



Memorandum

Date: July 24, 2007

To: Arlington County Economic Development

From: Economics Research Associates

RE: Crystal City Redevelopment –Retail Analysis **ERA No. 16733**

Economics Research Associates (ERA) was retained by the Arlington County Department of Economic Development to assess retail demand potentials for the Crystal City redevelopment plan. The following memorandum discusses general findings, existing supply characteristics, demand methodology, key assumptions, and program implications and is followed by an appendix of supporting tables.

Summary of Key Findings

ERA’s approach to estimating retail demand for Crystal City was conservative, assuming that this area will not emerge as a major retail center given the proximate competitive supply in Pentagon City, Potomac Yards, and other Arlington County submarkets. However, based on expected household, employment, and visitor growth, ERA estimates there will be demand for approximately 1.34 million square feet of retail by 2050. Given the existing character and supply in Crystal City, as well as the likely target consumer markets, ERA assumes that the majority of the retail mix will be convenience/services and food & beverage businesses with a small portion of demand for general merchandise, apparel, furnishings, and other (GAFO).

The following table highlights a range of potential square footage based on a 20 percent discount and premium on baseline sales productivity, which will be explained in the retail demand methodology section. Discounts and premiums will be contingent upon design and layout, merchandise mix, and real estate market conditions over the life of the redevelopment cycle.

Table 1: Estimated Retail Demand, 2050

	Low	Baseline	High
Incremental/1	267,925	491,080	825,812
Total/2	1,115,775	1,338,930	1,673,662

1/ Assumes there are 847,850 existing square feet of retail

2/ Sensitivity based on increasing/decreasing sales productivity by 20 percent

Source: Economics Research Associates, 2007

Existing Retail Supply

Crystal City has approximately 847,800 square feet of existing retail with an estimated 45 percent (approximately 381,500 square feet) of the supply located internally. Based on a survey conducted by Arlington County Economic Development, there are an estimated 233 retail businesses, the majority of which fall into the convenience/services and food and beverage categories. See the Appendix for more detailed tables of existing supply.

Table 2: Summary of Existing Crystal City Retail Supply by Category

GAFO	Convenience/Services	Food and Beverage	Other
Apparel	9 Business Services	12 Restaurant	76 Arts/Entertainment
Books & Music	3 Drugstore/Pharmacy	2	Automotive Dealers
Electronics	5 Dry Cleaners/Tailoring	14	Civic
Home & Garden	2 Financial Services/Real Estate	15	Education
Jewelry	7 Fitness	7	Insurance
Photography	1 Florist	2	Legal Services
	Food Store	8	Medical Services
	Gifts & Specialty	17	Miscellaneous
	Health & Beauty	21	
	Mailing, Shipping & Storage	1	
	Newsstand & Convenience	5	
	Variety	1	
Total	27	105	76
			25

Source: Arlington County Economic Development; Economics Research Associates, 2007

Retail Demand Methodology

Assessing retail demand provides some quantifiable evidence that the market can support additional retail in various general categories. ERA evaluated the retail demand of several categories of retail for three markets (residents, employees, and business visitors). These categories include GAFO, convenience and services (includes grocery), and food and beverage. The following pages describe ERA’s demand methodology, assumptions, and conclusions.

Customer Market Overview

The retail demand analysis begins with defining the resident, employee, and visitor customer markets for Crystal City and then assessing their defining characteristics. These characteristics include general lifestyle and retail expenditure patterns. Retail expenditures were then used to calculate an existing and future demand of retail square footage which ERA compared with estimated existing square footage of retail. Table 3 on the following page highlights projections of each of the three defined customer markets.



Table 3: Customer Market Overview Projections

Market Description	2007 (Existing)	2008-2010	2011-2015	2016-2020	2021-2030	2031-2040	2041-2050
Households	6,506	8,269	9,520	11,228	13,400	15,458	17,310
Employees	31,486	33,725	26,723	28,371	34,832	42,251	49,671
Business Visitors	1,197,460	1,240,096	1,314,556	1,393,486	1,565,850	1,759,534	1,977,176
All Markets	1,235,451	1,282,090	1,350,798	1,433,086	1,614,083	1,817,244	2,044,156

Source: Arlington County Economic Development; Economics Research Associates, 2007

Resident Market

ERA utilized the residential demand projections as provided by Arlington Economic Development until 2050 and assumed that each residential unit averages 1,000 square feet with an efficiency factor of 86 percent. Average household size was estimated at 1.56 persons. ERA assumed that the current demographic profile, median household incomes, and consumer expenditures will remain the same.

Table 4: Household and Population Projections

Demand (GSF)	Existing	2008-10	2011-15	2016-20	2021-30	2031-40	2041-50
Residential	7,564,607	9,614,720	11,069,933	13,056,110	15,581,806	17,974,571	20,128,060
Households	6,506	8,269	9,520	11,228	13,400	15,458	17,310
Population	10,149	12,899	14,851	17,516	20,905	24,115	27,004
Residential Inputs							
Efficiency	86%						
Avg SF	1,000						
HH Size	1.56						

Source: Arlington Economic Development; Economic Research Associates, 2007

Employee Market

Similar to the residential demand projections, ERA used the provided office demand projections to determine the potential employee market. ERA assumed an efficiency factor of 90 percent and an average of 250 square feet per employee. Approximately 12 percent of all Crystal City employees reside in Arlington County. Because Crystal City only makes up approximately five percent of all county households, ERA assumed the effect of households that also work in the area was minimal.

Table 5: Employment Projections

Demand (GSF)	Existing	2008-10	2011-15	2016-20	2021-30	2031-40	2041-50
Office	8,746,141	9,368,138	7,422,975	7,880,949	9,675,637	11,736,521	13,797,406
Employees	31,486	33,725	26,723	28,371	34,832	42,251	49,671
Office Inputs							
Efficiency	90%						
SF/Employee	250						

Source: Arlington Economic Development; Economics Research Associates, 2007

Visitor Market

The business visitor market, which includes corporate, meeting/convention, and government was calculated by multiplying the total number of hotel rooms by the estimated occupancy rate by the projected number of business visitors. An estimated 81 percent of all Crystal City hotel visitors are business travelers based on a survey commissioned by Arlington Economic Development. ERA assumed 1.2 persons per hotel room and future growth was based on historical Arlington County visitor growth since 2001.

Table 6: Crystal City Visitor Market Overview, 2005

	2005
Hotel Rooms 1/	4,654
Annual Hotel Rooms	1,698,710
Occupancy Rate 2/	71%
Avg Visitors per Room 3/	1.2
Annual Occupancy	1,447,301
Corporate Business Visitors	32%
Meeting/Convention Visitors	29%
Government Business Visitors	19%
Total Business Visitors	81%
Annual Business Visitors 4/	1,169,853

1/ Crystal City BID

2/ Arlington Economic Development for Crystal City

3/ Estimate of average number of visitors per room

4/ Growth rate based on CAGR of Arlington Cty visitor growth (2001 - 2006)

Source: Crystal City BID, Arlington Economic Development

Inflow

ERA assumed an inflow factor of 10 percent to account for additional potential market segments such as non-business hotel guests, daytime meeting attendees, and residents of a larger trade area.

Consumer Expenditures and Supportable Square Footage

ERA collected consumer expenditures for the three market groups (households, employees, and business visitors), applied capture rates to these figures, and analyzed the potential consumer expenditures against the potential sales per square foot. This analysis generates a supportable square foot figure, which is an estimate. ERA determined that Crystal City could support approximately 491,000 additional square feet and a total of 1.34 million square feet by 2050. The following text describes first consumer expenditures and then supportable square footage.



Consumer Expenditures

Table 7 documents the expenditures for all market groups through 2050. ERA assessed expenditures in the following categories GAFO (general, apparel, furnishings and other), convenience and services, and food and beverage away from home. The household expenditures are generated by ESRI Business Analyst based on existing consumer expenditure data from the US Bureau of Labor and Statistics. These figures do not represent potential dollars spent in Crystal City, but rather the total dollars spent by households in the market anywhere.

Employee expenditures come from the International Council of Shopping Centers research regarding downtown employee spending patterns. Employee spending is specific to the bounds of and employees within Crystal City; therefore the figures represent solely Crystal City expenditures. Crystal City business visitor expenditures are based on a survey commissioned by Arlington County Economic Development. These figures do not represent potential dollars spent in Crystal City, but rather the total dollars spent by business visitors in the market anywhere.

Table 7: Annual Consumer Expenditures - Crystal City, 2008-2050

Retail Categories By Market Segment	2008-2010	2011-2015	2016-2020	2021-2030	2031-2040	2041-2050
Households						
GAFO	\$ 48,212,675	\$ 57,000,106	\$ 67,389,168	\$ 94,193,071	\$ 131,658,171	\$ 184,024,938
Convenience and Services	\$ 19,850,383	\$ 23,468,392	\$ 27,745,832	\$ 38,781,680	\$ 54,207,014	\$ 75,767,742
Food and Beverage Away From Home	\$ 31,609,372	\$ 37,370,620	\$ 44,181,935	\$ 61,755,209	\$ 86,318,217	\$ 120,651,110
Subtotal	\$ 99,672,431	\$ 117,839,118	\$ 139,316,936	\$ 194,729,960	\$ 272,183,402	\$ 380,443,790
Employees						
GAFO/Convenience and Services	\$ 35,684,427	\$ 28,275,054	\$ 30,019,536	\$ 36,855,730	\$ 44,705,899	\$ 52,556,072
GAFO	\$ 8,921,107	\$ 7,068,764	\$ 7,504,884	\$ 9,213,933	\$ 11,176,475	\$ 13,139,018
Convenience and Services	\$ 26,763,321	\$ 21,206,291	\$ 22,514,652	\$ 27,641,798	\$ 33,529,424	\$ 39,417,054
Food and Beverage Away From Home	\$ 54,773,565	\$ 43,400,600	\$ 46,078,279	\$ 56,571,448	\$ 68,621,011	\$ 80,670,579
Subtotal	\$ 90,457,993	\$ 71,675,654	\$ 76,097,814	\$ 93,427,178	\$ 113,326,910	\$ 133,226,651
Business Visitors						
GAFO/Convenience and Services	\$ 152,333,346	\$ 161,479,999	\$ 171,175,850	\$ 192,349,032	\$ 216,141,180	\$ 242,876,240
GAFO	\$ 30,466,669	\$ 32,296,000	\$ 34,235,170	\$ 38,469,806	\$ 43,228,236	\$ 48,575,248
Convenience and Services	\$ 121,866,677	\$ 129,183,999	\$ 136,940,680	\$ 153,879,226	\$ 172,912,944	\$ 194,300,992
Food and Beverage Away From Home	\$ 85,157,366	\$ 90,270,527	\$ 95,690,700	\$ 107,526,930	\$ 120,827,213	\$ 135,772,642
Subtotal	\$ 237,490,712	\$ 251,750,525	\$ 266,866,550	\$ 299,875,962	\$ 336,968,393	\$ 378,648,882
All Markets						
GAFO/Convenience and Services	\$ 236,230,449	\$ 246,755,159	\$ 268,584,554	\$ 323,397,834	\$ 392,505,251	\$ 479,457,250
GAFO	\$ 87,600,451	\$ 96,364,869	\$ 109,129,222	\$ 141,876,810	\$ 186,062,882	\$ 245,739,204
Convenience and Services	\$ 168,480,380	\$ 173,858,681	\$ 187,201,164	\$ 220,302,704	\$ 260,649,382	\$ 309,485,788
Food and Beverage Away From Home	\$ 171,540,304	\$ 171,041,746	\$ 185,950,914	\$ 225,853,587	\$ 275,766,440	\$ 337,094,331
TOTAL	\$ 427,621,136	\$ 441,265,297	\$ 482,281,300	\$ 588,033,101	\$ 722,478,704	\$ 892,319,323

Source: ESRI Business Analyst, ICSC Office Worker Retail Spending Patterns, Arlington County, Economics Research Associates, 2007

The next step of the retail market demand analysis is to apply a “capture” or “market penetration” rate of total retail sales achievable in Crystal City. For example, the capture rate shown below of 75 percent, assumes that \$75 of every \$100 spent by market residents could be spent at stores in Crystal City. The differences in capture rates are subject to several types of variables; these variables include but are not limited to: (1) proximity of market to Crystal City (2) type of retail (3) market characteristics and typical expenditure patterns (4) existing retail supply and (5) specificity of expenditure data. ERA assumes

Crystal City will capture 100 percent of employee expenditures, because original expenditure figures are for Crystal City activity only. Dramatic changes in the market, such as additional competition or a change in the quality of competitive offerings could also change the capture rates. For the purposes of this analysis, the capture rates are kept constant through 2050. ERA also accounted for potential spending in Crystal City by consumers outside of the three defined market groups, such as day-trip business visitors. This is accomplished by applying an inflow percentage to captured spending in Crystal City.

Table 8: Capture Rates

Market	GAFO	Convenience and Services	Food and Beverage Away From Home
Households	35%	80%	65%
Employees	100%	100%	100%
Business Visitors	25%	75%	75%
Inflow	10%	10%	10%

Note: Capture rates for employees are 100% because their estimated expenditures are based on current spending patterns in Crystal City only

Source: Economics Research Associates, 2007

ERA found that Crystal City could potentially capture a significant portion of household, employee, and business visitor expenditures. Dollars spent in Crystal City is expected to grow from approximately \$340 million between 2008-2010 to \$662 million between 2040-2050. Although captured expenditures grow consistently for the market as a whole, employee expenditures drop by approximately \$19 million after 2010 due to an expected decrease in office demand/space. Between 2021-2030 employee expenditures will surpass the 2008-2010 figures as new supply comes online. Table 9 on the following page highlights potential captures consumer expenditures in Crystal City by consumer market over time.

Table 9: Captured Consumer Expenditures in Crystal City

By Market	2008-2010	2011-2015	2016-2020	2021-2030	2031-2040	2041-2050
Households						
GAFO	\$ 16,874,436	\$ 19,950,037	\$ 23,586,209	\$ 32,967,575	\$ 46,080,360	\$ 64,408,728
Convenience and Services	\$ 15,880,307	\$ 18,774,713	\$ 22,196,666	\$ 31,025,344	\$ 43,365,611	\$ 60,614,194
Food and Beverage Away From Home	\$ 20,546,092	\$ 24,290,903	\$ 28,718,258	\$ 40,140,886	\$ 56,106,841	\$ 78,423,221
Subtotal	\$ 53,300,835	\$ 63,015,653	\$ 74,501,133	\$ 104,133,805	\$ 145,552,812	\$ 203,446,143
Employees						
GAFO	\$ 8,921,107	\$ 7,068,764	\$ 7,504,884	\$ 9,213,933	\$ 11,176,475	\$ 13,139,018
Convenience and Services	\$ 26,763,321	\$ 21,206,291	\$ 22,514,652	\$ 27,641,798	\$ 33,529,424	\$ 39,417,054
Food and Beverage Away From Home	\$ 54,773,565	\$ 43,400,600	\$ 46,078,279	\$ 56,571,448	\$ 68,621,011	\$ 80,670,579
Subtotal	\$ 90,457,993	\$ 71,675,654	\$ 76,097,814	\$ 93,427,178	\$ 113,326,910	\$ 133,226,651
Business Visitors						
GAFO	\$ 7,616,461	\$ 8,073,781	\$ 8,558,560	\$ 9,617,191	\$ 10,806,766	\$ 12,143,482
Convenience and Services	\$ 91,397,527	\$ 96,885,370	\$ 102,702,723	\$ 115,406,288	\$ 129,681,189	\$ 145,721,790
Food and Beverage Away From Home	\$ 63,868,025	\$ 67,702,895	\$ 71,768,025	\$ 80,645,197	\$ 90,620,410	\$ 101,829,482
Subtotal	\$ 162,882,013	\$ 172,662,046	\$ 183,029,309	\$ 205,668,676	\$ 231,108,364	\$ 259,694,754
Inflow						
GAFO	\$ 3,675,320	\$ 3,860,184	\$ 4,361,462	\$ 5,697,857	\$ 7,486,996	\$ 9,866,035
Convenience and Services	\$ 14,744,527	\$ 15,055,301	\$ 16,215,544	\$ 19,148,077	\$ 22,723,385	\$ 27,032,834
Food and Beverage Away From Home	\$ 15,310,645	\$ 14,893,384	\$ 16,122,102	\$ 19,509,328	\$ 23,688,309	\$ 28,701,561
Subtotal	\$ 33,730,492	\$ 33,808,869	\$ 36,699,108	\$ 44,355,262	\$ 53,898,689	\$ 65,600,430
All Markets						
GAFO	\$ 37,087,324	\$ 38,952,766	\$ 44,011,115	\$ 57,496,555	\$ 75,550,597	\$ 99,557,264
Convenience and Services	\$ 148,785,681	\$ 151,921,675	\$ 163,629,585	\$ 193,221,507	\$ 229,299,609	\$ 272,785,871
Food and Beverage Away From Home	\$ 154,498,327	\$ 150,287,781	\$ 162,686,664	\$ 196,866,860	\$ 239,036,570	\$ 289,624,843
TOTAL	\$ 340,371,333	\$ 341,162,222	\$ 370,327,364	\$ 447,584,921	\$ 543,886,775	\$ 661,967,978

Source: ESRI Business Analyst, ICSC Office Worker Retail Spending Patterns, Arlington County, Economics Research Associates, 2007

Figures 1, 2, and 3 highlight the projected share by consumer segment for both existing expenditures and estimated expenditures in 2050. Household expenditures are projected to increase as more residential development is built out.

Figure 1: GAFO Expenditures by Consumer Market, 2010 and 2050

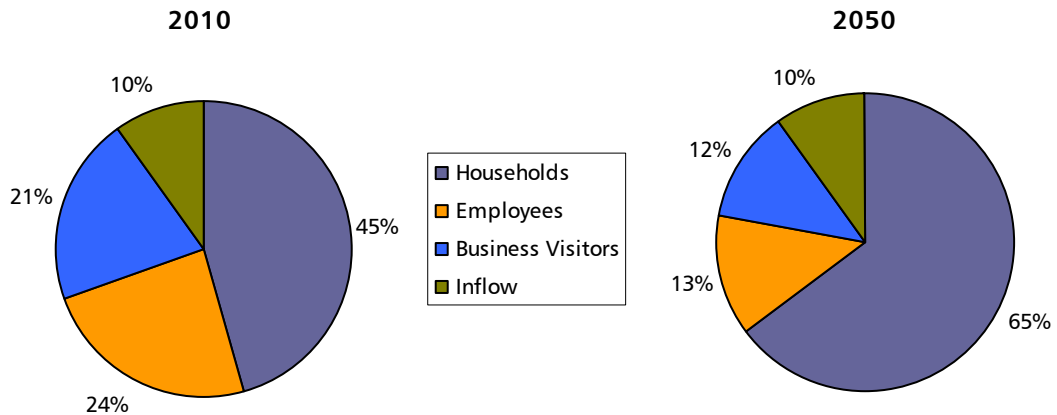


Figure 2: Consumer and Services Expenditures by Consumer Market, 2010 and 2050

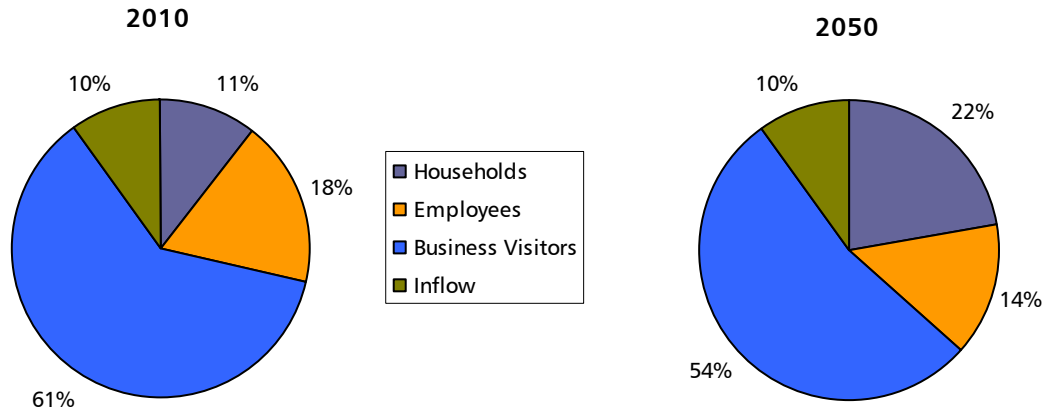
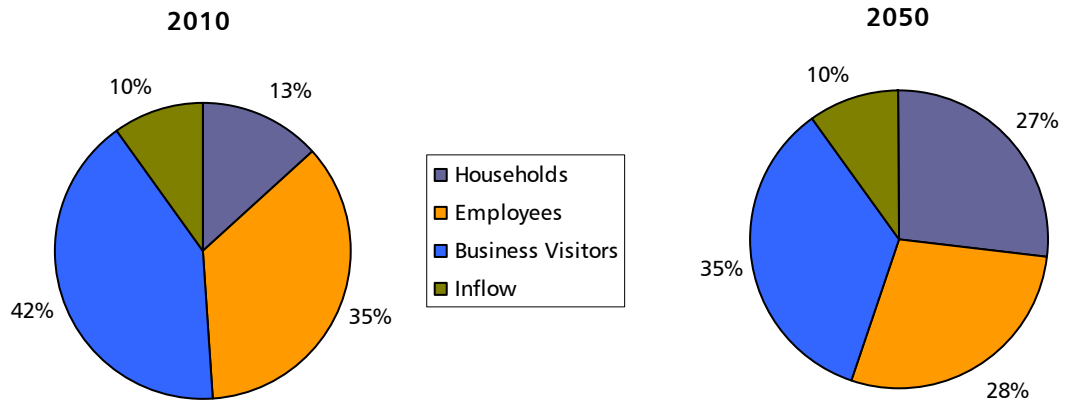


Figure 3: Food and Beverage Expenditures by Consumer Market, 2010 and 2050



Total Supportable Square Feet

In order to determine a range of supportable square feet, ERA analyzed captured customer expenditures in Crystal City against estimated sales per square foot. This is done by dividing the captured expenditures by the annual sales per square foot figure. ERA utilized sales figures from the Urban Land Institute’s Dollars and Cents industry resource and chose sales that perform in the top quartile estimating that the type and configuration of retail in Crystal City will be high-quality and competitive.

In the retail trade, sales and rent are typically discussed on an annual per square foot basis. Table 4 summarizes the estimates total supportable square feet by category and gross demand with consideration for existing supply.

Table 10: Estimated Supportable Square Feet

Retail Type	Sales per Square Foot	2008-2010	2011-2015	2016-2020	2021-2030	2031-2040	2041-2050
GAFO	\$ 420	88,303	92,745	104,788	136,897	179,882	237,041
Convenience and Services	\$ 435	342,036	349,245	376,160	444,187	527,126	627,094
Food and Beverage Away From Home	\$ 610	253,276	246,373	266,699	322,733	391,863	474,795
Subtotal		683,615	688,363	747,648	903,816	1,098,871	1,338,930
(Existing Retail) 1/		847,850					
Total Demand			(159,487)	(100,202)	55,966	251,021	491,080
Incremental Demand		(164,235)	4,748	(104,950)	160,917	90,104	400,976

1/ Arlington Economic Development, 2007

Source: ULI Dollars and Cents, Arlington Economic Development, Economics Research Associates, 2007

Convenience, consumer services and food and beverage-driven uses will be in high demand due to the strength of the employee and visitor markets and growing number of resident households in the Crystal City primary market. While there will be some demand for general and specialty retail stores in the GAFO category, the majority of this demand will likely be satisfied by existing retail supply in the Pentagon City Mall and other retail nearby. Detailed assumptions regarding total demand for various types of retail require detailed data of existing square footage for various types of retail.

Retail Program Implications

Successful retail development (or redevelopment) relies on a combination of factors: whether there is sufficient ongoing market support, how well the retail mix responds to the needs of multiple market segments, the competitive retail context, the ability to attract and sustain viable tenants, and whether the project is designed in a manner that accommodates the functional and operational requirements of retail, food & beverage and consumer service tenants. For pedestrian-oriented retail projects, provision of a well-designed, well-maintained pedestrian environment is as critical as the existence of available parking and easy access for markets located beyond walking distance. All of these factors will affect the future redevelopment of Crystal City, which has begun an evolutionary process from the older, auto-oriented environment (that offered little to attract on-site and off-site markets other than convenience) to a more pedestrian-driven retail environment exemplified by recent improvements and the ‘restaurant row along Crystal Drive. But just as the success factors are variable, so are the tactical elements affecting future change.

ERA’s experience suggests that the presence of market demand for retail does not necessarily indicate that demand can be captured. Several elements influence the success in and feasibility of capturing dollars; typically successful retail in urban environments has the following characteristics:

- Contiguous storefronts with distinct storefront design, limited or no gaps (parks, office buildings, parking lots, blank facades, etc.) between retail clusters, preferably on “double loaded” streets with activating retail uses on both sides

- Stores with individual street entrances at grade level, limited or no arcade or internally circulated space
- Balance of auto and pedestrian focused design (i.e. two-way, two lane streets and wide sidewalks); one urban design standard suggests that a 50:50 ratio of auto- and pedestrian-oriented spaces should exist between building faces is optimal
- Adequate and affordable parking for the market that does not obstruct or inhibit the retail and pedestrian environment
- Storefronts that are appropriately sized and have good quality design that suits retailers operational needs and is attractive to potential target customers
- A strong retail presence with a critical mass of tenants; a well-thought out tenant mix that is balanced and appeals to the targeted customer groups
- Primary customer markets (residents, employees, visitors, etc.) have well-defined and comfortable ways to access the retail.
- Aesthetically pleasing, carefully designed, and well-maintained public space

There are two primary factors influencing the future programming of retail development in Crystal City. The first is the shift of the nearby consumer market over time from a large proportion of employees and business visitors (constituting a large proportion of the current and short-term expenditure potential) to a more balanced mix of consumer markets based on continued household growth and greater numbers of nearby residents. The second is the presence of the existing internal retail system in Crystal City, which has established certain paths of travel and expenditure patterns for consumers. The internal retail adds another layer of existing supply that will, at least for some period of time, potentially be a competitor and reduce demand for at-grade, streetfront retail.

While ERA can suggest high-level parameters at this point in time, our recommendations are extremely subjective and dependent upon varying conditions. It is imperative to qualify these numbers with the understanding that they are abstract and subject to numerous complex variables. Currently, there are significant planning and development hurdles that must be addressed in order to facilitate a successful retail environment. A precedent for successful street-oriented retail exists on a small section of Crystal Drive; however the linkages to this retail node from more remotely located office, residential and hotel sites are weak. When and if the following occurs, Crystal City could be poised to capture the estimated retail demand:

- The physical and behavioral barrier (Jefferson Davis Highway) between the major hotels and potential retail clusters is addressed to minimize the pedestrian gap it represents today
- Links between sources (drivers) of demand must be strengthened (i.e. prohibitive roadway widths, unanimated streetscapes, discontinuity in activating uses, etc.)

- Existing buildings are reconfigured/reconstructed or new buildings are built with adequate consideration to servicing and deliveries, retail operations, and other design requirements for retail are incorporated into the site and building layouts. The relationship between stores and streets should be enhanced and extended beyond Crystal Drive and 23rd Street.
- Arlington County, property owners, and or developers are prepared to dedicate significant financial resources to encourage reconfiguration and/or reconditioning of existing property and buildings.
- Property owners are committed to make significant (and potentially costly) changes to their buildings
- Arlington County is prepared to create policies, resources, design/development standards or incentives to ensure future growth and development enables a successful retail environment
- Stronger connections are made between retail and transportation nodes including the metro stop and VRE

Experience suggests that the configuration of the retail space can greatly influence potential sales. Ideally, pedestrian-oriented storefronts should face the street/sidewalk, allowing customers to enter the store directly from an outdoor pedestrian realm. In an urban environment, consumer expenditures decrease as the distance between the potential customer and the merchandise increases. Based on total square footage and/or floorplate requirements, certain specific retail categories may be more suitable for one building or location versus another due to size and space availability/configuration.

Design Constraints

Retailers look for street-oriented retail space and require at least 25 feet of street frontage, and often prefer more. Sometimes, a retailer will opt for less street frontage in order to acquire an excellent location. Retailers prefer sufficient interior wall space to present and display merchandise, making all glass retail spaces more problematic for merchandise presentation. To provide the most efficient operations, retail spaces should ideally have access to a rear service corridor or service access area for deliveries and waste management. Depending upon the waste removal system provided, tenants can share common trash receptacles, as wet garbage (combined dry garbage and food/liquid waste) provides greater compaction than dry garbage alone, but also requires special mitigation measures to prevent vermin and odors. If conventional loading/servicing facilities are not available, retailers are forced to deal with the less preferable front-door loading and delivery system, less than ideal for retailers or consumers.

Restaurants have more significant servicing needs than non-food retailers. Restaurants must vent the kitchen according to code requirements and standards, which typically include a minimum cfm volume of exhaust and replacement air from within the cooking area. Attention to restaurant odors emanating from kitchen space is very important,

especially with regard to how close venting is located near residential windows and outdoor spaces. Managing and balancing airflow is a complex engineering issue, and can be especially costly if trying to add or modify black iron and other exhaust within existing/restricted spaces.

In addition, there should ideally be accommodations and space for daily deliveries through rear-access service entries, as well as wet and dry trash that are sufficiently drained and stored. Kitchen equipment, such as a large refrigerator and/or freezer box, requires sufficiently sized electrical systems and power. Fire suppression materials and design requirements will also add cost to the project. If located within a pedestrian-oriented area, Crystal City's restaurant locations should have available sidewalk dining and a logical flow between the kitchen and table area. Also, for alcohol control reasons, bar spaces should be segregated but not closed off from indoor and outdoor dining areas.

Location and Configuration

The internal retail system poses some location and design challenges in Crystal City. With limited retail demand, street-oriented and internally-oriented retail will compete for new supportable retail space. As mentioned previously, retail functions best when stores are clustered and contiguous, therefore the more internal retail the more compact the geographic radius of retail should be. Typically, in urban environments, convenience and service uses are found on secondary retail streets; Crystal City's internal corridors can function as the project's secondary streets. If the current internal retail is changed and/or scaled back, these uses can also be located on secondary exterior retail streets. Convenience and service uses locate in alternate retail corridors in other cities, such as the skyway system in Minneapolis, Minnesota.

Food and beverage uses, namely restaurants, function best when placed in highly-visible locations. A restaurant or a collection of restaurants can function as destinations and/or an anchor for Crystal City and are therefore deserving of highly visible locations; to an extent the new pedestrian-oriented retail along Crystal Drive and the adjoining public spaces has already begun this pattern. High-end or chef-driven restaurants are, in some cases, regional draws for an area. Restaurant and food uses are a common destination among all market groups and bring lots of foot traffic and activity to the streets. Increased foot traffic and general sidewalk activity creates a more livable and pedestrian friendly environment.

Overall, the majority of the retail should be located on the east side of the highway to meet the clustering and visibility requirements. ERA recommends placing some convenience-oriented retail on the west side to serve those residents, however all destination retail should be located on the east side.

While highly dependant upon the physical and economic planning parameters highlighted above, ERA recommends the following planning targets for internal vs. external retail configuration by retail category. This strategy would shift the current mix of 45 percent internal/55 percent external & shared to a more pedestrian-oriented, street-activated average ratio of approximately one-quarter internal, and three-fourths external & shared.

Table 11: Potential Planning Targets for Retail by Frontage Type (Internal v. External & Shared) at Buildout

Retail Type	Target	Internal	
GAFO	15% - 20%	36,000	- 47,000
Convenience and Services	25% - 30%	157,000	- 188,000
F&B Away From Home	20% - 25%	95,000	- 119,000
Subtotal	21% - 26%	288,000	- 354,000
	Target	External & Shared	
GAFO	80% - 85%	190,000	- 201,000
Convenience and Services	70% - 75%	439,000	- 470,000
F&B Away From Home	75% - 80%	356,000	- 380,000
	74% - 79%	985,000	- 1,051,000

Source: Economics Research Associates, 2007



Appendix

General & Limiting Conditions

Every reasonable effort has been made to ensure that the data contained in this study reflect the most accurate and timely information possible. These data are believed to be reliable. This study is based on estimates, assumptions and other information developed by Economics Research Associates from its independent research effort, general knowledge of the market and the industry, and consultations with the client and its representatives. No responsibility is assumed for inaccuracies in reporting by the client, its agent and representatives or any other data source used in preparing or presenting this study.

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This study is qualified in its entirety by, and should be considered in light of, these limitations, conditions and considerations.

Table 12: Estimated Existing Crystal City Retail SF by Frontage

Subarea	Retail GFA	Underground Frontage Only	Street Frontage Only	Both Frontage Types
East	715,153	381,525	278,088	55,540
%		53%	39%	8%
West	132,670	0	132,670	0
%		0%	100%	0%
TOTAL	847,823	381,525	410,758	55,540
%		45%	48%	7%

Source: Arlington Economic Development, ERA 2007

Table 13: Existing Crystal City Retailers

Trade Name	Full Address	Category
Crystal Boutique	1750 Crystal Dr	Apparel
Dress Barn, Dress Barn Woman	1750 Crystal Dr	Apparel
Kelly's Men's Wear	1750 Crystal Dr	Apparel
Shoes by Lara	1750 Crystal Dr	Apparel
Sun Tree Sunglasses	1750 Crystal Dr	Apparel
The Men's Shop	1750 Crystal Dr	Apparel
Washingtonian Shoes	1750 Crystal Dr	Apparel
Daniel's Boutique	1627 Crystal Square Arc	Apparel
Possessions	1624 Crystal Square Arc	Apparel
Stephanie's Astrology	566 23rd St S	Arts/Entertainment
Video Warehouse	3411 5th S S	Arts/Entertainment
Airport Motors, Inc.	554 23rd St S	Automotive Dealers & Services
First Choice Body Shop	525 31st St S	Automotive Dealers & Services
Enterprise Rent-A-Car	1225 S Clark St	Automotive Dealers & Services
Exxon Service Station	2300 Jefferson Davis Hwy	Automotive Dealers & Services
Alamo Car Rental	2780 Jefferson Davis Hwy	Automotive Dealers & Services
Thrifty Car Rental	2900 Jefferson Davis Hwy	Automotive Dealers & Services
Crystal City News	1750 Crystal Dr	Books & Music
Plaza News	1750 Crystal Dr	Books & Music
Olsson's Books, Records & Café	2200 Crystal Dr, G	Books & Music
Quality Patent Printing	701 23rd St S	Business Services
ARKTX	1601 Crystal Dr	Business Services
FedEx Kinko's	1750 Crystal Dr	Business Services
Gateway Mailboxes	1750 Crystal Dr	Business Services
HF Copies	1750 Crystal Dr	Business Services
Notary Public	1750 Crystal Dr	Business Services
The Commuter Store	1750 Crystal Dr	Business Services
Minuteman Press	2187 Crystal Plaza Arcade	Business Services
The Commuter Store	1615 Crystal Square Arcade , B	Business Services
Kirby Lithographic, Inc.	2900 S Eads St	Business Services
Aireco Supply, Inc.	3000 S Eads St	Business Services
KRUKO/JPK Enterprises, Inc.	2201 S Fern St	Business Services
Camp Optimism Foundation	703 23rd St S	Civic
Rite Aid Pharmacy	1671 Crystal Square Arcade	Drugstore/Pharmacy
CVS Pharmacy	2400 Jefferson Davis Hwy	Drugstore/Pharmacy
Alber's Cleaners & Shoe Repair	546 23rd St S	Dry Cleaners/Tailoring/Shoe Repair Services
Crystal Cleaners	562 23rd St S	Dry Cleaners/Tailoring/Shoe Repair Services
Fashion Center Alterations	574 23rd St S	Dry Cleaners/Tailoring/Shoe Repair Services
Aurora Hills Cleaners	774 23rd St S	Dry Cleaners/Tailoring/Shoe Repair Services
Park Cleaners	1601 Crystal Dr	Dry Cleaners/Tailoring/Shoe Repair Services
Buchanan Shoe Repair	1750 Crystal Dr	Dry Cleaners/Tailoring/Shoe Repair Services
Crystal Alterations	1750 Crystal Dr	Dry Cleaners/Tailoring/Shoe Repair Services
Crystal Cleaners	1750 Crystal Dr	Dry Cleaners/Tailoring/Shoe Repair Services
Crystal Custom Tailor	1750 Crystal Dr	Dry Cleaners/Tailoring/Shoe Repair Services
Crystal Gateway Cleaners	1750 Crystal Dr	Dry Cleaners/Tailoring/Shoe Repair Services
Crystal Valet Cleaners	1750 Crystal Dr	Dry Cleaners/Tailoring/Shoe Repair Services
Underground Cleaners	1750 Crystal Dr	Dry Cleaners/Tailoring/Shoe Repair Services
Underground Shine	1750 Crystal Dr	Dry Cleaners/Tailoring/Shoe Repair Services
Village Cobbler	1750 Crystal Dr	Dry Cleaners/Tailoring/Shoe Repair Services

Table 13 (con't)

Connecticut School of Broadcasting	1750 Crystal Dr	Education
University of Oklahoma	1750 Crystal Dr	Education
Cellular & Personal Safety	1750 Crystal Dr	Electronics
Cingular Wireless	1750 Crystal Dr	Electronics
Radio Shack	1750 Crystal Dr	Electronics
Simply Wireless	1750 Crystal Dr	Electronics
Simply Wireless	1750 Crystal Dr	Electronics
Wachovia Bank	251 18th St	Financial Services/Real Estate
Burke & Herbert Bank & Trust	500 23rd St S	Financial Services/Real Estate
PayDay 2 Go / Wrightway Financial Inc	570 23rd St S	Financial Services/Real Estate
Arlington Realty	764 23rd St S	Financial Services/Real Estate
American Airlines Federal Credit Union	1601 Crystal Dr	Financial Services/Real Estate
H & R Block	1601 Crystal Dr	Financial Services/Real Estate
First Command	1750 Crystal Dr	Financial Services/Real Estate
Navy Federal Credit Union	1750 Crystal Dr	Financial Services/Real Estate
Wachovia Bank	1750 Crystal Dr	Financial Services/Real Estate
Western Union	1750 Crystal Dr	Financial Services/Real Estate
Chevy Chase Bank	2100F Crystal Dr, F	Financial Services/Real Estate
BB&T	2113 Crystal Plaza Arcade	Financial Services/Real Estate
Chevy Chase Bank	1621 Crystal Square Arcade , B	Financial Services/Real Estate
BB&T	2221 S Eads St	Financial Services/Real Estate
Pappas Realty	2205 S Fern St	Financial Services/Real Estate
Dahn Yoga	1235 S Clark St	Fitness
Sport & Health Club	1235 S Clark Dr	Fitness
Crystal Gateway Sport & Health	1750 Crystal Dr	Fitness
Curves	1750 Crystal Dr	Fitness
L.A. Moves	1750 Crystal Dr	Fitness
Sport & Health Club	2231 Crystal Dr	Fitness
Curves	2345 Crystal Dr	Fitness
Flowers with Love	1601 Crystal Dr	Florist
Crystal City Florist	1750 Crystal Dr	Florist
Lenox Gourmet Market & Deli	401 12th St S	Food Store
Virginia ABC Store	320 23rd St S	Food Store
7-Eleven	426 23rd St S	Food Store
Charleston Market	1750 Crystal Dr	Food Store
H & J Enterprises / Market Basket	1669 Crystal Square Arcade	Food Store
7-Eleven	1500 S Fern St	Food Store
Jefferson Café	1421 Jefferson Davis Hwy, Ste 80	Food Store
Harris Teeter - COMING SOON		Food Store
A Touch of Art	1750 Crystal Dr	Gifts & Specialty
Bag-It	1750 Crystal Dr	Gifts & Specialty
Carroll Richard Silver & Gifts	1750 Crystal Dr	Gifts & Specialty
From the Heart Gift Baskets	1750 Crystal Dr	Gifts & Specialty
Garden Fantasy	1750 Crystal Dr	Gifts & Specialty
Golden Horn Gifts	1750 Crystal Dr	Gifts & Specialty
InkTec USA	1750 Crystal Dr	Gifts & Specialty
Lulu's Hallmark, Gifts and Souvenirs	1750 Crystal Dr	Gifts & Specialty
Mad About Bears	1750 Crystal Dr	Gifts & Specialty
Off the Wall Cards & Gifts	1750 Crystal Dr	Gifts & Specialty
Puppet Heaven	1750 Crystal Dr	Gifts & Specialty
Ship's Hatch	1750 Crystal Dr	Gifts & Specialty
Signature Leather & Travelware	1750 Crystal Dr	Gifts & Specialty
Sleeping Beauty	1750 Crystal Dr	Gifts & Specialty
The Engraving Shop	1750 Crystal Dr	Gifts & Specialty
GNC	1750 Crystal Dr	Gifts & Specialty
Elegant Expressions	1625 Crystal Square Arc	Gifts & Specialty

Table 13 (con't)

Lenox Nails	401 12th St S	Health & Beauty
Crystal Beauty	320 23rd St S	Health & Beauty
JSSA for Hair	542 23rd St S	Health & Beauty
Dazzle Salon	546 23rd St S	Health & Beauty
Keith Harley Salon and Hair & Scalp Cline	560 23rd St S	Health & Beauty
California Nails	778 23rd St S	Health & Beauty
Cosmopolitan Crystal	1235 S Clark St	Health & Beauty
Crystal Hair Fashions	1601 Crystal Dr	Health & Beauty
Avon Beauty Center	1750 Crystal Dr	Health & Beauty
Avon Beauty Center	1750 Crystal Dr	Health & Beauty
Beauty Encounters	1750 Crystal Dr	Health & Beauty
Body Rays Tanning Salon and Massage	1750 Crystal Dr	Health & Beauty
Crystal Hair Fashions	1750 Crystal Dr	Health & Beauty
Dante's Barber	1750 Crystal Dr	Health & Beauty
Hair Cuttery	1750 Crystal Dr	Health & Beauty
Hair Tech	1750 Crystal Dr	Health & Beauty
Image Hairstylist	1750 Crystal Dr	Health & Beauty
La-Or Nail & Skin Care	1750 Crystal Dr	Health & Beauty
Over the Rainbow Nail & Skin Care	1750 Crystal Dr	Health & Beauty
Trendy Nail Salon	1750 Crystal Dr	Health & Beauty
Nahid Spa	2200 Crystal Dr	Health & Beauty
Crystal Framing	2100 T17 Crystal Dr, T-17D	Home & Garden
Crystal City Hardware	1612 Crystal Square Arcade	Home & Garden
Allstate Insurance Co.	745 23rd St S	Insurance
Amon Jewelry	1750 Crystal Dr	Jewelry
Crystal City Watchmaker	1750 Crystal Dr	Jewelry
Gina's Fine Jewelry & Gifts	1750 Crystal Dr	Jewelry
Khoury Bros. Fine Jewelers	1750 Crystal Dr	Jewelry
L.A. Jewels	1750 Crystal Dr	Jewelry
Réal Jewelers	1750 Crystal Dr	Jewelry
Richard Carroll Jewelers	1750 Crystal Dr	Jewelry
J.F. Brown & Associates, Inc.	775 23rd St S	Legal Services
US Postal Service	1750 Crystal Dr	Mailing, Shipping & Storage
William A. Goff, DDS	1601 Crystal Dr	Medical Services
Alfred J. Galini, OD	1750 Crystal Dr	Medical Services
Crystal City Chiropractic	1750 Crystal Dr	Medical Services
Dawne Carroll, MD	1750 Crystal Dr	Medical Services
Denis Peper, DDS	1750 Crystal Dr	Medical Services
Flavio W. Nasr, DDS	1750 Crystal Dr	Medical Services
Harvey Oaklander, Ph.D.	1750 Crystal Dr	Medical Services
Jeff Chuh, OD	1750 Crystal Dr	Medical Services
Northern Virginia Doctors of Optometry	1750 Crystal Dr	Medical Services
Richard D. Gruntz, DDS	1750 Crystal Dr	Medical Services
Theodora Vroustouris, OD	1750 Crystal Dr	Medical Services
Crystal Forum	1750 Crystal Dr	Miscellaneous

Table 113 (con't)

Crystal Park Sundries	1601 Crystal Dr	Newsstand & Convenience
Crystal Mall Convenience	1750 Crystal Dr	Newsstand & Convenience
Gateway Sundries	1750 Crystal Dr	Newsstand & Convenience
Kim's Lobby Shop	1750 Crystal Dr	Newsstand & Convenience
Plaza Newsstand III	2733 Crystal Dr, Ste 103	Newsstand & Convenience
Metro Camera	1750 Crystal Dr	Photography
Athena Pallas	556 22nd St S	Restaurant
Charlie Chiang's	320 23rd St S	Restaurant
Chili's Grill & Bar	320 23rd St S	Restaurant
Mackey's Public House	320 23rd St S	Restaurant
Matsutake Hibachi Steak & Sushi	320 23rd St S	Restaurant
Young Chow Restaurant	420 23rd St S	Restaurant
Crystal City Restaurant	422 23rd St S	Restaurant
Café Pizzaiolo	507 23rd St S	Restaurant
Bistro Bulgari	509 23rd St S	Restaurant
Sombrero Restaurant	513 23rd St S	Restaurant
Cantina Mexicana	515 23rd St S	Restaurant
Café Italia	519 23rd St S	Restaurant
Top Thai	523 23rd St S	Restaurant
Subway	525 23rd St S	Restaurant
The Restaurant Portofino	526 23rd St S	Restaurant
Crystal City Sports Pub	529 23rd St S	Restaurant
Deluxe Diner	539 23rd St S	Restaurant
Habar Mesob Eithiopian Restaurant	542 23rd St S	Restaurant
Enjera Eritrean Restaurant	551 23rd St S	Restaurant
Bonsai Grill	553 23rd St S	Restaurant
Freddie's	555 23rd St S	Restaurant
Tutto Italiano	558 23rd St S	Restaurant
Urban Thai	561 23rd St S	Restaurant
Stars and Stripes Seafood	567 23rd St S	Restaurant
Anna's Gateway Deli	1225 S Clark St	Restaurant
Dickie's Frozen Custard	1235 S Clark St	Restaurant
Green Leaf Café	1235 S Clark St, Ste 100A	Restaurant
Hamburger Hamlet	1601 Crystal Dr	Restaurant
Quizno's	1601 Crystal Dr	Restaurant
Au Bon Pain	1750 Crystal Dr	Restaurant
Auntie Anne's Pretzels	1750 Crystal Dr	Restaurant
Burger King Express	1750 Crystal Dr	Restaurant
Café Fresca Express	1750 Crystal Dr	Restaurant
Coffee Company	1750 Crystal Dr	Restaurant
Cold Stone Creamery	1750 Crystal Dr	Restaurant
Deli Works	1750 Crystal Dr	Restaurant
Dickie's Frozen Custard	1750 Crystal Dr	Restaurant
Dunkin Donuts	1750 Crystal Dr	Restaurant
King Street Blues	1750 Crystal Dr	Restaurant
Larry's Cookies	1750 Crystal Dr	Restaurant
Morton's The Steakhouse	1750 Crystal Dr	Restaurant
Philadelphia Mike's	1750 Crystal Dr	Restaurant

Table 13 (con't)

Quizno's	1750 Crystal Dr	Restaurant
San Antonio Bar & Grill	1750 Crystal Dr	Restaurant
Sbarro	1750 Crystal Dr	Restaurant
Snoz-A-Shaken	1750 Crystal Dr	Restaurant
Sushi Garden	1750 Crystal Dr	Restaurant
Taco Bell Express	1750 Crystal Dr	Restaurant
Tokyo Café	1750 Crystal Dr	Restaurant
Bailey's Pub & Grille	2010 Crystal Dr, A	Restaurant
McCormick & Schmick's Seafood Restaurant	2010 Crystal Dr	Restaurant
Caribou Coffee	2100 Crystal Dr	Restaurant
McDonald's	2155 Crystal Dr	Restaurant
Corner Bakery Café	2200 Crystal Dr, E	Restaurant
Neramitra Thai	2200 Crystal Dr	Restaurant
Ted's Montana Grill	2200 Crystal Dr, A	Restaurant
Chipotle	2231 Crystal Dr	Restaurant
Ruth's Cris Steak House	2231 Crystal Dr	Restaurant
Bebo Trattoria	2250 Crystal Dr, B	Restaurant
Jaleo Spanish Tapas & Bar	2250 Crystal Dr, A	Restaurant
Frank & Stein	2345 Crystal Dr	Restaurant
Starbucks Coffee	1480 Crystal Dr	Restaurant
McDonald's	2155 Crystal Dr	Restaurant
Starbucks Coffee	2231 Crystal Dr	Restaurant
Subway	2154 Crystal Plaza Arcade	Restaurant
Plaza Gourmet	2173 Crystal Plaza Arcade	Restaurant
Market Basket	1669 Crystal Square Arc	Restaurant
Potbelly Sandwich Works	1615 Crystal Square Arcade	Restaurant
Starbucks Coffee	1649 Crystal Square Arcade	Restaurant
Smoothie King	1681 Crystal Square Arcade	Restaurant
Pollo Imperial Restaurant	2800 S Eads St	Restaurant
Nell's Carryout	1199 S Fern St	Restaurant
Legal Sea Foods	2301 Jeff Davis Hwy	Restaurant
Jefferson Café	1421 Jefferson Davis Hwy	Restaurant
Starbucks Coffee	1700 Jefferson Davis Hwy	Restaurant
Park Ga	2111 Jefferson Davis Hwy	Restaurant
The Dollar Shop	1678 Crystal Dr	Variety



Table 14: Customer Market Summary

Market Description	2007 (Existing)	2008-2010	2011-2015	2016-2020	2021-2030	2031-2040	2041-2050
Households	6,506	8,269	9,520	11,228	13,400	15,458	17,310
Employees	31,486	33,725	26,723	28,371	34,832	42,251	49,671
Business Visitors	1,197,460	1,240,096	1,314,556	1,393,486	1,565,850	1,759,534	1,977,176
All Markets	1,235,451	1,282,090	1,350,798	1,433,086	1,614,083	1,817,244	2,044,156

Source: Arlington County Economic Development; Economics Research Associates, 2007



Table 15: Business Visitor Projections

	2005	2006	2007	2008-2010	2011-2015	2016-2020	2021-2030	2031-2040	2041-2050
Hotel Rooms 1/	4,654								
Annual Hotel Rooms	1,698,710								
Occupancy Rate 2/	71%								
Avg Visitors per Room 3/	1.2								
Annual Occupancy	1,447,301								
Corporate Business Visitors	32%								
Meeting/Convention Visitors	29%								
Government Business Visitors	19%								
Total Business Visitors	81%								
Annual Business Visitors 4/	1,169,853	1,183,576	1,197,460	1,240,096	1,314,556	1,393,486	1,565,850	1,759,534	1,977,176

1/ Crystal City BID

2/ Arlington Economic Development for Crystal City

3/ Estimate of average number of visitors per room

4/ Growth rate based on CAGR of Arlington Cty visitor growth (2001 - 2006)

Source: Crystal City BID, Arlington Economic Development

Table 16: Arlington County Visitor Growth, 2001 – 2006

	2002	2003	2004	2005	2006	CAGR 2001 - 2006
Hotel Rooms 1/	10,000	10,000	10,000	10,000	10,000	
Annual Hotel Rooms	3,650,000	3,650,000	3,650,000	3,650,000	3,650,000	
Annual Occupancy Rate	67.7%	68.0%	73.1%	74.5%	72.8%	1%
Annual Occupancy	2,471,050	2,482,000	2,668,150	2,719,250	2,658,113	1%
Growth From Previous Year	-1.5%	0.4%	7.5%	1.9%	-2.2%	

1/ Arlington County Economic Development

Source: Arlington Economic Development; Economics Research Associates, 2007



Table 17: Projected Expenditures by Retail Categories, 2008 –2050

Retail Categories By Market Segment	2008-2010	2011-2015	2016-2020	2021-2030	2031-2040	2041-2050
Households						
GAFO	\$ 48,212,675	\$ 57,000,106	\$ 67,389,168	\$ 94,193,071	\$ 131,658,171	\$ 184,024,938
Convenience and Services	\$ 19,850,383	\$ 23,468,392	\$ 27,745,832	\$ 38,781,680	\$ 54,207,014	\$ 75,767,742
Food and Beverage Away From Home	\$ 31,609,372	\$ 37,370,620	\$ 44,181,935	\$ 61,755,209	\$ 86,318,217	\$ 120,651,110
Subtotal	\$ 99,672,431	\$ 117,839,118	\$ 139,316,936	\$ 194,729,960	\$ 272,183,402	\$ 380,443,790
Employees						
GAFO/Convenience and Services	\$ 35,684,427	\$ 28,275,054	\$ 30,019,536	\$ 36,855,730	\$ 44,705,899	\$ 52,556,072
GAFO	\$ 8,921,107	\$ 7,068,764	\$ 7,504,884	\$ 9,213,933	\$ 11,176,475	\$ 13,139,018
Convenience and Services	\$ 26,763,321	\$ 21,206,291	\$ 22,514,652	\$ 27,641,798	\$ 33,529,424	\$ 39,417,054
Food and Beverage Away From Home	\$ 54,773,565	\$ 43,400,600	\$ 46,078,279	\$ 56,571,448	\$ 68,621,011	\$ 80,670,579
Subtotal	\$ 90,457,993	\$ 71,675,654	\$ 76,097,814	\$ 93,427,178	\$ 113,326,910	\$ 133,226,651
Business Visitors						
GAFO/Convenience and Services	\$ 152,329,212	\$ 161,475,617	\$ 171,171,205	\$ 192,343,813	\$ 216,135,315	\$ 242,869,649
GAFO	\$ 30,465,842	\$ 32,295,123	\$ 34,234,241	\$ 38,468,763	\$ 43,227,063	\$ 48,573,930
Convenience and Services	\$ 121,863,370	\$ 129,180,493	\$ 136,936,964	\$ 153,875,050	\$ 172,908,252	\$ 194,295,720
Food and Beverage Away From Home	\$ 85,157,366	\$ 90,270,527	\$ 95,690,700	\$ 107,526,930	\$ 120,827,213	\$ 135,772,642
Subtotal	\$ 237,486,578	\$ 251,746,144	\$ 266,861,906	\$ 299,870,743	\$ 336,962,528	\$ 378,642,292
All Markets						
GAFO/Convenience and Services	\$ 236,226,315	\$ 246,750,777	\$ 268,579,909	\$ 323,392,614	\$ 392,499,385	\$ 479,450,659
GAFO	\$ 87,599,625	\$ 96,363,993	\$ 109,128,293	\$ 141,875,766	\$ 186,061,709	\$ 245,737,886
Convenience and Services	\$ 168,477,073	\$ 173,855,176	\$ 187,197,448	\$ 220,298,528	\$ 260,644,690	\$ 309,480,515
Food and Beverage Away From Home	\$ 171,540,304	\$ 171,041,746	\$ 185,950,914	\$ 225,853,587	\$ 275,766,440	\$ 337,094,331
TOTAL	\$ 427,617,002	\$ 441,260,915	\$ 482,276,655	\$ 588,027,881	\$ 722,472,839	\$ 892,312,733

Source: ESRI Business Analyst, ICSC Office Worker Retail Spending Patterns, Arlington County, Economics Research Associates, 2007



Table 18: GAFO Expenditures by Consumer Market

Market Group	2008-2010 Spending	% of Expenditures	2011-2015 Spending	% of Expenditures	2016-2020 Spending	% of Expenditures	2021-2030 Spending	% of Expenditures	2031-2040 Spending	% of Expenditures	2041-2050 Spending	% of Expenditures
Households	\$ 16,874,436	45%	\$ 19,950,037	51%	\$ 23,586,209	54%	\$ 32,967,575	57%	\$ 46,080,360	61%	\$ 64,408,728	65%
Employees	\$ 8,921,107	24%	\$ 7,068,764	18%	\$ 7,504,884	17%	\$ 9,213,933	16%	\$ 11,176,475	15%	\$ 13,139,018	13%
Business Visitors	\$ 7,616,461	21%	\$ 8,073,781	21%	\$ 8,558,560	19%	\$ 9,617,191	17%	\$ 10,806,766	14%	\$ 12,143,482	12%
Inflow	\$ 3,675,320	10%	\$ 3,860,184	10%	\$ 4,361,462	10%	\$ 5,697,857	10%	\$ 7,486,996	10%	\$ 9,866,035	10%
All Markets	\$ 37,087,324	100%	\$ 38,952,766	100%	\$ 44,011,115	100%	\$ 57,496,555	100%	\$ 75,550,597	100%	\$ 99,557,264	100%

Table 19: Consumer and Service Expenditures by Consumer Market

Market Group	2008-2010 Spending	% of Expenditures	2011-2015 Spending	% of Expenditures	2016-2020 Spending	% of Expenditures	2021-2030 Spending	% of Expenditures	2031-2040 Spending	% of Expenditures	2041-2050 Spending	% of Expenditures
Households	\$ 15,880,307	11%	\$ 18,774,713	12%	\$ 22,196,666	14%	\$ 31,025,344	16%	\$ 43,365,611	19%	\$ 60,614,194	22%
Employees	\$ 26,763,321	18%	\$ 21,206,291	14%	\$ 22,514,652	14%	\$ 27,641,798	14%	\$ 33,529,424	15%	\$ 39,417,054	14%
Business Visitors	\$ 91,397,527	61%	\$ 96,885,370	64%	\$ 102,702,723	63%	\$ 115,406,288	60%	\$ 129,681,189	57%	\$ 145,721,790	53%
Inflow	\$ 14,744,527	10%	\$ 15,055,301	10%	\$ 16,215,544	10%	\$ 19,148,077	10%	\$ 22,723,385	10%	\$ 27,032,834	10%
All Markets	\$ 148,785,681	100%	\$ 151,921,675	100%	\$ 163,629,585	100%	\$ 193,221,507	100%	\$ 229,299,609	100%	\$ 272,785,871	100%

Table 20: Food and Beverage Expenditures by Consumer Market

Market Group	2008-2010 Spending	% of Expenditures	2011-2015 Spending	% of Expenditures	2016-2020 Spending	% of Expenditures	2021-2030 Spending	% of Expenditures	2031-2040 Spending	% of Expenditures	2041-2050 Spending	% of Expenditures
Households	\$ 20,546,092	13%	\$ 24,290,903	16%	\$ 28,718,258	18%	\$ 40,140,886	20%	\$ 56,106,841	23%	\$ 78,423,221	27%
Employees	\$ 54,773,565	35%	\$ 43,400,600	29%	\$ 46,078,279	28%	\$ 56,571,448	29%	\$ 68,621,011	29%	\$ 80,670,579	28%
Business Visitors	\$ 63,868,025	41%	\$ 67,702,895	45%	\$ 71,768,025	44%	\$ 80,645,197	41%	\$ 90,620,410	38%	\$ 101,829,482	35%
Inflow	\$ 15,310,645	10%	\$ 14,893,384	10%	\$ 16,122,102	10%	\$ 19,509,328	10%	\$ 23,688,309	10%	\$ 28,701,561	10%
All Markets	\$ 154,498,327	100%	\$ 150,287,781	100%	\$ 162,686,664	100%	\$ 196,866,860	100%	\$ 239,036,570	100%	\$ 289,624,843	100%



Table 21: Potential Spending Captures in Crystal City, 2008 – 2050

By Market	2008-2010	2011-2015	2016-2020	2021-2030	2031-2040	2041-2050
Households						
GAFO	\$ 16,874,436	\$ 19,950,037	\$ 23,586,209	\$ 32,967,575	\$ 46,080,360	\$ 64,408,728
Convenience and Services	\$ 15,880,307	\$ 18,774,713	\$ 22,196,666	\$ 31,025,344	\$ 43,365,611	\$ 60,614,194
Food and Beverage Away From Home	\$ 20,546,092	\$ 24,290,903	\$ 28,718,258	\$ 40,140,886	\$ 56,106,841	\$ 78,423,221
Subtotal	\$ 53,300,835	\$ 63,015,653	\$ 74,501,133	\$ 104,133,805	\$ 145,552,812	\$ 203,446,143
Employees						
GAFO	\$ 8,921,107	\$ 7,068,764	\$ 7,504,884	\$ 9,213,933	\$ 11,176,475	\$ 13,139,018
Convenience and Services	\$ 26,763,321	\$ 21,206,291	\$ 22,514,652	\$ 27,641,798	\$ 33,529,424	\$ 39,417,054
Food and Beverage Away From Home	\$ 54,773,565	\$ 43,400,600	\$ 46,078,279	\$ 56,571,448	\$ 68,621,011	\$ 80,670,579
Subtotal	\$ 90,457,993	\$ 71,675,654	\$ 76,097,814	\$ 93,427,178	\$ 113,326,910	\$ 133,226,651
Business Visitors						
GAFO	\$ 7,616,461	\$ 8,073,781	\$ 8,558,560	\$ 9,617,191	\$ 10,806,766	\$ 12,143,482
Convenience and Services	\$ 91,397,527	\$ 96,885,370	\$ 102,702,723	\$ 115,406,288	\$ 129,681,189	\$ 145,721,790
Food and Beverage Away From Home	\$ 63,868,025	\$ 67,702,895	\$ 71,768,025	\$ 80,645,197	\$ 90,620,410	\$ 101,829,482
Subtotal	\$ 162,882,013	\$ 172,662,046	\$ 183,029,309	\$ 205,668,676	\$ 231,108,364	\$ 259,694,754
Inflow						
GAFO	\$ 3,675,320	\$ 3,860,184	\$ 4,361,462	\$ 5,697,857	\$ 7,486,996	\$ 9,866,035
Convenience and Services	\$ 14,744,527	\$ 15,055,301	\$ 16,215,544	\$ 19,148,077	\$ 22,723,385	\$ 27,032,834
Food and Beverage Away From Home	\$ 15,310,645	\$ 14,893,384	\$ 16,122,102	\$ 19,509,328	\$ 23,688,309	\$ 28,701,561
Subtotal	\$ 33,730,492	\$ 33,808,869	\$ 36,699,108	\$ 44,355,262	\$ 53,898,689	\$ 65,600,430
All Markets						
GAFO	\$ 37,087,324	\$ 38,952,766	\$ 44,011,115	\$ 57,496,555	\$ 75,550,597	\$ 99,557,264
Convenience and Services	\$ 148,785,681	\$ 151,921,675	\$ 163,629,585	\$ 193,221,507	\$ 229,299,609	\$ 272,785,871
Food and Beverage Away From Home	\$ 154,498,327	\$ 150,287,781	\$ 162,686,664	\$ 196,866,860	\$ 239,036,570	\$ 289,624,843
TOTAL	\$ 340,371,333	\$ 341,162,222	\$ 370,327,364	\$ 447,584,921	\$ 543,886,775	\$ 661,967,978

Source: ESRI Business Analyst, ICSC Office Worker Retail Spending Patterns, Arlington County, Economics Research Associates, 2007



Table 22: Estimated Supportable Square Footage

Retail Type	Sales per Square Foot	2008-2010	2011-2015	2016-2020	2021-2030	2031-2040	2041-2050
GAFO	\$ 420	88,303	92,745	104,788	136,897	179,882	237,041
Convenience and Services	\$ 435	342,036	349,245	376,160	444,187	527,126	627,094
Food and Beverage Away From Home	\$ 610	253,276	246,373	266,699	322,733	391,863	474,795
Subtotal		683,615	688,363	747,648	903,816	1,098,871	1,338,930
(Existing Retail) 1/		847,850					
Total Demand			(159,487)	(100,202)	55,966	251,021	491,080
Incremental Demand		(164,235)	4,748	(104,950)	160,917	90,104	400,976

Lower Sales PSF

Retail Type	Sales per Square Foot	2008-2010	2011-2015	2016-2020	2021-2030	2031-2040	2041-2050
GAFO	\$ 336	110,379	115,931	130,985	171,121	224,853	296,301
Convenience and Services	\$ 348	427,545	436,557	470,200	555,234	658,907	783,867
Food and Beverage Away From Home	\$ 488	316,595	307,967	333,374	403,416	489,829	593,494
Subtotal		854,519	860,454	934,560	1,129,771	1,373,589	1,673,662
(Existing Retail) 1/		847,850					
Total Demand			12,604	86,710	281,921	525,739	825,812
Incremental Demand		6,669	5,935	80,775	201,146	324,593	501,220

Higher Sales PSF

Retail Type	Sales per Square Foot	2008-2010	2011-2015	2016-2020	2021-2030	2031-2040	2041-2050
GAFO	\$ 504	73,586	77,287	87,324	114,080	149,902	197,534
Convenience and Services	\$ 522	285,030	291,038	313,467	370,156	439,271	522,578
Food and Beverage Away From Home	\$ 732	211,063	205,311	222,250	268,944	326,553	395,662
Subtotal		569,679	573,636	623,040	753,180	915,726	1,115,775
(Existing Retail) 1/		847,850					
Total Demand			(274,214)	(224,810)	(94,670)	67,876	267,925
Incremental Demand		(278,171)	3,957	(228,767)	134,097	(66,221)	334,146

1/ Arlington Economic Development, 2007

Source: ULI Dollars and Cents, Arlington Economic Development, Economics Research Associates, 2007