	39	3.9	24,086	939,355	12	37	3.1	25,751	952,777	7	22	3.1	19,371	426,164
6214	Out Patient Care Centers	4	6	1.5	30,877	185,259	5	43	8.6	34,249	1,472,720	5	16	3.2	34,348	549,571
6215	Medical and Diagnostic Laboratories	1	2	2.9	24,353	48,705	2	3	1.5	49,635	148,906	-	-	-	-	-
6216	Home Healthcare	6	126	21.0	15,038	1,894,828	6	159	26.5	24,279	3,860,429	3	4	1.3	22,842	91,368
6219	Other Ambulatory Healthcare Services	1	36	27.7	26,453	952,313	2	12	6.0	42,467	509,602	1	42	42.0	33,209	1,394,759
HOSPITALS																
6221	General Medical and Surgical Hospitals	2	282	122.6	40,833	11,514,874	1	371	371.0	40,833	15,148,923	-	-	-	-	-
6222	Psychiatric and Substance Abuse Hospitals	-	-	-	-	-	1	186	186.0	35,104	6,529,354	-	-	-	-	-
6223	Other Hospitals	2	89	55.6	40,502	3,604,694	1	186	186.0	42,296	7,867,083	-	-	-	-	-
6231	Nursing Care Facilities	6	253	42.2	26,429	6,686,495	5	236	47.2	31,087	7,336,542	3	7	2.3	21,750	152,253
6232	Residential Mental Health Facilities	5	140	28.0	14,649	2,050,893	5	156	31.2	14,226	2,219,324	3	15	5.0	21,538	323,065
6233	Community Care Facilities for the Elderly	9	247	27.8	18,986	4,689,578	1	106	106.0	541	57,353	-	-	-	-	-
6239	Other Residential Care Facilities	1	97	80.8	20,808	2,018,371	-	-	-	-	-	-	-	-	-	-
SCIENTIFIC RESEARCH AND DEVELOPMENT SERVICES																
541710	Research and Development in the Physical, Engineering, and Life Sciences	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
541711	Research and Development in Biotechnology	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
541712	Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OTHER PROFESSIONAL SERVICES																
541940	Veterinary Services	4	48	12.0	23,308	1,118,801	5	45	9.0	26,684	1,200,758	2	12	6.0	20,186	242,227
PHARMACEUTICAL, MEDICINE, MEDICAL EQUIPMENT, AND SUPPLIES																
3254	Pharmaceutical and Medicine Manufacturing	1	1	1.0	10,373	10,373	1	1	1.0	21,591	21,591	-	-	-	-	-
3391	Medical Equipment and Supplies Manufacturing	4	22	5.5	30,862	678,974	6	25	4.2	26,090	652,248	4	3	0.8	28,012	84,036
<b>St. Bernard Total</b>		<b>110</b>	<b>1,817</b>	<b>16.5</b>	<b>29,223</b>	<b>53,097,907</b>	<b>112</b>	<b>2,122</b>	<b>18.9</b>	<b>33,209</b>	<b>70,468,716</b>	<b>52</b>	<b>266</b>	<b>5.1</b>	<b>36,193</b>	<b>9,627,343</b>

Source: Minnesota IMPLAN Group. Covered Employment and Wage Adjusted Data

**Table 3-7: Healthcare and Life Science Establishments, Employment and Wages for 2001, 2003 and 2007:**  
**St. Tammany Parish**  
**Covered Employment and Wage Adjusted Annual Data**

NAICS	Description	2001				2004				2007						
		Estab.	Empl.	Ave. Firm Size	Total Wages (\$)	Estab.	Empl.	Ave. Firm Size	Total Wages (\$)	Estab.	Empl.	Ave. Firm Size	Total Wages (\$)			
AMBULATORY HEALTHCARE SERVICES																
6211	Offices of Physicians	191	1,395	7.3	58,408	81,479,280	209	1,759	8.4	60,468	106,363,128	244	2,178	8.9	146,169,067	
6212	Offices of Dentists	92	614	6.7	25,051	15,381,617	104	656	6.3	29,772	19,497,355	121	821	6.8	28,380,489	
6213	Offices of Other Health Care Practitioners	67	512	7.6	24,114	12,346,450	75	655	8.7	22,262	14,581,879	97	430	4.4	14,346,316	
6214	Out Patient Care Centers	14	77	5.5	49,727	3,828,949	15	164	10.9	25,607	4,199,486	21	183	8.7	5,505,985	
6215	Medical and Diagnostic Laboratories	13	83	6.4	57,659	4,785,682	18	91	5.1	43,796	3,988,413	21	98	4.7	4,401,438	
6216	Home Healthcare	12	366	30.5	20,113	7,361,264	20	314	15.7	25,109	7,889,313	27	644	23.9	17,534,342	
6219	Other Ambulatory Healthcare Services	7	80	11.4	28,391	2,271,282	6	97	16.2	34,416	3,338,399	20	392	19.6	7,939,093	
HOSPITALS																
6221	General Medical and Surgical Hospitals	5	1,514	302.8	28,452	43,076,990	7	1,955	279.3	33,385	65,267,140	8	1,935	241.9	40,583	78,527,488
6222	Psychiatric and Substance Abuse Hospitals	2	45	18.8	18,430	830,038	2	85	42.5	21,495	1,825,103	1	115	115.0	23,668	2,722,641,41
6223	Other Hospitals	2	20	12.5	25,086	500,721	1	1	-	-	3,292	4	85	21.3	35,909	3,052,267
6231	Nursing Care Facilities	16	1,044	65.3	18,770	19,595,853	14	1,192	85.1	19,401	23,125,405	11	938	85.3	24,081	22,588,276
6232	Residential Mental Health Facilities	10	150	15.0	13,785	2,067,756	15	243	16.2	14,838	3,606,713	13	262	20.2	21,590	5,656,682
6233	Community Care Facilities for the Elderly	8	476	59.5	14,982	7,131,636	4	160	40.0	15,739	2,518,242	4	191	47.8	23,419	4,473,107
6239	Other Residential Care Facilities	5	73	14.6	14,402	1,051,343	2	78	39.0	17,209	1,342,331	2	3	1.5	25,670	77,010
SCIENTIFIC RESEARCH AND DEVELOPMENT SERVICES																
541710	Research and Development in the Physical, Engineering, and Life Sciences	3	6	2.4	75,504	453,026	7	49	7.0	75,329	3,691,145	-	-	-	-	-
541711	Research and Development in Biotechnology	-	-	-	-	-	-	-	-	-	-	4	33	8.3	91,947	3,034,266
541712	Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)	-	-	-	-	-	-	-	-	-	-	12	65	5.4	74,195	4,822,645
OTHER PROFESSIONAL SERVICES																
541940	Veterinary Services	34	271	8.0	16,417	4,448,889	38	389	10.2	20,531	7,986,649	42	489	11.6	25,225	12,335,211
PHARMACEUTICAL, MEDICINE, MEDICAL EQUIPMENT, AND SUPPLIES																
3254	Manufacturing	3	7	2.3	29,189	204,325	3	7	2.3	95,415	667,905	3	9	3.0	105,244	947,196
3391	Medical Equipment and Supplies Manufacturing	16	133	8.3	36,504	4,855,074	14	97	6.9	28,847	2,798,155	19	100	5.3	30,681	3,068,065
<b>St. Tammany Total</b>		<b>500</b>	<b>6,866</b>	<b>13.7</b>	<b>30,829</b>	<b>211,671,175</b>	<b>554</b>	<b>7,991</b>	<b>14.4</b>	<b>34,124</b>	<b>272,681,053</b>	<b>674</b>	<b>8,971</b>	<b>13.3</b>	<b>40,750</b>	<b>365,571,584</b>

Source: Minnesota IMPLAN Group. Covered Employment and Wage Adjusted Data

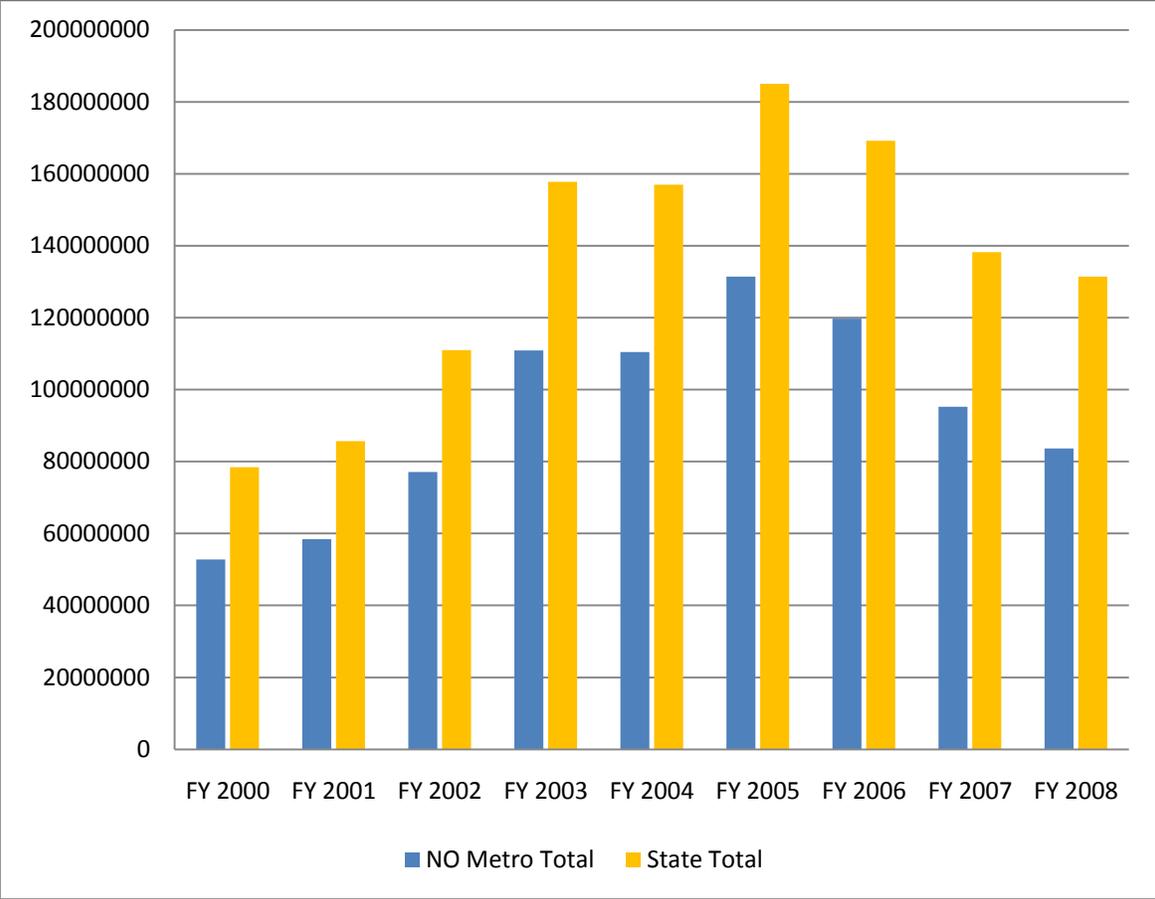
## **Research Investment: NIH Funding**

Much of the basic research conducted within the healthcare sector is funded through the National Institute of Health (NIH). The volume of grant awards received by institutions and research organizations is an indicator of the level of economic contributions made by healthcare entities throughout a region. Table 3-8 summarizes NIH grant awards for the period 2000 through May 2009. For the first six years of the decade, NIH funding steadily rose in the region from \$52.8 million in 2000 to \$131.5 million in 2005. By far, the most significant recipients of this funding were the LSU Health Sciences Center and Tulane University. In 2005, LSUHSC received just under \$43.0 million in 107 individual NIH grant awards (about 32.7% of total funding for the region), while Tulane received 131 grant awards totaling \$73.4 million (or 55.9% of the region's total funding).

Since 2005, NIH funding awards have trended down at both the regional and state levels. In 2006, for example, total funding fell to \$119.5 million (down 8.9% from 2005), while the number of awards edged up to 266. In 2007, the number of grants dropped to 184 (or by 30.8%) in the region, as total dollar volume fell to about \$95.2 million (a 20.5% decrease from 2006). Information for 2008 is still considered preliminary but indicates a continued downward drift in dollars awarded (\$83.6 million) even as the number of awards rose to 196.

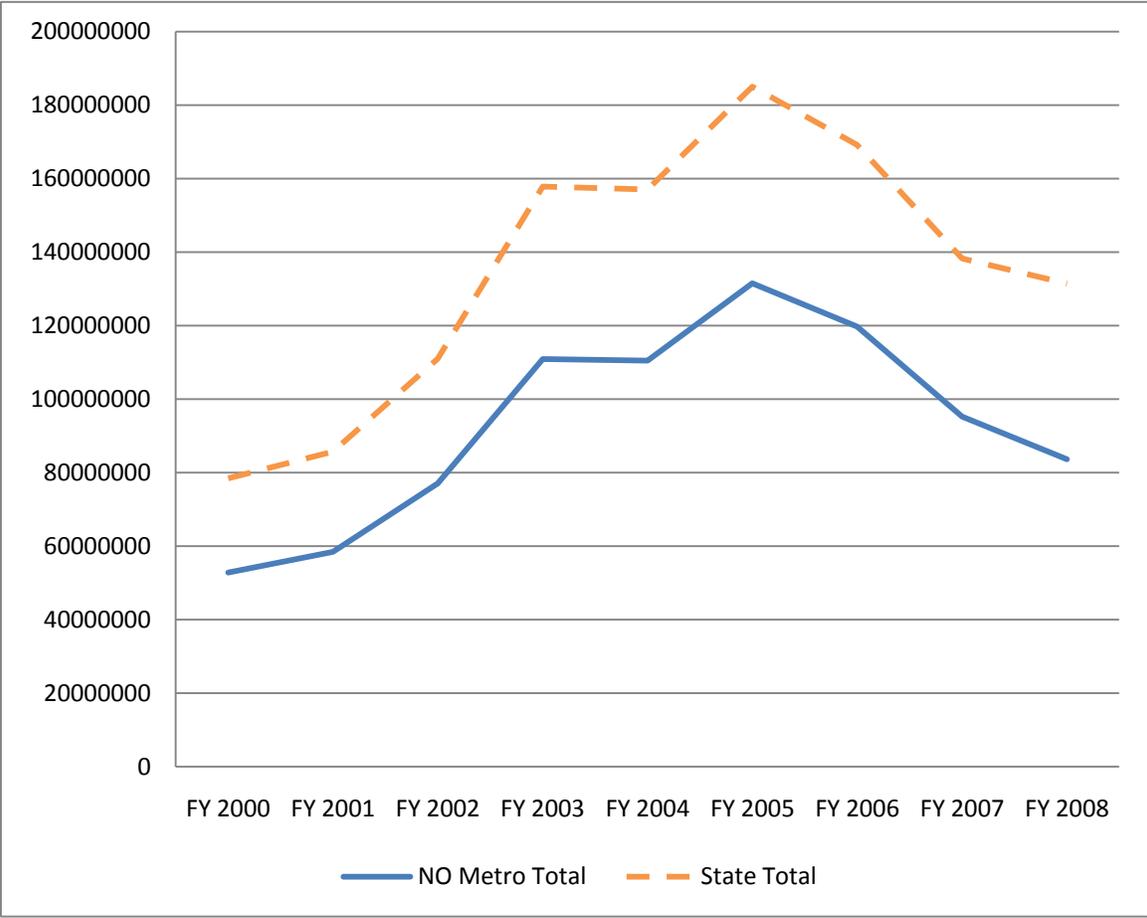
The downward trends since 2005 are no doubt related to post-Katrina economic dislocations, particularly in the hard hit healthcare sector. This is particularly notable for LSUHSC. As the region continues its slow but gradual recovery, the volume of NIH grant awards should begin to stabilize and then grow. The preliminary information for the year 2008 is somewhat indicative of such a pattern as are the number and dollar volumes of awards through the first five months of 2009.

**Figure 3-4: National Institute of Health Extramural Awards: FY 2000 to FY 2008  
New Orleans Area and Louisiana**



Source: National Institutes of Health Extramural Awards by State and Site

**Figure 3-5: National Institute of Health Extramural Awards: FY 2000 to FY 2008  
New Orleans Area and Louisiana**



Source: National Institutes of Health Extramural Awards by State and Site

**Table 3-8: National Institute of Health Extramural Awards  
New Orleans Metropolitan Area**

Name of Organization	FY 2000		FY 2001		FY 2002		FY 2003		FY 2004		FY 2005		FY 2006		FY 2007		FY 2008 (p)		FY 2009 May YTD (p)	
	Grant Award Total	No. of Grants	Grant Award Total	No. of Grants																
AUTOIMMUNE TECHNOLOGIES, LLC	32,167	--	70,000	--	315,000	1	315,000	1	--	--	--	--	560,795	2	461,944	1	--	--	--	--
CHILDREN'S HOSPITAL DEK-TEC, INC.	352,850	--	889,980	--	308,233	--	320,366	1	--	--	1,841,549	8	1,739,708	7	1,502,062	6	1,942,316	7	328,847	1
ENDEAVOR CORPORATION	--	--	122,123	--	--	--	--	--	--	--	805,492	1	294,271	1	553,748	3	140,983	1	--	--
DILLARD UNIVERSITY	--	--	--	--	--	--	--	--	--	--	1,240,000	1	1,537,430	2	1,255,152	1	978,580	1	--	--
LOUISIANA ORGAN PROCUREMENT AGENCY	17,808,928	--	263,035	--	387,407	--	26,450,611	95	38,051,657	104	42,921,427	107	40,593,154	111	33,369,904	80	28,576,643	66	17,595,268	50
LSU-HSC	874,865	--	17,334,863	--	19,356,154	--	327,656	4	907,970	5	1,872,699	1	1,988,265	14	1,834,560	7	1,324,391	5	166,907	1
UNO	--	--	817,803	--	754,197	--	141,367	1	48,832	2	--	--	104,084	1	--	--	--	--	393,478	2
LOUISIANA ORGAN PROCUREMENT AGENCY	282,669	--	263,035	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
OCHSNER CLINIC	650,145	--	695,681	--	973,168	--	1,083,080	4	803,585	4	1,325,080	4	1,281,623	5	1,398,103	5	1,750,037	5	298,902	2
PLANNING SYSTEMS, INC	--	--	--	--	--	--	--	--	99,975	1	--	--	--	--	--	--	--	--	--	--
RELIAGENE	--	--	--	--	469,306	--	280,619	1	--	--	--	--	--	--	--	--	--	--	--	--
ST. CHARLES PHARMACEUTICALS	100,000	--	100,000	--	435,340	--	1,832,722	5	99,975	--	253,539	1	--	--	1,283,820	3	504,554	2	--	--
SOURCE PRODUCTION AND EQUIPMENT CO.	--	--	--	--	--	--	--	--	--	--	--	--	--	--	100,000	1	578,655	3	--	--
SURGICAL RESOURCES, INC	--	--	--	--	--	--	--	--	100,000	1	--	--	--	--	--	--	--	--	--	--
US AGRICULTURE RESEARCH SERVICE	--	--	180,762	--	272,803	--	297,848	1	--	--	--	--	--	--	--	--	--	--	--	326,752
UNO	29,062,402	--	31,399,386	--	45,642,375	--	71,132,058	140	58,139,834	144	73,392,850	131	65,927,198	115	48,178,806	114	45,849,044	106	11,567,019	37
TULANE	3,623,250	--	6,263,294	--	8,160,580	--	8,740,158	9	11,904,517	8	7,794,250	8	5,720,584	8	5,288,926	4	5,052,782	9	210,809	1
XAVIER	52,787,276	--	58,399,962	--	77,074,563	--	110,921,485	262	110,471,345	269	131,195,794	261	119,747,112	266	95,227,025	184	88,636,106	195	30,887,982	95
NO Metro Total	78,394,623	--	85,703,716	--	110,997,298	--	157,809,296	391	157,007,876	401	185,016,753	409	169,133,624	474	138,199,561	348	131,369,203	325	40,007,570	127

(p) Preliminary  
Source: National Institutes of Health Extramural Awards by State and Site

## **Economic Impact of the Sector**

Tables 3-9 and 3-10 summarize the output of several economic impact scenarios for the healthcare sector in the New Orleans region. This analysis uses the IMPLAN model and is based on differing assumptions for the healthcare sector overall and for hospitals specifically. The first scenario in both tables shows a snapshot of the estimated economic impact for the healthcare and life sciences sector as a whole and for the hospitals component alone as of 2007. That is, these two scenarios estimate the total impact (as measured by output) of healthcare given the number and composition of jobs in this sector as of 2007. As previously shown in Table 3-1, total employment in healthcare/life sciences overall stood at 39,856 in 2007, while among the three subsectors covering only hospitals (NAICS 6221, 6222 and 6223), there were 13,814 jobs.

Table 3-9A illustrates that the total economic impact of the healthcare/life sciences sector overall is estimated at \$9.3 billion for the New Orleans region. This includes direct impacts of \$4.7 billion as well as Indirect and Induced effects of \$1.3 billion and \$3.4 billion, respectively. In addition to the 39,856 direct jobs in this sector, the model estimates that another 9,472 jobs are supported by healthcare's Indirect effects with an additional 29,362 jobs supported by Induced economic benefits generated by healthcare. The distribution of these output and job impacts by business category are shown in Appendix Tables A-12 through A-20.

Table 3-10A summarizes the IMPLAN outputs when only hospitals are considered. In this scenario, total economic impact is estimated to be \$3.2 billion for the New Orleans region or the equivalent of 34% of the impact of the healthcare sector overall. This total estimated impact is comprised of \$1.6 billion in direct effects of the hospital sector and another \$458.1 million and \$1.2 billion of Indirect and Induced economic benefits, respectively. In terms of jobs, the direct employment of 13,814 individuals within the hospitals subsector is estimated to support another 3,444 jobs through indirect effects and 10,052 jobs as a result of Induced effects. Overall, the hospitals only sectors account for 35% of the total jobs impacted by the healthcare/life sciences sector in its entirety. The distribution of these output and job impacts by business category are shown in Appendix Tables A-21 through A-29.

The remaining portions of Tables 3-9 and 3-10 consider growth scenarios. The growth scenarios in each case start with employment in those sectors quantified as of 2007 and then is moved forward for five years to 2012. The first assumption is that employment grows at an average annual rate of 1% annually for both healthcare overall (Table 3-9B) and hospitals only (Table 3-10B). The IMPLAN model estimates total incremental output of \$436.8 million for this baseline assumption when applied to the healthcare sector as a whole and the addition of a total of 3,868 jobs (2,033 direct) and 1,835 either

indirect or induced. When only the hospital subsector is considered the model estimates total incremental output of \$165.5 million and the addition of 1,394 total jobs (705 of which are directly created by the 1% growth assumption), while the balance of 689 are generated through Indirect and Induced effects.

The alternative scenarios shown in Tables 3-9(C) and 3-10(C) attempt in a somewhat rudimentary way to begin isolating the possible effects of the reestablishment of the Medical Center with LSUHSC and VA as centerpiece anchors of the District. This analysis excludes any consideration of the construction impact of building a new LSU/VA campus. These are likely to be significant given the level of investment that will be made in both facilities. This very preliminary analysis addresses the potential incremental impact of this major investment when measured solely on the basis of anticipated job growth in the healthcare sector overall and hospital sectors individually. These scenarios hold job growth steady at 1% annually for 2008 and 2009, and then accelerate it by 2%, 3% and 4% in years 2010, 2011 and 2012, respectively. The assumption here is that as new facilities are added, job opportunities will grow as well. It should also be noted, that since there is no definitive timeline established regarding the LSU/VA project, the growth rates are purely assumptions for analytic and illustrative purposes. As more definitive information regarding investment levels, development and construction schedules and job creation levels is revealed, these impact estimates can be more finely tuned. The attempt here is simply to quantify relative orders of magnitude to help shape policy discussions going forward.

The IMPLAN model's results for the overall healthcare sector using the accelerated growth rates indicates total output of \$981.2 million (vs. \$436.8 million for the baseline scenario) and 8,690 total jobs versus 3,868 jobs for the baseline. A similar analysis focused only on hospitals shows total output of \$371.6 million as compared to \$165.5 million in the baseline case and the creation of 3,310 jobs versus 1,394.

This very basic analysis indicates that the potential economic impact of the LSU/VA campus is significant for the region. Alternatively, not rebuilding these major anchors for the Medical District implies significant foregone economic opportunities for the region in terms of total output, jobs, capital investment and value added. The role of the LSUHSC and VA as major catalysts for the healthcare economic engine of the New Orleans region should remain at the forefront of the area's economic development strategy. And, because of the all but inseparable relationship to biosciences, these catalytic core projects are obviously essential to a successful roll out of a comprehensive strategy to position the region within the biotech world.

**Tables 3-9 A-C: Healthcare and Life Sciences Economic Impact**

**Table 3-9(A)**  
**Healthcare and Life Sciences**  
**Baseline 2007**  
**2006 Dollars (Except Employment)**

	<b>Direct</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total</b>
Total Added Value	\$ 2,711,932,298	\$ 669,637,399	\$ 21,636,333,056	\$ 5,545,202,746
Employment	39,856.0	9,472.4	29,362.5	78,691.0
Output	\$ 4,672,783,592	\$ 1,236,068,171	\$ 3,366,098,589	\$ 9,274,950,481

**Table 3-9(B)**  
**Healthcare and Life Sciences**  
**Economic Impact Baseline Growth**  
**1% per year for five years**  
**2006 Dollars (Except Employment)**

	<b>Direct</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total</b>
Total Added Value	\$ 127,259,042	\$ 31,744,699	\$ 101,816,063	\$ 260,819,806
Employment	2,033.1	453.2	1,382.1	3,868.3
Output	\$ 219,754,993	\$ 58,636,681	\$ 158,337,710	\$ 436,760,386

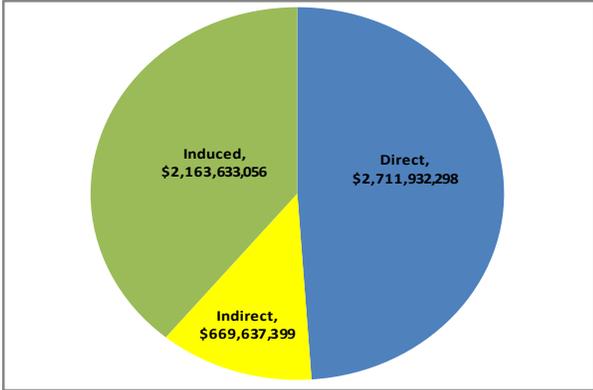
**Table 3-9(C)**  
**Healthcare and Life Sciences**  
**Economic Impact**  
**Graduated growth 1% to 5% annually for five years**  
**2006 Dollars (Except Employment)**

	<b>Direct</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total</b>
Total Added Value	\$ 285,870,436	\$ 71,313,134	\$ 228,717,162	\$ 585,900,725
Employment	4,567.0	1,018.0	3,104.6	8,689.7
Output	\$ 493,645,380	\$ 131,725,547	\$ 355,775,865	\$ 981,146,785

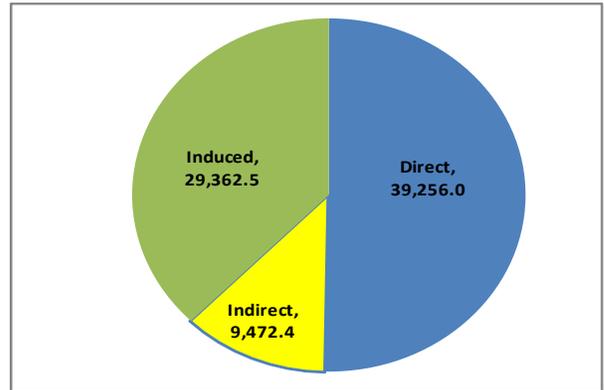
Source: Minnesota Implan Group, Institute for Economic Development and Real Estate Research

**Figures 3-6 A-C: Healthcare and Life Sciences Economic Impact Baseline 2007**

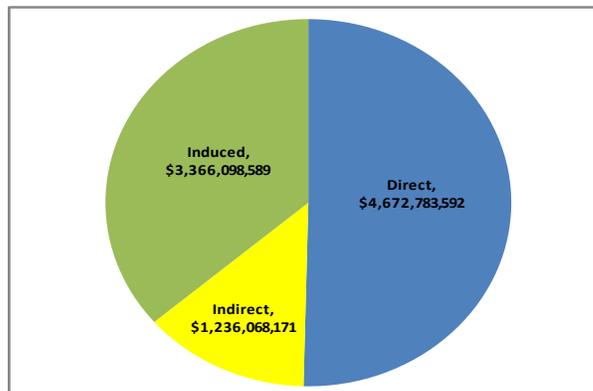
**Figure 3-6(A) - Total Added Value**



**Figure 3-6(B) - Employment**



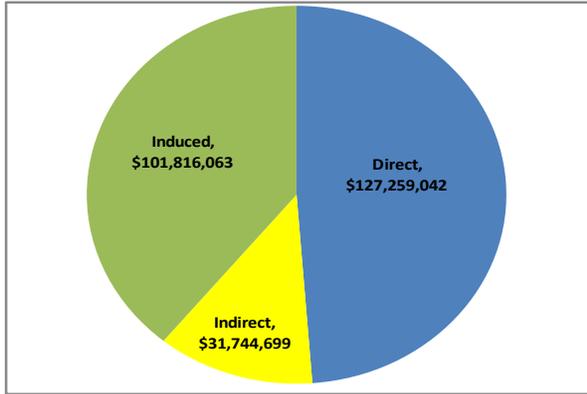
**Figure 3-6(C) - Output**



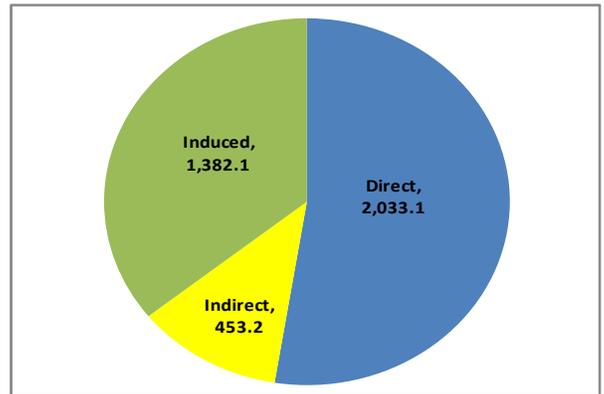
Source: Minnesota Implan Group and Institute for Economic Development and Real Estate Research

**Figures 3-7 A-C: Healthcare and Life Sciences Economic Impact Baseline Growth  
1% per Year for Five Years**

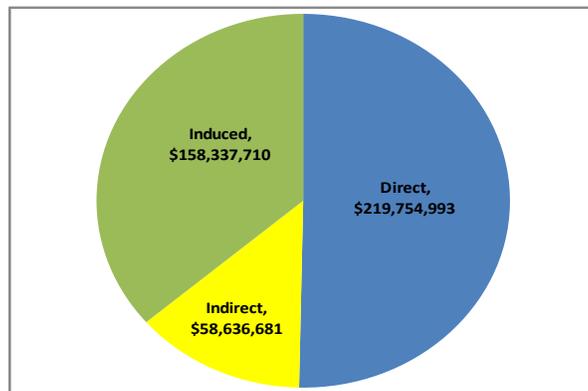
**Figure 3-7(A) - Total Added Value**



**Figure 3-7(B) - Employment**



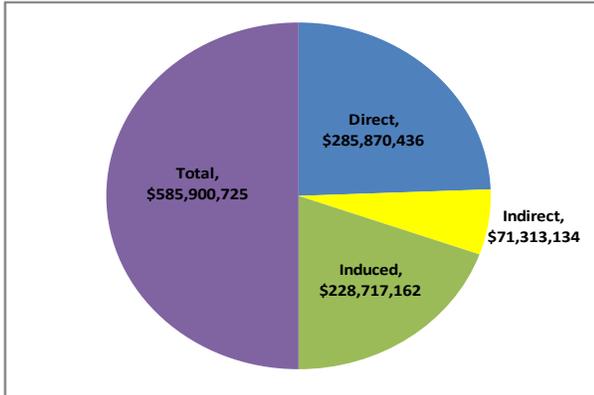
**Figure 3-7(C) - Output**



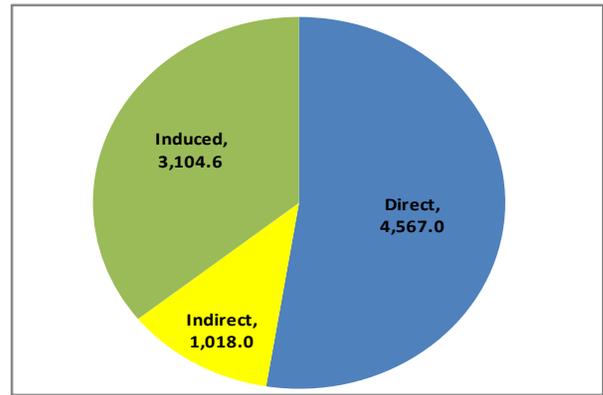
Source: Minnesota Implan Group and Institute for Economic Development and Real Estate Research

**Figures 3-8 A-C: Healthcare and Life Sciences Economic Impact Graduated Growth 1% to 5% Annually for Five Years**

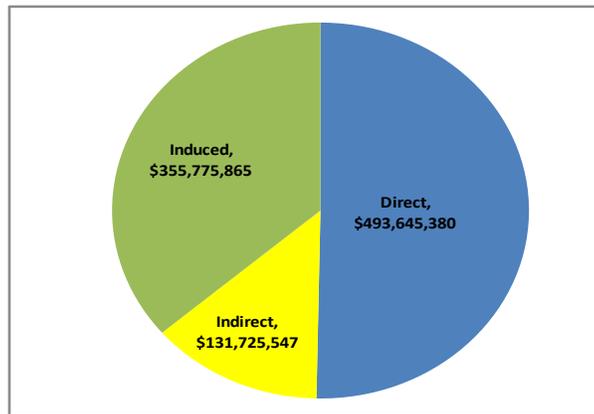
**Figure 3-7(A) - Total Added Value**



**Figure 3-7(B) - Employment**



**Figure 3-6(C) - Output**



Source: Minnesota Implan Group and Institute for Economic Development and Real Estate Research

**Tables 3-10 A-C: Hospitals Only Economic Impact**

**Table 3-10(A)  
Hospitals Only  
Baseline 2007**

**2006 Dollars (Except Employment)**

	<b>Direct</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total</b>
Total Added Value	\$ 898,778,304	\$ 247,032,778	\$ 739,939,364	\$ 1,885,750,457
Employment	13,814.0	3,444.4	10,052.1	27,310.5
Output	\$ 1,634,380,160	\$ 458,087,127	\$ 1,150,408,538	\$ 3,242,875,881

**Table 3-10(B)  
Hospitals Only**

**Economic Impact Baseline Growth**

**1% per year for five years**

**2006 Dollars (Except Employment)**

	<b>Direct</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total</b>
Total Added Value	\$ 45,869,312	\$ 12,607,362	\$ 37,762,940	\$ 96,239,616
Employment	705.0	175.8	513.0	1,393.8
Output	\$ 83,410,888	\$ 23,378,559	\$ 58,711,309	\$ 165,500,755

**Table 3-10(C)**

**Hospitals Only**

**Economic Impact**

**Graduated growth 1% to 5% annually for five years**

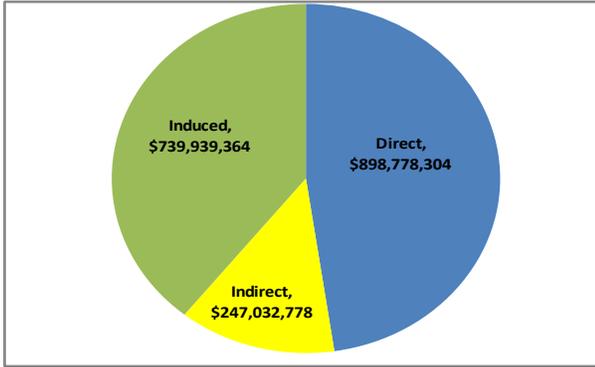
**2006 Dollars (Except Employment)**

	<b>Direct</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total</b>
Total Added Value	\$ 102,987,992	\$ 28,306,658	\$ 84,787,172	\$ 216,081,820
Employment	1,582.9	394.7	1,151.8	3,129.4
Output	\$ 187,278,144	\$ 52,490,668	\$ 131,821,459	\$ 371,590,271

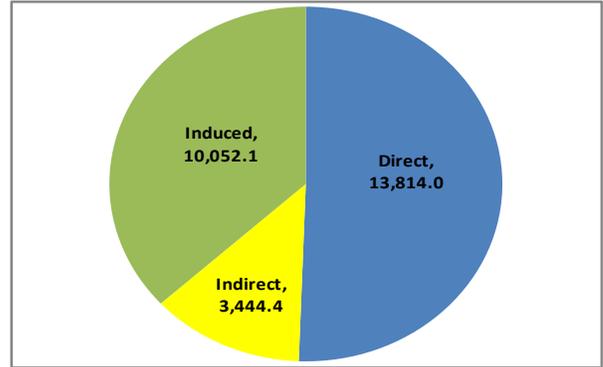
Source: Minnesota Implan Group, Institute for Economic Development and Real Estate Research

**Figures 3-9 A-C: Hospitals Only Economic Impact Baseline 2007**

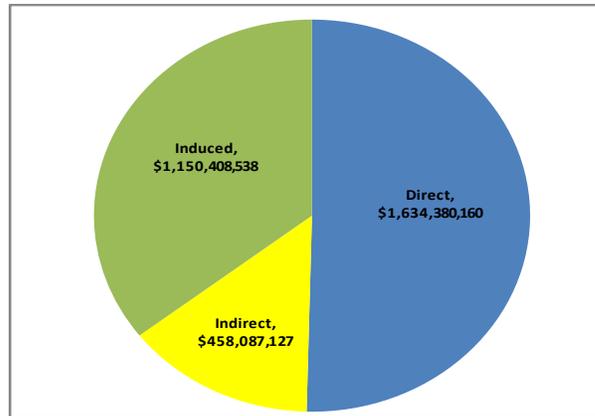
**Figure 3-9(A) - Total Added Value**



**Figure 3-9(B) - Employment**



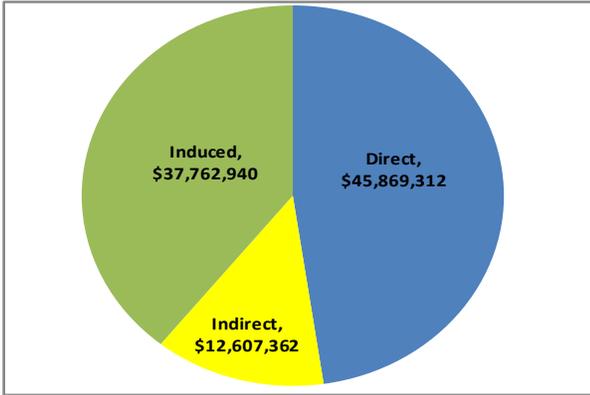
**Figure 3-9(C) - Output**



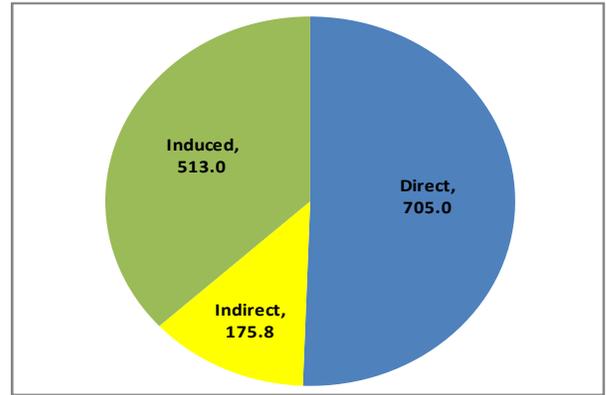
Source: Minnesota Implan Group and Institute for Economic Development and Real Estate Research

**Figures 3-10 A-C: Healthcare and Life Sciences Economic Impact Baseline Growth  
1% per Year for Five Years**

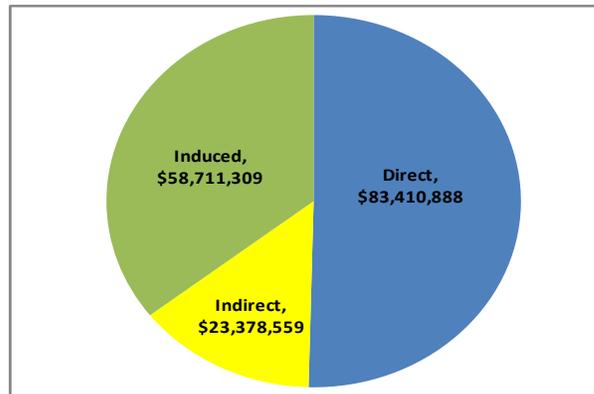
**Figure 3-10(A) - Total Added Value**



**Figure 3-10(B) - Employment**



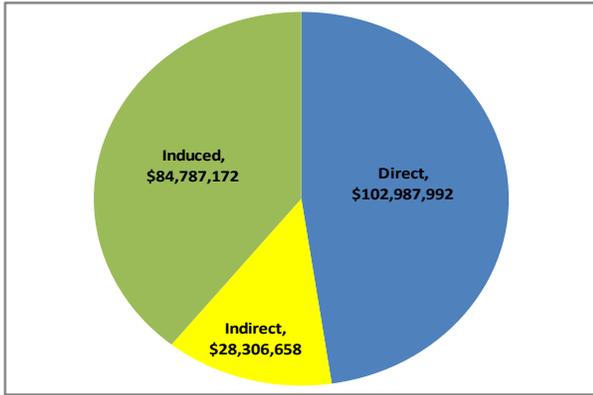
**Figure 3-9(C) - Output**



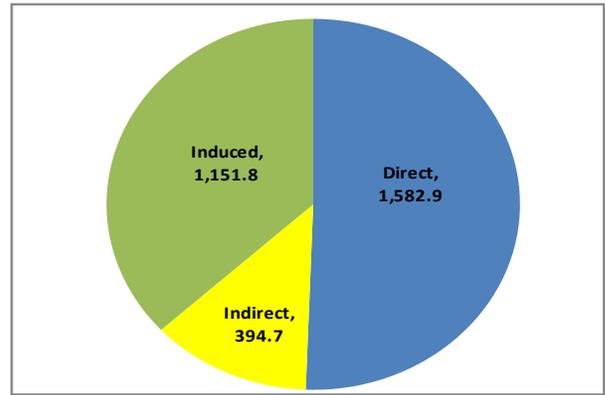
Source: Minnesota Implan Group and Institute for Economic Development and Real Estate Research

**Figures 3-11 A-C: Healthcare and Life Sciences Economic Impact Graduated Growth 1% to 5% Annually for Five Years**

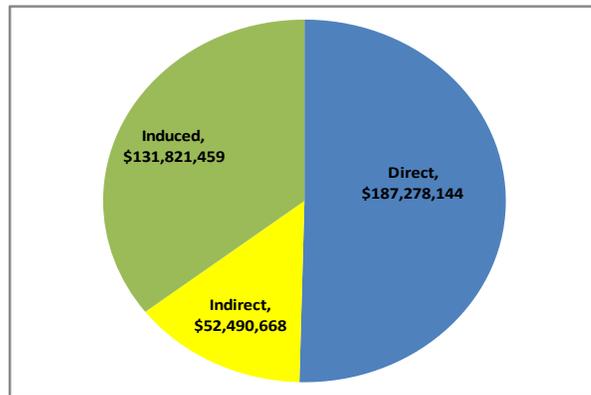
**Figure 3-11(A) - Total Added Value**



**Figure 3-11(B) - Employment**



**Figure 3-11(C) - Output**



Source: Minnesota Implan Group and Institute for Economic Development and Real Estate Research

## **Observations and Conclusions**

Healthcare as an economic sector accounts for a comparatively large share of total wages and salary employment in the New Orleans region. The 39,856 jobs counted in this sector in 2007 made up 8.5% of the combined total employment for the five parish area.

Unlike biosciences, however, the healthcare sector as a whole produces jobs that on average pay less than the region wide typical wage level. In 2007, the \$37,712 average healthcare wage was 83% of the region's overall average of \$45,415. However, it should be noted that many healthcare focused job positions require significantly less academic preparation and can very often be staffed by individuals with limited, if any, specialized technical training. This would include, for example, many hospital support staff positions in areas like maintenance, janitorial, security and general clerical.

Like biosciences, basic and applied research are hallmarks of a healthy and growing healthcare sector. Prior to Katrina, NIH funding for local entities steadily grew each year from 2000 through 2005. LSUHSC and Tulane accounted for significant shares of these research awards and continue to do so in the region's post-Katrina era. Although the storm's disruptions put a kink in annual NIH funding levels for 2006 and 2007, preliminary information for 2008 and 2009 show that these research investments may be recovering well and starting to approach pre-storm levels. With the tidal wave of Federal stimulus funding in the pipeline, previously unsuccessful applicant researchers might find their projects receiving grant awards.

As a sector accounting for almost one of every eleven jobs in the region, healthcare generates significant economic impact for the New Orleans area. At 2007 employment levels, the sector's total output is estimated at \$9.2 billion and supports or provides the economic underpinning for approximately 78,691 jobs throughout the region across a very wide range of business sectors. When an LSU/VA anchored medical complex is assumed, the potential incremental economic effects of healthcare growth over a five year period are sizeable. The incremental total output resulting from this potential growth is estimated at \$371.6 million with enough economic stimulus to support another 3,130 jobs throughout the region. The rebuilding of the region's healthcare infrastructure is vitally important to its long term recovery, its economic diversification and its ability to offer a competitively advantageous quality of life.

## Section IV – Major Project Economic Impacts

Two signature projects are unfolding in the New Orleans region that will help to anchor the rebuilding and redevelopment of the healthcare and biosciences sectors. These are the BioInnovation Center (BIC) and the Louisiana Cancer Research Center (LCRC). Both have moved sufficiently along on their development paths to consider their respective economic impacts on the New Orleans region. The analysis which follows considers both the estimated impacts resulting from the construction of these two projects as well as very preliminary estimates of economic benefits generated by their on-going operation. For purposes of this analysis, the operational economic impacts considered a single year's activity. It should also be noted that cost estimates for both projects are still in the works in progress. However, since both have progressed well through their design phases, cost estimates can be considered fairly reliable. However, as costs are finalized and operational details more fully materialize, revised impact estimates can be modeled using improved information.

### **BioInnovation Center**

Table 4-1 summarizes the estimated economic impacts generated by the construction of the New Orleans BioInnovation Center on Canal Street. The construction impact scenarios assume differing levels of spending for labor and materials within the New Orleans region. The facility is expected to have a total construction cost of approximately \$60 million. This investment, assuming all labor and materials are acquired within the region, would generate an estimated total economic impact of just over \$118 million for the five parish area. In addition to the \$60 million of direct spending, the project would generate about \$17.3 million of Indirect economic benefits and just under \$40.8 million of Induced benefits. The IMPLAN model also estimates that this construction project would directly create just under 598 jobs, with a total job impact of about 1,081 after Indirect and Induced benefits are considered.

Operationally, employment levels at the BioInnovation Center are likely to fluctuate from year to year given the nature of the facility. This is particularly true regarding its incubator/wet lab components that will host entrepreneurial start-ups in various phases of the technology development and commercialization process. Tables 4-2 and 4-3 estimate economic impacts assuming employment levels of 100 and 200 jobs, respectively at the facility. Again, these estimates focus on a single year's operation and assume fairly general ranges of employment categories within the biosciences sector. A 100 job workforce at the Center is estimated to have an economic impact of \$22.6 million on the New

Orleans region, while a job base of 200 would produce about twice the economic benefit for the region at just over \$45 million. In both scenarios, the job multiplier is estimated at about 2.0 meaning that each direct job created by the Center would support at least one additional job in the region. The distribution of these output and job impacts by business category are shown in Appendix Tables A-30 through A-38.

**Table 4-1: BioInnovation Center Construction Impact  
2006 Dollars (Except Employment)**

	<b>Direct</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total</b>
Total Added Value	\$31,604,358	\$8,882,648	\$26,221,074	\$66,698,080
Employment	597.5	127.4	356.3	1,081.2
Output	\$60,000,000	\$17,235,927	\$40,777,197	\$118,013,123

**Table 4-2: BioInnovation Center Operational Impact: Scenario 1  
2006 Dollars (Except Employment)  
100 Jobs**

	<b>Direct</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total</b>
Total Added Value	\$5,144,371	\$2,158,655	\$5,022,793	\$12,325,793
Employment	100.0	30.1	68.5	198.6
Output	\$10,829,634	\$3,916,160	\$7,813,151	\$22,558,945

**Table 4-3: BioInnovation Center Operational Impact: Scenario 2  
2006 Dollars (Except Employment)  
200 Jobs**

	<b>Direct</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total</b>
Total Added Value	\$10,288,742	\$7,314,310	\$10,045,585	\$24,651,638
Employment	200.0	60.1	137.0	397.1
Output	\$21,659,268	\$7,832,320	\$15,626,301	\$45,117,889

Source: Minnesota Implan Group and Institute for Economic Development and Real Estate Research

## Figures 4-1A-C: BioInnovation Center Construction Impact

Figure 4-1(A) - Total Added Value

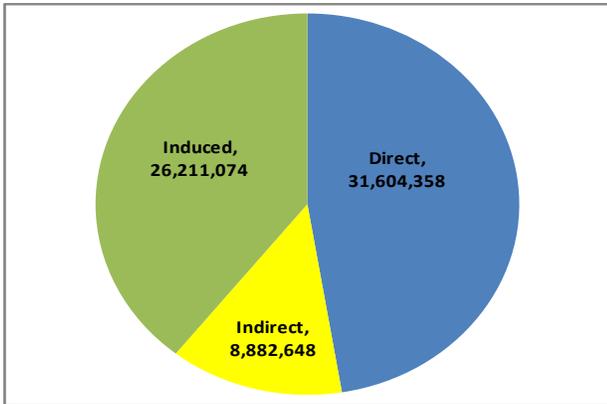


Figure 4-1(B) - Employment

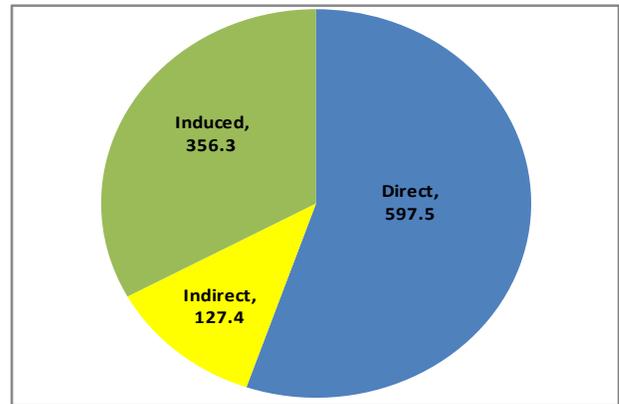
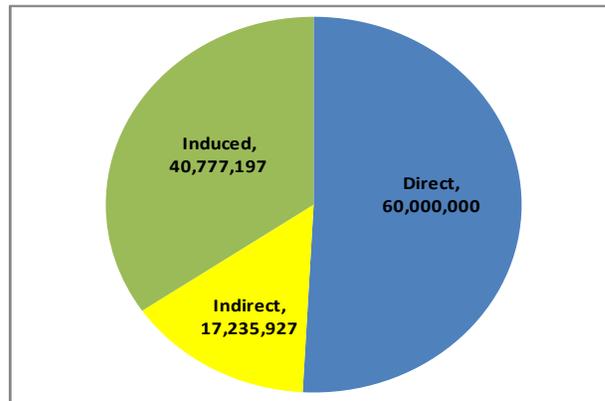


Figure 4-1(C) - Output



Source: Minnesota Implan Group and Institute for Economic Development and Real Estate Research

### Figures 4-2A-C: BioInnovation Center Operational Impact: 100 Jobs

Figure 4-2(A) - Total Added Value

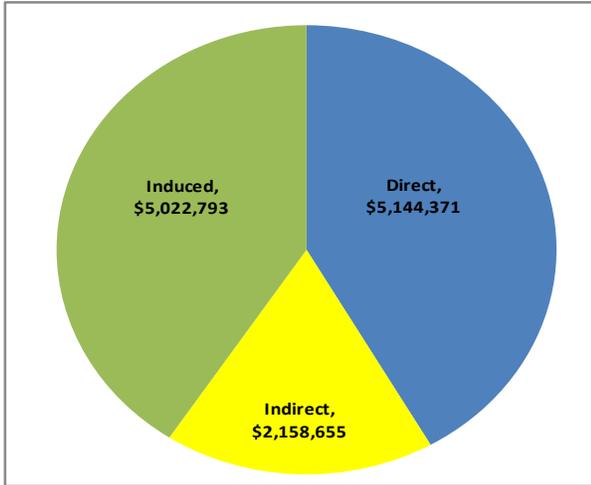


Figure 4-2(B) - Employment

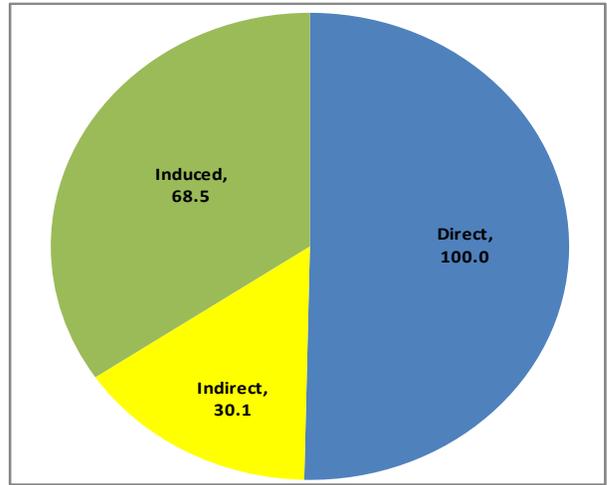
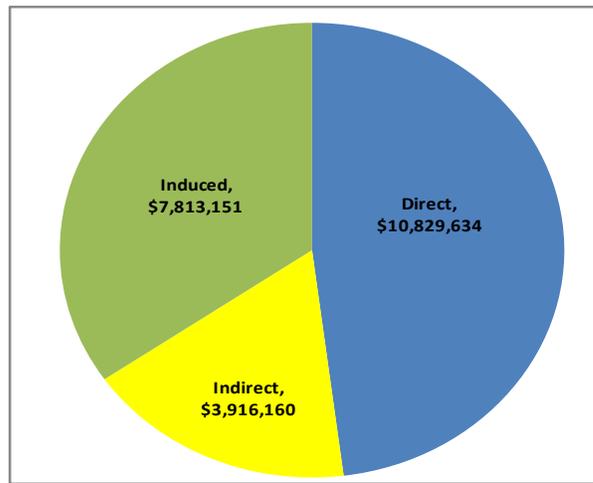


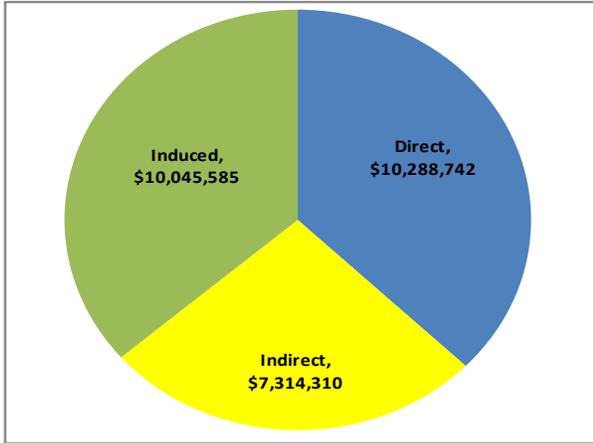
Figure 4-2(C) - Output



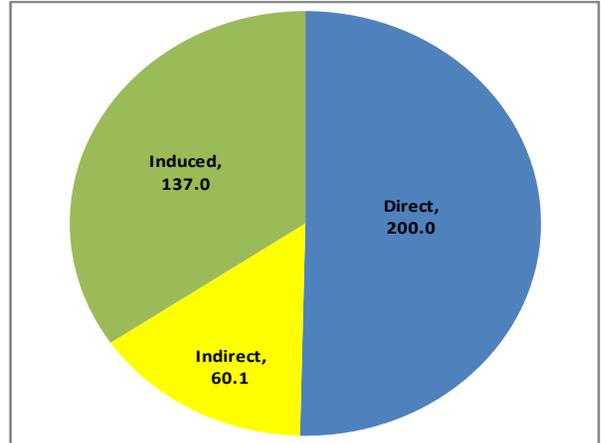
Source: Minnesota Implan Group and Institute for Economic Development and Real Estate Research

**Figures 4-3A-C: BioInnovation Center Operational Impact: 200 Jobs**

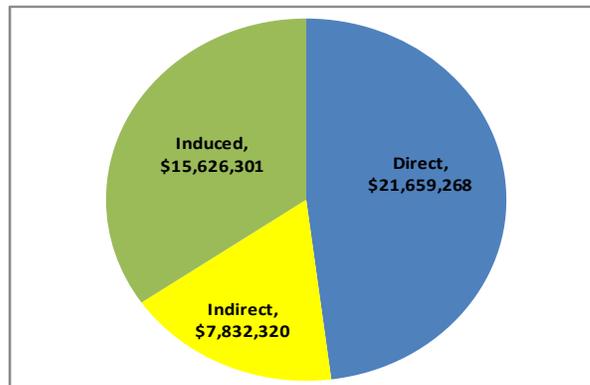
**Figure 4-2(A) - Total Added Value**



**Figure 4-2(B) - Employment**



**Figure 4-2(C) - Output**



Source: Minnesota Implan Group and Institute for Economic Development and Real Estate Research

## **Louisiana Cancer Research Center**

This nearly \$100 million investment is the result of a collaboration between the LSU Health Sciences Center and Tulane University. Upon completion it will be a state of the art facility that will work to develop a coordinated cancer research and education program that will optimize discovery and development of innovative therapies and lead to innovative clinical treatment programs offering new opportunities for early detection, treatment and prevention of cancer in the region. In the long run, the Center is intended to advance the State's strategic goal of receiving the NIH's recognition as a National Cancer Institute designated center.

Tables 4-4 through 4-6 show the estimated economic impact of this Center on the New Orleans region. Table 4-4 focuses on the impacts likely to permeate through the five parish region as a result of its development and construction which is estimated at about \$98 million of direct investment. The IMPLAN model estimates that this investment will generate just under \$192.8 million of total economic impact which includes \$28.2 million of indirect and \$42.8 million of induced effects. The project's construction is estimated to support about 976 jobs directly and another 208 and 582 jobs through indirect and induced economic effects, respectively.

Tables 4-5 and 4-6 show the estimated economic impact of this Center once it reaches its operational stage. The scenarios presented assume different levels of direct employment in the facility at 300 and 180 jobs. With an anticipated fully built-out workforce of 300 onsite, the Center is estimated to have a total economic impact of \$67.7 million. This includes about \$32.5 million in direct impacts and another \$11.8 million and \$23.4 million resulting from Indirect and Induced effects, respectively. It should be noted that there are no extraordinary assumptions made regarding the volume of research grants and contracts awarded to those housed in the Center. Since salaries and benefits typically consume 80%+ of the typical grant, this component of the analysis is accounted for within the wage rates imbedded in the model for the classes of technical and scientific workers assumed to occupy the building.

The 180 worker scenario assumes a less than fully built-out facility, at least in the short run. This scenario produces an estimated economic impact of \$40.6 million. This would include approximately \$19.5 million in direct impacts as well as \$7.1 million and \$14.1 million resulting from indirect and induced effects, respectively. The 180 direct jobs created onsite is estimated to support another 54 jobs due to indirect economic stimulus in the region and 123 jobs due to induced economic effects. The distribution of these output and job impacts by business category are shown in Appendix Tables A-39 through A-47.

**Table 4-4: Louisiana Cancer Research Center Construction Impact  
2006 Dollars (Except Employment)**

	<b>Direct</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total</b>
Total Added Value	\$51,620,444	\$14,508,325	\$42,811,421	\$108,940,188
Employment	975.9	208.1	582.0	1,766.0
Output	\$98,000,000	\$28,152,014	\$66,602,753	\$192,754,765

**Table 4-5: Louisiana Cancer Research Center Operational Impact: Scenario 1  
2006 Dollars (Except Employment)  
300 Jobs**

	<b>Direct</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total</b>
Total Added Value	\$15,433,114	\$6,475,966	\$15,068,378	\$36,977,458
Employment	300.0	90.2	205.5	595.7
Output	\$32,488,904	\$11,748,481	\$23,439,452	\$67,676,838

**Table 4-6: Louisiana Cancer Research Center Operational Impact: Scenario 2  
2006 Dollars (Except Employment)  
180 Jobs**

	<b>Direct</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total</b>
Total Added Value	\$9,259,868	\$3,885,579	\$9,041,026	\$22,186,474
Employment	180.0	54.1	123.3	357.4
Output	\$19,493,342	\$7,048,088	\$14,063,671	\$40,606,101

Source: Minnesota Implan Group and Institute for Economic Development and Real Estate Research

## Figures 4-4 A-C: Louisiana Cancer Research Center Construction Impact

Figure 4-4(A) - Total Added Value

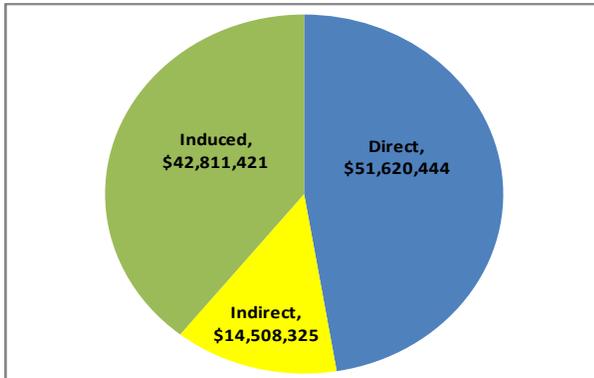


Figure 4-4(B) - Employment

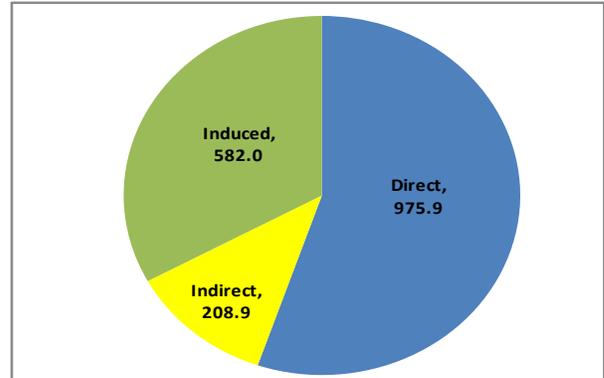
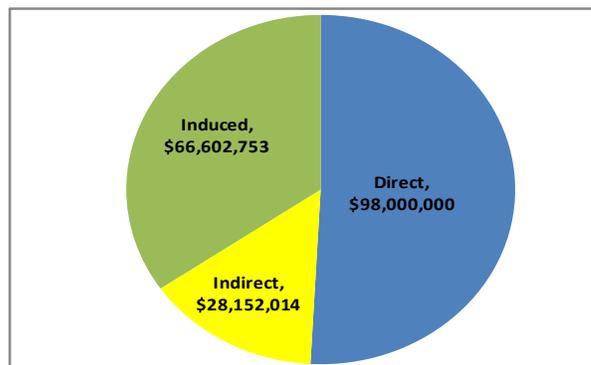


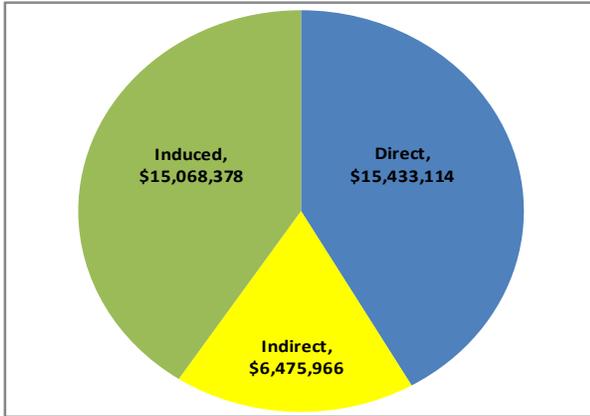
Figure 4-4(C) - Output



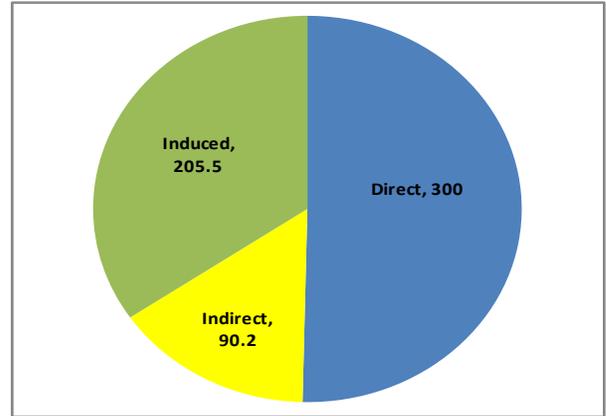
Source: Minnesota Implan Group and Institute for Economic Development and Real Estate Research

**Figures 4-5 A-C: Louisiana Cancer Research Center Operational Impact: 300 Jobs**

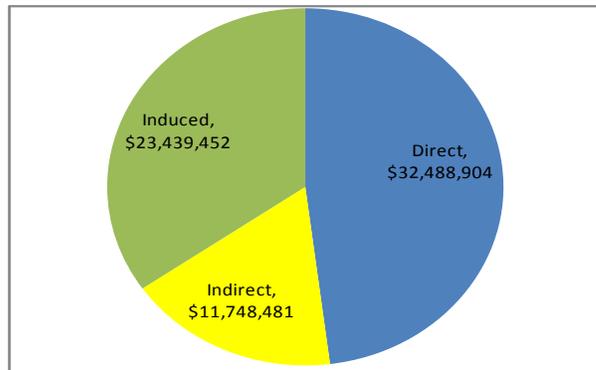
**Figure 4-5(A) - Total Added Value**



**Figure 4-5(B) - Employment**



**Figure 4-5(C) - Output**



Source: Minnesota Implan Group and Institute for Economic Development and Real Estate Research

## Figures 4-6 A-C: Louisiana Cancer Research Center Operational Impact: 180 Jobs

Figure 4-6(A) - Total Added Value

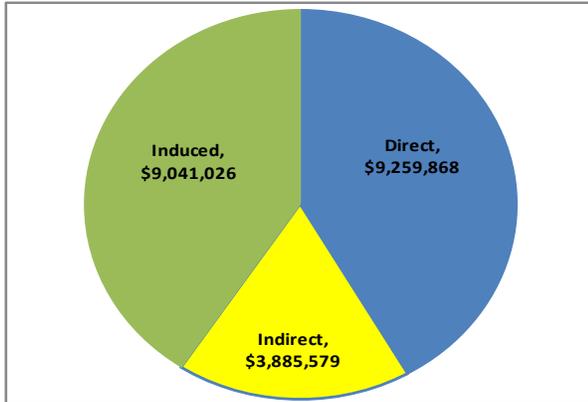


Figure 4-6(B) - Employment

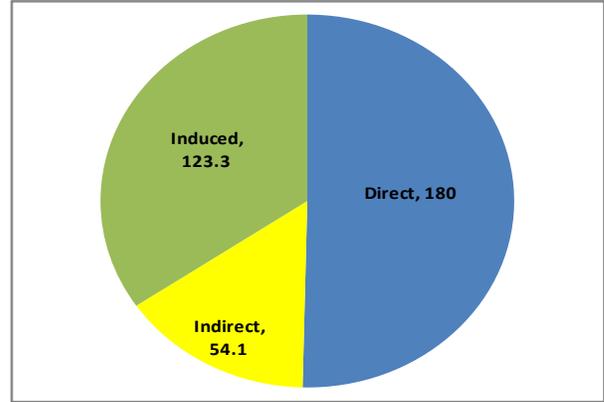
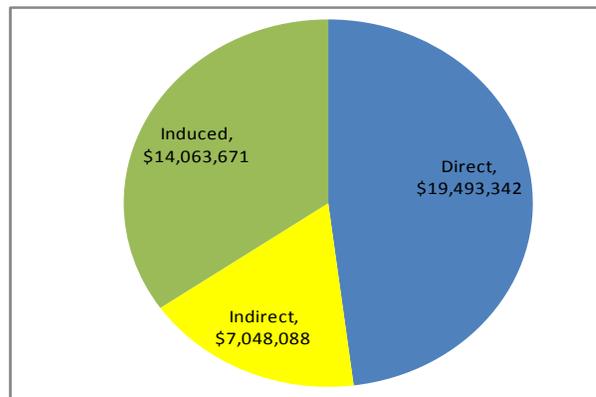


Figure 4-6(C) - Output



Source: Minnesota Implan Group and Institute for Economic Development and Real Estate Research