The Economic Feasibility of a Montgomery County, MD Arena

Preliminary Study

Submitted by:

CABER, Towson University
& Sage Policy Group, Inc.

On behalf of:

Maryland Stadium Authority

June 2007

Table of Contents

List of Exhibits 3

Executive Summary 4

I. Background and Introduction 7

Analytical Assumptions 7
The Market Segmentation of Indoor Arenas 7

II. Purposes and Methods 8

Methods 8

III. Local Market Conditions 9

Population Available to Support a Montgomery County Arena 9
The Montgomery County Market is Characterized by
Lofty and Rising Incomes 13
Local Business Community 16
Access to the Proposed Arena 17
Summary of Local Market Conditions 17

IV. Competition from Regional Facilities 17

Indoor Arenas in the Region 17
Description of other Regional Arenas and Venues 21
Analytical Findings 23
Implications 24
Defining the Proposed Arena's Niche 26

V. Comparable Facilities in the U.S. 26

Recently Constructed Mid-Sized Multi-Purpose Arenas 26
Findings from Comparable Facilities 30

VI. User Interest and Event Demand 31

Projections 31
Supporting Qualitative Information 32

VII. Arena Finances 34

Operating Finances 34

VIII. Economic and Fiscal Impacts 38

Operations 38

IX. Financial Feasibility 40

Sources of Capital Financing 40
Sources of Funds for Capital Costs 41

X. Conclusion 43

Appendix: References and Data Sources 44

List of Exhibits

Exhibit III-1: Montgomery County population, 2000 to 2010 10
Exhibit III-2: Population growth Montgomery County, Maryland, and US 10
Exhibit III-3: Secondary market within approximately 30-miles of proposed arena 11
Exhibit III-4: Secondary market population, 2000 to 2010 12
Exhibit III-5: Population growth secondary market, Maryland-Virginia-D.C., and US 12
Exhibit III-6: Per capita income, Montgomery County (2005 dollars) 13
Exhibit III-7: Per capita income, Montgomery County, Maryland, and US (2005 dollars) 14
Exhibit III-8: Per capita income, secondary market (2005 dollars) 15
Exhibit III-9: Per capita income, secondary market, Maryland-Virginia-D.C., and US (2005 dollars) 15
Exhibit III-10: Business establishments with $5 million or more in annual sales 16

Exhibit IV-1: Approximate locations of larger multi-purpose indoor arenas 18
Exhibit IV-2: Indoor multi-purpose arenas in the Washington region 19
Exhibit IV-3: Other arenas and venues in the Washington region 22

Exhibit V-1: Selected mid-size multi-purpose arenas 27
Exhibit V-2: Arenas and metropolitan population 28
Exhibit V-3: Arenas and metropolitan population per arena seat 29
Exhibit V-4: Events and attendance per year for selected mid-size multi-purpose arenas 30

Exhibit VI-1: Typical attendance at minor league sports events 31
Exhibit VI-2: Estimated events programming and attendance 32

Exhibit VII-1: Events, attendance, and gross ticket receipts 35
Exhibit VII-2: Premium seating at comparable facilities 35
Exhibit VII-3: Estimated operating revenue based on analysis of comparable facilities 36
Exhibit VII-4: Operating expenses 37
Exhibit VII-5: Income before debt service 38

Exhibit VIII-1: Spending in Montgomery County associated with arena operations 39
Exhibit VIII-2: Economic impacts of operations in Montgomery County (annual, ongoing effects) 39
Exhibit VIII-3: Economic impacts of operations in Maryland (annual, ongoing effects) 40
Exhibit VIII-4: Fiscal impacts of operations (annual, ongoing effects) 40

Exhibit IX-1: Components of Montgomery County Arena ticket price 41
Exhibit IX-2: Sources of funds for debt coverage 42
Exhibit IX-3: Value of bonds supported by arena-generated funds 42

Executive Summary

The market will readily support a Montgomery County arena

The Maryland Stadium Authority (MSA), in conjunction with Montgomery County's Department of Economic Development (DED) and the Maryland Department of Business and Economic Development hired Sage Policy Group, Inc. (Sage) of Baltimore to analyze the market feasibility of a proposed multi-use arena in Montgomery County. The study team was not requested to select a specific location within the county, but has assumed a central location for analytical purposes.

Among other things, this analysis catalogs scores of Montgomery County, MD-centered activities that are consistently displaced due to the absence of an appropriately sized and appointed facility within the county. Specifically, graduations, sporting events and various forms of entertainment are pushed into the District of Columbia, Prince George's County and even into Northern Virginia due to the lack of a multi-purpose, civically-oriented arena that can successfully host sports, entertainment, cultural and community events as well as exhibitions and trade shows. This has been confirmed through dozens of interviews and through the analysis of Montgomery County-oriented activities taking place at other regional venues beyond the county's boundaries. *This analysis concludes that the level of pent-up demand for an appropriately sized and appointed arena is substantial and sufficient for future pursuit.*

The arena should accommodate approximately 6,500-8,500 fixed seats with total capacity of 8,000-10,000

One of the challenges of the analysis was to determine the appropriate scale and substance of the proposed facility once market feasibility was confirmed. There are several arenas in the Washington metropolitan area, with the implication that optimal scale and level of functionality are not merely functions of Montgomery County arena demand but also of competitive forces.

At 6,500-8,500 fixed seats, the Montgomery County Arena would enjoy a well defined niche comprised of its mid-sized scale, location, adaptability and newness of facility. Capacity for roughly another 1,500 could be provided through the provision of floor seats, which the study team recommends. Given the size of the Montgomery County business base, the arena could support 25 luxury boxes, probably more.

Area competitors include the Verizon Center in downtown Washington, the Patriot Center on the campus of George Mason University, the Comcast Center in College Park, and the Show Place in Upper Marlboro. The D.C. Armory, an older facility next to RFK Stadium in Washington, D.C., programs concerts and family events and may also offer some competition for a Montgomery County arena.

However, each of these arenas is at least 25 miles from many areas of Montgomery County. Thus, they literally compete at a distance, providing a clear travel advantage for

a Montgomery County arena that is strategically situated. Moreover, several of these facilities are substantially larger than that which is being proposed for Montgomery County, which renders them impractical for many of the events that would fit comfortably in the proposed arena. The study team has also determined that competition from Baltimore area facilities would be minimal.

The study team also concerned itself with the possibility that the presence of an arena in Montgomery County would displace activities currently taking place within facilities currently operating in the county, particularly the Strathmore Arts Hall and the Montgomery County Conference Center. Given its specialized focus, smaller scale and inimitable acoustics, competition between the Strathmore and proposed arena would be inconsequential. Data collected regarding the Conference Center also suggest very little overlap in the population of potential users unless the proposed arena also includes significant meeting and exhibition space. The study team concludes that dedicated meeting/exhibition space at the proposed arena would add little incremental value to the community, but would add to the cost of arena construction and operations and may negatively affect Conference Center operations.

Flexibility of use matters more than size

Some may wonder why the study team has not proposed a grander scale for the Montgomery County Arena given the identification of significant pent-up demand. As stated previously, part of the explanation lies in the nature of existing competitive forces in the Washington area. Another reason is that data and stakeholder reviews reveal that size of the facility is not remotely as important as is the facility's adaptability to various users. Incremental construction dollars are better invested in facility flexibility than in increased size and scale. Interviews reveal that potential users include but are not relegated to:

- skating shows;
- circuses;
- graduations;
- minor league basketball;
- minor league hockey;
- indoor lacrosse;
- indoor soccer
- tennis matches;
- concerts (e.g., rock/pop) attracting over 2,000 persons and/or not requiring the acoustic precision of the Strathmore;
- track and field competitions;
- spiritual gatherings; and
- marketing seminars.

The vast majority of these events will require fewer than 7,000 seats. Moreover, we anticipate that most if not all high school graduations in the county could easily be accommodated by the proposed facility.

The study team also recommends that a six-lane indoor track be evaluated as a program item, recognizing that this presents significant design challenges. This amenity can be used by local schools as well as by a host of running organizations that operate in the local area. Interviews suggest that the level of demand for such an amenity is elevated and currently unmet.

The arena will generate substantial positive economic and financial impacts in Montgomery County in addition to augmenting quality of life

Once operational, the arena will conservatively support 764 jobs, $6.6 million in wage income, and nearly $19 million in business sales in Montgomery County. It is estimated that the arena will generate $5.4 million annually to support debt service. Of this total, $3.0 million would accrue to State and local government in the form of $2.4 million in taxes and $0.6 million in facility fee revenues. The balance would be generated through facility net income, which is estimated at $2.4 million per annum.

On an annual basis, a 20-year, 8-percent bond worth $1 million costs almost $102,000.[1] Were all $5.4 million of estimated tax and fee revenues/net income allocated to financing bonds, a total of $53 million in bonds could be financed to support construction. If instead a decision was made to preserve a 20 percent margin, then $44.5 million in bonds could be financed.

This analysis has also concluded that the substitution effect associated with such an arena would be minimal and would generally not undermine the operations of entertainment-related county businesses or those of other county venues at which a substantial number of people gather. If anything, the impact on these entities would be a net positive on average.

Conclusion

From a public policy perspective, the lack of this type of amenity in Montgomery County has come to represent a major deficit in what is otherwise an amenity-rich environment. Given Montgomery County's superior demographics, the results of our interviews with potential facility users, and the location and orientation of other facilities in the Washington area, an arena strategically situated in Montgomery County would not only be financially feasible and support significant economic activity, but would quickly establish itself as a treasured community amenity.

[1] The Montgomery County Finance Department has advised that bonds for the proposed arena would be taxable and that the interest rate on such bonds would approximate the prime rate. The department indicated that the likely interest rate at this point in time would be 8 percent.

I. Background and Introduction

Analytical Assumptions

Montgomery County is considering the development of a multi-purpose civic indoor arena that is able to comfortably host sports, entertainment, cultural, and community events as well as exhibitions and trade shows. Planning for this arena is at a relatively early stage. As a result, many specifics of this arena are yet to be determined. Therefore, in order to examine the feasibility of an arena in Montgomery County, the study team made two basic assumptions:

- The arena is presumed to be designed in order to accommodate a broad range of programming. Sporting events might include basketball, hockey, soccer or lacrosse, each requiring distinct playing surfaces. Community events might range from high school graduations to large receptions. Entertainment options might include rock/pop music concerts and ice shows. Consumer and business shows and exhibitions represent other possibilities; and

- This study assumes a central location with access to the interstate and other major highways that serve the region. *Because it is useful to assess the proposed Montgomery County arena relative to other regional venues, we have assumed Germantown as a location for the arena. It should be stressed that this analysis study does not endorse this location or any others, and the Germantown assumption is intended merely to facilitate the analysis. Findings of this analysis should be viewed as applicable to any of the county sites that will be considered.*

The Market Segmentation of Indoor Arenas

Indoor arenas have been developed by many municipalities and other entities in recent years and can be categorized in several ways.

- The largest arenas, seating 17,000 to 24,000, tend to accommodate major league franchises from the NBA and/or NHL. The most common size is about 20,000 seats. The Verizon Center in the District of Columbia is an example of this category of arena, often located in downtown areas of central cities. Other large arenas are university facilities associated with well-known collegiate sports teams (e.g., the Dean Smith Center at the University of North Carolina). A few others are municipal facilities.
- A second tier of arenas typically seats 6,000 to 15,000 people. Such arenas are found in suburban and central locations of large metropolitan areas and in smaller population centers. Rather than major league basketball or hockey teams, many of these arenas depend on minor league sports for anchor tenancy.
- A third tier of arenas has fewer than 6,000 seats and relies on a mix of sports activities, often amateur teams and leagues, and other events to support operations.

While sports teams and activities tend to be the most visible drivers of arena events, successful arenas maintain a mix of entertainment, consumer and business events. Concerts are common events and the entertainment business can be segmented into categories that align with the varying arena sizes. Other prospective events from business exhibitions to family entertainment may also be scaled to suit the size of arenas.

Flexibility is often a hallmark of mid-size and larger arenas. Tenant teams may require playing surfaces for basketball, arena football, and/or ice hockey all in a common facility. These different surfaces can also be used to accommodate ice shows or trade shows. Seating may expand or contract by thousands of seats to suit the needs of a particular event.

Many of these facilities are owned by municipalities and operated by private companies under contract to the city or county that owns the facility. A second important ownership group is represented by colleges/universities, which operate arenas where the tenant teams are those of the college/university and many other events are linked to the school. These academic arenas, however, may also host concerts and other entertainment events that appeal to a broad cross-section of the public.

II. Purposes and Methods

This report seeks to answer the following questions:

- Will the Montgomery County market support the development of an indoor arena?
- What can be learned from the experience of comparable facilities?
- What competition exists in the Washington, D.C. region for a Montgomery County arena?
- What is the arena's optimal scale?
- Ideally, what type and scope of programming would such an arena offer?
- What are the desirable qualities of arena location?
- Who are potential arena users?
- What are the demographic characteristics of those who would use the arena?
- What would be the likely magnitude of arena operating costs?
- How could such an arena be financed?
- Is a Montgomery County arena financially feasible?
- What would be the economic and fiscal impacts associated with developing and operating a Montgomery County arena?

Methods

This analysis is based on the collection and analysis of relevant primary and secondary data. Data sources include:

- Interviews with prospective users, other stakeholders and industry experts;
- Comparable and competitive indoor arenas;

- Other sports, entertainment, and cultural facilities;
- Feasibility studies and similar reports on indoor arenas; and
- Demographic and economic data from the US Census and other sources.

These data are used to provide an analysis capable of objectively evaluating the prospects and feasibility of a Montgomery County arena in the context of the Montgomery County and Washington, D.C. markets and the experience of comparable facilities in other markets. This analytical framework focuses on arenas that serve multiple purposes and provide a mid-range of seating capacity.

Economic and fiscal impacts are based on an econometric methodology that captures the multiplier effect of the economic activity associated with a Montgomery County arena. Fiscal impacts are derived from estimates of the personal income that would be generated by an arena and the direct sales of tickets and other goods and services by the arena.

III. Local Market Conditions

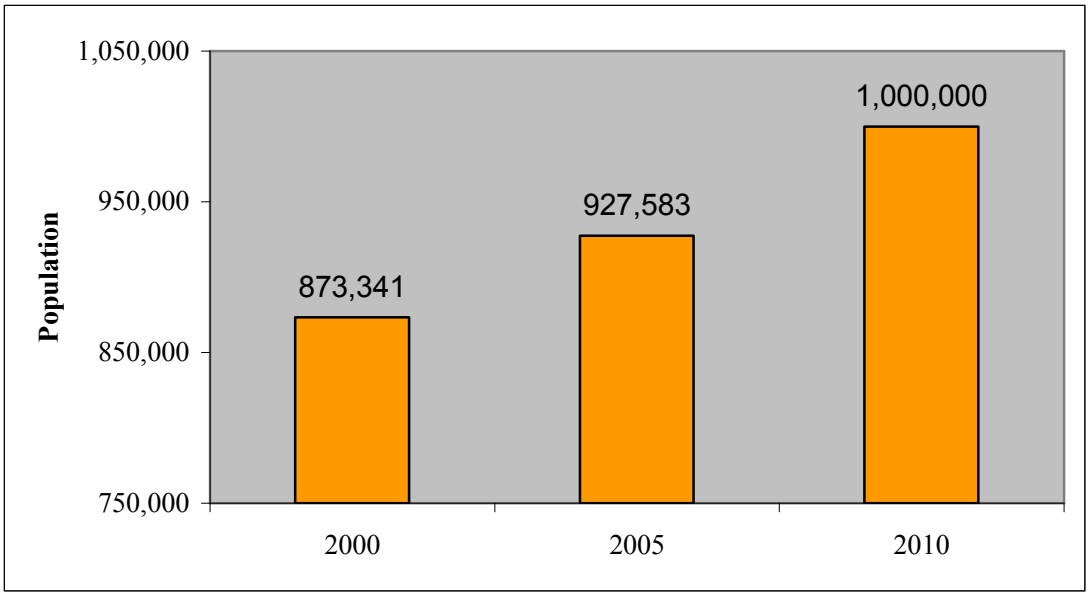
The potency of the market for a Montgomery County arena (or lack thereof – nothing is presumed along this dimension) is a function of several variables. In general, demand for the arena will primarily originate in Montgomery County, but for many sports and entertainment events will also emerge from a wider area. Therefore, the socioeconomic status of Montgomery County and its broader market territory are important considerations in the characterization of demand.

To varying degrees, the proposed arena will compete with other venues in the Washington metropolitan area. These venues include not only other arenas, but also performing arts centers and potentially other types of facilities. Ultimately, the goal of this portion of the analysis is to juxtapose market demand against market supply and determine whether enough unmet demand exists to justify the construction and operations of the proposed Montgomery County arena.

Population Available to Support a Montgomery County Arena

Lying immediately northwest of Washington, D.C., Montgomery County is Maryland's most populous jurisdiction. The county has the advantage of a substantial and growing population. In 2005, the county's population was estimated at 928,000 and is projected to expand to 1 million by 2010 as reflected in Exhibit III-1.

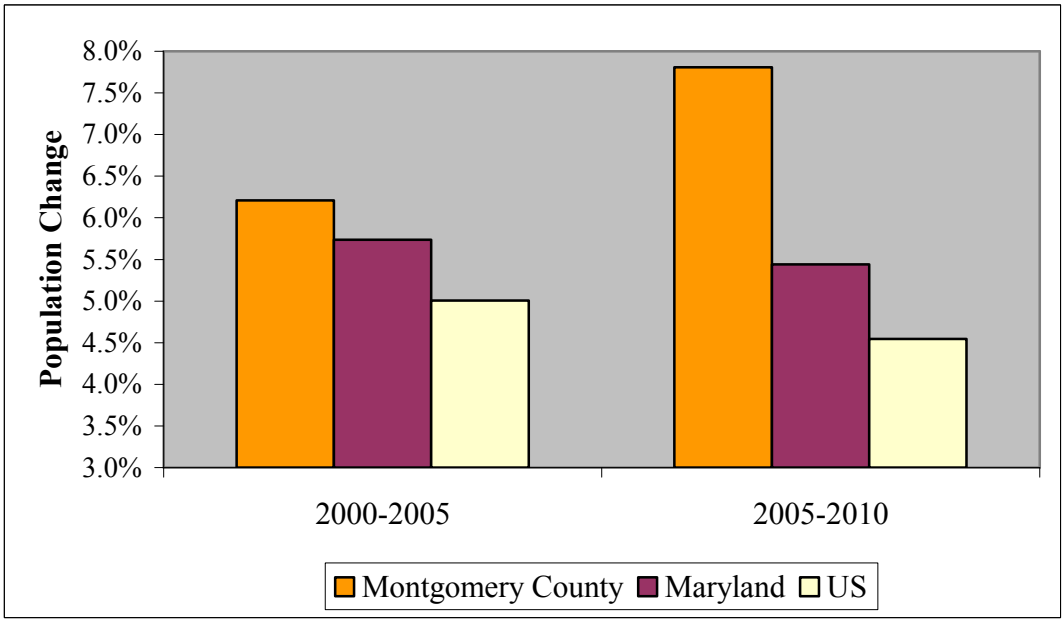
Exhibit III-1: Montgomery County population, 2000 to 2010



Source: Maryland Department of Planning

Exhibit III-2 compares Montgomery County's population growth rates to those in Maryland and the US. Remarkably, the county with the state's largest population is anticipated to experience acceleration in growth from 2005 to 2010 as compared to the growth achieved between 2000 and 2005. By contrast, for both Maryland and the nation, population growth is expected to slow in the period 2005 to 2010 relative to the 2000 to 2005 period.

Exhibit III-2: Population growth Montgomery County, Maryland, and US

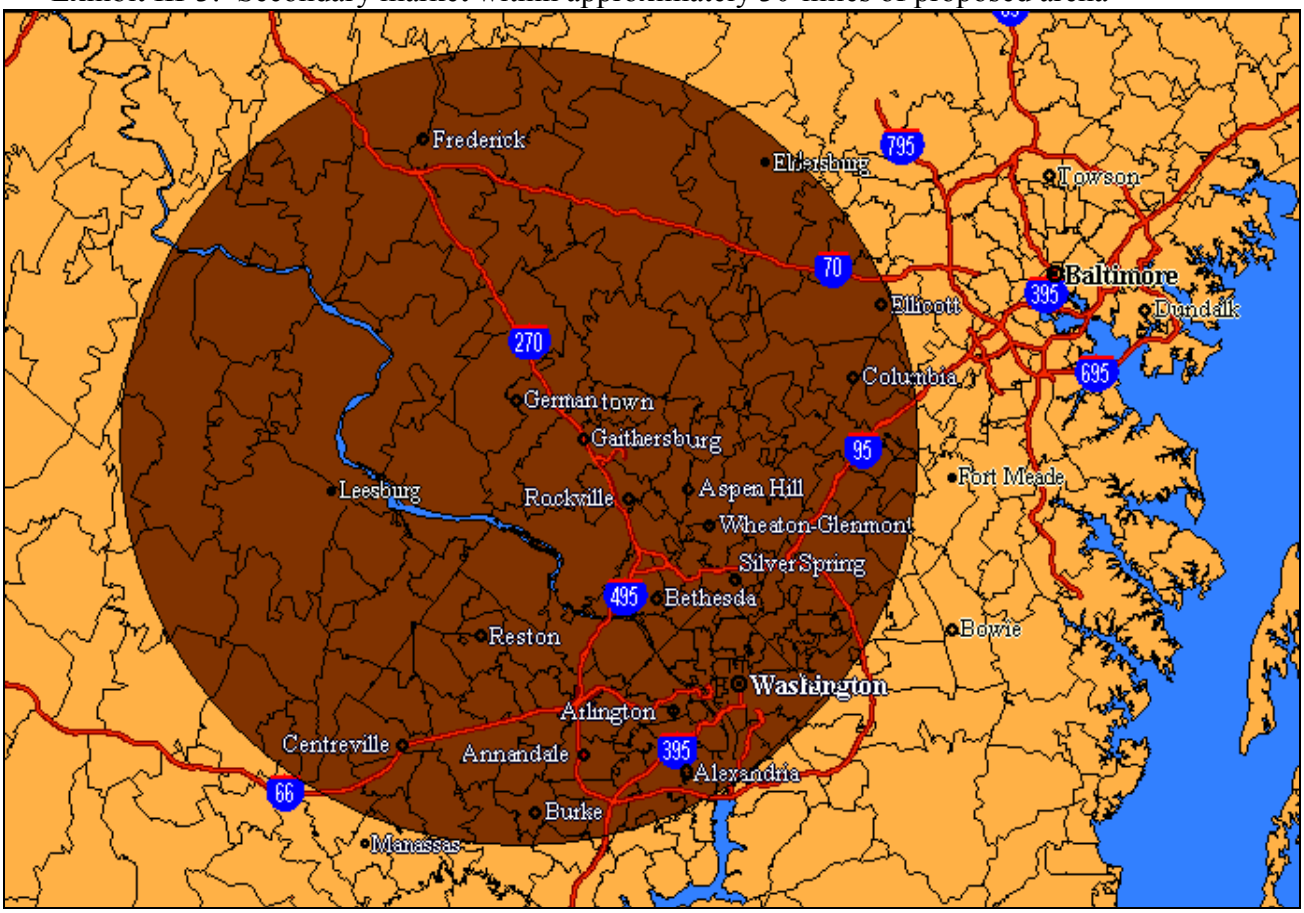


Sources: Maryland Department of Planning, US Census

For many arena events, the market area is expected to extend well beyond Montgomery County to jurisdictions that include some of America's most populous and affluent areas. The dimensions of this market will depend on specific events, schedules, future drive times and other factors. A rough estimate of this secondary market can be determined by identifying jurisdictions that are within or largely within a 30-mile radius of a facility located in the Germantown area[2] with ready access to I-270. Depending on traffic conditions, most households could reach the arena within no more than 45 to 60 minutes.

A 30-mile radius emanating from central Montgomery County encompasses most or all of Arlington and Fairfax counties in Virginia, the independent cities of Alexandria, Fairfax, and Falls Church, the District of Columbia and Frederick, Howard, and Prince George's counties in Maryland. As illustrated by Exhibit III-3, this secondary market stretches to the western suburbs of Baltimore and north toward Hagerstown. Thus, this secondary market for the arena not only incorporates the core of the Washington, D.C. metropolitan area, but also reaches into the Baltimore area. For certain events, the arena can be expected to pull from beyond this 30-mile market area.

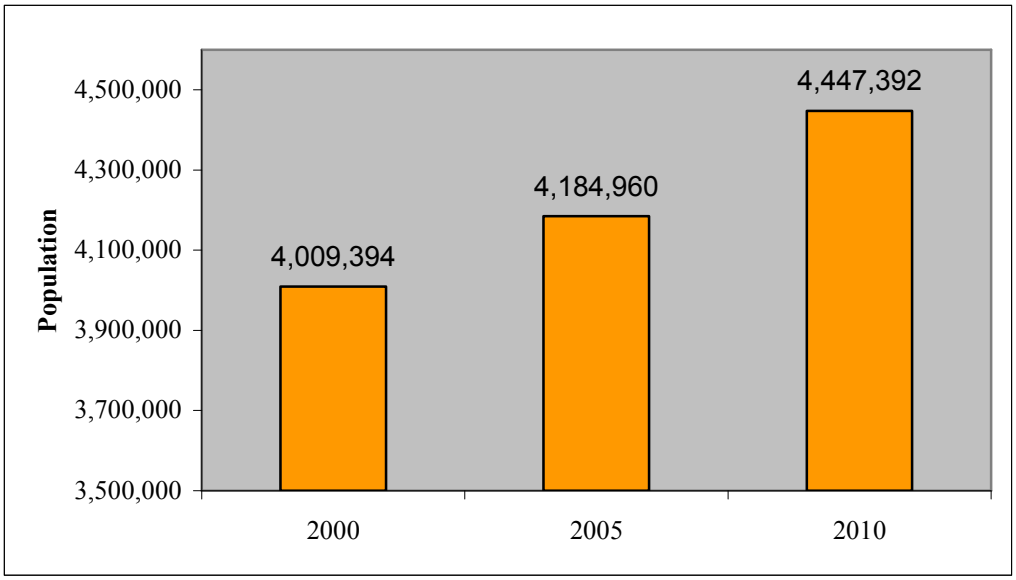
Exhibit III-3: Secondary market within approximately 30-miles of proposed arena



[2] A Germantown location is assumed merely to simplify the analysis and presentation of results. This assumption in no way should be viewed as an endorsement of this location.

The significance of this secondary market can be understood through basic demographic analysis. Exhibit III-4 shows estimated population for the identified jurisdictions in Maryland, Virginia and in the District of Columbia. This population was estimated to be 4.2 million in 2005 and is projected to grow to 4.4 million by 2010.

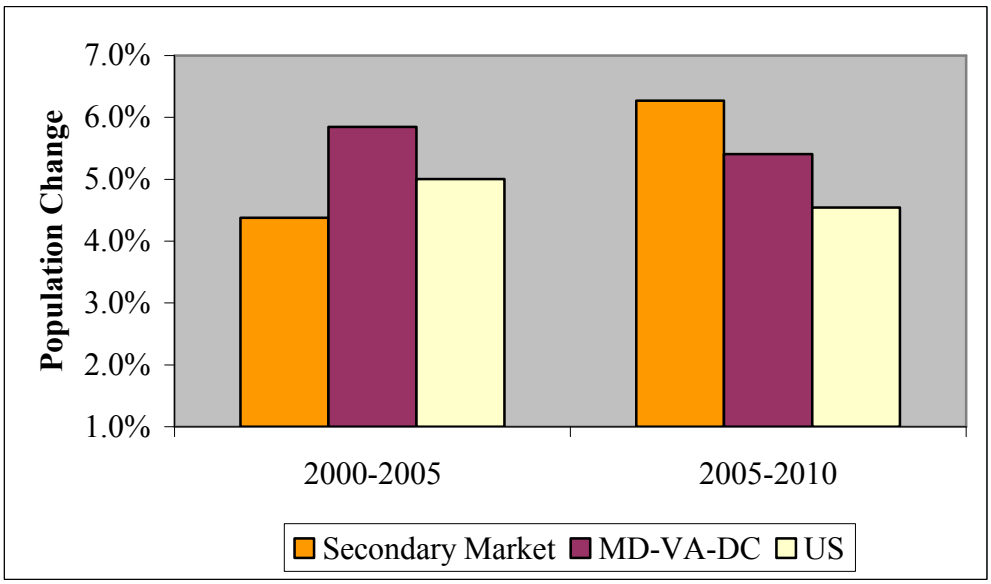
Exhibit III-4: Secondary market population, 2000 to 2010



Sources: Maryland Department of Planning, Virginia Employment Commission, US Census

Projections indicate that in the period 2005 to 2010, population in the secondary market will surpass the multi-state region and the nation. Those projections estimate a growth rate of 6.3 percent in the secondary market, a 5.4 percent rate for Maryland, Virginia, and the District of Columbia, and a national rate of growth of 4.5 percent (Exhibit III-5).

Exhibit III-5: Population growth secondary market, Maryland-Virginia-D.C., and US



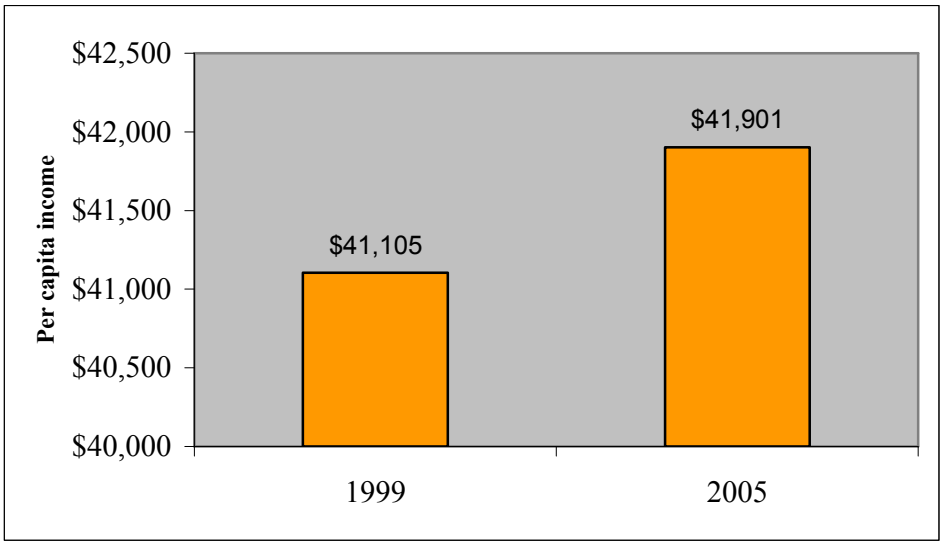
Sources: Maryland Department of Planning, Virginia Employment Commission, US Census

The Montgomery County Market is Characterized by Lofty and Rising Incomes

Personal income is a key indicator of market viability. Higher income levels generally suggest greater discretionary income, including income that can be used for entertainment. Montgomery County is particularly advantaged by its elevated incomes and supply of discretionary income. Recent U.S. Census data indicate that as of 2005, Montgomery County was the nation's sixth richest as measured by median household income among U.S. counties with populations in excess of 250,000. In 2005, more than half of Montgomery County's households reported incomes exceeding $82,000.

Household income is a function of the size of households, which can vary substantially. In order to better assess levels of discretionary income, it is also useful to analyze per capita income data, which effectively eliminates any bias created by larger than average household sizes. Exhibit III-6 presents per capita income in Montgomery County in 1999 and 2005 in inflation-adjusted 2005 dollars. Over that period per capita income grew 1.9 percent in real terms to almost $42,000 in 2005.

Exhibit III-6: Per capita income, Montgomery County (2005 dollars)

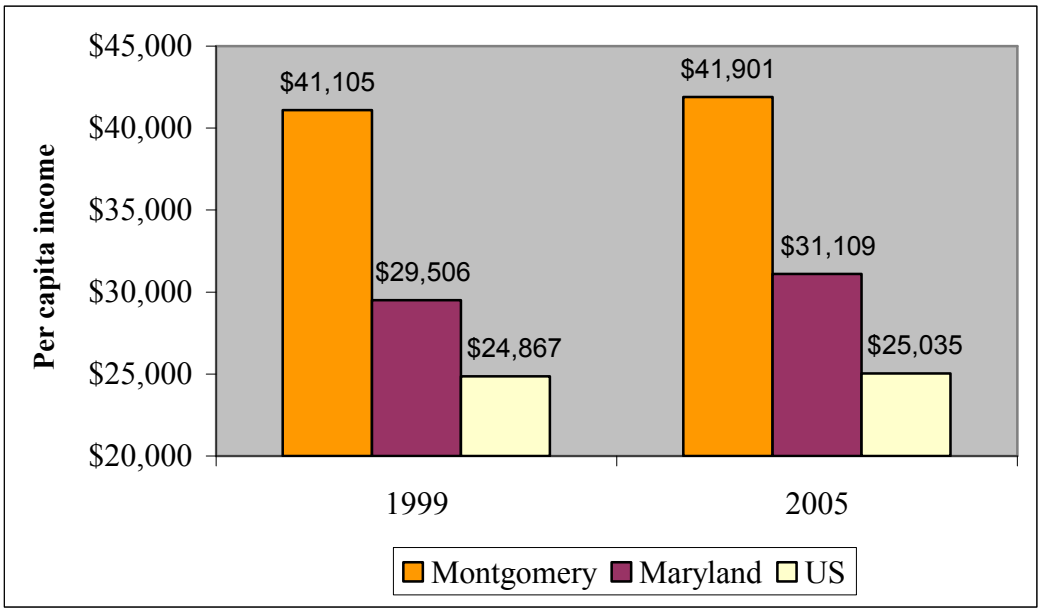


Source: US Census

Per capita income in Montgomery County is compared to per capita income in Maryland and the U.S. in Exhibit III-7. In 1999 and in 2005, Montgomery County per capita income compared highly favorably to statewide and national per capita income. In both years, income levels in Maryland were not quite three-quarters of the levels in Montgomery County[3]. National income levels were 60 percent of levels in Montgomery County.

[3] Astonishing given the fact that Maryland is one of America's most affluent states.

Exhibit III-7: Per capita income, Montgomery County, Maryland, and US (2005 dollars)



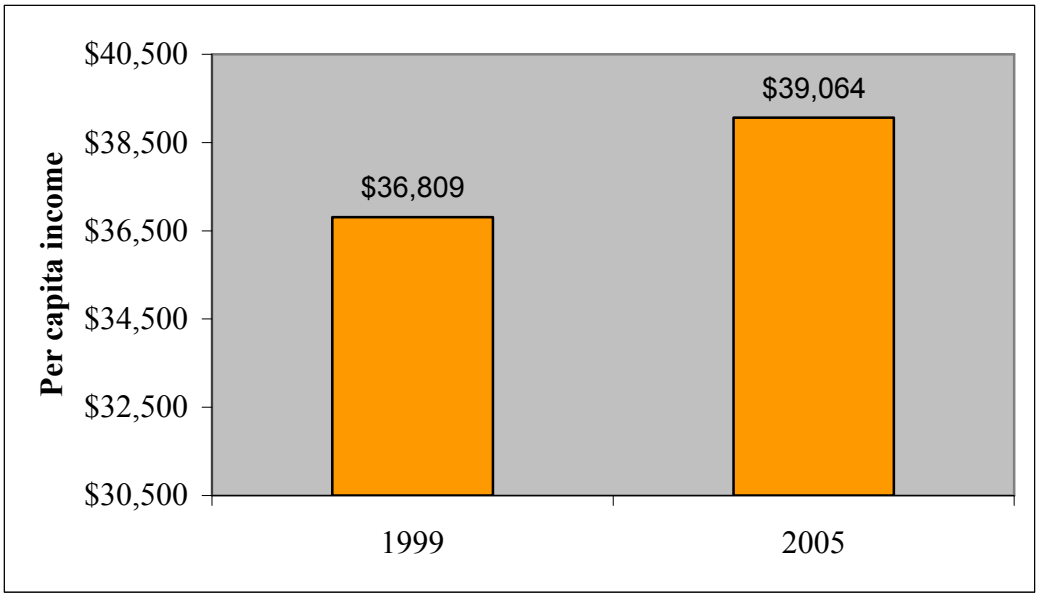
Source: US Census

Montgomery County's advantaged income position is replicated by other jurisdictions in its market territory, including Fairfax County, which ranks second in income among large U.S. counties according to the U.S. Census, and Howard County, which ranks third. Arlington County is not sufficiently populous to qualify as a large county, but enjoys a median household income level only slightly lower than Montgomery County's.

Per capita income levels for the secondary market are provided in Exhibit III-8. While these income levels are somewhat lower than those for the arena's primary market, the difference is slight. In 1999, the per capita income of the secondary market was $36,809 (90 percent of the Montgomery County level). By 2005, the secondary market per capita income had grown another 6.1 percent to $39,064 or 93 percent of the Montgomery County level. As with the data presented in other per capita income exhibits, the data in Exhibit III-8 are expressed in 2005 dollars, which adjust for the effects of inflation and allow direct comparisons between 1999 and 2005 data.

Per capita income levels in the secondary market are compared to income levels for the Maryland-Virginia-District of Columbia region and for the nation in Exhibit III-9. Income levels in the secondary market substantially exceeded those for the multi-state region and for the nation both in 1999 and in 2005.

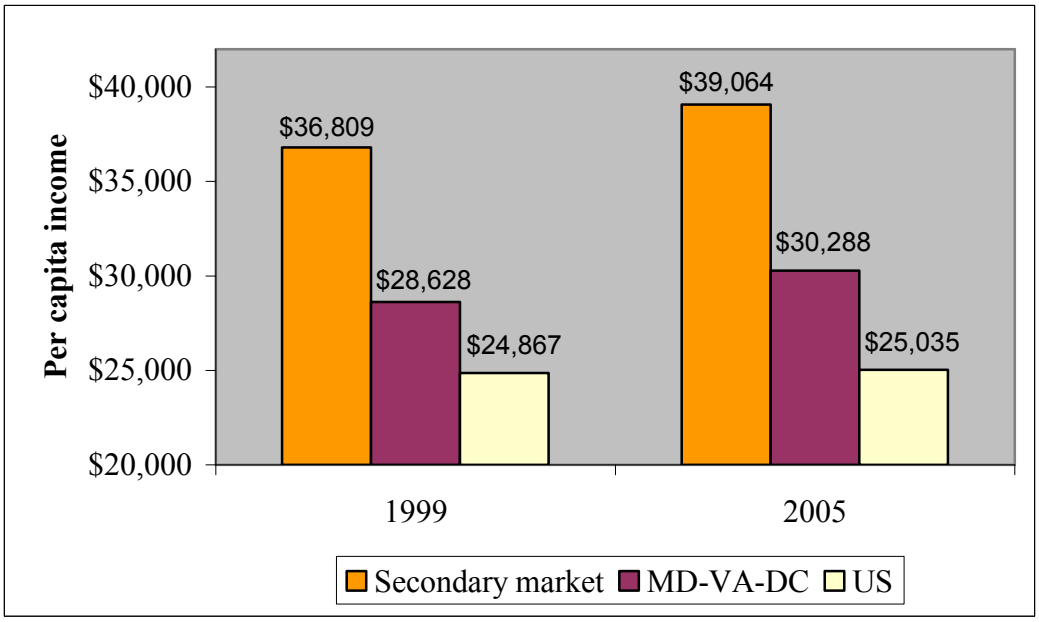
Exhibit III-8: Per capita income, secondary market (2005 dollars)



Source: US Census

In both years, income levels for the Maryland-Virginia-District of Columbia region were 78 percent of the secondary market. National income levels have lost ground to the secondary market, decreasing from 68 percent of the secondary market per capita income in 1999 to 64 percent of the secondary market per capita income in 2005.

Exhibit III-9: Per capita income, secondary market, Maryland-Virginia-D.C., and US (2005 dollars)



Source: US Census

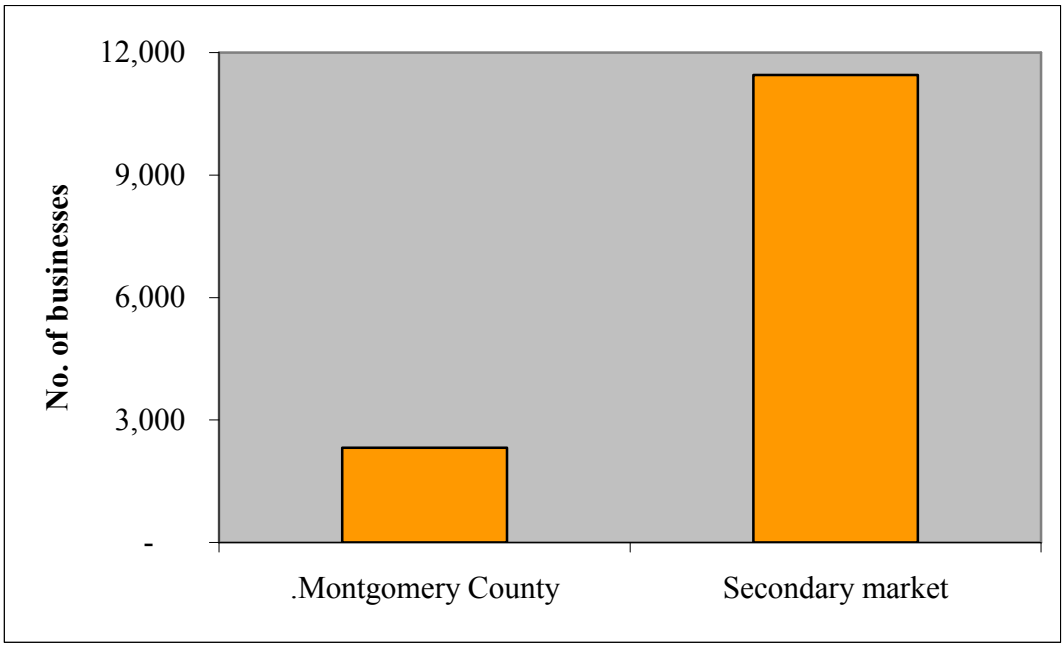
Local Business Community

Private households in Montgomery and in its secondary market will be the primary sources of demand for the proposed arena, but the local business community will also stimulate demand/utilization. For instance, businesses are common purchasers of premium seating at arenas—from luxury suites to loge boxes to club seats. Such seating typically constitutes an important source of arena revenue.

One measure of the potential market among the business community is the number of business establishments with annual revenue of $5 million or more.[4] Such businesses are in a position to appreciate the value of premium seating in terms of marketing and customer relations and to have the discretionary revenue to purchase such seating.

Exhibit III-10 presents data on the number of businesses in Montgomery County and in the secondary market with annual sales of at least $5 million. In 2006, an estimated 2,318 such businesses were operating in Montgomery County, while 11,454 firms in the secondary market recorded annual sales of $5 million or more. The implication is that the provision of luxury boxes and/or other business-oriented amenities will be supported by the local business community. To put matters into perspective, if just 1 percent of the business establishments with $5 million or more in annual sales purchased luxury boxes at the proposed arena, nearly 25 luxury boxes could be supported.

Exhibit III-10: Business establishments with $5 million or more in annual sales[5]



Source: ReferenceUSA

[4] A commonly analyzed statistic in market feasibility studies of this type.
[5] It is worth noting that many of these establishments register sales well in excess of $5 million/annum.

Access to the Proposed Arena

Though the study team reiterates that it endorses no specific Montgomery County location, the presumed location for this analysis is in Germantown, which happens to enjoy a strategic position relative to the interstate system—I-270, I-495 (the beltway around Washington, D.C.), I-66, I-70, and I-95 in Maryland and Virginia. Each of these roadways facilitates access across the arena's primary and secondary market. This access is complemented by major parkways in Washington, D.C. and Virginia. The proposed inter-county connector (ICC) in Maryland would significantly increase access to the arena from points east, though the study team concludes that demand for the arena will be more than sufficient to support construction and operations with or without the ICC.

Highway access is of course a function of traffic congestion. While the Washington, D.C. area has a well deserved reputation for congestion and its impacts on travel times, the disadvantages of congestion would be offset by the fact that most events would be scheduled beyond rush hour during the evening and/or on weekends when congestion is significantly lower.

Summary of Local Market Conditions

The fundamental market conditions available to support a Montgomery County arena are particularly strong. Key findings are listed below.

- Montgomery County is a populous market that will approach 1 million in the next few years and is adding population in percentage terms faster than both Maryland and the nation;
- The arena's secondary market will reach 4.4 million people in size by 2010 and is also growing faster than the larger multi-state region and the U.S.;
- Per capita income in Montgomery County and the secondary market is very high relative to U.S. averages.
- The county and the larger market have a strong business base of companies with annual revenue of at least $5 million. This business base can and will be a critical market for the arena.

IV. Competition from Regional Facilities

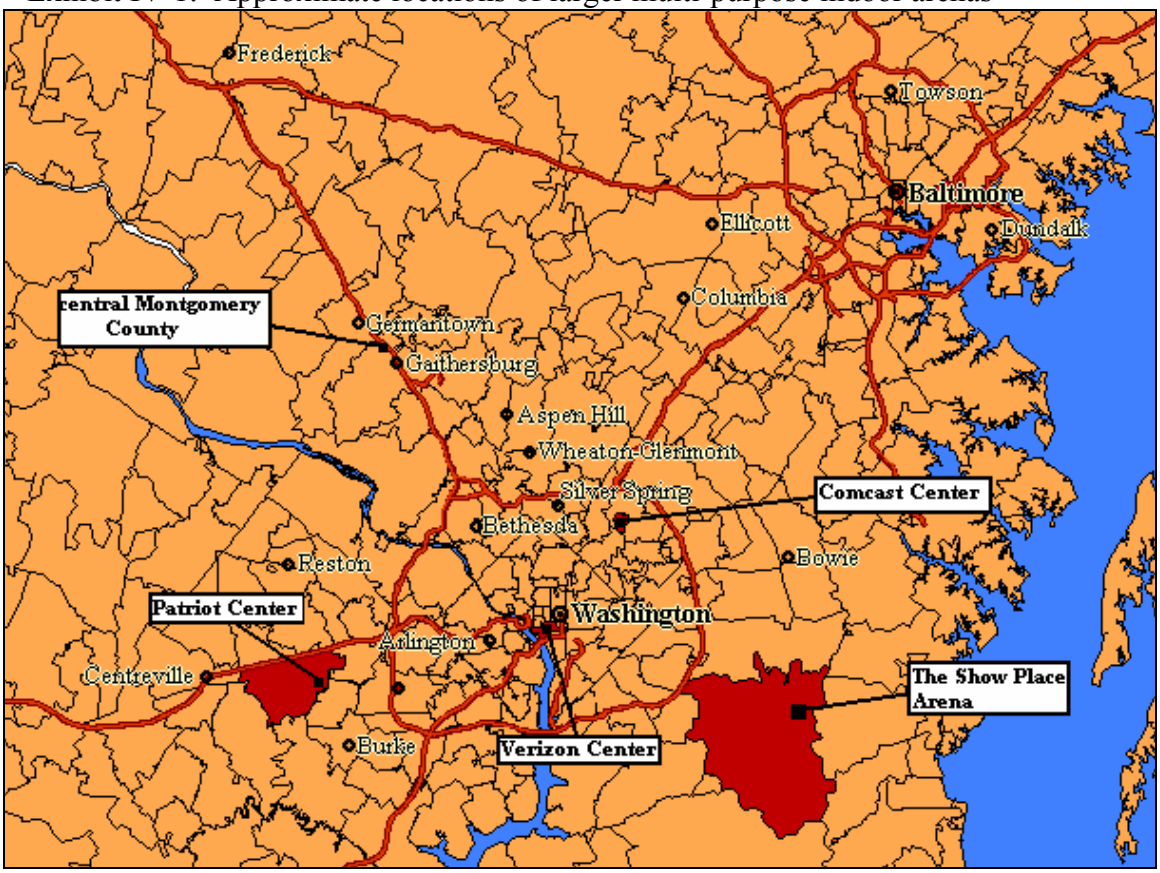
As a venue for sports, entertainment, and exhibitions, the Montgomery County arena will compete to a greater or lesser degree with other regional facilities. The tenants operating and events programmed at the arena will determine the extent to which the proposed venue competes or complements other venues. The final layout of the proposed facility will also have an impact on the extent of competition/complementarities.

Indoor Arenas in the Region

The most obvious sources of competition for a new indoor arena are the existing larger multi-purpose arenas in the Washington metropolitan area, including the Verizon Center

in downtown Washington, the Patriot Center on the campus of George Mason University, the Comcast Center in College Park, and the Show Place in Upper Marlboro. The D.C. Armory, an older facility next to RFK Stadium in Washington, D.C. that also programs concerts and family events, may offer some competition for a Montgomery County arena. These facilities are located throughout the greater Washington area as shown in Exhibit IV-1.

Exhibit IV-1: Approximate locations of larger multi-purpose indoor arenas



Each of these arenas hosts sporting events, entertainment, and other events that roughly parallel what might be scheduled in a Montgomery County arena facility. Yet each has distinct characteristics that indicate a distinct presence in the market. Key features of these arenas are listed in Exhibit IV-2.

Exhibit IV-2: Indoor multi-purpose arenas in the Washington region

Arena	Seating capacity	Major tenants	Typical events	Miles from central Montgomery County
Verizon Center	18,000 to 20,000	Washington Wizards, Washington Mystics, Washington Capitals, Georgetown University basketball	Ice shows and competitions, rock/pop concerts, family shows	32
D.C. Armory	10,000	None	Music concerts, family entertainment	33
Patriot Center	10,000	George Mason University basketball	Family shows, rock/pop concerts, commencements	33
Comcast Center	17,950	University of Maryland basketball teams	University sports and special events	27
The Show Place Arena	3,000 to 5,900	Chesapeake Tide	Horse shows, cheerleading events, exhibitions, graduations	49

Sources: Venue web sites, MapQuest

As the information in Exhibit IV-2 suggests, the existing arenas in the Washington region have distinct market presences. Verizon Center is the major league facility. The Patriot Center is a showcase for George Mason University. The Show Place Arena is relatively small and has the unusual feature of hosting equestrian events. Even when there is broad overlap, for example, in hosting rock or pop music concerts, the arenas are distinct. Verizon Center will present acts that draw particularly large audiences—U2, Rolling Stones, or Paul McCartney, while Patriot Center will host entertainment that has somewhat smaller audiences—Sting, James Taylor, or Prince. The D.C. Armory is something of an exception to these other existing arenas given its age and general lack of flexibility in seating arrangements. But for precisely those reasons and because of its significant seating capacity, the armory possesses a clear market niche.

1st Mariner Arena, an indoor arena, is located in downtown Baltimore roughly 53 miles from Germantown. With 11,000 to 14,000 seats and the Baltimore Blast indoor soccer team as a major tenant, 1st Mariner Arena may compete with a Montgomery County arena in Howard County and other eastern areas of the Montgomery County arena's secondary market area. Additional detail regarding these facilities is provided immediately below.

Verizon Center. When it opened in 1997 as the MCI Center, the Verizon Center replaced the US Air Arena that was located on the Capital Beltway in Prince George's County. With the new arena, major league sports moved to the Chinatown area of downtown Washington, D.C.

Verizon Center is the dominant indoor sports facility in the region, serving as host to three major league sports teams (Wizards, Mystics and Capitals), one of college basketball's premier teams (Georgetown Hoyas), and many high profile sporting events. The last includes portions of the NCAA basketball tournament in several years, the ACC

basketball tournament in 2005, the NBA All-Star Game in 2001 and the 2003 World Figure Skating Championships.

While sporting events are the most prominent part of the program at Verizon Center, there are also major entertainment performances. These include the world-class rock and pop music acts noted above as well as performances by Luciano Pavarotti, Andrea Bocelli, Disney on Ice and the Harlem Globetrotters. Altogether the arena hosts about 220 events annually.

The facility itself has features consistent with its status as one of the nation's largest arenas. There are 114 luxury and executive suites, each of which serves 12 to 18 people. A party suite can be used by up to 99 people. These premium seating options are linked to catering and food services and a private restaurant restricted to holders of suites and club seats. Several other restaurants, a number of food concessions, sporting goods retail, and an indoor practice facility form additional components of Verizon Center. A 28,000 square-foot fitness center is also a part of the arena. Verizon Center is privately owned and operated. The facility leases land from Washington, D.C.

D.C. Armory. The D.C. Armory is an older facility dating from 1941 and located next to RFK Memorial Stadium. It has hosted a variety of events from formal dinners to rock concerts. A circus is scheduled for several days in 2007.

Patriot Center. The arena has been the home for both the men's and women's basketball teams of George Mason University since its opening in 1985. It has also been a major source of concerts and other entertainment for the region.

In over 20 years of operation, Patriot Center has hosted over 2,400 events drawing over 7.7 million in attendance. In 2005, attendance at Patriot Center totaled 522,559, ranking number 51 worldwide for ticket sales by Pollstar, which maintains a large database of concert tour and venue information. Recent shows and currently scheduled events include:

- James Taylor
- Sesame Street Live
- Disney on Ice
- Ricardo Aroma
- The Lipizzaner Stallions
- Bob Dylan
- Enrique Silesians
- The Harlem Globetrotters
- Dragon Tales Live

Patriot Center is owned by George Mason University and managed by Washington Sports & Entertainment. The same company owns and operates Verizon Center.

*University of Maryland, College Park Facilities***.** Another set of venues is part of and located at the University of Maryland, College Park. Comcast Center programming is largely devoted to the sports program of the university, particularly and most prominently to the men's and women's basketball teams. Other university-related events and a few community-oriented events are also scheduled. The Clarice Smith Performing Arts Center is a collection of performing arts venues that principally serve the university's arts departments and student performers. In addition, the Smith Center schedules guest artists including recently the Australian Chamber Orchestra, the St. Lawrence String Quartet, big band jazz, an annual showcase for modern dance, and the William Kapell International Piano Competition & Festival.

*The Show Place Arena and Prince George's Equestrian Center***.** The Show Place Arena is located within the grounds of the Prince George's Equestrian Center. In recent years, the arena has been home to several minor league sports teams and currently has an indoor football team, the Chesapeake Tide, as a tenant.

An unusual aspect of this venue is its capacity to host equestrian events. There are indoor facilities that can seat 3,000 as well as three outdoor rings. Horse shows and other equestrian events are scheduled around the year.

The type of programming occurring at the Show Place Arena can be illustrated by listing past and current events. These include the following.

- Prince George's County Executive Inaugural;
- Cheerleading competitions;
- Computer shows;
- Home shows;
- Indoor football;
- High school graduations (from several counties including Montgomery County);
- James Brown;
- Boys Choir of Harlem;
- Elvis Costello;
- Bernie Mack;
- Barney;
- Maryland National Horse Show; and
- Maryland Special Olympics Horse Show.

The Show Place Arena and Prince George's Equestrian Center are facilities of the Maryland-National Capital Park and Planning Commission.

<u>Description of other Regional Arenas and Venues</u>

In addition to the multi-purpose arenas described above, Montgomery County and its surrounding region are home to a substantial number of more specialized venues for the types of events that could be held at a Montgomery County arena. While none of these

facilities has the potential breadth of programming that a multi-purpose arena can have, each offers some potential head-to-head competition for the proposed arena.

Exhibit IV-3 provides select information for indoor venues in the Washington, D.C. area that tend to have more focused programming than multi-purpose arenas. These venues offer seating capacity of at least 1,000 with one exception.

Exhibit IV-3: Other arenas and venues in the Washington region

Arena	Seating capacity	Major tenants	Typical events	Miles from central Montgomery County
Strathmore Arts Center	1,976	Washington Performing Arts Society, Baltimore Symphony Orchestra (second home)	Classical music, jazz, dance performances	5
Robert Parilla Performing Arts Center	509	Montgomery County College performance groups	College performances, guest artists: pop music, theater, performing arts	10
Clarice Smith Performing Arts Center	100 to 1,342	University of Maryland performing arts	University performances, guest artists: classical music, performing arts	27
Kennedy Center	324 to 2,442	National Symphony Orchestra	Classical music, performing arts, jazz	30
DAR Constitution Hall	3,702	None	Pop/rock concerts	31

Sources: Venue web sites

Two of these facilities are in Montgomery County—the Strathmore Arts Center and the Robert Parilla Performing Arts Center. Each has a distinct presence in the arts community.

The Strathmore Arts Center, part of a private nonprofit organization, is host to a variety of classical music events from chamber music to symphonic performances by orchestras from the Washington region and from around the world. The center is the second home to the Baltimore Symphony Orchestra. In addition, there are jazz concerts, dance performances, and family entertainment. A prominent official at the Strathmore believes that the level of competition between the Arts Center and the proposed arena would be inconsequential given the Arts Center's specialized functionality and acoustics.

The Robert Parilla Performing Arts Center is part of Montgomery College and is host to many of the college's performing arts departments' events. In addition, the center sponsors a guest artist series that presents an eclectic program of entertainment. The current year guest series has scheduled Smokey Robinson, the Bulgarian State Opera, and the Mamas and Papas Musical among other events.

In Washington, D.C., there are two well-known large concert venues. *The Kennedy Center* is a world-class facility with several concert halls that may be best known as the home of the National Symphony Orchestra. The Kennedy Center presents a wide array of events from classical music to theater to jazz.

Built in 1929, *Constitution Hall* is owned by the Daughters of the American Revolution and is best known as the site for a Marian Anderson concert in 1939 that was a landmark in the nation's struggle for civil rights. Currently, Constitution Hall is a venue for rock and pop music acts and family entertainment. Constitution Hall is also currently utilized by a number of Montgomery County high schools as the location for their graduation ceremonies.

In addition to these more substantial facilities, there are a variety of other facilities that provide sports and entertainment programming in the Washington, D.C. region. These include indoor sports facilities such as the *Rockville SportsPlex* that caters to amateur sports leagues for youth and adults, and performing arts spaces like *BlackRock Center for the Arts* in Germantown, a small, 209-seat venue for music and other performances.

Analytical Findings

The most direct competition to a Montgomery County arena would emerge from the other larger multi-purpose arenas—the Verizon Center, the Patriot Center, the D.C. Armory, the Comcast Center and the Show Place Arena.

- All of these arenas are at least 30 miles from central Montgomery County with the exception of the Comcast Center, which is approximately 27 miles away. Thus, these existing facilities would literally compete at a distance, providing a clear travel advantage to a Montgomery County arena for many of Maryland's D.C. suburbs;
- The Verizon Center clearly fills the market needs for major league indoor sports. With NBA, WNBA, and NHL tenants and a capacity of up to 20,000, the Verizon Center in downtown Washington is the region's major indoor sports facility and the obvious venue for indoor concerts by major artists that command large audiences;
- The D.C. Armory is a 65-year-old facility that continues to offer some programming, but has largely been superseded by newer facilities in the area;
- The Patriot Center represents a mid-size arena that mixes George Mason University programming with community programming. The latter programming now competes with the Verizon Center and prospectively with a Montgomery County arena. Nevertheless, the primary market for the Patriot Center's community programming is Fairfax County and northern Virginia. Most of the Patriot Center's university programming is devoted to the men's and women's basketball teams;
- The two major facilities at the University of Maryland are clearly focused on the university's programs. Community programming (e.g., guest artists) constitute a limited part of the offerings of either the Clarice Smith Performing Arts Center or

the Comcast Center. The arts programming at the Smith Center tends to focus on classical music, opera, and similar performing arts;

- The Show Place Arena is the smallest multi-purpose arena in the Washington region. At almost 50 miles from Germantown, it is also the most remote from Montgomery County. It has relied in part on a succession of minor league sports teams as tenants with a mix of entertainment and community programming from cheerleading competitions to high school graduations to rock/pop music concerts. The fact that this facility provides a commencement venue for several counties' high schools suggests the extent to which that market is not well served in the Washington region. The distinguishing quality of this facility is its equestrian center and the ability to host horse shows and competitions.

The more special purpose arenas and performing arts spaces also offer some degree of competition for a Montgomery County arena either in its capacity as a sports venue or as a concert and entertainment venue.

- Two performing arts venues in Montgomery County have primary focuses that are likely to complement rather than directly compete with a multi-purpose arena. The closest facility is the Strathmore Arts Center, part of a large performing arts complex, which is principally interested in classical music and orchestral performance. Such programming would almost certainly not compete with concerts staged at the proposed arena. Somewhat more direct competition might arise from the jazz and popular music programming and family entertainment which is a secondary interest of the Strathmore Arts Center. The center, however, is relatively small at about 2,000 seats. The Robert Parilla Performing Arts Center, like the Strathmore Arts Center located in Rockville, has a guest artist series that might present some competition to the proposed arena. This series includes a few pop music events, but only a few, and the capacity of the center is about 500 seats, much smaller than the proposed arena. The bulk of this center's programming is provided by departments and students of Montgomery College;
- Two major concert venues in the District of Columbia—Constitution Hall and the Kennedy Center—offer entertainment programming. Like the Verizon Center these venues are 30 miles or more from Germantown and are thus on the edge of the most immediate market for a Montgomery County arena. Constitution Hall does offer the kind of pop music and family events that a Montgomery County arena might also schedule. It is an older fixed-seating facility. The Kennedy Center is best known for classical music and gala events, but also provides jazz and family entertainment.

<u>Implications</u>

The most direct competitors of a multi-purpose arena in Montgomery County—the Verizon Center, the Patriot Center, the Comcast Center and the Show Place Arena—have characteristics, including programming, that tend to complement rather than compete with the proposed arena. While the D.C. Armory is considered a multi-purpose arena, its

age and inflexibility effectively eliminate it as a source of competition for a Montgomery County arena.

- In terms of location within the market, Montgomery County is relatively poorly served by any of these arenas. The Maryland suburbs north and northwest of Washington, D.C. are clearly a "hole" in the region's market for multi-purpose arenas.
- In terms of size, there appears to be an opportunity for a mid-size (i.e. 5,000 to 10,000 seat) facility. The lower limit is the capacity of the Show Place Arena while the upper bound is the capacity of the Patriot Center. Comcast Center's basketball and other sports programming is devoted to the University of Maryland. While these events may parallel minor league sports events at a Montgomery County arena, college sports and minor league sports clearly represent different segments of the overall sports market.
- In terms of programming, there appears to be an opportunity for a facility oriented towards minor league sports and community entertainment programming. Minor league sports have been part of the Show Place Arena strategy. This competition, however, is an hour's drive from much of Montgomery County. Community programming covers a wide swath of music concerts, family entertainment, and community events (e.g., high school graduations, consumer shows). While such programming is part of each arena's strategy, geographic separation and distinct primary markets indicate that a Montgomery County arena can compete effectively.

The other venues that might compete with a Montgomery County arena—performing arts spaces and concert halls—also tend to complement rather than directly compete with a mid-sized, multi-purpose arena.

- The performing arts spaces by dint of size or program focus tend to address different segments of the entertainment market. The Strathmore Arts Center is primarily devoted to classical music; the Robert Parilla Performing Arts Center is small and devoted to Montgomery College offerings; the Clarice Smith Performing Arts Center is largely focused on classical music and performances by university-based groups.
- The Kennedy Center, like the Verizon Center, provides "major league" music and performing arts that would typically be beyond the scope of programming at the proposed Montgomery County arena.
- Constitution Hall does offer the kind of musical and family entertainment that might overlap with a Montgomery County arena. At 3,702 seats, however, it lacks the capacity of the proposed Montgomery County arena. Moreover, because it is over 30 miles from much of Montgomery County, Constitution Hall tends to target a somewhat different geographic market.

Defining the Proposed Arena's Niche

In the spectrum of existing venues for sports, entertainment, and cultural programming in Montgomery County and the surrounding region, there are market niches that are not served directly by any existing proximate facilities. These niches include:

- *Location*. A central location within Montgomery County with ready access to the major highway system will be important. Such a location would optimize access across the region and balance the Montgomery County arena's location relative to other multi-purpose arenas in the Washington region.
- *Mid-sized capacity*. Seating would presumably range from the roughly 5,000-seat maximum capacity of the Show Place Arena to the 10,000-seat maximum capacity of the Patriot Center;
- *Flexible facility*. The arena would offer sports, entertainment, and other programming and the ability to arrange seating, playing surfaces, exhibition spaces, infrastructure, and other components to accommodate a broad range of events;
- *Sports programming*. Minor league sports could provide a base of programming and tenants for the facility;
- *Entertainment programming*. Concerts, family shows, and other entertainment would complement ongoing programming at existing facilities. This entertainment would focus on events capable of filling a mid-sized arena. Events would tend towards popular music, performance, and entertainment to complement the wealth of classical music and similar programming at area performing arts spaces.

V. Comparable Facilities in the U.S.

The market niche that a Montgomery County arena could occupy can be assessed by looking at comparable facilities in the mid-Atlantic region and elsewhere. These facilities provide a context for assessing basic market conditions for a Montgomery County arena and also provide benchmarks for costs and finances associated with construction and operation.

Recently Constructed Mid-Sized Multi-Purpose Arenas

Since the mid-1990s, almost two dozen multi-purpose arenas similar in size to the proposed Montgomery County arena have been built or are now under construction in the US. Exhibit V-1 lists facilities that seat 7,000 to 11,500 depending on the type of event in descending order of maximum seating capacity. All of these facilities are located in metropolitan areas with populations of at least 250,000. Similar facilities in smaller areas (e.g., Laredo, TX) were excluded.

Exhibit V-1: Selected mid-size multi-purpose arenas

Arena	Location	Seats-minimum	Seats-maximum
The Family Arena	St Charles, MO	6,300	11,500
Stockton Arena	Stockton, CA	9,800	11,200
Verizon Wireless Arena	Manchester, NH	10,000	11,000
Sears Centre	Hoffman Estates, IL	9,000	11,000
Cumberland County Crown Coliseum	Fayetteville, NC	8,900	10,900
Sovereign Bank Arena	Trenton, NJ	8,100	10,500
American Bank Center	Corpus Christi, TX	8,000	10,500
Mid-American Center	Council Bluffs, IA	7,200	10,100
Arena at Harbor Yard	Bridgeport, CT	8,500	10,000
Resch Center	Green Bay, WI	8,500	10,000
Everett Events Center	Everett, WA	8,300	10,000
Desoto County Civic Center	Southhaven, MS	8,300	10,000
Centennial Garden	Bakersfield, CA	8,000	10,000
Ford Park Arena	Beaumont, TX	8,200	9,100
World Arena	Colorado Springs, CO	7,400	9,000
Wachovia Arena at Casey Place	Wilkes-Barre, PA	8,300	8,500
Germain Arena	Estero, FL	7,200	8,000
Paul Tsongas Arena	Lowell, MA	6,500	7,800
Reading Sovereign Center	Reading, PA	7,100	7,200

Sources: Billboard AudArena Guide, venue web sites

The 19 venues listed above are designed to be flexible facilities capable of staging a broad range of events. One indication of this flexibility can be seen in the range of seating capacity for these arenas. Maximum seating is typically for concerts where seating occupies floor space used for sports events. Minimum seating may involve partitioning the arena to create a smaller, more intimate space within the overall facility.

Mid-sized multi-purpose arenas have been developed across the country and in metropolitan areas with radically different sized populations. Exhibit V-2 lists the arenas identified in Exhibit V-1 in descending order of the population of the metropolitan areas where they are located. In many of these metropolitan areas, particularly those with the largest populations, there are several arenas. In these larger areas (e.g. Chicago, Boston, Seattle), newer mid-sized arenas are often in suburban locations and tend to complement large downtown arenas which have major league sports teams as tenants. The average metropolitan area population for these arenas is 1.5 million. The Washington, D.C. metropolitan area would be the second largest metropolitan area in this list.

Exhibit V-2: Arenas and metropolitan population

Arena	Metropolitan area	Metropolitan population, 2004 (thousands)
Sears Centre	Chicago	9,392
Paul Tsongas Arena	Boston	4,425
Everett Events Center	Seattle-Tacoma-Bellevue	3,167
The Family Arena	St Louis	2,764
Desoto County Civic Center	Memphis	1,250
Arena at Harbor Yard	Bridgeport-Stamford-Norwalk	903
Mid-American Center	Omaha-Council Bluffs	804
Centennial Garden	Bakersfield	735
Stockton Arena	Stockton	650
World Arena	Colorado Springs	576
Wachovia Arena at Casey Place	Scranton-Wilkes-Barre	552
Germain Arena	Cape Coral-Fort Myers	514
American Bank Center	Corpus Christi	410
Verizon Wireless Arena	Manchester-Nashua	399
Reading Sovereign Center	Reading	392
Ford Park Arena	Beaumont-Port Arthur	383
Sovereign Bank Arena	Trenton	365
Cumberland County Crown Coliseum	Fayetteville	348
Resch Center	Green Bay	295
Average		**1,491**
Montgomery County Arena	Washington-Arlington-Alexandria	5,140

Source: US Census

The relationship between metropolitan population and multi-purpose arenas can be assessed by looking at the total number of seats in the arenas in a metropolitan area and the population per arena seat. Exhibit V-3 provides the number of arenas and the total seats in the metropolitan areas of the mid-sized arenas listed in Exhibit V-1. Arenas are listed in descending order of the population per arena seat.

Exhibit V-3: Arenas and metropolitan population per arena seat

Arena	Arenas in area	Total seats	Population/seat
Sears Center	8	91,600	103
Arena at Harbor Yard	1	10,000	90
Centennial Garden	1	10,000	74
Wachovia Arena at Casey Place	1	8,500	65
Paul Tsongas Arena	8	69,000	64
The Family Arena	3	44,100	63
Everett Events Center	4	56,500	56
Reading Sovereign Center	1	7,200	54
American Bank Center	1	10,500	39
World Arena	2	14,900	39
Verizon Wireless Arena	1	11,000	36
Stockton Arena	2	19,200	34
Cumberland County Crown Coliseum	1	10,900	32
Germain Arena	2	16,300	32
Desoto County Civic Center	3	47,700	26
Mid-American Center	3	37,000	22
Sovereign Bank Arena	2	17,400	21
Resch Center	2	15,400	19
Ford Park Arena	4	34,200	11
Average			**53**
Existing Washington-Baltimore arenas	10	101,100	78
Existing + Montgomery County Arena (10,000)	11	111,100	71

In identifying arenas in each metropolitan area, university and college arenas with a minimum seating capacity of 5,000 were included. For the Washington-Baltimore area, the four existing public arenas included in this calculation are the Verizon Center, the DC Armory, the Show Place Arena, and the 1st Mariner Arena. The Washington-Baltimore area has an exceptionally high number of collegiate arenas. The Comcast Center at the University of Maryland is by far the largest with a seating capacity of approximately 18,000, while the Patriot Center at George Mason University seats 10,000. Four other universities have arenas seating 5,000 to 6,500—American University, George Washington University, Towson University and the United States Naval Academy.

As Exhibit V-3 shows, the population per arena seat varies widely from 103 in the Chicago region where the Sears Centre is located to 11 in the Beaumont-Port Arthur area where Ford Park Arena is located. On average there are 53 people per arena seat. The existing arenas in the Washington-Baltimore region provide one arena seat per 78 people, a higher ratio than all but two of the regions listed in the exhibit. If a 10,000-seat arena in Montgomery County is assumed, the population per arena seat in the Washington-

Baltimore region decreases to 71, still well above the average and the fourth highest ratio for the listed arenas and metropolitan areas.[6]

Exhibit V-4: Events and attendance per year for selected mid-size multi-purpose arenas

Arena	Location	Events	Attendance
Everett Events Center	Everett, WA	135	464,000
Sovereign Bank Arena	Trenton, NJ	159	463,000
Sears Centre *	Hoffman Estates, IL	135	607,000
Lucas County arena *	Toledo, OH	129	532,000
Albuquerque arena *	Albuquerque, NM	130	686,000
The Family Arena	St Charles, MO	134	900,000
Paul Tsongas Arena	Lowell, MA	148	396,000
The Patriot Center **	Fairfax, VA	120	523,000
Average		**136**	**571,000**

*Projected figures.
**Events figure is average over life of facility.

As shown in Exhibit V-4, these select mid-sized facilities average 136 events per year and have an average annual attendance of 571,000. A substantial share of attendance at these facilities is derived from permanent tenants (i.e., minor league teams or occasionally university teams). Among those arenas for which data are available, tenant-based attendance accounts for 30 to 40 percent of attendance. The arenas listed in Exhibit V-4 each have at least one such tenant and many have as many as four.

Operating finances for arenas are substantially influenced by programming, the nature of the arena, and other factors. The price and mix of events will determine revenues related to tickets. Ticket prices can range from under $10 for consumer or trade shows to $50 or more for concert tickets. In an extreme case, a boxing match at the Patriot Center will offer seats costing as much as $500.

The availability of premium seating, concessions and parking arrangements can be significant factors in revenue generation. Naming rights are also a potentially lucrative option for ongoing financing. A review of arena names indicates that a significant share have been named after prominent corporations.

Findings from Comparable Facilities

The major findings from a review of comparable facilities are as follows.

- In the last decade, many communities have built mid-sized, multi-purpose arenas. Almost all have been built in metropolitan areas much smaller than the Washington, D.C. region;

[6] Seating capacity of 10,000 is the upper bound of the range of seating capacity that this analysis considers for an arena in Montgomery County. If maximum seating were lower than this, then population per seat in the Washington-Baltimore region with a Montgomery County arena would be marginally higher.

- Compared to the areas where these new mid-sized arenas have been built, the Washington, D.C. region is significantly underserved by multi-purpose indoor arenas;
- Compared to other major urban areas, the Washington, D.C. region is currently somewhat underserved by multi-purpose indoor arenas;
- Comparable arenas host about 135 events annually and have total attendance approaching 600,000;
- Operating finances for comparable arenas suggest typical annual revenue of $8 million to $10 million, operating expenses of $4 million to $5 million, and net income of $3 million to $5 million.

VI. User Interest and Event Demand

Projections

As demonstrated earlier, the foundation upon which indoor arenas build programming is comprised of tenant events. Tenants are typically sports teams—either collegiate or professional—that use these indoor arenas as their home fields. For mid-sized arenas like the one contemplated for Montgomery County, the presence of one or more minor league sports teams is common. Based on our interviews with minor league sports franchise owners, there will likely be at least two permanent tenants at a Montgomery County arena.

Exhibit VI-1 summarizes attendance data for selected hockey, football, and lacrosse leagues. The average attendance per event varies from league to league and from sport to sport. Minor league basketball has significantly lower attendance than hockey, football, or lacrosse. Attendance is also variable within leagues. For example, the NBA's Development League attendance varied from roughly 1,400 to 4,400 among the 12 league teams. Overall for these seven minor league sports teams, attendance averaged 4,252. For sports other than basketball, attendance averaged just below 5,000/game.

Exhibit VI-1: Typical attendance at minor league sports events

Sport	League	Average attendance/event
Basketball	CBA	2,426
Basketball	NBA-DL	2,527
Hockey	AHL	5,594
Hockey	CHL	4,484
Hockey	ECHL	3,904
Indoor football	af2	5,248
Indoor lacrosse	MISL	5,579
Average		**4,252**

Source: The respective leagues

Exhibit VI-2 estimates events programming at the Montgomery County arena and associated attendance. The total number of events (134) and their distribution across broad categories of event types are based on the experience of comparably sized facilities

across the country as well as those competing facilities in the Washington, D.C. region. Minor league sports attendance is based on the assumption that arena operators would screen prospective minor league sports tenants to promote greater attendance.

Exhibit VI-2: Estimated events programming and attendance

Type of event	No. of events	Attendance/event	Attendance
Minor league sports	50	5,000	250,000
Concerts	26	6,000	156,000
Family events	26	4,500	117,000
Trade/consumer shows	12	1,500	18,000
Other events	20	2,000	40,000
Total	**134**	**AVG = 4,336/event**	**581,000**

The programming listed in Exhibit VI-2 is restricted to ticketed events expected to generate significant revenue for the arena. Not included are community events that serve other needs. Community-based priorities include high school graduations, track competitions, speaker series and cultural/religious affairs. These events are likely to generate only minimal revenues for the facility, but may also have disproportionately positive quality of life impacts on the broader community.

Supporting Qualitative Information

Over the course of November and December 2006, Sage conducted interviews (roughly 40) with potential facility users ranging from minor league franchise owners to those that manage local track and field competitions. Some interviewees asked that their organization not be identified out of concern that their responses could easily be tied to them. Confidentiality regarding specific responses was guaranteed to all participants. Sage interviewed at least one representative from each of the following categories:

- Concert promoters;
- Minor league franchise owners;
- Montgomery College;
- Strathmore Hall;
- Maryland Stadium Authority;
- Montgomery County Public Schools;
- Potential private (arena) investors;
- Comcast Center;
- Show Place Arena;
- Patriot Center;
- Local chambers of commerce;
- Montgomery County Park and Planning Commission;
- Maryland Soccer Foundation;
- Maryland-Montgomery County Special Olympics;
- Montgomery County Department of Recreation;
- Maryland Department of Business and Economic Development;

- Montgomery County Road Runners Club;
- Montgomery County Conference & Visitors Bureau; and
- International Facilities Group.

Collectively, these interviews represent a rich set of information that helps to define the appropriate scale and amenities of the proposed arena. Interviews were conducted with a guarantee of confidentiality. What follows are the dimensions along which there was universal or near-universal agreement among interviewees.

- The arena should be able to accommodate between 5,000 and 10,000 people for a given event.

Few interviewees thought it important that the arena should approach a capacity beyond 9,000. Based on the characteristics of other comparable arenas nationally, the Montgomery County arena could be designed with 6,500-8,500 fixed seats and many hundreds more available through floor seating. Most interviewees were highly supportive of this set-up.

- The arena should offer maximum flexibility.

There was unanimous agreement that the arena should emphasize versatility over scale. Several government officials pointed out that the county would benefit tremendously from the ability to be opportunistic in attempting to attract events to Montgomery County. Other officials suggested that the county would benefit from the opportunity to generate economic activity during weekends, which are typically quiet in much of Montgomery County due to the lack of available family entertainment within the county and significant opportunities in Prince George's County and Washington, D.C. Several interviewees, collectively representing both the public and private sectors, also noted that it is important for a county as diverse as Montgomery County to offer affordable entertainment, which is what they presumed an arena within the county could help accomplish.

- Easy transportation access is critical and more important than other factors that typically help guide site decisions.

There was also unanimous agreement that the arena should offer as unfettered access as possible. Toward this end, approximately four in five interviewees who were able to opine with respect to location suggested that a Germantown site could offer just the kind of locational advantages required. Interviewees did not appear overly concerned that the arena be located within an existing retail/entertainment environment to generate synergistic forces. Rather, the focus is upon ease of access from all points within the county. There is a general feeling that the arena will not be successful if it becomes associated with heavy traffic congestion and scarce parking. Several interviewees also thought it very important that the location be amenable to potential users/visitors from Frederick County.

- The arena will enable more Montgomery County dollars to be spent within the county and will allow Montgomery County to attract more outside dollars.

A majority of interviewees expressed deep frustration at the fact that so many Montgomery County-oriented events are held beyond the county's boundaries, including graduations and sporting events featuring local participants. One Montgomery County Public Schools' official stated that the "prospect of having this [proposed] facility in the county is exciting", and no wonder. Many of the county's high schools hold their graduations at DAR Constitution Hall in the District of Columbia. It is estimated that this generates approximately $100,000 in revenue for Constitution Hall as well as parking and restaurant revenues for the District. All of these dollars could be retained within the county but for lack of a suitable facility. Another interviewee associated with track and field programs pointed out that competitions featuring local runners are often forced to Baltimore, Prince George's County or Hagerstown due to a lack of an in-county facility.

VII. Arena Finances

Finances for the proposed arena are based on comparable facilities and competitive facilities. Comparable facilities from across the nation provide a framework for understanding scale and programming while competitive local facilities provide information regarding the local market (e.g., pricing, number of events, etc.).

Operating Finances

Operating finances are built upon arena programming. For the proposed arena, facility operators/marketers would need to take advantage of those opportunities seeking a mid-sized arena. Exhibit VII-1 lists broad categories of events that could be programmed at a new Montgomery County arena. Based on interviews the study team safely assumed that there will be one or more minor league sports teams serving as arena tenants.

The frequency of and attendance at concerts, family events, trade/consumer shows, and other events is based on the experience of comparable facilities. Average prices for these events are based on a combination of prices at arenas in the Washington-Baltimore regional market and on comparable facilities elsewhere, as well as interviews with concert promoters and other potential facility users. Prices include various fees and expenses that are embedded in ticket prices. Gross ticket receipts equal the total value of sales of tickets. It should be noted that most of the value of gross ticket receipts is paid to the teams, artists and companies that produce the events. A relatively minor amount of this gross is retained by the arena as residual revenue. While events are the basis of programming and arena revenue, operating finances are built around a myriad of other sources ranging from parking and concessions to ticket handling charges.

Exhibit VII-1: Events, attendance, and gross ticket receipts

Type of event	No. of events	Attendance	Average price	Gross
Minor league sports	50	250,000	$15	$3,750,000
Concerts	26	156,000	$45	$7,020,000
Family events	26	117,000	$25	$2,925,000
Trade/consumer shows	12	18,000	$10	$180,000
Other events	20	40,000	$20	$800,000
Total	**134**	**581,000**		**$14,675,000**

Source: Sage

One of the more distinctive revenue opportunities for indoor arenas is premium seating. This seating can take several forms of which the most common are luxury suites (i.e., seating set apart from general arena seating and usually connected to catering and other services) and club seats (i.e., reserved preferred seating with access to upgraded services). Premium seating generates significant revenue streams for indoor arenas.

Exhibit VII-2 summarizes the seating experience of 19 mid-sized facilities. On average, these facilities were in smaller metropolitan areas and had more seating capacity than is envisioned by this analysis for a Montgomery County arena. Nevertheless, the number and price of luxury suites and club seats did not particularly correlate to either the size of these areas' population or the seating capacity of these arenas. One of the key consumers of premium seating is the business community. For these metropolitan areas, the average number of businesses with 25 or more employees was almost 1,100 as compared to over 2,300 businesses with annual revenue of $5 million or more for Montgomery County and over 11,000 such businesses in the Washington area (see Exhibit III-10).

Exhibit VII-2: Premium seating at comparable facilities

Seating factors	Average Values
Metropolitan population	1,623,537
Seats in arena	12,526
Luxury suites	28
Price/suite	$39,874
Club seats	1,007
Price/seat	$1,140

Source: Facilities, Sage

Exhibit VII-3 provides estimated gross and net operating revenue for a hypothetical Montgomery County arena. As noted, indoor arenas depend on many sources of income, only a few of which are directly connected with ticket prices.

Based on the experience of comparable facilities, arenas receive a minor share—5 percent to 30 percent—of ticket prices, or a flat fee as a basic rent for the facility. This analysis assumes conservative (i.e. relatively low) rents of 5 percent for tenant minor league sports teams and 10 percent for other events. In addition to this rent, the analysis assumes an average facility fee of $1.00 per ticket, which is included in the cost of the

ticket.[7] Concession income assumes $5 per attendee in gross spending with the arena capturing a net of 40 percent. Novelties (e.g., apparel) spending is assumed to average $3 per attendee with an arena net of $0.20 per attendee. Parking revenue is estimated at $3 per ticket. Net revenue on parking is 80 percent. Ticket selling by third parties or by the arena box office is expected to include an average fee of $1 per ticket that is rebated to the arena. The arena is expected to charge teams and production companies for event related expenses (e.g., part-time personnel) estimated at $3 per ticket, including a 20 percent fee on top of actual expenses. The fees charged for advertising within the arena are estimated at $700,000 annually based on comparable facilities.

Exhibit VII-3: Estimated operating revenue based on analysis of comparable facilities

Source of revenue	Gross revenue (millions)	Net revenue (millions)
Events tickets/rent	$14.7	$1.3
Concessions	$2.9	$1.2
Novelties	$1.7	$0.1
Parking	-	$1.4
Ticket rebates/box office	-	$0.6
Event expenses	$1.7	$0.3
Advertising	$0.7	$0.7
Suites	$0.9	$0.4
Club seats	$0.6	$0.6
Naming rights	$1.0	$1.0
Total	**$24.3**	**$7.5**

Source: Sage

In addition to these various fees and charges, premium seating is a key source of income, also likely to apply to a Montgomery County arena. As indicated in Exhibit VII-2, premium seating is an important source of revenue for most arenas comparable to the proposed Montgomery County arena. Luxury suites that seat from 12 to 15 are typically leased at annual prices of $30,000 to $40,000 to local businesses for terms of several years while party suites are rented for individual events, typically at $2,000 to $3,000 per event. Club seats revenue is derived from licenses that reserve prime seats usually on an annual or multiyear basis at prices of $1,000 to $1,500.

Gross revenue in Exhibit VII-3 assumes 25 luxury suites at $35,000 annually and 500 club seats at $1,250. These estimates are well within the experience of comparable facilities and, in the case of club seats, are about half of the average number of club seats at mid-sized arenas. While there are specific expenses involved with luxury suites, all club seat revenue is considered net revenue.

Finally, naming rights can be a critical income source. The value of this revenue source varies and based on the experience of comparable facilities and the dense business presence of the Washington metropolitan area, the study team has estimated that naming rates will generate approximately $1 million per annum.

[7] The facility fee is typically a source of income for indoor arena financiers.

Based on this analysis, net annual revenue for a hypothetical arena in Montgomery County is estimated at $7.5 million. This is roughly in line with comparable arenas.

It should be carefully noted that total net revenue is dependent on various assumptions, particularly the mix of events scheduled at the arena. The mix can either increase or decrease net revenue. Opportunities to increase this estimated level of net revenue exist with premium seating. The supply of luxury amenities, particularly club seats, can be increased if demand is present. Party suites (i.e. luxury suites that can be rented for individual events) represent another option. Other premium seating amenities, for instance, catering to the suites, can also enhance revenue.

Operating expenses are estimated in Exhibit VII-4 based on the experience of comparable facilities. The total operating expense is estimated at $5.1 million. Over half of this total is attributable to permanent and part-time labor costs and utilities. The estimate assumes a significant annual contribution to capital reserves to accommodate inevitable refurbishing and other capital improvements. Operating expenses also assume a management fee for a private arena operator. Finally, operating expense calculations presume that the arena will pay property tax regardless of public or private ownership. This assumption is based on the principle that the primary use will be for private events and tenants, therefore triggering property tax liability.[8]

Exhibit VII-4: Operating expenses

Type of expense	Value (millions)
Salaries	$1.7
Utilities	$0.7
Repair & maintenance	$0.2
Materials & supplies	$0.2
Insurance	$0.2
G & A	$0.2
Management fee	$0.4
Part-time labor costs	$0.2
Property tax	$0.4
Other	$0.6
Capital reserve	$0.4
Total	**$5.1**

Source: Sage

Exhibit VII-5 summarizes operating revenue and expenses and estimates income available for private financing or debt service. The annual income of $2.4 million would be an important source of funds to finance the arena. Other funds that could be used to retire any public sources of financing are taxes attributable to the arena's operation,

[8] The listed property tax is based solely on the real property tax rate for Montgomery County (i.e. $0.624 per $100 of value) on an arena valued at $50 million. Many jurisdictions in the county have their own property taxes. Should an arena be located in one of these jurisdictions, property taxes paid by the arena would be increased. The county could choose to classify a publicly owned arena as exempt from property taxes as is true, for example, of the Baltimore Civic Arena, known as the 1st Mariner Arena.

discussed below under fiscal impact. In addition, the State of Maryland would be able to rely on the facility fee discussed above to finance construction costs.

Exhibit VII-5: Income before debt service

Revenue and expenses	Value (millions)
Operating revenue	$7.5
Operating expenses	$5.1
Income before private financing/debt service	$2.4

Source: Sage

VIII. Economic and Fiscal Impacts

Economic and fiscal impacts would be created both by the construction and operation of a Montgomery County arena. Construction impacts would be temporary effects lasting only as long as the construction period, while operational impacts are presumed to last as long as the arena remains functional.[9] However, until a building program has been established, construction impacts cannot be calculated.

The impacts presented below are total effects and include the impacts directly tied to operations as well as the indirect and induced impacts. Indirect impacts are those associated with the suppliers supporting operations, the suppliers' suppliers, and the whole supply chain linked to the proposed arena. Induced impacts are those linked to the consumer expenditures of the employees directly and indirectly affected by the arena.

Impacts are estimated for Montgomery County and the State of Maryland. In the case of the local share of income tax collected by Maryland, the estimates also include effects in counties other than Montgomery County.

Operations

Once the Montgomery County arena becomes operational, an ongoing set of impacts would be generated. These impacts are derived from spending that occurs in Montgomery County and Maryland as a consequence of arena operations. This spending, estimated at $12.8 million, is summarized in Exhibit VIII-1. In addition to the net arena revenue, this spending includes the revenues received by those selling concessions and novelties after subtracting the arena operator's share. Also included in this spending are the expenses associated with producing individual events and with luxury suites.

[9] In other words, into economic perpetuity.

Exhibit VIII-1: Spending in Montgomery County associated with arena operations

Source of spending	Spending (millions)
Net arena revenue	$7.5
Concession sellers' revenue	1.7
Novelties sellers' revenue	1.6
Event expenses	1.5
Suites expenses	0.5
Total	**$12.8**

Source: Sage

It should be noted that most of the value of ticket prices sold for arena events goes to the production companies that stage these events. In this analysis the value provided to production companies is estimated at $11.5 million. It is assumed that these production companies are based outside of Maryland and as a result this income is not added to estimated Montgomery County or Maryland impacts.

The economic impacts of operations in Montgomery County are summarized in Exhibit VIII-2. Montgomery County would be expected to enjoy 764 jobs with income of $6.6 million and county businesses would have sales of $19 million supported by the arena.

Exhibit VIII-2: Economic impacts of operations in Montgomery County (annual, ongoing effects)

Type of impact	Jobs (full- and part-time)	Income (millions)	Business sales/revenue (millions)
Direct	684	$4.6	$12.8
Indirect	52	$1.0	$2.6
Induced	28	$1.1	$3.2
Total	**764**	**$6.6**	**$18.7**

Source: Sage

It should be noted that the jobs estimate is a mix of full-time and part-time positions. These jobs are concentrated in the leisure industry where the average employee worked fewer than 26 hours a week in 2006. The remaining jobs are concentrated in the retail industry, which had an average workweek of just over 30 hours in 2006.[10] Other positions may only be available on a seasonal basis, for example, for the duration of a sports season. The employment impact in Montgomery County of 764 full-time and part-time jobs is the estimated equivalent of 509 full-time positions at 40 hours per week,

Statewide economic impacts, which encompass and include local impacts, are presented in Exhibit VIII-3. In summary those impacts are 831 full-time and part-time jobs (the equivalent of an estimated 560 full-time jobs) with income of $8.5 million and business sales of over $24 million.

[10] Hours per week from Bureau of Labor Statistics, Current Employment Statistics, www.bls.gov

Exhibit VIII-3: Economic impacts of operations in Maryland (annual, ongoing effects)

Type of impact	Jobs (full- and part-time)	Income (millions)	Business sales/revenue (millions)
Direct	701	$4.8	$13.7
Indirect	73	$1.5	$4.1
Induced	57	$2.2	$6.6
Total	831	$8.5	$24.4

Source: Sage

The government revenue that a Montgomery County arena would generate is dependent on the use of the facility and its assessed value. As noted above, the study team has presumed that private users would represent the major tenants and therefore that the entire property is subject to property taxes.

As shown in Exhibit VIII-4, the fiscal analysis indicates that the facility will generate $2.4 million in tax revenues/fees for governmental entities in Maryland once operational. Income tax revenue is generated from the income created by the arena, as shown above in the exhibits listing economic impacts in Montgomery County and Maryland. Sales tax revenue is based on consumer expenditures by those receiving income as a result of the arena's operations as well as on the sales of concessions at the arena itself. The amusement tax is a county tax placed on tickets and premium seating sold at the arena. Property tax is based on the estimated taxes paid on the value of the arena itself.

Exhibit VIII-4: Fiscal impacts of operations (annual, ongoing effects)

Location	Income tax (millions)	Sales tax (millions)	Amusement tax (millions)	Property tax (millions)	Total (millions)
Local governments	$0.19	n/a	$1.13	$0.31	$1.63
State of Maryland	$0.27	$0.47	n/a	$0.06	$0.80
Total (State + Local)	**$0.46**	**$0.47**	**$1.13**	**$0.37**	**$2.43**

Source: Sage

IX. Financial feasibility

The essential question of financial feasibility is whether available revenue is sufficient to cover the cost of ongoing operations and to retire any private or public debt associated with the arena's construction. As shown above, operational revenue amply covers operational expenses. This section addresses the issue of covering debt associated with arena construction.

Sources of Capital Financing

It is beyond the scope of this analysis to recommend any financing strategy for a Montgomery County arena. Rather the analysis estimates net revenue or income that might be available to support capital financing. Such financing is typically the result of extensive negotiations between or among public and private stakeholders. Such

negotiations also reflect the fact that any particular project would compete with other demands for financing, particularly public financing.

Nevertheless, based on past experience, there are various sources of financing that might be used for the construction of a Montgomery County arena. For instance, the Maryland Stadium Authority (MSA) finances projects similar to the proposed Montgomery County arena. MSA provided over half of the funding for the construction of the Montgomery County Conference Center with Montgomery County providing the remaining funding. The County represents another source of financing as do private sources. Regardless of the financing arrangement, this analysis assumes that any public debt would be covered by taxable 20-year bonds with an interest rate of 8 percent.

Sage assumes an average ticket price of slightly more than $25. This average is based on a mix of events ranging from consumer shows at $10 per ticket to concerts at $45 per ticket. It is also assumed that the facility fee would be a sliding fee, ranging from $0.50 to $1.50. The specific facility fee charged would depend upon the price of event tickets.

The significance of that sliding facility fee to revenue from ticket prices and the effect of an amusement tax at 7 percent can be seen in the following table, based on the assumptions used in this analysis. Combined, the facility fee and amusement tax equal 12 percent to 13 percent of the ticket price, well within the presumed willingness-to-pay tax/fee maximum of 15 percent.

Exhibit IX-1: Components of Montgomery County Arena ticket price

Components of ticket price	**Value**	**Share of total**	**Value**	**Share of total**
Price	$10.00	100%	$25.00	100%
Amusement tax	$0.65	7%	$1.64	7%
Facility fee	$0.50	5%	$1.50	6%
Balance	$8.45	88%	$21.46	87%

Sources of Funds for Capital Costs

There are three basic sources of funds for capital costs. The first is net arena income (income remaining after all operational expenses are met). As shown earlier, this annual income is estimated to be $2.4 million. The second source of funds is the tax revenue attributable to arena operations. Amusement tax revenue is estimated at $1.1 million. Sales and income tax revenue is estimated at $0.9 million with most of this accruing to the State. Property tax is estimated at $0.4 million. Finally, facility fee revenue is estimated at $0.6 million.

Exhibit IX-2 summarizes the income available to State/local governments and the arena owner for arena debt coverage. The exhibit below indicates that a total of $5.4 million is available for debt coverage.

Exhibit IX-2: Sources of funds for debt coverage

Location	Arena income (millions)	Income, sales tax (millions)	Amusement tax (millions)	Facility fee (millions)	Property tax (millions)	Total (millions)
Government		$0.9	$1.1	$0.6	$0.4	$3.0
Owner	$2.4					$2.4
Total	**$2.4**	**$0.9**	**$1.1**	**$0.6**[11]	**$0.4**	**$5.4**

Source: Sage

The final question of financial feasibility is how much bonding capacity would be supported by funds available for debt coverage. Both the County and State have access to the bond market as a source of capital finance. Private owners could also use other means to finance capital costs.

On an annual basis, a 20-year, 8-percent bond worth $1 million costs almost $102,000.[12] If all $5.4 million were allocated to financing bonds, a total of $53 million in bonds could be financed. If instead a decision was made to have a 20 percent margin, then $44.5 million in bonds could be financed. These results are summarized in Exhibit IX-3. The allocation of the value of bonds in this exhibit is based on the estimated allocation of income presented in Exhibit IX-2. As this allocation of income is estimated and subject to change, so also are the allocations of bond values in Exhibit IX-3.

Exhibit IX-3: Value of bonds supported by arena-generated funds

Agency	Coverage ratio of 1.2 (millions)	Coverage ratio of 1.0 (millions)
State of Maryland	$13.0	$15.5
Montgomery County	$12.5	$14.9
Owner[13]	$19.0	$22.6
Total	**$44.5**	**$53.0**

Source: Sage

As a final note regarding financial feasibility, the recent experience of 13 publicly financed indoor arenas is relevant. These midsized arenas averaged net annual revenue of $1.1 million and only one reported an operating deficit. These facilities tend to be in

[11] The facility fee commonly utilized by many jurisdictions to fund these projects typically range from $0.50 to $1.50 per ticket. This analysis assumes an average facility fee equaling $1.00 per ticket. This assumption is associated with total facility fee collections of roughly $600,000 per annum. The range of likely facility fee collections per year falls between $300,000 and $900,000.

[12] The Montgomery County Finance Department has advised that bonds for the proposed arena would be taxable and that the interest rate on such bonds would approximate the prime rate. The department indicated that the likely interest rate at this point in time would be 8 percent.

[13] The analysis recognizes the distinct possibility that the eventual owner may not use bonds to finance its share of capital expenses.

substantially smaller, lower income metropolitan areas than the Washington area. This supports the notion that a Montgomery County arena supported by a larger and more affluent market enjoys excellent financial feasibility prospects.[14] This analysis also suggests that the project offers sufficient appeal to attract private investors and/or operators.

X. Conclusion

The proposed Montgomery County arena is economically feasible. As with all projects or endeavors, feasibility does not guarantee success. Quality of location, facility design and management represent variables that the study team can simply not assess at this time. Nonetheless, based on our analysis of the economic underpinnings of the proposed arena, its likely operating revenues and costs, its competitive environment, and the performance of similarly situated arenas throughout the U.S., there is little doubt that the forces required for financially successful arena operations have been in place for quite some time. Importantly, of the 13 arenas analyzed in this report for purposes of comparison and identification of factors critical for success, twelve report operating profits. Montgomery County's arena should be no different.

From a public policy perspective, the lack of this type of amenity in Montgomery County has come to represent a major deficit in what is otherwise an amenity-rich environment. Given Montgomery County's superior demographics, the results of our interviews with potential facility users, and the location and orientation of other facilities in the Washington area, an arena strategically situated in Montgomery County would not only be financially feasible and support significant economic activity, but would quickly establish itself as a treasured community amenity.

[14] Conventions Sports & Leisure, "Feasibility Study Findings: Proposed Arena in Tucson," September 13, 2005.

Appendix: References and Data Sources

The popularity of indoor arenas can be measured in part by the availability of feasibility studies for these facilities that can be found online. The following reports were consulted in preparing this analysis.

- C.H. Johnson Consulting, Inc., "Arena Feasibility Analysis: Albuquerque, New Mexico," draft, prepared for Arena Management and Construction, August 11, 2004.
- Convention, Sports, & Leisure, "Feasibility Study Findings: Proposed Arena in Tucson," prepared for the City of Tucson, AZ, September 13, 2005.
- Convention, Sports, & Leisure, "Feasibility Study for the Proposed Sears Centre," prepared for the Village of Hoffman Estates, IL, February 16, 2005.
- Garfield Traub Development, "Lucas County Arena Action Plan," prepared for Lucas County, OH Commissioners, August 9, 2006.
- The Leib Group, LLC, "Owensboro, Kentucky Arena Project," undated.
- The Mayor's Large Venue Entertainment Centre Task Force, "Report to the Mayor," presented to the Mayor, Kingston, Ontario, March 21, 2004.
- Weinstein, Bernard L. and Clower, Terry L., "The Feasibility of an Exposition Center for Wise County, Texas," Center for Economic Development and Research, University of North Texas, April 2005.

Among other data sources used and consulted in the course of conducting this analysis are the following.

- "About BlackRock," www.blackrockcenter.org
- "About Strathmore," www.strathmore.org
- "Arena History," www.baltimorearena.com
- Billboard, AudArena Guide
- Citizen Advisory Panel on Merriweather Post Pavillion, "Final Report," undated.
- "Patriot Center Information," www.patriotcenter.com
- ReferenceUSA, business listings for various jurisdictions.
- Robert E. Parilla Performing Arts Center, www.montgomerycollege.edu
- Sears Centre Arena Information, www.hoffmanestates.com
- Shiels Obletz Johnson, Inc., "MARC: Memorial Athletic & Recreation Complex," April 22, 2002.
- "Stockton Arena sets new standard for mid-sized venues," Street & Smith's Sports Business Journal, December 12-18, 2005.
- "The Show Place Arena and Prince George's Equestrian Center: Upcoming Events," www.showplacearena.com
- US Census, "2000 American Community Survey Data Profile Highlights," various jurisdictions.
- US Census, "2005 American Community Survey Data Profile Highlights," various jurisdictions.

- US Census, "Interim Populations: Total Population for Regions, Divisions, and States: 2000 to 2030," April 21, 2005.
- US Census, "Large Metropolitan Statistical Areas—Population: 1990 to 2004," Statistical Abstract of the United States: 2006.
- "Verizon Center Facts," www.mcicenter.com
- Virginia Employment Commission, "Population projections by age," various jurisdictions, 2006.
- "Welcome to Rockville SportsPlex," www.rockvillesports.com

The economic impact analysis is based on data and software created by the Minnesota IMPLAN Group, Inc. IMPLAN is the industry standard for input-output based impact analysis.

Fiscal impacts are estimated using data from the Comptroller of Maryland on income, sales, and amusement tax rates and payments. These data are published online by the Comptroller's office.