

**The Economic Impact of PNC Arena
on the Wake County Economy**

**Prepared by:
John E. Connaughton, Ph.D.**

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Introduction

This report analyzes the economic impact of PNC Arena on the Wake County economy during the 2022-2023 season. It consists of eight sections. The first section presents an overview of the Wake County and Raleigh MSA economies over the past several years. The second section provides a general understanding of regional economic impact methodology and the specific methodology used in this paper. In addition, this section also outlines the organization of the study and the data collection methodology. The third section presents an overview of PNC Arena and the activities held at and by the arena that have a direct effect on the local economy. The fourth section presents an analysis of the economic impact of PNC Arena on the Wake County economy. The fifth section presents an analysis of the economic impact of PNC Arena on other businesses within Wake County. The sixth section provides a forecast of PNC Arena's economic impact over the next five-years. The seventh section provides a history of PNC Arena and evaluates the 24 year economic impact of the facility on the local economy. The final section provides a summary of the economic impacts outlining the role that the arena plays in the local economy.

Part 1. Overview of the Wake County and Raleigh MSA

The Raleigh, North Carolina MSA consists of three counties (Franklin, Johnston, and Wake). The MSA population in 2021 was 1,448,411 which ranked as the nation's 41st largest MSA. Figure 1.1 presents a regional map of the Greater Raleigh area. The Raleigh MSA consists of the three eastern most counties within the Triangle region.

Figure 1.1

Greater Raleigh Area



Table 1.1 presents Wake County population, personal income, and employment over the past 51 years. During this period Wake County population has increased by 400 percent, Per Capita Personal Income (PCPI) has increased by 1,638 percent, and employment increased by 542 percent. Table 1.2 presents similar information for the Raleigh MSA over the 51 year period. During this period Raleigh MSA population has increased by 353 percent, Per Capita Personal Income (PCPI) has increased by 1,671 percent, and employment increased by 465 percent. For

the past 51 years the Raleigh MSA has consistently ranked among the nation’s fastest growing large MSAs, and between 2000 and 2010, and between 2010 and 2020 the Raleigh MSA was ranked as the second fastest growing large MSA.

Table 1.1

Wake County Population, Income, and Employment						
Description	1970	1980	1990	2000	2010	2021
Personal income (thousands of dollars)	\$943,369	\$3,166,977	\$9,720,126	\$23,326,120	\$41,865,444	\$81,900,659
Population (persons)	230,349	303,356	430,378	633,267	906,921	1,150,204
Per capita personal income (dollars)	\$4,095	\$10,440	\$22,585	\$36,835	\$46,162	\$71,205
Total Employment	128,606	193,023	314,661	471,003	588,268	825,749
Annual Percent Change in PCPI	N/A	9.81%	8.02%	5.01%	2.28%	4.02%
Annual Percent Change in Population	N/A	2.79%	3.56%	3.94%	3.66%	3.13%
Annual Percent Change in Employment	N/A	4.14%	5.01%	4.12%	2.25%	4.02%

* Source: U.S. Department of Commerce, Bureau of Economic Analysis

Table 1.2

Raleigh MSA Population, Income, and Employment						
Description	1970	1980	1990	2000	2010	2021
Personal income (thousands of dollars)	\$1,196,842	\$3,892,536	\$11,576,807	\$27,668,059	\$49,038,491	\$96,214,366
Population (persons)	319,135	404,305	548,874	804,157	1,137,404	1,448,411
Per capita personal income (dollars)	\$3,750	\$9,628	\$21,092	\$34,406	\$43,114	\$66,428
Total Employment	165,563	233,851	361,542	539,376	666,828	935,265
Annual Percent Change in PCPI	N/A	9.89%	8.16%	5.02%	2.28%	4.01%
Annual Percent Change in Population	N/A	2.39%	3.10%	3.89%	3.53%	3.13%
Annual Percent Change in Employment	N/A	3.51%	4.45%	4.08%	2.14%	4.01%

* Source: U.S. Department of Commerce, Bureau of Economic Analysis

Part 2. Economic Impact Methodology

The most important measures of the economic impact of an industry are output and jobs. To assess the total economic impact accurately, the first piece of information estimated is *direct* output. If this is not available, either *direct* earnings or *direct* jobs can be used. The term *direct* refers to the dollar output or employment associated with the operation of the firm, activity, or industry being evaluated. For this impact study, the term *direct* is most closely associated with

the total expenditures that take place on, or in association with, attending events at the PNC Arena in Wake County, North Carolina.

The multiplier concept then captures the *total* effect of the economic activity on output and employment in the overall economy. For instance, a job multiplier value of 2.1 means that for each job in a particular industry, 1.1 additional jobs are generated in other parts of the economy the *total* benefit to the economy being 2.1 jobs. Therefore, an event that creates 100 new jobs in an industry would, using the multiplier, translate into a subsequent employment gain of 110 jobs in other sectors, for a *total* employment gain of 210 jobs (100 x 2.1).

IMPLAN provides the basic multiplier methodology used in this study. IMPLAN is a multiplier methodology originally developed by the United States Government and currently maintained by IMPLAN located in Huntersville, North Carolina. For this study, output and employment multipliers for the following IMPLAN sectors have been used: 497 (Commercial Sports Except Racing), 500 (Promoters of performing arts and sports and agents for public figures), 406 (Retail - Food and beverage stores), 408 (Retail – Gasoline stores), 412 (Retail – Miscellaneous stores retail), 507 (Hotels and motels, including casino hotels), 509 (Full service restaurants), and 510 (Limited-service restaurants).

This study uses the IMPLAN 379 by 379 multiplier matrix for Wake County, North Carolina to obtain multipliers for dollar output and employment. This matrix provides multipliers for 379 detailed three and four-digit NAICS industries. In addition, each of the 379 industries has an industry-specific *indirect* multiplier for itself and each of the other 378 industries.

The IMPLAN multipliers can be applied to *direct* output and employment information to estimate the *total* impact of an industry on a region's economy. In addition, IMPLAN provides a

comprehensive set of disaggregated multipliers that can estimate the *indirect* and *induced* impacts separately from the *total* impact at the regional level.

The *indirect* impacts measure the additional business and jobs created in non-arena industries that are supported by the *direct* economic activity of PNC Arena and attendee spending. This *indirect* effect focuses on what we generally refer to as the supply chain of a firm or organization. The *induced* impacts measure the additional business and jobs created in non-arena related industries that are supported by the incomes of persons employed by PNC Arena and by the supply chain industries

Table 2.1 presents the Wake County output multipliers used to estimate the impact of the on-going on-site and off-site revenue of PNC Arena activities during the 2022-2023 season. The multipliers listed in Table 2.1 show that for each dollar of direct expenditure at sporting events (IMPLAN code 407), the total impact on economic output in the county is \$2.41. Table 2.1 includes output multipliers for promoters of performing arts activity to capture concert and theatrical shows that take place at PNC Arena. For each dollar of direct expenditure at performing arts events (IMPLAN code 500), the total impact on economic output in the county is \$1.72.

Table 2.1

Wake County Output Multipliers for 2023					
Industry Code	Description	Direct Effects	Indirect Effects	Induced Effects	Total
406	Retail - Food and beverage stores	1	0.503265	0.363919	1.867184
408	Retail - Gasoline stores	1	0.531494	0.362882	1.894376
412	Retail - Miscellaneous store retailers	1	0.532517	0.434439	1.966956
497	Commercial Sports Except Racing	1	0.856763	0.559601	2.416364
500	Promoters of performing arts and sports and agents for public figures	1	0.467097	0.259341	1.726438
507	Hotels and motels, including casino hotels	1	0.417610	0.312290	1.729899
509	Full-service restaurants	1	0.398016	0.348317	1.746333
510	Limited-service restaurants	1	0.524136	0.285999	1.810135

Table 2.1 also includes the output multipliers for six other industries associated with off-site expenditures that are made by spectators in conjunction with attending events at PNC Arena. The interpretation of these output multipliers is the same as described above for the on-site spending. Spending at miscellaneous retail stores (IMPLAN code 412) has the largest impact in terms of additional economic output. Each dollar spent in miscellaneous retail stores creates an additional 96 cents in the local economy, this would add up to a total output multiplier of 1.966956.

Estimates of spectator spending off-site in conjunction with their attendance at events in PNC are based on survey information. More than 1,000 fan off-site spending surveys were recorded providing spending behavior in the six off-site categories.

Because many of the attendees at sporting events within Wake County are residents, an adjustment was made to their off-site spending to address the substitution effect. The substitution effect is the idea that spending on food and other retail sectors by local residents would take place independent of the sporting event. The adjustment for the possible substitution effect is unique to each type of spending and a more detailed explanation is contained in the next section of this report.

Table 2.2 presents the employment multipliers used to estimate the jobs impact of the on-going on-site event activities and the jobs impact off-site event activities associated with attending events at PNC Arena during the 2022-2023 season. The multipliers listed in Table 2.2 show the number of jobs created for each direct job within each industry. For each direct job in the commercial sports industry (IMPLAN code 497), the total employment impact is 1.5 jobs created.

Table 2.2

Employment Multipliers for 2023						
Industry Code	Description	Direct Effects	Indirect Effects	Induced Effects	Total	
406	Retail - Food and beverage stores	1	0.217285	0.160321	1.377607	
408	Retail - Gasoline stores	1	0.496055	0.329717	1.825772	
412	Retail - Miscellaneous store retailers	1	0.159918	0.142469	1.302387	
497	Commercial Sports Except Racing	1	0.405926	0.092568	1.498494	
500	Promoters of performing arts and sports and agents for public figures	1	0.340086	0.152506	1.492592	
507	Hotels and motels, including casino hotels	1	0.258731	0.193277	1.452008	
509	Full-service restaurants	1	0.159600	0.164681	1.324281	
510	Limited-service restaurants	1	0.255701	0.164114	1.419815	

Table 2.3 presents an alternative set of employment multipliers. These multipliers estimated the employment in different sectors based on the direct output in a sector per \$1 million. These multipliers were used for the off-site expenditures where direct employment was not available for each industry.

Table 2.3

Wake County Employment Multipliers						
Industry Code	Description	Direct Effects	Indirect Effects	Induced Effects	Total	
406	Retail - Food and beverage stores	12.62	2.74	2.02	17.38	
408	Retail - Gasoline stores	6.13	3.04	2.02	11.19	
412	Retail - Miscellaneous store retailers	16.96	2.71	2.42	22.09	
507	Hotels and motels, including casino hotels	8.98	2.32	1.74	13.05	
509	Full-service restaurants	11.76	1.88	1.94	15.58	
510	Limited-service restaurants	9.69	2.48	1.59	13.76	

Part 3. PNC Arena Activities

This section details the number of the Carolina Hurricanes, North Carolina State University basketball, other non-sporting events, and catering events held at PNC Arena over the past two seasons. Table 3.1 details the number of events and the total attendance for aggregate

arena events and catering activities held at PNC Arena. The two-season average for events and attendance is also provided.

On average, there are 120 arena events annually with over 1,500,000 in total attendance per year. The total arena events are made up of Carolina Hurricanes NHL games, North Carolina State basketball games, and non-sporting events held at PNC Arena per year. These non-sporting events range from popular concerts featuring Harry Styles, Luke Combs, Kevin Hart, Hootie and the Blowfish, and Stevie Nicks to Disney on Ice and the Harlem Globetrotters. Finally, there are on average 517 catered events annually at PNC Arena ranging from pre-game NC State football events, local government planning events, to industry training events. In total, over 1.5 million persons attend events at PNC Arena annually as part of over 637 individual events.

Table 3.1

PNC Arena On-Site Economic Activity						
Year	2021-2022		2022-2023		2-Year Average	
Type of Event	Events	Attendance	Events	Attendance	Events	Attendance
Hockey	51	872,739	51	927,997	51	900,368
NCSU Basketball	17	205,433	17	222,647	17	214,040
Arena Other	48	354,946	56	422,976	52	388,961
Catering	549	41,170	484	23,333	517	32,252
Total Attendance	665	1,474,288	608	1,596,953	637	1,535,621
Aggregate Revenue					Events	Revenue
Gross Revenue					615	\$279,222,202
Adjusted Revenue						
Wake County					615	\$224,066,472

In addition to attendance and the number of events, PNC Arena also generates significant annual revenue. Table 3.1 also presents the aggregated total seasonal revenue estimate. This report only presents the aggregated revenue estimates for all four revenue sources to protect propriety information. Over the past two years, total on-site revenue generated by PNC Arena

has averaged over \$279 million annually from the over 600 events. Table 3.1 also provides adjusted total annual revenue estimated based on the substitution effect. The substitution effect arises because many of the attendees to sporting events and other PNC Arena activities come from inside Wake County. The issue is that Wake County residents would spend the money they now spend at PNC Arena at some other entertainment activity within Wake County. Therefore the argument for discounting the spending by local residents is that PNC Arena event gross revenue over-estimates the net economic impact.

To adjust for this concern, this study surveyed attendees to PNC Arena events to determine both their residency and spending habits. Over 1,000 surveys were returned and based on the results approximately 54 percent of attendees of PNC Arena events come from inside Wake County. The other 46 percent come from surrounding counties. The revenue generated by the Non-Wake County attendees is considered a new injection of revenue into Wake County and would not occur but for PNC Arena. The revenue generated by the 54 percent of attendees from within Wake County must be adjusted to account for the substitution effect. However the discount is not 100 percent. The rationale for counting a portion of the revenue as having a net impact is that while some of the expenditures taking place at PNC Arena would take place at other activities within Wake County, some would not. There would be a leakage of some of the discretionary spending to other counties in the area.

Examples of substitution spending that would occur within the local county most often cited are restaurant spending, movie spending, and other entertainment events. Each of these spending categories has a very different leakage effect. So while a good portion of local restaurant spending would stay inside the county, a large portion of movie spending would leave

the county in rights payments. As a result this study discounts local resident spending at PNC Arena by 50 percent.

Table 3.2 presents information on off-site expenditures made in conjunction with attending events at PNC Arena. The off-site expenditure estimates were based on the attendee’s survey and information provided by the Hurricanes and NCSU in regards to referees, scouts, league officials, and visiting team expenditure.

Table 3.2

PNC Arena Off-Site Economic Activity			
Category	Total Off-Site Arena Events	Total Off-Site Officials	Total Off-Site Adjusted Information
Total Attendance	1,350,973	N/A	1,350,973
Hotel Nights	205,240	4,950	210,190
Average Hotel \$	\$122.24	\$277.63	\$125.90
Total Hotel \$/Year	\$25,934,781	\$1,374,322	\$21,395,973
Restaurant Spending	\$12,038,279	\$638,537	\$9,932,088
Retail Spending	\$6,945,310	----	\$5,361,779
Gasoline Spending	\$10,725,490	----	\$8,280,079
Food Store Spending	\$7,141,331	----	\$5,513,108
Total	\$62,785,191		\$50,483,026

Attendees, touring groups, and visiting teams of PNC Arena events accounted for an average of 205,240 hotel nights in Wake County. Total Hotel expenditures were almost \$26 million per year. An additional \$12.0 million was spent at restaurants, \$6.9 million in retail spending, \$10.7 million in gasoline, and \$7.1 million in food store spending. Officials and scouts accounted for over \$2.0 million in off-site expenditures. Total off-site adjusted spending for attendees of PNC Arena events was just over \$50 million per year.

Part 4. PNC Arena Economic Impact

Table 4.1 presents the output and employment impact of the events held at PNC Arena. The direct adjusted economic output impact is \$224,066,472. In addition, another \$168,491,472

in revenue is generated by supplier chain (indirect) industries within Wake County. The induced impact (nonrelated economic activity) generates another \$107,294,835 in output. The total annual output impact of on-site operations of PNC Arena on the Wake County economy is \$499,852,779. On-site direct full and part-time jobs supported by operations at PNC Arena are estimated at 1,268. In addition, another 515 jobs are generated by supplier chain (indirect) industries within Wake County. The induced impact (nonrelated economic activity) generates another 117 jobs. The total annual employment impact of on-site operations of PNC Arena is 1,900 full and part-time jobs.

Table 4.1

Wake County PNC Arena On-Site Economic Impact				
	Direct	Indirect	Induced	Total
Output	\$224,066,472	\$168,491,472	\$107,294,835	\$499,852,779
Employment	1,268	515	117	1,900

Table 4.2 presents the off-site output impact of expenditures by attendees and other officials made in conjunction with attending events at PNC Arena. The direct adjusted output

Table 4.2

Wake County PNC Arena Off-Site Output Impact				
	Direct	Indirect	Induced	Total
Output				
Total Hotel Spending	\$21,395,973	\$8,935,172	\$6,681,748	\$37,012,872
Restaurant Spending	\$9,932,088	\$4,579,447	\$3,150,041	\$17,661,577
Retail Spending	\$5,361,779	\$2,855,238	\$2,329,366	\$10,546,383
Gasoline Spending	\$8,280,079	\$4,400,812	\$3,004,691	\$15,685,582
Food Store Spending	\$5,513,108	\$2,100,698	\$2,270,006	\$9,883,812
Total	\$50,483,026	\$22,871,368	\$17,435,852	\$90,790,225

impact of all off-site activity generated in conjunction with PNC Arena events is \$50,483,026.

In addition, another \$22,871,368 in revenue is generated by supplier chain (indirect) industries

within Wake County. The induced impact (nonrelated economic activity) generates another \$17,435,852 in output. The total annual output impact of off-site operations of PNC Arena on the Wake County economy is \$90,790,225.

Table 4.3 presents the off-site employment impact generated in conjunction with events held at PNC Arena. Off-site direct full and part-time jobs supported by operations at PNC Arena are estimated at 517. In addition, another 121 jobs are generated by supplier chain (indirect) industries within Wake County. The induced impact (nonrelated economic activity) generates another 97 jobs. The total annual employment impact of off-site activities generated in conjunction with operations of PNC Arena is 736 full and part-time jobs.

Table 4.3

Wake County PNC Arena Off-Site Employment Impact				
	Direct	Indirect	Induced	Total
Output				
Total Hotel Spending	192	50	37	279
Restaurant Spending	107	22	18	146
Retail Spending	91	15	13	118
Gasoline Spending	51	25	17	93
Food Store Spending	77	10	13	100
Total	517	121	97	736

Table 4.4 summarizes the total on-site and off-site output and employment impacts of PNC Arena on the Wake County economy. The direct adjusted economic output impact of both on-site and off-site economic activity is \$274,549,498. In addition, another \$191,362,841 in revenue is generated by supplier chain (indirect) industries within Wake County. The induced impact (nonrelated economic activity) generates another \$124,730,687 in output. The total annual output impact of on-site and off-site operations of PNC Arena on the Wake County economy is \$590,643,004. On-site and off-site direct full and part-time jobs supported by operations at PNC

Arena are estimated at 1,785. In addition, another 636 jobs are generated by supplier chain (indirect) industries within Wake County. The induced impact (nonrelated economic activity) generates another 214 jobs. The total annual employment impact of on-site and off-site operations of PNC Arena is 2,636 full and part-time jobs.

Table 4.4

Wake County On-Site and Off-Site Economic Impact				
	Direct	Indirect	Induced	Total
Output	\$274,549,498	\$191,362,841	\$124,730,687	\$590,643,004
Employment	1,785	636	214	2,636

Part 5. PNC Arena Spin-off Economic Impact

This section of the report provides insight into both the types of businesses benefited by the spin-off economic activity associated with the operation of PNC Arena and the level of that activity in both revenue and jobs. Table 5.1 presents the revenue impacts of the top fifteen industries resulting from the operation of PNC Arena. The last column presents the total indirect and induced impact for each of the 15 industries as a result of both the on-site and off-site direct impact from Tables 4.1 and 4.2.

Table 5.1 shows that the industry with the largest spin-off output impact is Promoters of performing arts and sports and agents for public figures, with over \$27 million in revenue resulting from PNC Arena on and off-site activities. Overall, the top fifteen spin-off industries receive over \$98 million in additional spin-off revenue from the operations of PNC Arena.

Table 5.2 presents the employment impacts of the top fifteen industries resulting from the operation of PNC Arena. The last column presents the total indirect and induced impact for each of the 15 industries as a result of both the on-site and off-site direct impact from Tables 4.1 and 4.2. Table 5.2 shows that the industry with the largest spin-off employment impact is Promoters of

performing arts and sports and agents for public figures, with 252 indirect and induced jobs resulting from PNC Arena on and off-site activities. Overall, the top fifteen spin-off industries support 597 additional spin-off jobs from the operations of PNC Arena.

Table 5.1

Top 15 Industries (Indirect and Induced) Impact by Output for 2023					
Rank	Implan Code	Industry	Indirect Output	Induced Output	Total Output
1	500	Promoters of performing arts and sports and agents for public figures	\$27,106,105	\$173,028	\$27,279,134
2	469	Management of companies and enterprises	\$13,820,435	\$2,054,912	\$15,875,347
3	447	Other real estate	\$11,988,521	\$5,280,569	\$17,269,090
4	455	Legal services	\$6,674,772	\$1,686,261	\$8,361,033
5	465	Advertising, public relations, and related services	\$6,520,007	\$1,244,982	\$7,764,989
6	472	Employment services	\$5,119,067	\$2,342,027	\$7,461,094
7	438	Internet publishing and broadcasting and web search portals	\$4,104,770	\$969,150	\$5,073,920
8	456	Accounting, tax preparation, bookkeeping, and payroll services	\$3,708,332	\$1,103,709	\$4,812,041
9	445	Insurance agencies, brokerages, and related activities	\$3,296,263	\$2,665,030	\$5,961,292
10	47	Electric power transmission and distribution	\$3,105,860	\$2,268,400	\$5,374,260
11	441	Monetary authorities and depository credit intermediation	\$2,873,485	\$4,339,553	\$7,213,038
12	444	Insurance carriers, except direct life	\$2,682,362	\$3,913,367	\$6,595,729
13	499	Independent artists, writers, and performers	\$2,583,424	\$99,382	\$2,682,806
14	436	Data processing, hosting, and related services	\$2,332,856	\$1,708,058	\$4,040,914
15	476	Services to buildings	\$2,329,105	\$709,188	\$3,038,293

Table 5.2

Top 15 Industries (Indirect and Induced) Impact by Employment for 2023					
Rank	Implan Code	Industry	Indirect Employment	Induced Employment	Total Employment
1	500	Promoters of performing arts and sports and	252	2	254
2	447	Other real estate	55	24	79
3	469	Management of companies and enterprises	54	8	62
4	472	Employment services	37	17	54
5	418	Transit and ground passenger transportation	31	5	36
6	465	Advertising, public relations, and related	30	6	36
7	455	Legal services	29	7	36
8	476	Services to buildings	22	7	28
9	456	Accounting, tax preparation, bookkeeping, a	18	5	23
10	504	Other amusement and recreation industries	15	5	20
11	462	Management consulting services	15	7	22
12	422	Warehousing and storage	11	9	21
13	445	Insurance agencies, brokerages, and related	10	8	18
14	477	Landscape and horticultural services	10	4	14
15	470	Office administrative services	8	3	12

Part 6. Five Year Impact

Table 6.1 presents the 2022-2023 season PNC Arena total on-site and off-site economic output impact. The table also presents the estimated on-site and off-site impact over the next five seasons. The five-year estimated impact is based on a continuation of event activity consistent with the 2021-2022 and 2022-2023 season averages. In addition, the five-year impact is adjusted by the inflation rate. For the 2023-2024 season the rate of inflation, based on the Consumer Price Index (CPI), is 3.00 percent. For the 2024-2025 through 2028-2029 seasons the CPI is estimated to average 2.00 percent. This is the target rate anticipated the Federal Reserve Bank.

Based on the 2022-2023 season impact of on-site and off-site economic activities associated with events at PNC Arena, and the continuation of activities at recent levels, over the

next five-year period the Wake County economy should receive an additional revenue injection of over \$3.165 billion.

Table 6.1

Five Year PNC Arena Impact		
Year	CPI Inflation Rate	Total PNC Arena Impact
2022-2023		\$590,643,004
2023-2024	3.00%	\$608,279,816
2025-2026	2.00%	\$620,445,412
2026-2027	2.00%	\$632,854,321
2027-2028	2.00%	\$645,511,407
2028-2029	2.00%	\$658,421,635
5-Year Total		\$3,165,512,591

*Estimated inflation rate

Part 7. PNC Arena History and Economic Impact

The concept of a new public arena for the Raleigh area emerged during the 1980s. The idea was to replace the historic, but aging William Neal Reynolds Coliseum on the North Carolina State University campus. Reynolds Coliseum opened in 1949 and was designed as a multipurpose facility with the ability to host a wide variety of campus and community events to include sports, concerts, and other exhibitions inclusive of agricultural expositions. As such, many compromises were made in its design and by the 1980s it was a very outmoded facility for the emerging Raleigh economy.

To address this need the Centennial Authority was created by the North Carolina General Assembly in 1995 as the governing entity of the arena. The new arena was to be financed by state appropriations, local contributions, and North Carolina State University fundraising. The Centennial Authority refocused the project into a multi-use arena, leading to the 1997 relocation agreement of the Hartford Whalers NHL team. Construction began that year and was completed

in 1999 with an estimated cost of \$158 million, which was largely publicly financed by a Hotel and Restaurant tax. The Hurricanes agreed to pay \$30 million of the cost, North Carolina State University agreed to \$22 million of the cost, and the state of North Carolina paid \$18 million. As part of the deal, the Hurricanes assumed operational control of the arena.

The building opened for operations in 1999 and the Hurricanes hosted Raleigh's first major league event on October 29, 1999. Over the years, PNC Arena has hosted NHL hockey games, the 2011 NHL All-Star game, the 2004 NHL Entry Draft, North Carolina State University basketball games, men's and women's NCAA tournament games, and a wide variety of concerts and other family events. Notable performers have included, Bruce Springsteen, Jay Z, Cher, Eric Clapton, Stevie Wonder, Taylor Swift, Billy Joel, Justin Timberlake, Prince, Beyoncé, Elton John, Lady Gaga, One Direction, Celine Dion, George Strait, Bon Jovi, and Keith Urban. Family shows have included Ringling Brothers and Barnum & Bailey Circus, Sesame Street Live, Disney On Ice, and the Harlem Globetrotters.

Part 8. Major Findings

- Over 600 events take place at PNC Arena annually.
- On average PNC Arena hosts over 1.5 million people annually at a wide variety of national and community events.
- The annual adjusted direct on-site revenue for all activities at PNC Arena is \$224,066,472.
- The annual adjusted direct off-site revenue for all activities related to attending events at PNC Arena is \$50,483,026.
- The direct on-site and off-site revenue spending for all activities at PNC Arena is \$274,549,498.
- The total (direct, indirect, and induced) on-site and off-site revenue for all activities at PNC Arena is \$590,643,004.

- The direct employment impact from on-site activities at PNC Arena is 1,268 jobs.
- The direct employment impact from off-site activities related to attending events at PNC Arena is 517 jobs.
- The combined (on-site and off-site) total employment (direct, indirect, and induced) for all activities at PNC Arena is 2,636 jobs.
- The industry with the largest spin-off output impact for all activities at PNC Arena is Promoters of performing arts and sports and agents for public figures, with over \$27,106,105 million in revenue resulting from PNC Arena on and off-site activities.
- The industry with the largest spin-off employment impact for all activities at PNC Arena is Promoters of performing arts and sports and agents for public figures, with 252 indirect and induced jobs.

References

Baade, R. (1994, April). Stadiums, Professional Sports, and Economic Development: Assessing the Reality. The Heartland Institute. Retrieved January 8, 2012 from http://www.cppa.utah.edu/Perspectives/v2i7_Baadeforpub.pdf.

Baade, R. and Matheson V. (2000). High Octane? Grading the Economic Impact of the Daytona 500. *Marquette Sports Law Review*. Vol 10, Issue 2.

Coleman, R., Gratton, C., and Shibli, S. (2006). The Economic Impact of Major Sports Events: A Review of Ten Events in the UK. *The Editorial Board of the Sociological Review*. Retrieved January 8, 2012 from <http://files.campus.edublogs.org/caledonianblogs.net/dist/d/120/files/2011/02/Gratton.pdf>

Connaughton, John E. and Madsen, Ron. The Economic Impacts and Occupational Analysis of the North Carolina Motorsports Industry for 2005. Retrieved January 8, 2012 from <http://belkcollege.uncc.edu/about-college/news-events/news/motorsports-add-59-billion-nc-economy-belk-college-professors-report>

Greig M. and McQuaid R. (2003, August). The Economic Impact of a Sporting Event: A Regional Approach. Retrieved January 8, 2012, from <http://www.sre.wu-wien.ac.at/ersa/ersaconfs/ersa03/cdrom/papers/170.pdf>.

Hodges, A. Mulkey, D., and Stevens, T. (2005, May). Economic Impact of the Players Championship Golf Tournament at Ponte Vedra Beach, Florida, March 2005. University of Florida, Institute of Food and Agricultural Sciences, Food and Resource Economics Department. Retrieved January 8, 2012 from <http://www.fred.ifas.ufl.edu/economic-impact-analysis/pdf/PGA-Players-Championship.pdf>.

Humphreys, B.R. and Prokopowicz, S. (2007). Assessing the Impact of Sports Mega-events in Transition Economies: EURO 2012 in Poland and Ukraine. *Int. J. Sport Management and Marketing*, Vol. 2, No. 5/6. Retrieved January 8, 2012 from http://www.ualberta.ca/~bhumphre/papers/ijsmm_uefa.pdf.

Lockwood, P. (2011, June). The Regional Impact of Sports. *Peoria Magazines*. Retrieved January 8, 2012 from <http://www.peoriamagazines.com/ibi/2011/jun/regional-impact-sports>.

Rattner, L. (2000, August). Regional Impact of Texas Motor Speedway: A Simulation. Retrieved January 8, 2012 from http://digital.library.unt.edu/ark:/67531/metadc2610/m1/1/high_res_d/problieu.pdf.

Robertson, R. The Economic Impact of Sports Facilities. *The Sports Digest*. Retrieved January 8, 2012, from <http://thesportdigest.com/archive/article/economic-impact-sports-facilities>.

Shils, Edward B. (1985, January). Report to the Philadelphia Professional Sports Consortium on its Contribution to the Economy of Philadelphia. University of Pennsylvania.

The Economic Impact of the Olympic Games. (2004, June). PricewaterhouseCoopers European Economic Outlook. Retrieved January 8, 2012 from <http://www.pages.drexel.edu/~rosenl/sports%20Folder/Economic%20Impact%20of%20Olympics%20PWC.pdf>.

Executive Summary

The purpose of this report is to analyze and define the economic impact of the PNC Arena on the Wake County economy during 2022-2023 season. The full report consists of eight parts that provide an overview of PNC Arena operations, the methodology used, and a detailed analysis of the economic impact of the Arena on the Wake County economy.

The building opened for operations in 1999 and the Hurricanes hosted Raleigh's first major league event on October 29, 1999. Over the years, PNC Arena has hosted NHL hockey games, the 2011 NHL All-Star game, the 2004 NHL Entry Draft, North Carolina State University basketball games, men's and women's NCAA tournament games, and a wide variety of concerts and other family events. Notable performers have included, Bruce Springsteen, Jay Z, Cher, Eric Clapton, Stevie Wonder, Taylor Swift, Billy Joel, Justin Timberlake, Prince, Beyoncé, Elton John, Lady Gaga, One Direction, Celine Dion, George Strait, Bon Jovi, and Keith Urban. Family shows have included Ringling Brothers and Barnum & Bailey Circus, Sesame Street Live, Disney On Ice, and the Harlem Globetrotters.

Tables E.1 and E.2 present the specific economic impact information for the operations of PNC Arena of sports and related events held during 2021-2022 and 2022-2023 seasons. Table E.1 details the total arena events that are made up of Carolina Hurricanes NHL games, North Carolina State basketball games, NCAA tournament games, and non-sporting events held at PNC Arena per year. These non-sporting events range from popular concerts featuring Harry Styles, Luke Combs, Kevin Hart, Hootie and the Blowfish, and Stevie Nicks to Disney on Ice and the Harlem Globetrotters. Finally, there are on average 517 catered events annually at PNC Arena ranging from pre-game NC State football events, local government planning events, to industry

training events. In total, over 1.5 million persons attend events at PNC Arena annually as part of over 600 individual events.

Table E.1

PNC Arena On-Site Economic Activity						
Year	2021-2022		2022-2023		2-Year Average	
Type of Event	Events	Attendance	Events	Attendance	Events	Attendance
Hockey	51	872,739	51	927,997	51	900,368
NCSU Basketball	17	205,433	17	222,647	17	214,040
Arena Other	48	354,946	56	422,976	52	388,961
Catering	549	41,170	484	23,333	517	32,252
Total Attendance	665	1,474,288	608	1,596,953	637	1,535,621
Aggregate Revenue					Events	Revenue
Gross Revenue					615	\$279,222,202
Adjusted Revenue						
Wake County					615	\$224,066,472

Table E.2 summarizes the total on-site and off-site output and employment impact of PNC Arena on the Wake County economy. The direct adjusted economic output impact of both on-site and off-site economic activity is \$274,549,498. In addition, another \$191,362,841 in revenue is generated by supplier chain (indirect) industries within Wake County. The induced impact (nonrelated economic activity) generates another \$124,730,687 in output. The total annual output impact of on-site and off-site operations of PNC Arena on the Wake County economy is \$590,643,004.

Table E.2

Wake County On-Site and Off-Site Economic Impact				
	Direct	Indirect	Induced	Total
Output	\$274,549,498	\$191,362,841	\$124,730,687	\$590,643,004
Employment	1,785	636	214	2,636

On-site and off-site direct full and part-time jobs supported by operations at PNC Arena is estimated at 1,785. In addition, another 636 jobs are generated by supplier chain (indirect) industries within Wake County. The induced impact (nonrelated economic activity) generates another 214 jobs. The total annual employment impact of on-site and off-site operations of PNC Arena is 2,636 full and part-time jobs.

Table E.3 presents the 2022-2023 season PNC Arena total on-site and off-site economic output impact. The table also presents the estimated on-site and off-site impact over the next five years. The five-year estimated impact is based on a continuation of event activity consistent with the 2021-2022 and 2022-2023 averages. In addition, the five-year impact is adjusted by the inflation rate. For 2023-2024 the rate of inflation is estimated at 3.00 percent. For 2025-2026 through 2028-2029 the CPI is estimated to average 2.00 percent. This is the target range anticipated the Federal Reserve Bank.

Based on the 2022-2023 season impact of on-site and off-site economic activities associated with events at PNC Arena, and the continuation of activities at recent levels, over the next five-year period the Wake County economy should receive an additional revenue injection of over \$3,165 billion.

Table E.3

Five Year PNC Arena Impact		
Year	CPI Inflation Rate	Total PNC Arena Impact
2022-2023		\$590,643,004
2023-2024	3.00%	\$608,279,816
2025-2026	2.00%	\$620,445,412
2026-2027	2.00%	\$632,854,321
2027-2028	2.00%	\$645,511,407
2028-2029	2.00%	\$658,421,635
5-Year Total		\$3,165,512,591

*Estimated inflation rate