Marketability Features Contributing to The Next Decade of Downtown Richmond, Virginia

Prepared for:
Dover, Kohl & Partners and the City of Richmond with the Assistance of Venture Richmond

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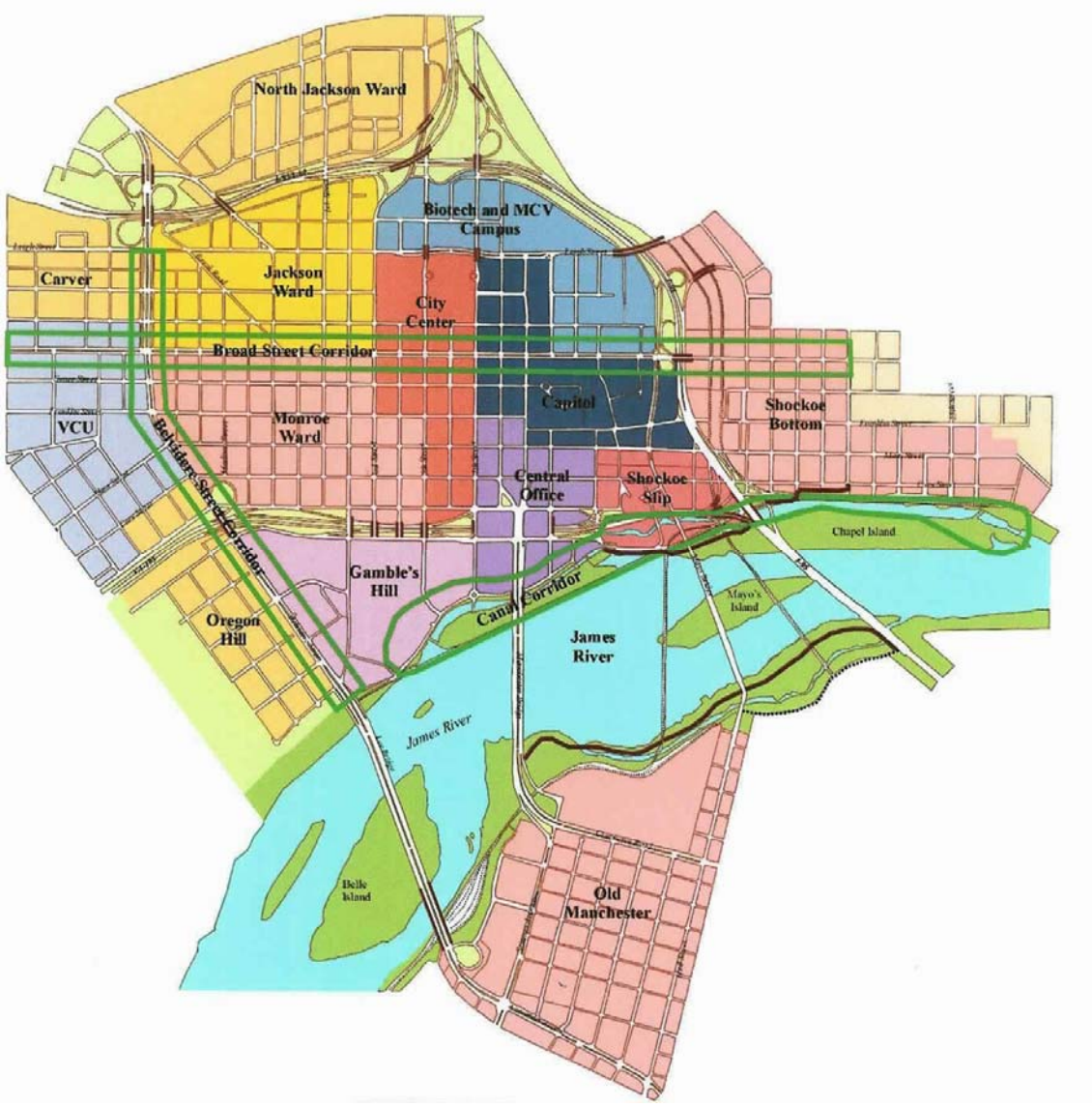
INTRODUCTION

ZHA, Inc. was retained by Dover Kohl & Partners, LLC to perform market analysis services on its contract with the City of Richmond. Specifically, the assignment is to examine current commercial land use conditions and future market potentials for a defined central Richmond study area comprised of numerous Districts. The commercial land uses are office and retail. The projection period is to 2017.

The study area Districts have different market and economic characteristics and, as such, unique development potential and opportunities. The various Districts and current primary land uses are briefly outlined as follows:

Downtown Districts and Corridors Plan Map



	DISTRICT	*LAND USE CHARACTERISTICS*
1.	City Center	Concentration of cultural, tourism and entertainment venues, including the Greater Richmond Convention Center, the Coliseum, and others.
2.	Capitol	Government facilities such as the Virginia State Capitol and numerous other state and city government buildings.
3.	Biotech and MCV Campus	Defined by two major entities – Virginia Commonwealth University's MCV Campus and the Virginia Biotechnology Research Park, providing a nationally recognized institutional presence in downtown.
4.	Jackson Ward	Primarily residential. Some civic and cultural facilities, businesses and several light industries.
5.	Monroe Ward	Primarily residential. Some civic, office and commercial uses. Substantial vacant land.
6.	Central Office	Heavy concentration of larger office buildings. Modest amounts of street-level retail and service uses.
7.	Shockoe Slip	District has mixed-use character – specialty retail, office and residential. Predominant restaurant and entertainment District in downtown.
8.	Shockoe Bottom and structures Tobacco Row	Adaptive reuse of former industrial for housing, restaurants, shops, art galleries and studios.
9.	Gamble's Hill	Large-scale buildings and open space dominated by the headquarters complex of NewMarket Corporation.
10.	James River	A mixture of open space concentrated on islands and developed areas, primarily commercial.

11.	Carver	An older, reviving residential neighborhood with a mix of housing for working-class families and students.
12.	Oregon Hill	Historic residential neighborhood of two-story frame and brick houses.
13.	Manchester	Industrial and residential area now in transition.

To accomplish the work, ZHA, Inc. collected and analyzed data on the study area office and retail characteristics and trends. At the outset of the assignment, ZHA, Inc. conducted a series of interviews in Richmond with City Planning and Economic Development staff, retail store owners and operators, real estate developers, and knowledgeable real estate professionals. Subsequently, ZHA, Inc. undertook various market analysis tasks and projections.

This report summarizes our analysis and conclusions. Following this Introduction, the analysis is presented in three (3) sections. Section I discusses the metropolitan Richmond economy, followed by a discussion of the City and its downtown. Section II summarizes the Richmond area office market structure, which is followed by an analysis of the downtown study area office potential. Section III presents our analysis of the Richmond area retail market and discusses the downtown retail potential.

I. THE METROPOLITAN RICHMOND ECONOMY

Richmond is the capital of the Commonwealth of Virginia. The city is at the center of the Richmond Metropolitan Statistical Area (MSA). The MSA, as defined by the Census Bureau, includes 16 counties and four cities, with the most populous jurisdictions being the City of Richmond and surrounding Chesterfield and Henrico counties.

POPULATION TRENDS AND PROJECTIONS

The MSA is one of modest population growth – an increase of 8.8 percent between 2000 and 2006. In that time period, the greatest numerical increases occurred in Chesterfield, Henrico, and Hanover counties. The City of Richmond experienced a loss of population, as did the City of Petersburg. Table 1 compares population trends for the MSA.

Table 1

Population Trends in the Richmond MSA, 2000-2006

Area	2000	2006	Change 2000-2006 Number	Change 2000-2006 Percent
Chesterfield Co.	259,903	296,718	36,815	14.2%
Henrico Co.	262,300	284,399	22,099	8.4%
Richmond City	197,790	192,913	-4,877	-2.5%
Hanover Co.	86,320	98,983	12,663	14.7%
All Others	290,644	320,995	30,351	10.4%
	1,096,957	1,194,008	97,051	8.8%

Source: U.S. Census Bureau; ZHA, Inc.

F:\70004 Richmond Master Plan\[Report Tables.xls]Table 1

Regional population growth is expected to continue at its current levels into the future. However, larger percentage growth rates are expected to occur in some of the outer urban counties, especially Caroline, Goochland, Louisa, New Kent and Powhatan counties. The Virginia Employment Commission projects the MSA population to reach 1,233,293 persons in 2010, representing a four-year increase of 39,285 persons and a percentage increase of 3.4 percent over 2006. By 2020, the metro population is projected to reach 1,359,503 persons, representing a 10-year increase of 126,210 persons and a percentage increase of 10.2 percent over 2010.

ECONOMIC BASE

The Richmond MSA has a strong and diverse economic base that has helped the community remain resilient during economic recessions. The economic job base is supported by a concentration of federal and state agencies, the headquarters of major corporations and bank-holding companies, numerous health care facilities, educational institutions, and major manufacturers. Services and government account for 58 percent of all jobs in the region (March 2007).

Labor Force Characteristics

In March 2007 the Richmond MSA labor force totaled 654,600 persons, of which 633,000 persons were employed and 21,600 persons were unemployed. The unemployment rate of 3.3 percent compared with 3.2 percent for Virginia and 4.4 percent for the U.S. as a whole.

Employment

As previously indicated, services and government make up 58 percent of employment in the MSA. Between the end of 2004 and March 2007, the rate of growth for these employment categories increased considerably. Of the total 69,000 jobs created in the period, 51,400 or 75 percent were in services and government. The greatest job growth occurred in education and health services, professional and business services, and government (groups with office space needs). The distribution of non-farm employment in the Richmond MSA between 2004 and 2007 is show in Table 2.

Table 2

Richmond MSA Non-Farm Employment Distribution 2004-2007

Category	Dec. 2004	March 2007	Change 2004-2007 Number	Change 2004-2007 Percent	Percentage of Jobs 2004	Percentage of Jobs 2007
Construction & Mining	38,500	45,700	7,200	18.7%	6.8%	7.2%
Manufacturing	45,300	44,500	-800	-1.8%	8.0%	7.0%
Trade, Transp., Utilities	107,400	116,500	9,100	8.5%	19.1%	18.4%
Information	11,600	11,700	100	0.9%	2.0%	1.8%
Financial Activities	45,900	47,900	2,000	4.4%	8.1%	7.6%
Professional & Business Services	82,700	95,900	13,200	16.0%	14.8%	15.2%
Education & Health Services	58,500	73,600	15,100	25.8%	10.4%	11.6%
Leisure & Hospitality Services	44,500	49,700	5,200	11.7%	7.9%	7.9%
Other Services	24,500	31,900	7,400	30.2%	4.3%	5.0%
Government	105,100	115,600	10,500	10.0%	18.6%	18.3%
Total	564,000	633,000	69,000	12.2%	100.0%	100.0%

Source: U.S. Department of Labor; ZHA, Inc.
F:\70004 Richmond Master Plan\[Report Tables.xls]Table 2

Major Employers

Major employers in the MSA include a healthy mix of finance, health care, retail, manufacturing and distribution, and telecommunications and utility private companies as well as government organizations. The largest employers are listed in Table 3. State and City government are not included in the list. The 20 largest employers together employ 81,700 persons – about 13 percent of the region's total employment.

Table 3

Largest Private Employers in the Richmond MSA, 2007

Rank	Company	Product/Services	Number Employees
1	HCA, Inc.	Health Care	7,719
2	Capital One Financial Corp.	Credit Cards	7,389
3	Virginia Commonwealth Health System	Health Care	6,990
4	Philip Morris USA	Cigarettes	6,100
5	Wal-Mart Stores, Inc.	Discount Retail	5,862
6	Wachovia Corp.	Financial Services	5,349
7	Dominican Resources	Electric/Gas Utility	5,114
8	Bon Secours Health System	Health Care	5,021
9	Sun Trust Bank, Inc.	Banking	3,674
10	Ukrop's Super Markets, Inc.	Grocery Stores	3,563
11	Dupont	Chemicals/Fibers	3,200
12	Bank of America Corp.	Banking	3,100
13	Wells Point, Inc.	Health Insurance	3,028
14	Delhaise America (Food Lion)	Grocery Stores	2,553
15	Circuit City Stores, Inc.	Electronics Retailer	2,552
16	United Parcel Services	Package Distribution	2,497
17	Qimonda	Semiconductors	2,390
18	Verizon Virginia, Inc.	Telecommunications	2,311
19	Genworth Financial	Insurance	1,681
20	Federal Reserve Bank Richmond	Reserve Bank	1,611
		Total Employed	81,704

Source: Greater Richmond Partnership; ZHA, Inc.
F:\70004 Richmond Master Plan\[Report Tables.xls]Table 3

A special note: In May, 2007, Wachovia Securities announced its purchase of A.G. Edwards for $6.8 billion with the merged home base being St. Louis, Missouri. Wachovia's initial announcement stated an expectation that up to 4,100 jobs be cut nationwide. Late August, Wachovia Securities announced that, of the 2,600 current Wachovia employees in suburban Richmond's operation, 2,000 positions were being reassigned to St. Louis over the next 18 months. The announcement described that about 100 brokers and 75 support staff would remain in Richmond along with 400 employees engaged in TI activities.

Fortune 500 and Fortune 1000 Companies

Numerous Fortune 500 and Fortune 1000 companies are headquartered in the region, including electric utility Dominion Resources, electronic retailer Circuit City, used-car retailer Car Max, Performance Food Group, Land America Financial Group, security services Brinks Corporation, Genworth Financial Group, Philip Morris USA, and others. A list of these companies and their products/services is shown in Table 4. It also indicates the number of persons employed at headquarters.

Table 4

Fortune 500 and Fortune 1000 Companies Headquartered in the Richmond MSA, 2007

Company	Product/Services	Number Employed at Headquarters
Fortune 500		
Dominion Resources	Electric/Gas Utility	140
Circuit City	Electronics Retailer	215
Genworth Financial	Insurance	227
MeadWestvaco	Packaging	350
Car Max	Used-Car Retailer	365
Performance Food Group	Food Wholesaler	393
Owens & Minor	Health Care Wholesaler	418
Fortune 1000		
LandAmerica Financial	Insurance	522
Universal	Tobacco Wholesaler	573
Philip Morris USA	Cigarettes	611
Brink's	Security Services	641
Markel	Insurance	739
Albemarle	Chemicals	774
Massey Energy	Mining	804

Source: Fortune Magazine; ZHA, Inc.

F:\70004 Richmond Master Plan\[Report Tables.xls]Table 4

Others

The region has become a major East Coast distribution center and customer service center for firms like Capital One, Hewitt Packer, Mazda, and Time-Life. Other major companies with substantial capital investment in plants and operations include Allied Corporation, Kraft Foods, McKesson Corporation, Alcoa Corporation and Smurfit-Stone Containers.

REGIONAL COMMERCIAL MARKET

The following discussion provides a synopsis of the region's commercial market.

Office

The Richmond MSA has more than 25.5 million square feet of general tenant office space, excluding medical, government, and special buildings. Nearly 30 percent is located downtown. Of the total space, just over 50 percent is located in Class-A buildings.

During the First Quarter of 2007, over 367,000 square feet net absorption of office space occurred and nearly 90 percent of that occurred in the suburbs (most in the northwest suburbs in the Innsbrook area). At the end of Quarter 1, 2007, over 243,000 square feet of office space was under construction – all of it in the suburbs (most in the southwest suburbs). Key characteristics of the regional office market at the end of the first quarter are shown in the following table.

Table 5

The Regional Office Market Characteristics
March 2007
(Rounded)

Area	Total Space (SF)	Percent Vacant	1st Qtr. 2007 Net Absorp. (SF)	1st Qtr. 2007 Under Const. (SF)
Downtown	7,100,000	16.7%	41,000	0
Suburban	18,400,000	13.3%	326,000	243,000
Total	25,500,000	14.3%	367,000	243,000

Source: Grubb & Ellis Research, 1st Quarter 2007 Report; ZHA, Inc.

F:\70004 Richmond Master Plan\[Report Tables.xls]Table 5

New office development has been announced or is planned throughout the MSA.

Retail

Like all major metropolitan areas, the Richmond MSA has a well-developed retail marketplace with all categories of retail malls and centers. Key characteristics of the retail market at the end of the First Quarter 2007 are shown in the following table.

Table 6

Characteristics of the Regional Retail Market
March 2007
(Rounded)

Total Space (SF)	Vacant Space (%)	1st Qtr. 2007 Net Absorp. (SF)	1st Qtr. 2007 Under Const. (SF)
66,800,000	5.8%	(339,000)	555,000

Source: Grubb & Ellis Research, 1st Quarter 2007 Report; ZHA, Inc.
F:\70004 Richmond Master Plan\[Report Tables.xls]Table 6

Over the past five years, very few regional shopping centers have opened across the nation. However, two such centers totaling two million square feet of retail space opened in the Richmond MSA in 2003-2004. They were Short Pump Town Center and Stony Point Fashion Park. The major regional department stores serving the market are listed below.

	MALL	*ANCHORS*
1.	Short Pump TC	Dillard's, Macy's, Nordstrom
2.	Stony Point FP	Dillard's, Saks Fifth Avenue
3.	Chesterfield TC	Dillard's, JC Penney, Macy's, Sears
4.	Regency Square	JC Penney, Macy's (two stores)
5.	Virginia Center Commons	Dillard's, JC Penney, Macy's, Sears
6.	Southpark Mall	Dillard's, JC Penney, Macy's, Sears

The market has a large mixture of lifestyle, specialty, community and neighborhood centers. Most large category and "big box" retailers have multiple stores throughout the market.

Entertainment

The metropolitan area has a wide array of entertainment and nightlife venues, sports attractions, arts and cultural attractions and other recreation venues. Many are located in Richmond City and some of them are discussed in the next section.

RECENT ECONOMIC TRENDS

Over recent years, information technology and semiconductor manufacturing firms have been attracted to the region. The increase in semiconductor firms has made the area a central point of the East Coast's "Silicon Dominion." The relocation of corporate

headquarters, such as Philip Morris USA from New York, and MeadWestvaco from Stamford, Connecticut has increased the appeal of the Richmond area as a corporate center. Only five cities in the nation have more corporate headquarters offices.

Strong and continued economic growth in the region is also made evident by the expansion of existing companies. Recent major examples are Infineon Technologies and Virginia Credit Finance, Inc.

The Virginia Bio-technology Research Park is a growing complex that supports research and development in drug development, medical diagnostics, biomedical engineering, forensics, and environmental analysis. It is discussed in more detail in the following section of this report.

The regional economic base is healthy and the outlook remains positive for the future as more companies relocate to the region and others continue to expand.

Specialized Input by DoD into SMSA

On September 8, 2005, the Defense Base Closure and Realignment (BRAC) Commission recommended that certain realignment actions occur at Fort Lee, Virginia. These recommendations were approved by the President on September 15, 2005, and forwarded to Congress. Upon expiration of the statutory period for Congress to enact a joint resolution of disapproval (November 9, 2005), the BRAC Commission's recommendations became law. The BRAC program realigned Fort Lee's mission statement and expanded others currently situated at the base—adding six new specified organizations and activities to the post. The BRAC recommendations must now be implemented as provided for in the Defense Base Closure and Realignment Act of 1990 (Public Law (PL) 101-510), as amended.

Much has been written about the pending impact of this BRAC decision on the Richmond-Petersburg SMSA – a few such remarks follow:

- "It's a great day to be in service to our country, and it's an especially great day to be in serving here as a part of Team Lee," Maj. Gen. Mitchell Stevenson said. "The economic impact on the Fort Lee expansion is amazing. Fort Lee contributes about $860 million to the local economy annually. But the estimated economic impact of the expansion will grow to about $1.2 billion a year, which will include parts of a six-year, $2-billion construction spree. The construction boom will result in more than 6.5 million square feet of facilities."

- "Today is history in the making, the beginning of tomorrow," commented Florence Smith, an executive at Fort Lee during the ground-breaking ceremony. "Everyone in the Tri-Cities area is going to be affected by this. It's going to affect family members, to active duty to plain civilians."

Implementation of the BRAC V Commission's decision to realign Fort Lee would consist of three major components: (1) the relocation of approximately 7,700 additional personnel to Fort Lee; (2) additional constructed facilities at both Fort Lee and Fort A.P. Hill to accommodate relocated personnel and functions; and, (3) other Army training and other operations at both forts. Ft. Lee is part of the Richmond-Petersburg SMSA, situated about 25 miles directly south as part of what is referred to as the tri-cities.

Fort Lee's military and civilian population consists of two major categories of personnel: Soldiers attending professional schools and permanent party personnel. Following implementation of the proposed action, Fort Lee's average daily population would nearly double, rising from 12,953 personnel to 20,703 personnel.

The realignment of Fort Lee would create beneficial impacts on long-term job creation, income generation, and spending. An estimated 9,800 direct jobs could be created as a result of direct expenditures associated with realignment activities, generating increases in local income and spending. Income in the socioeconomic region of influence could increase by as much as $317 million as a result of direct jobs generated by realignment activity, and sales volume could total more than $411 million. Secondary job creation, income generation, and spending would also result. Direct plus indirect effects could amount to 15,000 jobs, an income generation of more than $558 million, and sales of more than $1.5 billion.

In summary, the proposed realignment action at Fort Lee would result in a net increase of about 6,000 military personnel (permanent party and students) and about 2,123 civilian personnel (civilian employees and contractors). Average annual income for the military personnel was estimated at $30,000, and average annual income for civilian personnel was about $45,000 (Webster 2005). About 40 percent of military personnel can live on-post. On the basis of the more urban or suburban nature of the area surrounding Fort Lee, the available labor force, and unemployment rates, it was estimated that 50 percent of the new jobs created would require the relocation of civilians from outside the area.

Implementation of the proposed realignment action also would require renovation of existing facilities and construction of new facilities to accommodate the increase in personnel and functions assigned to Fort Lee. Renovation and construction of facilities would begin about 2007 and be completed by 2011 (five years), with all new incoming personnel arriving by 2011. The current working estimate for the cost of renovation and construction of facilities ($1,903.8 million) was divided over the five-year development period, or an average rate of $380,767,600 per year.

II. THE RICHMOND AREA AND DOWNTOWN OFFICE MARKET

This section presents an assessment of the Richmond area office market and an analysis of the office development potential in downtown Richmond to 2017.

METRO MARKET OVERVIEW

As previously noted, industry sources indicate that there is 25.5 million square feet of general tenant office space in metro Richmond. About 18.5 million square feet of the general tenant office space is located in the suburbs (most located in the northwest suburbs at this time) and 7.0 million square feet is located downtown (a current market share of nearly 28 percent). The total 25.5 million square feet of general tenant office space does not include government, corporate, institutional or other specialized buildings, the needs for which are not market driven.

More specifically, the metro Richmond office market is generally classified by four submarkets. They are the Downtown Central Business District submarket, the Northwest suburban submarket (Innsbrook, Short Pump, I-64 corridor), the Northeast suburban submarket (Mechanicsville, I-295 corridor) and the Southwest suburban submarket (Midlothian, Route 288 corridor). The distribution of office space and vacancy levels as of March 2007 was as follows:

SUBMARKET	TOTAL OFFICE SPACE (SQ.FT.) (ROUNDED)	VACANT SPACE (PERCENT)
Downtown	7,100,000	16.7%
Northeast	700,000	11.0%
Northwest	12,900,000	11.2%
Southwest	4,800,000	19.4%
Total	25,500,000	14.3%

As can be seen, the strongest office space location in metro Richmond is in the Northwest submarket followed by Downtown, Southwest and Northeast in that order. Downtown and the Southwest submarket had the highest vacancy rates in March 2007 (16.7 percent and 19.4 percent, respectively).

Today, the majority of office development is occurring throughout the suburbs. Several submarkets, including western Henrico, eastern Goochland and a portion of Chesterfield Counties, are the “hot spots.” Several staged projects have active office developments, including Paragon III, Westerre III, and Waterford Plaza.

The most important office construction completion in the First Quarter 2007 was North Shore Commons B (96,000 square feet) in Innsbrook. Much of the First Quarter

2007 office activity occurred in infill areas along the West Broad Street corridor from Willow Lawn to Parham Road. Further west of that corridor, Reynolds Development has announced plans to construct two office buildings totaling 300,000 square feet at Reynolds Crossing (I-64 and Glenside Drive).

In the First Quarter 2007, the three most significant new lease transactions were at three office parks in Innsbrook, totaling over 250,000 square feet. Industry sources indicate leasing challenges remain for filling both downtown and suburban Class-B buildings.

Analysts expect the next big office development market to be West Creek Office Park in Goochland County. This park is already home to corporations Capital One, CarMax, and Performance Food Group. New developments will include 750,000 square feet by Brandywine Realty Trust and 360,000 square feet by Pruitt Properties.

Downtown has had several notable office developments recently. Riverside on the James (250,000 square feet) has leased very well, as has the rehabilitated Edgeworth Building (150,000 square feet) in Tobacco Row. Office space in smaller doses has been leased in Riverfront Plaza, Plant Zero (Manchester), and various downtown "infill" locations.

It should be cautioned, however, that some major leases in new downtown building space have come at the expense of well-maintained Class-B buildings. Troutman Sanders vacated 90,000 square feet in the Bank of America building to fill 140,000 square feet at Riverside on the James. LeClair Ryan vacated space to take 68,000 square feet at Riverside Plaza. Hirschler Fleischer relocated and leased 67,000 square feet of space in the Edgeworth Building.

It should be noted that the net absorption of office space downtown is considerably lower than the amount indicated by leased new space because of the substantial "lateral movements." This fact is illustrated by First Quarter 2007 statistics that show net absorption of office space downtown was 41,300 square feet compared to 326,100 square feet for the suburbs. The percentage of vacant space at the end of March 2007 was 16.7 percent for downtown and 13.3 percent for the suburbs.

At the beginning of the Second Quarter 2007 there was no significant new office space construction under development downtown. Over 243,000 square feet was under construction in the suburbs. All but 14,200 square feet of the space was occurring in the southwest suburban market.

Goldstein Properties has announced plans to build a major mixed-use project downtown in the 500 block of E. Main Street. Centennial Towers will include 218 condo units, 46,000 square feet of office space, 22,000 square feet of retail space and a 122-room boutique hotel. Construction will begin later this year with completion scheduled for mid-2009.

DOWNTOWN RICHMOND OFFICE MARKET POTENTIAL

The projection of the overall warranted downtown office space in 2017 is examined here under two methodologies. These are: (1) a share of the regional office market growth potential; and (2) on recent downtown construction trends.

Table 7 presents an analysis based on a share of a regional market.

Table 7

Gross Downtown General Tenant Office Space Potential, 2017
(Share of the Regional Market)

	2007	2017
Regional Population	1,200,000	1,325,000
Per Capita Office Space (Square Feet)	21.3	24.3
Gross Regional Office Space (Square Feet)	25,500,000	32,200,000
Downtown Market Share (Percent)	27.8%	27.3%
Gross Downtown Office Space (Square Feet)	7,100,000	8,900,000
Downtown Increase (Square Feet) 2007-2017	--	1,700,000

Source: ZHA, Inc.

F:\70004 Richmond Master Plan\[Report Tables.xls]Table 9

Under the share-of-market analysis, the warranted amount of downtown general tenant office space in 2017 is 8,900,000 square feet, representing an increase of 1,700,000 square feet over the current downtown general tenant office supply.

Although net absorption of new space downtown has been limited, several recent developments have added 400,000 square feet of general tenant office space to the inventory. These developments do not include various infill projects.

Under the second scenario, shown in Table 8, the warranted gross general tenant office space in 2017 is 9,600,000, representing an increase of 2,500,000 square feet over the current downtown general tenant office supply.

Table 8

Gross Downtown General Tenant Office Space Potential, 2017
(Construction Trends)

	2007	2017
2007 General Tenant Office Space (Square Feet)	7,100,000	--
Average Annual New Space (Square Feet) 2007-2017	250,000	--
2017 General Tenant Office Space	--	9,600,000
Downtown Increase (Square Feet) 2007-2017)	--	2,500,000

Source: ZHA, Inc.

F:\70004 Richmond Master Plan\[Report Tables.xls]Table 10

An additional methodology sometimes used in office market demand projections for specific market areas (i.e., a downtown) is based on net absorption trends. However, if net absorption trends were used here, the demand projection would be for limited new office development potential or, possibly, none.

As stated earlier, new office building leasing downtown has been good; but, the new Class-A buildings have filled primarily as a result of lateral moves by major tenants from Class-B buildings. This pattern, involving the impact of new prime space, has not created a major negative change in overall vacancy levels downtown.

Richmond has already seen a bank building convert to residential. In the last three to four years, Baltimore, for example, has had three 15-story-plus buildings successfully reposition as condominium or rental apartment residences. Other cities have and are experiencing the older office building conversion trend.

The market share approach shown in Table 7 is a conservative projection. The construction trends shown in Table 8 may be somewhat high in the event of a recessionary period and/or market overbuilding. For purposes of this study, ZHA, Inc. will use a projected increase of 2,200,000 square feet of warranted gross general tenant office space in downtown Richmond between 2007 and 2017. The likely distribution of new office space development by study Districts is assessed in the next section.

DOWNTOWN STUDY AREA OFFICE POTENTIAL

As previously noted, development in the Richmond **general tenant office market sector** has been heavily suburban for several decades. The major concentration of new office space has been in the northwest suburbs. Consequently, downtown office construction has been modest and the net absorption of office space limited.

Much of the new building's leasing activity downtown has been as a result of expansions by existing major tenants. In support of additional space needs, a number of

businesses have upgraded their offices by relocating to Class-A buildings. The "lateral movement" trend downtown may be expected to continue in the near future.

Although vacancy levels have increased in Class-B and Class-C buildings, Class-A space is well leased. As is happening in many cities, older Class-B and Class-C buildings will either be converted to residential uses or demolished.

Downtown Richmond is reviving itself from the gloom of past decades. There is substantial new construction of offices, hotels, entertainment venues, and rental and for-sale housing throughout the study area. As housing, entertainment and retail are increasingly established downtown the office market will follow.

The new downtown Richmond is a dynamic, ever-evolving place. Obviously, creating a redevelopment downtown is costly and time-consuming. Although not part of this assignment, some basic public strategies will guide a plan for revival. They require financial incentives. They include:

- Increase the pace of development of downtown housing units both to provide a market base and employment pool;
- Reduce office vacancy rates through public commitment to supply lower-cost parking;
- Improve downtown traffic and transit to improve how people move into and around downtown;
- Establish mixed-use neighborhoods to help revitalize areas and create more vibrancy – especially along Broad Street; and,
- Provide an ongoing strategy as to the necessity of taking action to reinforce downtown's distinct urban character.

There are a variety of office space users that could select study area sites and locations during the study period to 2017. Some sources are not market-driven but could develop office space. Their possible office space needs cannot be predicted.

The downtown study area office user sources are as follows:

- Government
- Institutions
- Corporations
- Expansion of Local Businesses
- Attracted New Businesses
- Residential- and Employment-Driven Business and Financial Services

As noted previously, possible new space needs by government, institutions and corporations are made on the basis of leadership decisions. The decisions are based on economic, location-related and other considerations. Nevertheless, these sources could develop significant new office projects that would employ thousands of people. In turn, the new employees would be prospective consumers for downtown housing, retail and entertainment.

The 2.2 million square feet of supportable new general-tenant office space to 2017 will be in support of the spatial needs required by expanding businesses, attracted new businesses, and business and financial services generated by residential and employment growth.

DISTRIBUTION OF FUTURE OFFICES BY DOWNTOWN DISTRICTS

This discussion indicates a likely distribution of new office development downtown. For general tenant space, parameters of quantity are estimated.

The **Capitol District** contains most of the local, state, and federal government facilities in downtown Richmond. The District is expected to continue to be the location of choice by government leaders for future office needs.

Possibly, additional government space to 2017 could not be accommodated in the largely built District. This would create a necessity to develop new space outside the District, perhaps to the east of I-95.

New office developers here and elsewhere downtown should be encouraged to provide ground-level retail and services that are supportable of the employment base.

The **VCU District** encompasses a large and growing University complex. As VCU expands, it will want to do so within the District or proximate to it. New demand for office, research and other facilities is of some concern for neighboring districts, which are primarily residential in character. Monroe Ward residents, reportedly, feel that pressure could build to allow VCU to expand into that District.

There will continue to be the focal point for new Class-A general-tenant office development downtown. It should be noted that Armada Hoffler is proposing a new 200,000 to 250,000 square feet office tower for the block bounded by 8th, Cary, 9th and Canal Streets in the Central Office District. The mixed-use proposal is in preliminary planning stages. If developed, it would add up to 400,000 square feet to the District's space inventory including a possible mid-rise hotel property in a few years.

Some market shifts are evident that suggest first-class office space can be successfully leased elsewhere in the study area. The rehabilitated Edgeworth Building (150,000 square feet) in the Tobacco Row portion of *Shockoe Bottom* has been leased. The major tenant relocated from an older downtown building. Other parts of the study area have potential for new office space.

ZHA, Inc. projects that the Central Office District can reasonably capture 1,000,000 square feet of new office construction between 2008 and 2017. The breakout for this market capture is:

2008-2012	2013-2017
400,000 Square Feet	600,000 Square Feet

As noted, the leasing of the sizable Edgeworth Building has established the viability of the **Shockoe District** accommodating significant new office development – probably in rehab space on Tobacco Row or in new construction at Rocketts Landing.

ZHA, Inc. projects that the Shockoe District can reasonably capture 450,000 square feet of new office construction between 2008 and 2017. The breakout for this market capture is:

2008-2012	2013-2017
200,000 Square Feet	250,000 Square Feet

The **Manchester District**, directly across the James River from the downtown office concentrations, represents an excellent location for new offices. The District is revitalizing and contains many underutilized properties and significant vacant land.

The northern area of the District, between W. Commerce Road and Cowardin Avenue, lends itself as a strategic office park/campus location. An office park here would be attractive to businesses that are rent sensitive, but desire an urban location. The availability of free surface parking would be another good market factor for a staged office park development here.

This setting is easily accessible to downtown via the 15th, 9th, and Belvidere Street bridges. It has good regional accessibility from the south and west via Jefferson Davis Highway (U.S. 1, 301), Hull Street Road (U.S. 360) and, Midlothian Turnpike (U.S. 60).

A good opportunity also exists to develop professional and service office space as part of the mixed-use development of buildings along Hull Street.

ZHA, Inc. projects that the Manchester District office park concept can reasonably capture 450,000 square feet of new office construction between 2008 and 2017. The breakout for this market capture is:

2008-2012	2013-2017
150,000 Square Feet	300,000 Square Feet

In addition, mixed-use development along Hull Street can reasonably capture 125,000 square feet of new office construction between 2008 and 2017.

A further note – business and services office needs will be supportable through increased employment within other districts. Some demand could occur along the Broad Street corridor between *Jackson Ward* and *Monroe Ward*. Considerable vacant land in Monroe Ward lends itself to new residential development. This factor will generate neighborhood office and retail demand – possibly in mixed-use projects. Similar demand could be generated in the *City Center District*.

ZHA, Inc. projects that these districts can reasonably capture 175,000 square feet of new office construction between 2008 and 2017.

III. UNDERSTANDING THE SCOPE AND PROBING DOWNTOWN RETAIL IDEAS

From a metro status, the Richmond retail situation is vastly over-stored with almost 67 square feet of space per capita as compared to a national average of about 21 square feet. The Richmond suburbs are experiencing lower productivity now and future expectations are bleak; therefore, in all probability, they are no threat to the Downtown market any longer. In fact, if appropriately managed, it could be very appealing for niche stores types to be enticed into a downtown market with the right supporting conditions.

The total retail inventory exceeded 66 million square feet in March 2007. The overall vacancy rate was a low 5.8 percent. Over 1,270,000 square feet of retail space was under construction and more retail is planned for development in the near future.

RETAIL IN A METRO CONTEXT

Mixed-use developments (retail, office, other commercial and residential) are being embraced by developers, tenants, and residents. This is true not only for large sites such as Watkins Centre, West Broad Village and Rocketts Landing, but, also, for smaller projects such as the Village of Amberleigh. Also, open-air formats are growing in popularity.

According to industry sources, the most significant development trend at this time is the considerable retail growth around the Route 288 loop, which spans from western Henrico south to Chesterfield counties. Residential housing is growing rapidly along the 288 corridor in that Northwest submarket. The Northwest submarket has nearly 1,200,000 square feet of retail under construction.

In addition to the conventional department-store-anchored malls identified in Section I, strip centers and power centers, particularly those located along the major corridors of West Broad Street, Hull Street, Midlothian Turnpike and Mechanicsville Turnpike, are popular shopping destinations.

Among announced new projects is White Oak Village (Forest City Enterprises), which will be located on South Labumum Avenue at the site of the former Viasystems plant. The plant will be demolished later in 2007. White Oak Village will add 914,000 square feet of retail space to the regional retail inventory.

The Zaremba Group will develop Westchester Commons as the retail component of Watkins Centre, a 640-acre mixed-use development in Chesterfield County. The retail lifestyle center will comprise more than one million square feet of space at the northwest corner of Route 288 and Midlothian Turnpike.

Other announced new retail centers include Winterfield Village (300,000 square feet), Towne Center West (125,000 square feet), Hancock Village (428,000 square feet),

Cloverhill Marketplace (400,000 square feet) and West Broad Village (600,000 square feet).

Notable retail/restaurant development in mixed-use projects includes:

- Riverside on the James - 70,000 square feet
- Hilton Garden - 25,000 square feet
- Centennial Towers (2008) - 35,000 square feet
- Rocketts Landing - 150,000 square feet

It is interesting to trace the conduct of brokerages handling suburban retailing and note the degree of cannibalization occurring as developer/leasing and lenders assault the more traditional and older shopping malls. Introduced in past years as “the next icon” have been the "*category killer," urban festival/entertainment centers, "power center*," with the latest being the *lifestyle center – s*o badly abused that anything that offers merchandise is embossed as a Lifestyle Store.

Approximately 2,000 malls currently exist in the U.S. (regional/super-regional), yet only two super-regionals are currently under construction. Experts state "The length of time that people stay in the mall is lessening each year, and is now down to much less than an hour. Meanwhile, in the past five years, retailers, department stores, and mall owners have all been busy consolidating, buying one another and not paying attention to their customers.”

RETAIL CITY/METRO SALES COMPARISONS

Table 9 presents highlights of the 2002 retail trade census for metro Richmond and the City. The table presents sales for the retail categories relative to this study – shoppers- goods, convenience goods, and eating/drinking outlets. These categories are defined in a note at the bottom of the table. Every five years the Bureau of the Census conducts a detailed retail economic census in states, metropolitan areas and cities. The most recent survey was for 2002. The 2007 survey will be compiled next year and the results will be available in early 2009.

Retail sales in Richmond vary as a percent of regional sales. In 2002 the City captured nearly 30 percent of all eating/drinking sales in the metro area. The City captured slightly over 18 percent of convenience goods sales. Considering the long decline in shoppers- goods stores and sales, the City’s share of that category (21.1 percent) is as good as might be expected.

Convenience goods sales may suggest that some areas of the City are under-stored in food, pharmacy and other convenience stores. The strong capture of eating/drinking sales indicates the continuing appeal of the City as a dining and entertainment destination.

Table 9

Comparison of 2002 Census of Retail Sales in Richmond Metro and Richmond City ($ in Millions)

Retail Category	Metro	City	City as in Percent of Metro
Shoppers Goods	$3,928	$829	21.1%
Convenience Goods	$2,512	$459	18.3%
Eating/Drinking Out	$1,138	$335	29.4%
Total	$7,578	$1,623	21.4%

Note: *Shoppers goods are for merchandise for which consumers compare price, brand, and quality. Shoppers goods retail lines are found in the following type stores: department, other general merchandise, apparel and accessories, furniture and home furnishings, appliances/electronics, sporting goods, hobby/toys, books, music and miscellaneous stores, including jewelry, gifts, luggage, leather, office supplies, pet, arts/crafts and similar stores.*

Convenience stores include all type grocery/food, beer/wine/liquor businesses and health and personal care stores, including pharmacies, nutrient/health, cosmetics/beauty, optical, and other similar businesses.

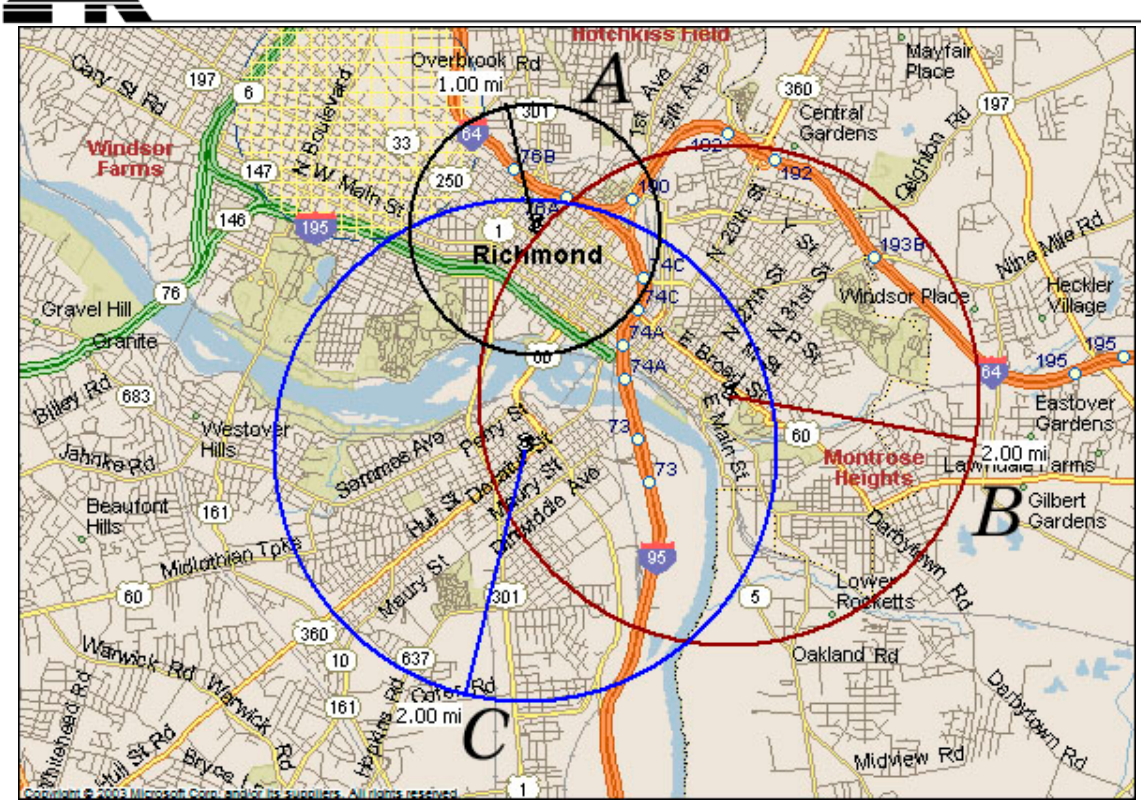
Eating and drinking out includes full and limited service restaurants, cafeterias, bars/lounges and other special food/drinking services.

Source: Bureau of Census: 2002 Economic Census
F:\70004 Richmond Master Plan\[Report Tables.xls]Table 11 new 9

DOWNTOWN RETAIL PERFORMANCE IN METRO CONTEXT

Downtown Study Area neighborhoods are repopulating. As this economic factor expands, the demand for local-serving retail will grow. Trade areas have been delineated for three locations. Trade Area A radiates out one mile from the intersection of Broad and Adams Streets (between the Jackson Ward and Monroe Ward neighborhoods). Trade Area B radiates out two miles from the intersection of Franklin and 31st Streets (Shockoe Bottom). Trade Area C radiates out two miles from the intersection of Hull and 12th Streets (Manchester). Together these three Trade Areas cover the neighborhoods of the Study Area.

The analysis for each Trade Area presents key retail-related demographics: population, households, average household income, retail expenditure potential for shoppers goods, convenience goods, and eating/drinking categories. It also presents warranted supportable space for each category based on the expenditure potential.



Trade Area A radiates from the intersection of Broad and Adams Streets;
Trade Area B radiates from Franklin and 31st Streets.
Trade Area C radiates from Hull and 12th Streets

Trade Area A: This area takes in the primarily residential districts of Jackson Ward, Monroe Ward and portions of adjacent districts. New housing development has been occurring and is expected to continue. Table 10 presents the retail analysis for Trade Area A.

The Trade Area has an estimated population of 16,500 persons now. It is expected to increase to 21,700 persons by 2017. Households, the key demographic unit combined with average household income for projecting retail expenditure potentials, will increase from 6,700 to 9,000 during the study period. Average household incomes are below state and national averages. Newer residents have higher average household income levels. Overall, the incomes will increase at a faster rate between now and 2017 than shown by the Census (2000 and 2006) estimates.

As the table shows, shoppers-goods retail expenditure potential will increase by $22.9 million between now and 2017. The increase for convenience goods retail will be $41.6 million. For eating/drinking away from home, the increase in expenditure potential will be $12.5 million.

Table 10

Broad/Adam Trade Area (A) Retail Analysis
2007-2017

Demographics	2007	2011	2017	Change 07-17
Population	16,500	17,600	21,700	5,200
Households	6,700	7,400	9,000	2,300
AHI[1]	$41,000	$45,100	$51,500	$10,500

Retail Exp. Potential [2] ***($ Millions)***	2007	2011	2017	Change 07-17
Shoppers Goods	$33.2	$40.4	$56.1	$22.9
Convenience Goods	$60.4	$73.4	$102.0	$41.6
Eating/Drinking	$18.1	$22.0	$30.6	$12.5
Total	$111.7	$135.8	$188.7	$77.0

Warranted Retail	2007	2011	2017	Change 07-17
Shoppers Goods	110,800	134,600	186,900	76,100
Convenience Goods	127,200	154,600	214,700	87,500
Eating/Drinking	25,900	31,500	43,700	17,800
Total	263,900	320,700	445,300	181,400

[1] Average household income is stated in constant 2007 dollar values unadjusted for inflation.

[2] Expenditures potentials reflect constant 2007 dollars.

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The increases in retail expenditure potential generate a warranted increase of 181,400 square feet of retail space. Not all of this potential will be fulfilled in the Trade Area, especially for shoppers-goods. The major portion of shoppers-goods potential is for department stores and other large general merchandise outlets.

Against the warranted space numbers in the table, it is estimated that 40,000 to 50,000 square feet of new shoppers goods space (primarily limited clothing, home furnishings, sporting goods, book and similar stores) is warranted. It is estimated that 60,000 to 75,000 square feet of new convenience goods space (primarily grocery, other food, health and personal services stores) is supportable. It is estimated that 12,000 to 15,000 square feet of new neighborhood restaurant space is warranted. The total new retail space potential for Trade Area A is between 112,000 and 140,000 square feet. Development opportunities are available on vacant land and infill locations in the area.

Trade Area B: This Trade Area takes in a considerable residential and commercial mixed-use development. The Trade Area centers on Shockoe Bottom and includes portions of other Districts as well as a small piece of bordering Henrico County. The analysis here focuses on residential population needs. Shockoe Bottom is, of course, a significant dining and entertainment District.

Table 11 presents the retail analysis for Trade Area B.

Table 11

Franklin/31st Trade Area (B) Retail Analysis
2007-2017

Demographics	2007	2011	2017	Change 07-17
Population	40,200	43,400	46,700	6,500
Households	15,500	16,700	18,700	3,200
AHI[1]	$42,000	$48,700	$56,000	$14,000

Retail Exp. Potential [2] ***($ Millions)***	2007	2011	2017	Change 07-17
Shoppers Goods	$78.8	$98.4	$126.7	$47.9
Convenience Goods	$143.2	$178.9	$230.4	$87.2
Eating/Drinking	$43.0	$53.7	$69.1	$26.1
Total	$265.0	$331.0	$426.2	$161.2

Warranted Retail	2007	2011	2017	Change 07-17
Shoppers Goods	262,600	328,000	422,400	159,800
Convenience Goods	301,500	376,700	485,000	183,500
Eating/Drinking	61,400	76,700	98,700	37,300
Total	625,500	781,400	1,006,100	380,600

[1] Average household income is stated in constant 2007 dollar values unadjusted for inflation.

[2] Expenditures potentials reflect constant 2007 dollars.

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The Trade Area's estimated 2007 population is 40,200. It is expected to increase to 46,700 by 2017. The current 15,500 households are expected to increase to 18,700 by 2017. Average household income is currently $42,000 (partly affected by low-income public housing projects). The average will grow faster than for Sector A because of an increase in higher priced housing being developed. It will average $56,000 by 2017.

As the table shows, shoppers goods retail expenditure potential will increase by $47.9 million between now and 2017. The increase for convenience goods retail will be $87.2 million. For eating/drinking away from home, the increase in expenditure potential will be $26.1 million.

As for Sector A, the increase in generated warranted space (380,600 square feet) will not be totally satisfied within the Trade Area. Against the warranted space numbers in the table, it is estimated that 90,000 to 100,000 square feet of new shoppers goods space is warranted. It is estimated that 140,000 to 150,000 square feet of new convenience goods space is supportable. It is estimated that 25,000 to 30,000 square feet of new neighborhood restaurant space is warranted.

The total new retail space potential for Trade Area B is between 255,000 and 280,000 square feet. Development opportunities are available in ground-level mixed-use developments, retail centers on vacant land and in rehabilitated buildings.

Trade Area C: This Trade Area takes in the Manchester District and adjacent areas. Manchester is an area undergoing significant changes, especially from industrial uses to residential and commercial. The District has considerable vacant land and developer interest.

Table 12 presents the retail analysis for Trade Area C.

Table 12

Hull/12th Trade Area (C) Retail Analysis
2007-2017

Demographics	2007	2011	2017	Change 07-17
Population	35,300	37,900	42,000	6,700
Households	14,700	15,800	17,500	2,800
AHI[1]	$42,300	$47,600	$54,700	$12,400
Retail Exp. Potential [2] ***($ Millions)***	2007	2011	2017	Change 07-17
Shoppers Goods	$75.2	$91.0	$115.8	$40.6
Convenience Goods	$136.8	$165.5	$210.6	$73.8
Eating/Drinking	$41.0	$49.7	$63.2	$22.2
Total	$253.0	$306.2	$389.6	$136.6
Warranted Retail	2007	2011	2017	Change 07-17
Shoppers Goods	250,700	303,300	386,100	135,400
Convenience Goods	288,000	348,300	443,400	155,400
Eating/Drinking	58,600	70,900	90,300	31,700
Total	597,300	722,500	919,800	322,500

[1] Average household income is stated in constant 2007 dollar values unadjusted for inflation.

[2] Expenditures potentials reflect constant 2007 dollars.

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The Trade Area's estimated population will grow from 35,300 to 42,000 between now and 2017. The number of households will increase from 14,700 to 17,500. Average household income will increase from $42,300 to $54,700.

As the table shows, shoppers-goods retail expenditure potential will increase by $40.6 million between now and 2017. The increase for convenience goods retail will be $73.8 million. For eating/drinking away from home, the increase will be $22.2 million.

As for the other sectors, the increase in warranted space (322,500 square feet) will not be totally satisfied within the Trade Area. Against the warranted space numbers in the table, it is estimated that 70,000 to 80,000 square feet of new shoppers goods space is warranted. It is estimated that 125,000 to 135,000 square feet of new convenience goods space is supportable. It is estimated that 20,000 to 25,000 square feet of new neighborhood restaurant space is warranted. The total new retail space potential for Trade Area C is between 215,000 and 240,000 square feet.

In summary, there are ample neighborhood-related retail opportunities throughout the downtown Study Area. The total Study Area spatial market summary of development potential by retail categories is as follows—expects overlapping as to locations in coming years:

Retail Category	Warranted New Space (Square Feet) to 2017		
Shoppers Goods	200,000	-	230,000
Convenience Goods	325,000	-	360,000
Eating/Drinking	57,000	-	70,000
Total	582,000	-	660,000

SPECIAL LOCATION(S) COMMENTS

Over the last two decades, downtown Richmond, along with many other cities across the country, has suffered a steady decline in retail and no longer functions as the central shopping district that it once was. This is particularly applicable to the Broad/Grace streets, and Central Core Market areas. The general changes in retail, fueled by suburban malls, has squeezed out the department stores and the national and local small- and middle-market stores that once accounted for much of the downtown retail market. Most of the stores that remain downtown today are local stores with limited appeal to downtown employees.

The past is gone and downtown will not return to its once central dominance. For Richmond's leaders the question now is what qualities are needed to establish a new, exciting retail environment of a kind existing/developing in other cities. The Broad Street corridor has clusters of infill activity. It has attracted a collection of arts-related shops and restaurants. Eclectic galleries, jewelry shops, video, music and book stores, and clothiers have tenanted there. Other infill activity has occurred at various locations. Broad Street remains a challenging assignment to bring productivity and stability to this vital area.

Douglas Development has purchased several properties around Broad and 2nd Streets and, reportedly, wants to buy the whole block and redevelop it. The plan is to attract high-end retail and restaurants for street-level businesses with mixed uses above. If Douglas Development is successful in assembling the block it could, indeed, be a big plus for renewing that part of the Broad Street corridor. A single owner would be able to control leasing to allow for a balanced mix of stores and restaurants at the appropriate quality and price point level in line with the targeted consumers.

The above should be discussed in the context of past City investments and endeavors.

In mid-1985, many persons felt that the Rouse 6th Street Mall would resolve the issues of Broad Street and downtown retailing—obviously, they were wrong. The 6th Street Marketplace was once promised to revitalize downtown and attract back suburban shoppers while handling the racial divide that was, and still is, East Broad Street. When it opened in 1985, the Marketplace had three wings and more than 50 tenants with the Miller & Rhoads and Thalhimers department stores as its anchors.

All that is left is the food court. City officials have given those vendors until late summer's end to vacate the premises. For the last eight years, city, state and federally funded projects have grown around the Marketplace facility, including the expansion of the Greater Richmond Convention Center, Virginia BioTechnology Research Park, a federal courthouse across the street, all of which have been accompanied by heavy equipment and heavy construction equipment, disruptions, noise, and adversity. Most of the original 6th Street Marketplace — including the iconic glass-enclosed Broad Street overpass — was torn down in 2003 as part of the Broad Street Community Development Authority's (CDA) streetscape and utility improvements.

For its part, the City says 6th Street's residual uses have got to go, as the City has been subsidizing this operation and it's become a drain on the general fund." During the last five years, the City has spent $5 million supporting the 6th Street food court. The administration made the decision to close it because of these excessive operating costs, and the condition of the remaining buildings. The historic building has been showing its age. Electric bills are unreal and high. Much of the mechanical equipment — including the bipolar heating and cooling system — is the original system put in place 22 years ago, and requires special orders from the manufacturer for routine maintenance.

A major contributing condition is that user costs are not being offset by rent from the tenants. There are three office buildings upstairs and two are occupied by City agencies (the adult drug court and the fire department) which don't pay rent or utilities. Only three of the 10 paying clients are up to date on their rent, and the housing authority says its owed $161,594 in back rent. One RRHA official estimates that each month the authority collects $10,000 in rent and spends $64,000 in management and maintenance.

Going back to start-up days, James Rouse induced the City to invest approximately $11.5 million in capital improvements to help create 6th Street Mall. Today, our interviews point out certain telling functional and physical deficiencies including:

- Design/installation of the mechanical system was thought faulty, with tenant continual complaints over the heating and air-conditioning unit.
- Depth of new space created around 2,000 rental square feet, now known to be too small for essential tenancies' needs.
- Tenant mix itself proved wrong for the market—a telling deficiency.
- Legal concerns emerged over inadequate smoke detectors triggering false alarms.
- Chronic roof leaks and structure damage occurred to the Food Court facility.
- City does not own property but, instead, owned by Festival Diogenese Corporation, and the public realm must regain control.
- Tenants continually complained about misrepresentation(s) as to how much marketing and promotion funds would be provide, plus their complaints about the maintenance problems.
- Finally, the two department stores closed under the pressure of suburban retailing. Miller & Rhoads went bankrupt in the late 1980s, and by the early 1990s Thalhimers had become Hecht's, which eventually closed.

In a broader sense, Rouse warned the City not to neglect other pertinent issues such as poor housing quality, parking, and mounting crime particularly along Broad Street. Finally, the City administration in 2003 tore down most of the failed mall through the Broad Street CDA. The above forewarnings still are applicable to current events.

GAUGING MARKET SUPPORT FOR REVITALIZATION

On the positive market side, downtown Richmond has some key market features or "traffic generators" that are important to the success of retail. The generators include museums and cultural facilities, an active entertainment sector, a growing population base, between 70,000 and 80,000 downtown employees, and many visitors.

Some key industry points are appropriate for outlining a market strategy for revitalizing downtown Richmond's retail core.

- Retailers need a reason to move downtown. When they are convinced there is a strong market for their goods and services they will return. In recent years, department stores and big boxes have developed stores in numerous downtowns. Past experience shows that as residential development accelerates in a City's downtown, retail follows.

- First-floor retail is important. Street-level stores create visible appeal and pedestrian traffic. It also creates a retail environment along the street.

- Mixed-use development helps to create a thriving location. Downtown neighborhoods that combine residential, retail, recreational and entertainment venues create a lively 24/7 environment.

- For reviving downtown retail, efforts should be made to attract upscale shops, restaurants and entertainment venues to renew the image of the downtown retail base in line with the developing strong consumer base.

Successful new downtown shoppers-goods-driven retail projects include numerous opportunities when the market is right. This includes upscale boutique concentrations, sometimes in historic buildings, thematic districts, a new mall with upscale shops and anchors, big-box stores (sometimes on second/third levels of a mixed-use development), and others.

What types of retailers are expanding this year, and what types are standing pat, and are they viewing inner City locations favorable?

- High profile stores like Target, Kohl's and JC Penny are aggressively focusing on outlying strip center stores and potential inner City/downtown location in multiple floors operations.

- Market/tech stuff is causing growth in cellular and related TI accessories

- A variety of restaurants are emerging and find downtown attractive including fast-food, quick casual and sit-down formats

- Some older names, Blockbuster, and furniture/furnishings stores are downsizing aiming to upper value markets such as RoomsToGo and RoomStore

Trends recently indicate that most chains are trying for the first time in 40 years to find environmental variety and authenticity - a true sense of "realness" (according to Heepes of StreetWorks, LLC), and that is just what downtown Richmond needs. Today, with incentives properly offered, downtown could emerge as the best, provided we enhance our physical store forms, merchandise standards and much more.

Larger stores are considering multi-floor operations, curbside construction, and are beginning to "pay to play" in terms of urban design, creative store layouts, and other costs. In downtown Stamford, there's a new Target, which looks like a department store with small shops at the sidewalk, four levels of parking, and a two-level store on top.

In summary, we must add the real service business like hair stylists; food businesses; unique impulse retail; wine stores; bakeries, art galleries; and most importantly things that make interesting regional destinations, like libraries and theaters combined with great public spaces. Those are the tools to make memorable places. The role of retail is simply to get the people there, not to be the main attraction or experience.

The above uses in part are reacting to the significant market sectors or components that are altering market opportunities. They are new downtown employees, increasing visitors to downtown, local-area residents and students. The potential contribution of the first two can be quantified.

Downtown Employees are a large, natural source of patronage for retail and eating/drinking businesses during the work day and after. Their annual expenditure potential is considerable. In downtowns where there is a limited mix of shopping and food choices, employee expenditure potential is not fully realized. This is the situation in Richmond.

The amount of money downtown employees spend annually in several more extensive developed retail environments elsewhere is well acknowledged. The International Council of Shopping Centers (ICSC) periodically surveys downtown employees across the country and estimates their average expenditures in downtowns with limited retail offerings and those with ample offerings. The latest ICSC survey has been used in the following analysis.

Table 13 shows the estimated expenditure potential for food away from home, shoppers-goods, and personal services/convenience goods for 2007. It projects those expenditures to 2017 based on an improved downtown retail structure. The analysis reflects 2007 constant dollars unadjusted for future inflation. Actual 2017 dollars will be higher.

Table 13

Downtown Richmond Employees[1]
Expenditure Potentials, 2007-2017

Category	2007 Per Capita Exp	2007 Amount ($ Millions)	2017 Per Capita Exp.	2017 Amount ($ Millions)	Amount Change 2007-2017 $ Millions
Food	$1,300	$9.1	$1,500	$13.5	$4.4
Shoppers Goods	900	$6.3	1,000	$9.0	$2.7
Personal Serv./Conv. Goods	400	$2.8	500	$4.5	$1.7
Total	$2,600	$18.2	$3,000	$27.0	$8.8

[1] 70,000 employees in 2007; 80,000 employees in 2017

Note: Numbers are in constant 2007 dollars

Source: ICSC; ZHA, Inc.

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As noted earlier, the current employee expenditure potential is not fully realized in downtown Richmond. The analysis shows that current expenditure potential will increase from $18.2 million to $27.0 million, or by $8.8 million between 2007 and 2017.

If fully realized in 2017, employee expenditure potential alone will support the following amounts of retail space at industry levels of sales per square foot.

Category	Warranted Square Feet
Food	225,000
Shoppers Goods	250,000
Personal Serv./Conv.	150,000
Total	625,000

Richmond Visitor statistics for 2005 it is estimated that the number of visitors to downtown Richmond in 2007 will be 3,650,000 persons. This includes business travels, domestic and international visitors, convention attendees, and others. The average expenditures made by visitors vary by the reasons they are downtown.

Table 14 shows the estimated expenditures that downtown visitors will make in 2007 and projects those expenditures to 2017 based on an improved downtown retail structure. The analysis reflects 2007 constant dollars unadjusted for future inflation. Actual 2017 dollars will be higher.

Table 14

Downtown Richmond Visitors[1]
Expenditure Potential, 2007-2017
($ Millions)

Category	2007	2017	Amount Change 2007-2017
Food	$568.5	$787.5	$219.0
Shoppers Goods	$364.0	$504.0	$140.0
Entertainment	$159.5	$220.5	$61.0
	$1,092.0	$1,512.0	$420.0

[1] 3,650,000 visitors in 2007; 4,200,000 visitors in 2017

Source: Industry sources; ZHA, Inc.

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If fully realized in 2007, visitor expenditure potential alone will support the following amounts of retail space at industry levels of sales per square foot.

Category	Warranted Square Feet
Food/Restaurant	1,300,000
Shoppers Goods	1,450,000
Entertainment	750,000
Total	3,500,000

A small amount of the above shoppers-goods space may be in personal services/convenience goods. Similarly, some entertainment space may be in food. In summary, the total amount of supportable retail in downtown Richmond warranted by employee and visitor expenditure potentials alone in 2017 is:

Category	Warranted Square Feet
Food/Restaurant	1,525,000
Shoppers Goods	1,700,000
Personal Services/Conv.	150,000
Entertainment	750,000
Total	4,125,000

Depending on the types and quality of retail offerings available to consumers in downtown Richmond, the attraction of a market share by residents could increase the mix by 10 to 20 percent. Students will add some additional support for small restaurants, deli's, pizza places, etc., and for some shoppers-goods and personal services.

POSSIBLE FUNDING/THOUGHTS ON ORGANIZATION NEEDS

Shifting Attitudes and Consumer Aspirations - As we prepare for retail solicitation and procurement to implement the downtown Plan, we must appreciate the altering climate of retailing and the customer wishes. In fact, things are changing so quickly that retailers need to aggressively stay alert to shifting patterns. The wrong merchandise or the same tired product is going to be treated the same by the customer as "an empty shelf." Space between trends is getting shorter and shorter, and the retailer must seek a continuous sense of product newness. Retailers are turning increasing to in-store surveys, direct mailings, use of online surveys, and even selective call center usage to tag altering trends in merchandise.

Our interviews indicate that retailers are also relying on information gelded from credit cards, loyalty cards, and unique customer identifications. Info yields include non-confidential data such as frequency of visitations, how much is being spent on the average purchase, and what they like to buy and how often. ZHA's other data sources point out that retailers in downtown Richmond need to be more aware of:

- Using personalized attention to aid in overriding patrons' distrust of prices and sales.

- Being more sensitive to complaints as customers are slow to forget, refusing to return to a shop - in other words, no room is left for merchant errors.

- Patrons, while time starved, often are willing to go out of their way to shop where they know they will get what they want or get the best service.

- Being continually aware that the suburbs are always a workable option.

Another modifying condition favoring downtown is changing demographic characteristics. Three powerful demographic trends will cause profound change:

- It is predicted that the number of Americans age 55 and older will almost double between now and 2030 -- from 60 million today (21 percent of the total US population) to 107.6 million (31 percent of the population).

- During that same time period, the number of Americans over 65 will more than double, from 34.8 million in 2000 (12 percent of the population) to 70.3 million in 2030 (20 percent of the total population). This aging of America will present many opportunities for small independents that may choose to target this growing segment. New products, new services and new retail concepts will be introduced to capture this growth.

- Born between 1981 and 1995, this new Generation Y numbers 57 million. It is the largest consumer group in the history of the U.S. and represents a dominant future market. Many of the most popular traditional brands are having a tough time appealing to this group who gravitate to all things new - to brands that understand them and speak their language. It drives diversity and the ability to know what's new in an instant. Companies unable to relate to this group will obviously miss out on a huge potential opportunity.

Another marketing approach is applying "***Green Business Techniques***" in downtown Richmond to recruit new retail outlets, attract frustrated suburban ones, and renovate existing ones. Green business is taking on new forms daily – Business Week described a new “product” in Chicago called “Green Exchange Project,” opening for business in 2008. An entire center shall form the country's first shopping center for environmentally conscious and socially responsible businesses. What a wonderful concept for downtown Richmond—our customers are “hot” for anything “green certified”.

Think about housing an organic restaurant and café, a sustainable furniture store, a green building supply company, an eco-friendly printer, architects and designers focused on sustainability, an environmentally friendly clothing company, a car-sharing service, a bike shop.

The development is capitalizing on a booming market for all things green, organic, and socially responsible. Building into strength makes good sense. For example, sales of organic foods are expected to expand by 20 percent annually over the next few years, and are forecast to grow from $7.2 billion in 2005 to at least $19 billion in 2010—others forecast up to $38 billion.

Additionally, the following thoughts are offered for subsequent work and detailing as to structure and legislative initiatives:

- Devise a bonus density system (use and height/floors) for all office and mixed-use/ multi-use projects downtown if the first floor is reserved strictly for retail.

- Offer incentives for increasing the amount of pervious surfaces.

- Require all existing or to-be-constructed above-ground parking garages to be capped with "green roofs."

- Encourage some form of bonus or forgiveness for developers seeking LEED certification in construction.

The ***Green Tape Zone designation*** provides for a City Team which gives Downtown projects special priority in reviews and inspections involved in the permitting process. The Green Tape Team would handle requests for assistance with the Fire Marshal, Liquor and License, Building and Electrical Permits, Zoning, and other applicable inspecting units. The idea is to gain process time and accountability. The initial electrical inspector, for instance, once assigned a project, should promptly see it though final approval—constantly changing inspectors causes time losses and heavier carry charges to the developer/tenant's rent.

Pre-application assessment inspections provide potential owners/tenants with information about the suitability of a building for their intended use. New businesses now have a better chance to determine the likelihood of a successful start in downtown buildings as a result of these inspections.

Another suggestion is to assign a normal expedited time to a downtown construction job—and then offer to the developer some form of credit against untimely inspection delays by City officials measured in terms of lapse time, measured against paid entitlement fees.

Excellence of downtown infrastructure (streets furnishing, trees/flowers, and parks) are critically importance—it is a waste to capitalize and build a public facility and then have no funds for repair, replacement and daily maintenance. ZHA suggests that some form of Community Service Corps be established as a grassroots entity to handle the above issue—and others. Corps member participants (derived from the Downtown study area) have the opportunity to learn new skills, ***earn a wage***, serve their community, earn a high school equivalency diploma, and prepare themselves for post-corps college or trade apprenticeships.

In the field, corps members would stabilize vacant homes, plant community gardens, landscape vacant lots, remove graffiti, intern in youth service agencies, perform lead outreach and reduction activities, distribute food for food pantries, engage in recycling projects, and construct new playgrounds. Terms of service could range from three-month summer positions to year-long full-time slots. Corps members also would have the opportunity to earn a post-secondary education award that ranges up to $5,000 for example, depending on length of service.

This above entity could be melded into the CRA or be a separate private, not-for-profit organization serving the downtown community needs while the young people advance themselves and improve their neighborhoods. The downtown Richmond Corps should attempt to handle up to 60,000 man-hours, annually, if feasible.

Parking and Downtown should be tied to new patterns of development in the urban core reflecting both mobility and convenience. For 60 years we had this devotion to the car and the segregation of land uses decreed by myopic zoning codes that assign folks to one place, isolate offices elsewhere, and have retail within its own site surrounded by a "sea of cars."

Increasingly, our destinations between these uses are getting greater distant from each other,– we drive, often alone, to work, our spouses travel for shopping via a second vehicle, our teenagers mandate a third car, and we all collectively demand convenient parking at the lowest price possible. Now, we have unworthy architectural products scattered across our landscape, gapping holes functionally that discourage impulse retailing, and street-level entertainment uses.

In essence, parking (lots and garages) has become part of our ingrained culture. We negotiate our office leases with parking concerns deemed critical, and parking influence financial returns. It is "the selling point" for retail tenants, and a critical element for project debt financing. Richmond needs to accept that current parking standards and zoning are holding back essential development progress (downtown and elsewhere), and fostering congestion, consuming too much of our time, and retarding basic productivity.

Parking, therefore, is a primary cause of downtown retail "troubles"—with their improper designs, poor locations, with too much in one place, and none elsewhere, and no rhyme to programming.

ZHA was shocked to walk the blocks of the central office core, and as we traversed, we faced walls of concrete and steel in above-ground garages. These garages, mostly privately built to support our eight-hour downtown office worker,

created a sense of sterility, diminished opportunity, and reflected poor urban planning. Remedial public intervention in the worse private facility situation is good public policy. Action can be achieved by negotiations/or acquiring portions of the garage (condominium regime) for reuse as retail.

If we collectively, with Mayor/City Council, focus on modifying existing or introduced new City legislation, we can have a single oversight capacity handling all public input (including parking) in the CBD. Merging organizations, or surcharges taxes, and the like are beyond the scope of this report. However, we must restructure –that is a given if our opportunities are to be realized by creating entities representative of all downtown stakeholders (both residential and commercial).

This entity would be responsible to handle urban design standard reviews and give recommendations to City Planning, issue approved COP Certificates/ Revenue bonds for public garage re/works and new infrastructure construction, work out street usage and placement of street furnishings, and form and execute the formation of a cadre for employees to be held directly accountable for maintenance of all public sidewalks, garages and parks lands not held by the City's park development.

Also, devise a funding program that ties into "loft conversions" and infill restoration/new townhomes within tightly described portions of the downtown—in essence, a "Live Near Your Work" Program (LNYW). The City recently reduced the incentive offered through tax abatement reducing the duration of such assistance to the developer. In its interviews ZHA was continually sought out by developers asking for relief/ideas, and we listened to their expressions of the pending negative impact on likely future conversions. Some developer's expressed that their debt financing was being questioned as the residual income after expenses operationally falls below the threshold 120 percent of annual debt service.

This occurrence is partially caused by unreasonable land costs and increasing mortgage interest fees and rates.

We feel that a "Live Near Your Work" Program should be organized for providing eligible families an affordable grant depending on the household's relative position to the City's median income (scale/volume of unit assisted to be determine), or the SPARC program that Richmond has been participating in the last four years—more formally called VHDA's Sponsoring Partnerships and Revitalizing Communities (SPARC) homeownership program. Functioning as the capital City, the State should render the City special "set-aside" consideration when re-funding SPARC so a more significant volume of selected housing can be created, enhancing the livability features for state operations.

Also, another parallel program is essential to aid work force housing for teachers, fireman, police officers and others public servants with inadequate incomes to acquire attractive homes in the City of Richmond. We need to get the folks out of their cars, and on our City streets. In-town housing has proved it can do the job, but it needs help. For ownership situations, the City should look for Foundation grants and work with VHDA, and Fannie May. These two institutions fund partner participation to promote smart growth by encouraging alternative modes of transportation such as walking, biking and public transit. It is a home mortgage incentive program that provides low-interest mortgage loans to homebuyers who purchase a home in their town of employment. Tie low-interest mortgages together with down payment assistance and new ownership downtown will continue unabated.

Other programs to encourage affordable and work force house rental and ownership, as warranted, include:

- Up to Zero CBDG City Construction Loans to Developers.
- Teacher Assisted Lower Interest-Rate Loan and Grant(s).
- Police and Fireman Ownership Assistance (Loans and Grants).

ZHA is suggesting "beefing-up" incentives in rehab/renovation housing programs to ensure (1) the pace continues unabated, and (2) the City gets more deeply involved in mixed-use development that requires developers to pledge a portion of renovated units or new units in vertical constructed projects involving a dominance of market rate housing.

Massachusetts recently passed a landmark state legislative package to encourage economic development by offering personal and sales tax funds for debt service of public sponsored local bonds.

The Commonwealth of Massachusetts in late 2006 passed a modifying bill referred to as Chapter 293 of the State Code, entitled "An Act Relative to the Economic Development of the Commonwealth", called ***"I-Cubed".*** *In essence it pledges for an eligible mixed-use project to apply its collected personal income taxes and sales taxes to retire any public infrastructure costs (including parking) that are proposed as a joint venue between a city and a developer in a zone such as downtowns, provided certain employment objectives are meet. Several features of this act follow:*

- *Covers industrial, office, retail, housing, R&D, or any combination as approved by the City Council and State Secretary as denoted.*

- *Cost includes land purchase, demolition, install/remove utilities, normal hard and soft project costs including financing charges, plus residential units.*

- *Appropriated $200,000,000 annually and sunsets at 2012.*

- *Makes fully all debt service payments, limiting a specific municipality to two specific and separate projects. The developers pay any due debt service prior to initial occupancy.*

In conclusion, this Phase One Report of marketability finings shall become an integral part of a broader endeavor to restructure the downtown for affirmative change. Dover, Kohl & Partners is working to melt our findings with traffic/transportation, open space, and other aspects to achieve a more productive and attractive downtown. ZHA is ready, as appropriate, to participate in its optional Phase Two tasks at the discretion of the City.

AN ANALYSIS OF RESIDENTIAL MARKET POTENTIAL

The City of Richmond, Virginia
The Downtown Study Area

September, 2007

Conducted by
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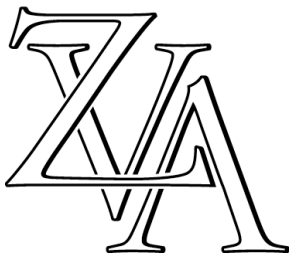

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Research & Strategic Analysis

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Research & Strategic Analysis

AN ANALYSIS
OF
RESIDENTIAL MARKET POTENTIAL

THE CITY OF RICHMOND, VIRGINIA
THE DOWNTOWN STUDY AREA

SEPTEMBER, 2007

INTRODUCTION

This study was undertaken to determine the depth and breadth of the market for existing and newly-introduced housing units—created both through the adaptive re-use of existing non-residential buildings as well as through new construction—in the City of Richmond, and in the Downtown Richmond Study Area. The Downtown Study Area boundary follows Interstates 64 and 95 in the north and east, then East Leigh Street to North 17th and 18th Streets, East Marshall to North 21st Street, East Franklin Street to North 27th Street, and East Main Street to Pear Street. The study area boundary then follows Dock, Water, and Old Main Streets to just beyond Orleans Street, where it crosses the river and heads west along the railroad tracks to Exit 73 of Interstate 95, where it follows the ramp to Maury Street. The boundary then heads northwest along Commerce Road to Decatur Street, following Decatur Street to Cowardin Avenue, then from Cowardin recrossing the James River over the South Belvidere Street Bridge.

The boundary then turns west following the river's edge to South Cherry Street, where it heads north to Albemarle Street, west on Albemarle to South Linden Street, north on South Linden Street to Idlewild Avenue, then west to South Harrison Street. The boundary then

follows Harrison Street to West Marshall Street, where it heads west to Gilmer Street, and, finally, follows Gilmer Street north to Interstates 64 and 95.

The Downtown Study Area includes several neighborhoods: Shockoe Bottom, Shockoe Slip, the VCU Medical Center, Court End, the Riverfront, City Center, the Financial District, Jackson Ward, Monroe Ward, Carver, VCU, Oregon Hill, and, south of the James River, Old Manchester. Several of the city's 14 old and historic districts are located in the Downtown Study Area: Broad Street from 1st Street to Belvidere; Jackson Ward; the 200 Block of West Franklin Street; West Franklin Street; West Grace Street; the 00 Blocks of East and West Franklin Street; and Shockoe Slip.

As is typical of many older core cities in expanding regions, the City of Richmond has struggled to maintain its economic base in the face of loss of population, commerce and retail businesses to the lower-density suburbs surrounding the city. For several years now, Richmond has lost more residents through out-migration than it has gained through in-migration. Between 2000 and 2007, the city experienced an estimated net loss of approximately 290 households per year. The ramifications over time of this household outflow could be significant: if this trend were to continue, Richmond could be home to fewer than 78,000 households by 2027, or a decline in total households of more than seven percent.

A core premise for the City of Richmond, then, should be that it is just as important to retain current residents as it is to attract new ones. Because strong residential neighborhoods are critical to the economic and social sustainability of a city, it is vital that Richmond provide and maintain secure and comfortable neighborhoods that offer housing options for a broad range of lifestyles, ages and incomes. The significant changes in households (particularly shrinking household size and the predominance of one- and two-person households) over the past several years, combined with steadily increasing traffic congestion and rising gasoline prices, have resulted in significant changes in neighborhood and housing preferences, with major shifts from predominantly single-family detached houses in low-density suburbs to higher-density apartments, townhouses, and detached houses in urban and mixed-use

neighborhoods. This fundamental transformation of American households is likely to continue over the next several years, representing an unprecedented demographic foundation on which cities can re-build their downtowns and in-town neighborhoods.

The study has included the determination of market potential for affordable as well as market-rate housing units ; the dramatic escalation in housing values throughout most of the country over the past several years has meant that homeownership has become much more difficult to achieve for an increasing segment of the market.

For the purposes of this analysis, market-rate is defined as affordable to households with incomes above 80 percent of the Richmond Area Median Family Income (AMFI), which, in 2007, is $68,700 for a family of four. Based on household size, the income limits to qualify for affordable housing would be $38,450 for a one-person household; $43,950 for a two-person household; $49,450 for a three-person household; $54,950 for a four-person household; and so on. Given that, in 2007, the median household income in Richmond is estimated at $37,600 (half of all households in the city have incomes below and half above this number), the 80 percent of AMFI standard would cover those households that genuinely need assistance to obtain affordable housing.

This study therefore identifies the depth and breadth of the potential market for new and existing housing units within the City of Richmond, including those households already living in the city and those households that are likely to move into the city if appropriate housing options were to be made available.

The extent and characteristics of the potential market for new and existing housing units within the city and the Downtown Study Area were identified using Zimmerman/Volk Associates' proprietary target market methodology. This methodology was developed in response to the challenges that are inherent in the application of supply/demand analysis to urban development and redevelopment. Supply/demand analysis ignores the potential impact of newly-introduced housing units on settlement patterns, which can be substantial when those

units are specifically targeted to match the housing preferences and economic capabilities of the draw area households.

In contrast to supply/demand analysis—which is based on supply-side dynamics and baseline demographic projections—target market analysis determines the depth and breadth of the potential market derived from the housing preferences and socio-economic characteristics of households in the defined draw areas. Because it considers not only basic demographic characteristics, such as income qualification and age, but also less-frequently analyzed attributes such as mobility rates, lifestyle patterns and household compatibility issues, the target market methodology is particularly effective in defining a realistic housing potential for urban development and redevelopment.

In brief, using the target market methodology, Zimmerman/Volk Associates determined the following for the City of Richmond and the Downtown Study Area:

- Where the potential renters and buyers for new and existing housing units would be moving from (the draw areas);
- How many would be likely to move to the City of Richmond (depth and breadth of the market);
- What their housing preferences are in aggregate (rental or ownership, multi-family or single-family);
- How many new dwelling units, both income-qualified and market-rate, could be leased or sold over the next 10 years (market capture); and
- Who the households are that represent the potential market (target household groups).

The optimum market position for the city would therefore be that mix of rental and ownership, multi-family and single-family dwelling units that best matches the lifestyle and economic characteristics of those households that comprise the potential market.

OVERVIEW

The City of Richmond comprises a diversity of neighborhoods, from the oldest in-town neighborhoods dating back to the city's founding, to those suburban neighborhoods surrounding the urban core that were annexed over time. Based on Claritas' estimates and projections, 192,660 people (82,505 households) currently live in the city; 46.6 percent of the population is male and 53.4 percent is female. Just under 39 percent of the city's residents are white, 55.4 percent are African-American, 1.3 percent Asian, and the remaining four percent are some other race or a mix of two or more races. Median age is estimated at 35.4 years. Twenty-nine percent of all residents aged 25 or older have a college or advanced degree. (*See* Table 1.)

Currently, more than 70 percent of the households that live in the city contain just one or two persons. Median household income is currently estimated at $37,600. (The per capita income is just under $24,500.)

The unprecedented real estate escalation in the United States over the past several years has had a significant impact in Richmond as well, where the median housing value soared from just $87,400 in 2000 to an estimated $149,900 in 2007, an increase of nearly 42 percent. (*See* Table 2.)

Slightly more than five percent of all dwelling units in the city were built since 1999, and 26.6 percent were built prior to 1939. Housing production posted double-digit growth rates through the 1970s; during the 1980s, the percentage of new units produced dropped to just over seven percent, and continued to fall through the 1990s, to just one percent of all units in the late 1990s. Slightly less than 48 percent of Richmond's dwelling units are single-family detached, 8.5 percent are units in large multi-family buildings of 50 units or more, and the remainder are a mix of units in smaller multi-family buildings as well as single-family attached units.

Fifty-five percent of Richmond's households are renters; 45 percent own their units. Nearly 22 percent do not own automobiles. Almost 27 percent of the city's residents aged 16 or more are employed in sales and office work; 22.2 percent hold professional and related jobs; 18.8 percent have service jobs; 12.9 percent in management, business and financial employment; 12.5 percent production, transportation, and material moving; and 6.5 percent are construction and maintenance employees. Overall, 62 percent are white-collar occupations, 19 percent blue-collar, and 19 percent service occupations. Just over five percent of the population over 16 are unemployed, although nearly 38 percent are not currently in the labor force. Five percent of employed residents walk to work, 8.3 percent take public transportation, 12.7 percent car-pool, and more than 70 percent drive alone. (The remaining four percent either work at home, ride bicycles or motorcycles, or have other means of getting to work.)

Based on historic trends, Claritas projects that, over the next five years, the population of the City of Richmond will continue to decline, by more than two percent, down from the estimated 192,660 persons in 2007 to a projected 188,540 persons in 2012. (*See* Table 3.) During the 1990s, Richmond lost nearly 2.5 percent of its population; since the 2000 census, the city is estimated to have lost another 2.6 percent.

The number of households in Richmond is also projected to continue to fall; by 2012, the city is projected to contain 1,815 fewer households than in 2007. (*See* Table 4.) However, the proportion of those households with higher incomes is projected to rise, with the number of households with annual incomes of $100,000 or more projected to post double-digit percentage gains between 2007 and 1012. It is anticipated that households headed by persons aged 45 to 54 will achieve the largest absolute improvement in income, although households headed by persons aged 35 to 44 are projected to experience the greatest percentage increase (nearly 11 percent). (*See* Table 5.)

CITYWIDE MARKET POTENTIAL

American households, perhaps more than any other nation's, have always demonstrated extraordinary mobility. Last year, depending on region, between 15 and 20 percent of American households moved from one dwelling unit to another. Household mobility is higher in urban areas and in the West; a higher percentage of renters move than owners; and a higher percentage of younger households move than older households.

An understanding of these mobility trends, as well as analysis of geo-demographic characteristics of households currently living within defined draw areas, is therefore integral to the determination of the depth and breadth of the potential market for new and existing housing units within a given area. The draw areas are derived primarily through migration analysis, but also incorporate information obtained from real estate brokers, sales and leasing agents and other knowledgeable sources, as well as from Zimmerman/Volk Associates' field investigation.

Analysis of City of Richmond migration and mobility patterns from 2001 through 2005—the latest data available from the Internal Revenue Service—shows that the city continues to experience net migration losses to other counties in the region, in particular Henrico and Chesterfield Counties. However, Richmond is the recipient of net migration gains from numerous Virginia cities and counties outside the region, and overall net migration gains from elsewhere in the United States.

In 2001, approximately 7,800 households moved into Richmond, compared to the nearly 8,100 households that moved out of the city that year, for a net loss of 280 households. By 2005, the number of households moving out of the city had risen to 8,825; however, the number moving into the city rose to nearly 8,800 households, resulting in a considerably smaller net loss of just 50 households. In 2005, Henrico, Chesterfield and Hanover Counties together accounted for nearly 45 percent of in-migrating households.

Where does the potential market for new and existing housing units in the City of Richmond currently live?

Based on the migration analysis, and mobility trends within the city, the draw areas for the City of Richmond have been delineated as follows:

- The primary (or internal) draw area, covering households currently living within the Richmond city limits. Each year over the past several years, between 10 and 14 percent of the households living in the city moved to another residence within the city limits.

- The regional draw area, covering households with the potential to move to the City of Richmond from Henrico, Chesterfield, and Hanover Counties. Historically, each year, Richmond has lost significantly more households to these three counties than it has gained. Since city has averaged an annual net loss of approximately 750 to 1,000 households to these three counties, reversing the regional trend could have a significant impact on regional settlement patterns.

- The Northern Virginia draw area, covering households with the potential to move to the City of Richmond from Fairfax and Arlington Counties. Richmond has gained more households from these two counties than it has lost, and, given the increasing traffic congestion and very high housing costs in the D.C. area, this trend is likely to accelerate.

- The national draw area, covering households with the potential to move to the City of Richmond from outside the region. Approximately 4,300 households move into the City of Richmond from elsewhere in the United States each year; a small additional number are households moving from outside the United States.

As derived from migration and mobility analysis, then, the draw area distribution of the potential housing market (those households likely to move both within and to the City of Richmond) would be as follows:

Potential Housing Market by Draw Area
City of Richmond, Virginia

City of Richmond (Primary Draw Area):	43.0%
Henrico/Chesterfield/Hanover Counties (Regional Draw Area):	26.8%
Fairfax/Arlington Counties (Northern Virginia Draw Area):	2.5%
Balance of US (National Draw Area):	27.7%
Total:	100.0%

SOURCE: Zimmerman/Volk Associates, Inc., 2007.

How many households would be likely to move within and to the City of Richmond and what are their housing preferences?

As determined by the target market methodology, then—which accounts for household mobility within the City of Richmond as well as migration and mobility patterns for households currently living in all other cities and counties—more than 16,000 households represent the annual potential market for new and existing housing units within the city. The housing preferences of these draw area households—according to tenure (rental or for-sale) and general financial capacity—can be arrayed as follows (*see* Table 6):

Annual Potential Market
For New and Existing Housing Units
City of Richmond, Virginia

HOUSING TYPE	NUMBER OF HOUSEHOLDS	PERCENT OF TOTAL
Multi-family for-rent (BMR*)	2,810	17.5%
Multi-family for-rent (market-rate†)	3,310	20.7%
Multi-family for-sale (all ranges)	1,890	11.8%
Single-family attached for-sale (all ranges)	980	6.1%
Single-family detached (BMR*)	1,740	10.8%
Single-family detached (market-rate†)	5,320	33.1%
Total	16,050	100.0%

* BMR: Below Market-Rate.

† Market rate is defined as affordable to households with incomes no less than 80 percent of the Richmond Area Median Family Income (AMI), in 2007, of $68,700 for a family of four.

SOURCE: Zimmerman/Volk Associates, Inc., 2007.

Nearly 62 percent of the market would choose some form of ownership housing (compared to the current homeownership rate of 45 percent). Of the 38.2 percent that comprise the market for rental dwelling units, some are renters by choice; many, however, would prefer to own but cannot afford the type of housing they want in neighborhoods where they would consider living. Nearly 44 percent of the market would prefer single-family detached units—currently, 48 percent of Richmond's housing stock are single-family houses. The remaining 56 percent

of the ownership market would choose for-sale single-family attached (townhouses/live-work units) or multi-family units.

These numbers represent the market potential for new and existing housing units within the City of Richmond, and should not be confused with projections of housing need or change in the number of households.

The general housing types covered in this analysis include the following:

- Multi-family for-rent (along with multi-family for-sale, the highest-density housing type; multiple rental apartments located within buildings that include three stories or more);
- Multi-family for-sale (along with multi-family for-rent, the highest-density housing type; multiple for-sale apartments located within buildings that include three stories or more);
- Single-family attached (a medium-density housing type; two- or three-story townhouses; duplexes or two-family houses; live-work units); and
- Single-family detached houses (ranging from the highest-density single-family housing type, typically developed on small lots, with garage access from alleys at the rear of the units, to the lowest-density single-family housing type, with garage access from the street in front of the units).

The optimum proportions of these housing types within the city should be based on the housing preferences and income levels of those households that are moving within the city as well as those households moving into the city from the external draw areas.

—Richmond's Optimum Market Position—

The determination of Richmond's optimum market position is the outcome of the aggregate results of the research and analysis. Richmond's optimum market position is defined by both the appropriate balance of rental and ownership units and the mix of housing types within the city that will enhance the city's competitive position within the region.

From the perspective of draw area target market propensities (their preferred types of housing) and compatibility (their preferred types of neighborhoods), and within the context of the competitive marketplace in the Richmond market area, the potential market for new and existing housing units within the City of Richmond includes a full range of housing types, from multi-family rental apartments to single-family detached for-sale houses.

Therefore, as derived from the housing preferences and income levels of households moving within the city, and from the aforementioned draw areas, the optimum mix of housing units in the City of Richmond that would match market preferences would be as follows:

Optimum Housing Mix
City of Richmond, Virginia

TOTAL	RENTAL MULTI-FAMILY	FOR-SALE MULTI-FAMILY	FOR-SALE ATTACHED SINGLE-FAMILY	FOR-SALE DETACHED SINGLE-FAMILY
100%	38%	12%	6%	44%

SOURCE: Zimmerman/Volk Associates, Inc., 2007.

The optimum housing mix as outlined above indicates a significant increase in the number of owner-occupied units in the city. Nationwide, during the 1990s, cities of all sizes experienced a decline in the percentage of owner-occupied dwelling units due to a variety of factors, ranging from the out-migration to the suburbs of homeowners to the transformation of detached houses from single-family residences to multiple rental units. In 2007, Richmond's owner-occupied housing stock was estimated at just over 45 percent of all occupied dwelling units.

The successful transformation of Richmond's housing stock from 55 percent rental to a more balanced ratio of rental and for-sale units should continue to build upon the following:

- Preservation of the Built Environment: the restoration, repositioning and/or adaptive re-use of existing houses and buildings. The introduction of for-sale multi-family units in predominantly single-family (both attached and detached) neighborhoods will serve to increase the range of housing options available to the potential market. For example, single-family houses that had been previously subdivided into multiple rental units could be reverted to owner-occupied single-family units, or the existing rental units could be converted to condominium ownership, combining smaller units when necessary.

- New Residential Construction: the introduction of housing types, unit types, and sizes, not currently available or under-represented, in appropriate locations within the city. A significant segment (15 percent or more) of the 21st Century housing market prefers new construction, in large part because new construction is more likely to provide floorplans that are matched to 21st Century lifestyles.

To maintain or regain market relevance, then, a city must continue to reinvent its housing stock. Since most cities are largely built out, that reinvention is limited to infill development, and the replacement of obsolete and substandard dwelling units. It is important that new housing should add to the diversity of the housing stock.

How many new dwelling units, both income-qualified and market-rate, could be leased or sold within the city over the next five years?

After more than 19 years' experience in numerous cities across the country, and in the context of the target market methodology, Zimmerman/Volk Associates has determined that those households that prefer and can afford new dwelling units—either newly constructed or newly-developed through adaptive re-use of existing buildings—comprise approximately five to 15 percent of the potential market. (Nationally, newly-constructed dwelling units represent 15 percent of all units sold.) Based on a conservative capture rate of five to 15 percent of Richmond's annual market potential, then, the city could support between 1,252 and 2,056 new or renovated units per year, as follows:

Annual Capture of Market Potential
City of Richmond, Virginia

HOUSING TYPE	NUMBER OF HOUSEHOLDS	CAPTURE RATE	NUMBER OF NEW UNITS
Rental Multi-Family (below market) (lofts/apartments, leaseholder)	2,810	10 - 15%	281 - 422
Rental Multi-Family (market rate) (lofts/apartments, leaseholder)	3,310	10 - 15%	331 - 497
For-Sale Multi-Family (all ranges) (lofts/apartments, condo/co-op ownership)	1,890	10 - 15%	189 - 284
For-Sale Single-Family Attached (all ranges) (townhouses/live-work, fee-simple/condominium ownership)	980	10 - 15%	98 - 147
For-Sale Single-Family Detached (below market) (urban houses, fee-simple ownership)	1,740	5 - 10%	87 - 174
For-Sale Single-Family Detached (market rate) (urban houses, fee-simple ownership)	5,320	5 - 10%	266 – 532
Total	16,050 households		1,252 – 2,056 units

SOURCE: Zimmerman/Volk Associates, Inc., 2007.

Based on the migration and mobility analyses, and dependent on the creation of appropriate new and renovated housing units, up to half of the annual market capture of 1,252 to 2,056 new dwelling units—or from 625 to 1,025 units per year—could be from households moving from outside Richmond's city limits. Over 10 years, the realization of that market potential could lead to an increase of between 6,250 to 10,250 households living in Richmond that moved from a location other than elsewhere within the city. Moreover, if a portion of the remainder of the new and renovated units were to be leased or purchased by some of those households that would have otherwise moved out of the city due to lack of appropriate housing options, the trend of household loss that has been evident in the city over the past two decades would be reversed, demonstrating the substantial impact that the introduction of well-positioned new housing can have to revitalize cities and diversify urban neighborhoods.

A five to 15 percent capture rate would require the construction and/or renovation of 12,520 to 20,560 new dwelling units within the city over 10 years, of which 56 percent would be ownership dwelling units and 44 percent would be rental units. Given the financial capacities of the target market households, approximately 28 percent of the new and renovated units would likely be subject to income qualifications, ranging from replacement public housing to units affordable to households with incomes at or below 80 percent of the area median family income. Although the five to 15 percent capture rates could potentially be achieved through pure market forces, in order to assure that the full market potential is attained, City programs should continue to be forcefully implemented, particularly in support of the development of the affordable components.

NOTE: Target market capture rates are a unique and highly-refined measure of feasibility. Target market capture rates are *not* equivalent to—and should not be confused with—penetration rates or traffic conversion rates.

The **target market capture rate** is derived by dividing the *annual* forecast absorption—in aggregate and by housing type—by the number of households that have the potential to purchase or rent new housing within a specified area *in a given year*. The **target market capture rate** is a measure developed over nearly two decades

of empirical, site-specific analysis that establishes the feasible percentages that can reasonably be applied to the potential market for each housing type.

The **penetration rate** is derived by dividing the *total* number of dwelling units planned for a property by the *total* number of draw area households, sometimes qualified by income. The **penetration rate** is largely an academic measure that establishes the percentage of households from within a defined area that must move to a housing project to achieve 100 percent occupancy.

The **traffic conversion rate** is derived by dividing the *total* number of buyers or renters by the *total* number of prospects that have visited a site. The **traffic conversion rate** is a measure of the effectiveness of sales and leasing efforts.

Because the prospective market for a location is more precisely defined, target market capture rates are higher than the more grossly-derived penetration rates. However, the resulting higher capture rates are well within the range of prudent feasibility.

Who are the households that represent Richmond's potential markets?

The market for urban housing is now being fueled by the convergence of the two largest generations in the history of America: the 79 million Baby Boomers born between 1946 and 1964, and the 77 million Millennials, who were born from 1977 to 1996.

Boomer households have been moving from the full-nest to the empty-nest life stage at an accelerating pace that will peak sometime in the next decade and continue beyond 2020. Since the first Boomer turned 50 in 1996, empty-nesters have had a substantial impact on urban, particularly downtown housing. After fueling the dramatic diffusion of the population into ever-lower-density exurbs for nearly three decades, Boomers, particularly affluent Boomers, are rediscovering the merits and pleasures of urban living.

At the same time, Millennials are just leaving the nest. The Millennials are the first generation to have been largely raised in the post-'70s world of the cul-de-sac as neighborhood, the mall as village center, and the driver's license as a necessity of life. As has been the case with predecessor generations, significant numbers of Millennials are heading for the city. They are not just moving to New York, Chicago, San Francisco and the other large American cities; often priced out of these larger cities, Millennials are discovering second, third and fourth tier urban centers.

The convergence of two generations of this size—simultaneously reaching a point when urban housing matches their life stage—is unprecedented. This year, there are about 41 million Americans between the ages of 20 and 29, forecast to grow to over 44 million by 2015. In that same year, the population aged 50 to 59 will have also reached 44 million, from 38 million today. The synchronization of these two demographic waves will mean that there will be an additional eight million potential urban housing consumers eight years from now.

As determined by the target market analysis, and reflecting national trends, the potential market for new and existing housing units in the City of Richmond can be characterized by general household and housing type as follows (*see also* Table 7):

Annual Market Potential by Household and Unit Types
City of Richmond, Virginia

		MULTI-FAMILY		SINGLE-FAMILY			
		RENTAL		FOR-SALE			
HOUSEHOLD TYPE	PERCENT OF TOTAL	BMR* APTS	MARKET† APTS	ALL RANGES APTS	ATT.	BMR* DET.	MARKET† DET.
Empty-Nesters & Retirees	22%	16%	15%	25%	16%	30%	28%
Traditional & Non-Traditional Families	30%	20%	20%	15%	23%	36%	44%
Younger Singles & Couples	48%	64%	65%	60%	61%	34%	28%
Total	100%	100%	100%	100%	100%	100%	100%

* BMR: Below market rate.

† Market rate is defined as affordable to households with incomes no less than 80 percent of the Richmond Area Median Family Income (AMI), in 2007, of $68,700 for a family of four.

SOURCE: Zimmerman/Volk Associates, Inc., 2007.

- **The largest general market segment is composed of younger households (younger singles and couples).**

The target groups in this segment typically choose to live in neighborhoods that contain a diverse mix of people, housing types, and uses. In Richmond, the revitalization of several neighborhoods has been pioneered by younger singles and couples, who, when appropriate housing options have been available, helped re-populate those neighborhoods. For the most part, younger households tend to be "risk-tolerant." The target households in this market segment prefer to live in a city, for the availability of a variety of activities, including cultural opportunities, restaurants and clubs and, for an increasing number, the potential to walk to work.

More than two-thirds of the younger singles and couples that comprise Richmond's target households in this segment can afford market-rate rental or ownership units. These include a variety of affluent white-collar professionals—the *VIPs*, *Fast-Track Professionals*, *Ex-Urban Power Couples*, *Upscale Suburban Couples*; young entrepreneurs, artists, and "knowledge workers"—*e-Types*, *New Bohemians*, *Twentysomethings*; as well as office

workers, undergraduates and graduate students, and other higher-education affiliates—*Small-City Singles*, *Urban* and *Suburban Achievers*.

The remainder of the younger singles and couples in this market segment are spending more than 30 percent of their annual gross incomes on housing. Some of these households—*Blue-Collar Singles* and *Suburban Strivers*—are employed in lower-paying jobs, including retail and service occupations, and approximately a quarter of these younger households would be moving into the city from surrounding counties to be closer to employment.

Depending on housing type, younger singles and couples represent between 28 and 65 percent of the market for new and existing housing units in Richmond. More than half would be moving from one unit to another within the city, 23 percent would be moving into the city from surrounding counties, approximately three percent would be moving from Fairfax or Arlington Counties in northern Virginia; and the remaining 20 percent would be moving from elsewhere in Virginia and the U.S.

- **The next general market segment is comprised of family-oriented households (traditional and non-traditional families).**

  An increasing percentage of family-oriented households are non-traditional families, notably single parents with one or two children. Non-traditional families, which during the 1990s became an increasingly larger proportion of all U.S. households, encompass a wide range of family households, from a single mother or father with one or more children, an adult taking care of younger siblings, a grandparent responsible for grandchildren, to an unrelated couple of the same sex with children. Traditional families contain a married man and woman with children. These can also include "blended" families, in which each parent was previously married to another individual and each has children from that marriage.

Households with school-age children have historically been among the first to leave a city when one or all of three significant neighborhood elements—safe and secure streets, sufficient green space, and good schools—are perceived to be at risk. Until recently, this outward movement of family households has accounted for the majority of new construction, typically single-family detached houses, in areas outside the city limits.

In the 1980s, when the majority of the Baby Boomers were in the full-nest lifestage, the "traditional family household" (married couple with one or more children) comprised more than 45 percent of all American households. That market segment has now shrunk to less than 25 percent of all American households, and the subset of the one wage-earner traditional family has fallen to less than 15 percent of all American households. This significant transformation reflects the increasing diversity of households with children, as well as the aging of the Baby Boomers into the empty-nest lifestage.

More than a third of the families that comprise Richmond's target households in this segment cannot afford market-rate rental or ownership units. These include public housing residents—*High-Rise*, *Mid-Rise* and *Low-Rise Families*, more than 85 percent of whom currently live in the city, as well as numerous working families struggling to make ends meet—*In-Town Families*, *Blue-Collar Families*, *Kids 'r' Us* and *Subsistence Families,* nearly all of whom are moving to Richmond from outside the city because of the lower housing costs in the city compared to the surrounding counties.

Another third of the family households have higher incomes and are living in market-rate dwelling units but are spending close to, or more than 30 percent of their incomes on housing costs. These households are the less affluent of the market groups *Multi-Cultural Families*, *Multi-Ethnic Families*, *Late-Nest* and *Full-Nest Suburbanites* and *Small-Town* and *New-Town Families*, about half of whom would be moving to Richmond from outside the city limits.

The remainder of the traditional and non-traditional families in this market segment are among the most affluent households in the country, including the *Social Register*, the

Entrepreneurs, *Nouveau Money* and *Unibox Transferees*. These are, in large part, dual-income households, with one or both spouses holding executive or upper managerial positions; business owners; medical and legal professionals; or university administrators and professors.

Depending on housing type, traditional and non-traditional families represent between 15 and 44 percent of the market for new and existing housing units in the city. More than half would be moving from one unit to another within the city, 23 percent would be moving into the city from surrounding counties, approximately three percent would be moving from Fairfax or Arlington Counties in northern Virginia; and the remaining 20 percent would be moving from elsewhere in Virginia and the U.S.

- **The third general market segment is comprised of older households (empty nesters and retirees).**

  A significant number of these households have grown children who have recently moved away; another large percentage are retired, with incomes from pensions, savings and investments, and social security.

  Many of these households are currently living in older single-family detached houses in suburban neighborhoods in the city or in suburban subdivisions located outside the city; typically, these neighborhoods offer few, if any, appropriate housing options for empty-nesters or retirees. These older households are quite dissimilar in their attitudes from either younger or family-oriented households. They have different expectations, and among them, for many, is the perceived ease and convenience of single-level living, typically, a master suite on the same floor as the main living areas, and few stairs in the unit. The high maintenance and capital costs associated with old and often obsolete housing stock is an underestimated contributing factor in household out-migration; when the only new housing is located outside an urban area, that is where households will move.

In this market segment, more than 40 percent of the most affluent households—*Nouveau Money*, *Urban Establishment*, *Suburban Establishment*, *Affluent Empty Nesters* and *Cosmopolitan Elite*—are already living in the city; another 30 percent would be moving to Richmond from suburban neighborhoods in the county; and the remainder largely from other Virginia counties. As noted above, these households are moving for the most part because of lifestyle changes, from full nest to empty nest, rather than necessity. This subset of the *Empty Nesters and Retirees*' market segment represents approximately one-third of this market.

Just under 30 percent of the empty nesters and retirees in this market segment cannot afford market-rate rental or ownership units, from public housing residents in high-rise buildings—*Second-City Seniors*—to older single persons struggling on limited incomes, mostly from social security—*Downtown Retirees*, *Multi-Ethnic Seniors*, *Hometown Retirees* and *Blue-Collar Retirees*, nearly all of whom are already living in Richmond, many in substandard housing.

The remaining empty-nest and retiree households are middle-income and living in detached houses in Richmond or surrounding counties. These households would like to move to dwelling units more appropriate to their lifestage and requiring less upkeep and maintenance expense, but if given the choice, would choose to remain in their current neighborhoods. These households are the less affluent of the market-rate groups, and include *Middle-Class Move-Downs*, *Mainstream Retirees* and *Middle-American Retiree*s.

Empty-nest and retiree households represent between 15 percent and 30 percent of the market for new and existing housing units in the city, depending on housing type.

The household groups that represent the market for new and existing housing units in the City of Richmond, their median household incomes and median home values, are as follows:

Target Market Household Groups
(In Order of Median Income)
City of Richmond, Virginia

HOUSEHOLD TYPE	MEDIAN INCOME	MEDIAN HOME VALUE (IF OWNED)
Empty Nesters & Retirees		
Old Money	$302,300	$547,100
Urban Establishment	$132,200	$448,800
Suburban Establishment	$113,300	$301,300
Affluent Empty Nesters	$112,800	$296,700
Small-Town Establishment	$112,500	$279,400
Cosmopolitan Elite	$104,900	$295,100
Cosmopolitan Couples	$104,300	$390,300
New Empty Nesters	$97,300	$244,800
Mainstream Retirees	$87,900	$190,000
Multi-Ethnic Empty Nesters	$84,600	$297,000
RV Retirees	$75,200	$218,200
Middle-Class Move-Downs	$70,100	$220,200
Middle-American Retirees	$68,100	$172,400
Heartland Empty Nesters	$31,500	$178,100
Small-Town Seniors	$31,200	$135,000
Blue-Collar Retirees	$30,600	$106,500
Suburban Retirees	$28,100	$120,600
Suburban Seniors	$24,900	$119,200
Back Country Seniors	$24,500	$124,600
Rural Seniors	$24,000	$93,400
Struggling Retirees	$23,400	$79,600
Downtown Retirees	$21,700	$132,800
Hometown Retirees	$21,300	$89,500
Multi-Ethnic Seniors	$18,500	$135,800
Second City Seniors	$18,400	$88,100

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HOUSEHOLD TYPE	MEDIAN INCOME	MEDIAN HOME VALUE (IF OWNED)
Traditional & Non-Traditional Families		
The Social Register	$268,400	$460,800
The Entrepreneurs	$156,400	$420,900
Nouveau Money	$146,900	$406,300
Full-Nest Urbanites	$117,900	$498,400
Unibox Transferees	$113,200	$304,000
Late-Nest Suburbanites	$102,100	$298,300
Full-Nest Suburbanites	$100,600	$293,700
Multi-Cultural Families	$78,300	$293,900
Blue-Collar Button-Downs	$70,400	$217,900
Multi-Ethnic Families	$70,300	$293,900
Kids 'r' Us	$31,500	$149,100
Rustic Families	$31,000	$121,100
Low-Rise Families	$27,700	$138,900
Mid-Rise Families	$24,200	$107,000
In-Town Families	$24,100	$112,200
High-Rise Families	$18,600	$98,300
Younger Singles & Couples		
e-Types	$129,700	$510,500
Ex-Urban Power Couples	$117,000	$366,900
Fast-Track Professionals	$103,400	$263,500
The VIPs	$99,300	$262,000
Upscale Suburban Couples	$93,000	$231,500
New Bohemians	$86,900	$348,000
Cross-Training Couples	$79,700	$196,400
Twentysomethings	$73,900	$206,100
Suburban Achievers	$72,000	$208,200
Urban Achievers	$71,400	$257,900
No-Nest Suburbanites	$71,000	$194,600
Small-City Singles	$63,200	$194,900
Exurban Suburbanites	$59,400	$172,600
Country Couples	$31,400	$140,900
Rural Singles	$26,400	$86,900
Suburban Strivers	$25,900	$136,600
Rural Strivers	$25,900	$85,200
Blue-Collar Singles	$24,000	$101,900
Soul City Singles	$19,300	$109,700

NOTE: The names and descriptions of the market groups summarize each group's tendencies—as determined through geo-demographic cluster analysis—rather than their absolute composition. Hence, every group could contain "anomalous" households, such as empty-nester households within a "full-nest" category.

SOURCE: Zimmerman/Volk Associates, Inc., 2007.

THE SUPPLY-SIDE CONTEXT

Downtown Multi-Family Rental

A wide range of rental properties—predominantly adaptive re-use of existing buildings—are located in the Downtown Richmond Study Area. (*See* Table 8.) Development of these older manufacturing buildings, many of them former tobacco warehouses, was stimulated by access to both federal and state historic tax credits; several local developers, as well as the national developer Forest City, have created hundreds of apartments in Shockoe Bottom and Shockoe Slip since the year 2000 using these tax credits. Most of the larger properties in the Downtown Study Area are leasing the full range of studios, and one- and two-bedroom apartments; however, three-bedroom apartments are less frequently found.

Monthly rents for studios generally range between $500 to just under $1,000 for apartments of approximately 300 to 700 square feet ($1.19 to $2.02 per square foot). One-bedroom apartments generally start at just under $600 per month and go up to $1,625 a month, for approximately 450 square feet to 1,300 or more square feet of living space (generally $0.99 to $1.70 per square foot).

Two-bedroom units range in rent from approximately $1,000 up to $3,500 per month, with sizes ranging between 600 and over 1,900 square feet, ($0.90 to $1.78 per square foot, although many individual units fall below this rent-per-square-foot range).

Rents for the limited number of three-bedroom units range from $1,250 up to $3,000 per month, with unit sizes ranging between1,100 and 2,300 square feet, ($1.06 to $1.50 per square foot).

Occupancy rates generally range between 90 and 100 percent; however, more than two-thirds of the 29 downtown rental properties included in the survey are at functional full occupancy (more than 95 percent occupied).

Downtown Multi-Family and Single-Family Attached For-Sale

In recent years, development of market-rate for-sale housing has increased in the Downtown Study Area. At the time of the field investigation, a number of properties, both adaptive re-use of existing buildings and new construction, were being marketed throughout the Downtown. (*See* Table 9.) The asking prices of the properties included in the field survey started at $130,000 for a 516-square-foot one-bedroom apartment at Emrick Flats to more than $1 million for the largest units at Vistas on the James. Base prices per square foot ranged from as low as $117 to more than $400, although most of the units currently on the market are priced between $200 and $275 per square foot.

Reportedly, sales have slowed in the past several months, reflecting the national trends of investor disengagement and the recent disruption and tightening of the mortgage market. Average sales paces ranged from one or fewer units per month at several properties to more than six units per month at Vistas on the James (where investors have represented a significant segment of the buyers). With the exception of Vistas on the James, all of the for-sale properties located in the Study Area contained fewer than 100 units, and most were marketing fewer than 50 units.

Vistas on the James, the largest property currently marketing units in Downtown, is the second new construction high-rise to be developed by Daniel Development on the James River. The first, the 122-unit Riverside on the James, opened for sales in 2004, and averaged close to nine sales per month, including a significant percentage of investor sales, many of which have been placed on the market for asking prices ranging between $239,000 and $615,000. Currently, the base prices for the remaining few units at the 168-unit Vistas on the James range from $309,000 for 846 square feet of living space to $979,000 for 2,342 square feet ($365 to $418).

Overlook Townhouses, new construction townhouses developed by Commonwealth Properties and located at the southern end of Oregon Hill, has sold three-quarters of its units in several phases since opening in March, 2004, averaging 1.6 sales per month. Currently, base

prices for 1,320- to 2,378-square-foot townhouses range between $269,500 and $539,900 ($204 to $227 per square foot). Buyers include singles and couples—few with children—and parents of students at VCU.

Across the river in Old Manchester, Monroe Properties' Old Manchester Lofts is nearing close-out, with just six of the 80 lofts yet to be sold. Base prices for the remaining units range between $165,000 and $285,000, for approximately 800 to 1,400 square feet of living space ($204 to $206). Monroe Properties owns a significant number of parcels in Old Manchester, and Old Manchester Lofts is the largest property currently underway in the area.

Two large new-construction properties located in adjacent Henrico County at or close to the Richmond city limits are Monument Square in western Henrico and Rocketts Landing in eastern Henrico County. A total of 238 condominiums and townhouses are planned at Monument Square, which is modeled on Richmond's historic architectural precedents. Base prices for the 1,218- to 3,400-square-foot condominiums range between $294,300 and $860,000 ($242 to $253 per square foot) and between $550,000 and $630,000 for the 2,300- to 2,700-square-foot townhouses ($233 to $239 per square foot). The property opened for sales in early 2006, and 19 units (18 condominiums and one townhouse) have been sold.

Rocketts Landing, which opened for sales in the summer of 2005, is currently marketing condominiums within a former ice cream factory (83 units in Cedar Works) as well as new construction (49 units in Fall Line and 60 units in Sky Line). Base prices for units in Cedar Works range from $125,000 to $630,000 for 657- to 1,930-square-foot units ($190 to $326 per square foot); units in Fall Line and Sky Line contain between 1,221 and 2,188 square feet, with base prices starting at $275,000 and reaching $675,000 ($225 to $309 per square foot). The five penthouses are custom units, priced above $1 million. The first phase of 41 townhouses—Old Main Street, Rocketts Way and Cedar Works—has recently been introduced. All but one of the townhouses contain 2,400 square feet and are priced in the mid-$400,000s; the large corner townhouse is priced over $1 million. Rocketts Landing will eventually contain up to 1,500 dwelling units, including two 14-story towers which will be located within Richmond's city limits.

Newly-Constructed Single-Family Detached For-Sale

Most of the newly-constructed single-family detached houses currently for sale in Richmond are located on scattered infill sites, with the exception of those units built or renovated in Neighborhoods in Bloom (NiB) areas. (*See* Table 10.) The six original NiB neighborhoods include southern Barton Heights, Highland Park, Jackson Ward, Church Hill, Carver/Newtowne West, and Blackwell; as of May 2007, Swansboro and Bellmeade have been added to the list. The NiB houses comprise a majority of the new or renovated houses for sale in Highland Park, Barton Heights, and Blackwell.

The majority of the new construction is occurring south of the James River, where there is greater land availability. Dozens of new houses are either under construction or already built but not yet sold throughout this area. At the time of the field survey, prices started at $125,000 for a 1,000-square-foot, three-bedroom house in Fonticello Park ($125 per square foot), with the most expensive a 3,729-square-foot, five-bedroom house in Stratford Hills with an asking price of $699,000 ($187 per square foot). The majority of the new houses south of the river are priced between $150,000 and $200,000, with per-square-foot prices ranging between approximately $90 and $150.

A broad range of new and renovated houses are also for sale in and around the Church Hill neighborhood. The least expensive house was priced at $144,950, for an 1,150-square-foot three-bedroom house, and the most expensive house was priced at $399,000 for more than 2,200 square feet of living space. The majority of the new houses in this area are priced between $150,000 and $250,000, with per-square-foot prices in the same general range as those south of the James River.

Neighborhoods north of Downtown have also seen some construction activity, particularly the NiB neighborhoods of Highland Park and Barton Heights. House prices, sizes, and prices per square foot in these neighborhoods are comparable to those elsewhere in the city.

MARKET POTENTIAL FOR THE DOWNTOWN STUDY AREA

As noted above, Downtown Richmond is comprised of several neighborhoods located within the designated boundaries of the Study Area: Shockoe Bottom, Shockoe Slip, the VCU Medical Center, Court End, the Riverfront, City Center, the Financial District, Jackson Ward, Monroe Ward, Carver, VCU, Oregon Hill, and, south of the James River, Old Manchester (approximately 12 census block groups in all). There are approximately 83,000 employees in the Downtown Study Area who work at the several banks, state and city offices, Virginia Commonwealth University, the Biotech Research Park, the MCV Medical Center, among many others.

According to Claritas, an estimated 13,851 people (5,632 households) currently live within the Study Area boundaries (see again Table 1). Nearly half of the population is male and 50.2 percent is female. Forty-seven percent of the population is white, 42.5 percent is African-American, six percent Asian, and the remaining four percent is a mix of two or more races. The median age of the downtown population is slightly older than 31 years. A third of all residents aged 25 or older have a college or advanced degree.

Currently, nearly 83 percent of the households that live in the Downtown Study Area contain just one or two persons. Partly because of the extremely high percentage of households with two or fewer people, and the much lower percentage of family households, the median income, at $26,700, is lower than the median for the city as a whole, which is $37,600. The per capita income is just over $19,700. The median home value of those Downtown units that are owned, at $146,200, is lower than the citywide median of $149,900. More than a quarter of all dwelling units in the Study Area were built since 1999, whereas a third were built prior to 1939. Fourteen percent of the dwelling units in the Study Area are single-family detached, 28 percent are units in large multi-family buildings of 50 units or more, and the remainder are a mix of units in smaller multi-family buildings as well as single-family attached (townhouse/live-work) units.

Eighty-one percent of the Study Area households are renters; just 19 percent own their units. Nearly 24 percent do not own automobiles. The majority of the Study Area residents are employed in professional or sales and office work, with 62 percent in white-collar occupations, 13 percent blue-collar, and 25 percent service occupations. More than 12 percent are unemployed, although 36 percent are not currently in the labor force. Sixteen percent of the employed residents walk to work, 10 percent take public transportation, 12 percent car-pool, and nearly 58 percent drive alone. (The remaining four percent either work at home, ride bicycles or motorcycles, or have other means of getting to work.)

During the 1990s, the Downtown Study Area lost nearly seven percent of its population, only to rebound significantly since the 2000 census, with a gain of more than 20 percent. Extrapolating from the recent trend, Claritas projects that, over the next five years, the population of the Downtown Study Area will increase by just over 19 percent to 16,550 persons in 2012.

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As determined by the target market methodology, which accounts for household mobility within the City of Richmond, as well as mobility patterns for households currently living in all other cities and counties, in the year 2007, more than 4,000 younger singles and couples, empty nesters and retirees, and traditional and non-traditional families currently living in the draw areas represent the potential market for new and existing housing units within the Downtown Study Area.

The housing preferences of these 4,040 draw area households—based on tenure (rental/ownership) choices and financial capacity—are outlined as follows (*see* Table 11):

Annual Potential Market
For New and Existing Housing Units
THE DOWNTOWN STUDY AREA
City of Richmond, Virginia

HOUSING TYPE	NUMBER OF HOUSEHOLDS	PERCENT OF TOTAL
Multi-family for-rent (BMR*)	590	14.5%
Multi-family for-rent (market-rate†)	900	22.3%
Multi-family for-sale (all ranges)	710	17.6%
Single-family attached for-sale (all ranges)	400	9.9%
Single-family detached (BMR*)	310	7.7%
Single-family detached (market-rate†)	1,130	28.0%
Total	4,040	100.0%

* BMR: Below Market-Rate.

* Market rate is defined as affordable to households with incomes no less than 80 percent of the Richmond Area Median Family Income (AMI), in 2007, of $68,700 for a family of four.

SOURCE: Zimmerman/Volk Associates, Inc., 2007.

These 4,040 households comprise approximately one quarter of the 16,050 households that represent the potential market for new and existing housing units in all of the City of Richmond, a share of the total market that is consistent with Zimmerman/Volk Associates' experience in other cities. For example, in recent analyses, the downtown market was found to represent approximately 23 percent of the city's potential market in Birmingham, Alabama, Fort Wayne, Indiana, and Atlanta, Georgia; 24 percent in Mobile and Montgomery, Alabama, and Lafayette, Louisiana; 26 percent in Norfolk, Virginia, Redding, California, and Toledo, Ohio; 30 percent in Detroit and Grand Rapids, Michigan, Spokane, Washington, and Baltimore, Maryland; 35 percent in Lexington, Kentucky and Buffalo, New York; and 36 percent and 38 percent in Louisville, Kentucky and New Haven, Connecticut, respectively.

Like Richmond, many of these cities are located in regions where the majority of any increase in the number of households has typically occurred outside the city limits. In most cases, the introduction of newly-created, appropriately-positioned housing units within the city limits,

particularly in the downtown, has had an impact on settlement patterns by providing suitable new housing options for households that previously had none.

Up to 37 percent of the potential market is for rental units, of which nearly 40 percent qualify as "market-rate," meaning households who do not require financial assistance to cover the monthly rents. The remaining 63 percent of the potential market is for ownership units, distributed between for-sale apartments (multi-family, all price ranges), townhouses/live-work units (single-family attached, all price ranges), and urban houses (single-family detached, both below-market-rate and market-rate).

The market potential numbers indicate the depth of the potential market for new and existing housing units within the Downtown Richmond Study Area, not housing need and not projections of household change. These are the households that are likely to move within or to Downtown if expanded housing options were to be made available.

From the perspective of draw area target market propensities and compatibility, and the context of the individual neighborhoods and districts within the Study Area, the potential market for new housing units within the Downtown Study Area includes the full range of housing types, from rental multi-family to for-sale single-family detached. Appropriate housing types for the Study Area therefore include:

- Rental lofts and apartments (multi-family for-rent);
- For-sale lofts and apartments (multi-family for-sale);
- Townhouses, live-work (single-family attached for-sale); and
- Houses on urban lots (single-family detached for-sale).

As determined by this analysis, the potential market for new and existing housing units in the Downtown Study Area can be characterized by general household type as follows (*reference* Table 12):

Annual Potential Market by Household and Unit Types
THE DOWNTOWN STUDY AREA
City of Richmond, Virginia

		MULTI-FAMILY			SINGLE-FAMILY		
		RENTAL		FOR-SALE			
HOUSEHOLD TYPE	PERCENT OF TOTAL	BMR* APTS	MARKET† APTS	ALL RANGES APTS	ATT.	BMR* DET.	MARKET† DET.
Empty-Nesters & Retirees	37%	20%	21%	45%	33%	39%	53%
Traditional & Non-Traditional Families	9%	9%	10%	4%	3%	19%	11%
Younger Singles & Couples	54%	71%	69%	51%	64%	42%	36%
Total	100%	100%	100%	100%	100%	100%	100%

* BMR: Below market rate.

* Market rate is defined as affordable to households with incomes no less than 80 percent of the Richmond Area Median Family Income (AMI), in 2007, of $68,700 for a family of four.

SOURCE: Zimmerman/Volk Associates, Inc., 2007.

- Younger singles and couples represent an even higher percentage of the market—up to 54 percent—for housing units in the Downtown Study Area than in Richmond as a whole—at 48 percent. As mentioned above, younger households tend to gravitate to high-activity neighborhoods, and the downtown, in particular Shockoe Slip, contains a concentration of restaurants, shops, and entertainment activities. If the preference for downtown housing demonstrated by the leading edge of the Millennials is representative of the entire generation, the market potential from this segment is likely to become even more significant over the next decade.

- Empty nesters and retirees represent 37 percent of the market for housing units in the Downtown Study Area, a considerably higher percentage than their 22 percent share of the city-wide market. In numerous cities

throughout the country, new construction in downtowns has become an attractive residential alternative for empty-nest households seeking both lower housing maintenance and higher concentration of neighborhood activities.

- The target families for downtown locations are either non-traditional families (*e.g.*—a single mother with one or two children) or younger couples that have been living downtown and have recently had their first child. Historically, families have preferred detached houses and townhouses to apartments, making them less interested in the higher-density buildings that are typical of most downtowns. Traditional and non-traditional family households therefore represent just nine percent of the market for new and existing housing units in the Downtown Study Area, considerably below their 30 percent share of the city-wide market.

DOWNTOWN STUDY AREA RENT AND PRICE RANGES

From a market perspective, the major challenges to new residential development in the Downtown Study Area include:

- Neglected or vacant properties: Derelict and vacant properties are a deterrent to potential urban residents, as they contribute to the perception that the Study Area contains low-value and dangerous neighborhoods.

- Safety concerns: As is the case in many other downtowns throughout the United States, the general perception held by the public at large is that Downtown Richmond is unsafe, particularly at night.

- High costs: The rising costs of materials, in addition to the typically high cost of adaptive re-use, drive rents and prices beyond the reach of many potential residents.

- Parking misconceptions: Regardless of the abundance of parking decks and open parking lots, the local perception is that there is insufficient parking downtown.

From a market perspective, the assets of the Downtown Study Area that make it an attractive place to live include:

- The James River: Although currently largely under-utilized, and cut off by the flood barrier, the James River represents significant opportunities for both public access and private development.

- Historic buildings: There are a large number of civic, commercial, and residential buildings that are architecturally and historically significant and provide a unique identity for the city. These include Thomas Jefferson's Virginia State Capitol, the Main Street Station, the Jefferson Hotel and the Linden Row Inn, the John Marshall House, several churches, and numerous individual residences.

- Employment: Downtown is a significant regional employment center and home to Fortune 500 companies, Virginia Commonwealth University, as well as major medical facilities.

- Dining and Entertainment: The Downtown Study Area, particularly Shockoe Bottom and Shockoe Slip, contains dozens of eating establishments, ranging from cafés and bars to white-tablecloth restaurants; the 17th Street Farmers' Market is a downtown institution. Venues such as the Landmark Theater, Coliseum, the American Civil War Center, the Black History Museum and Cultural Center, the Edgar Allan Poe Museum, the Canal Walk, and multiple art galleries, including Artworks and the Plant Zero Art Center in Old Manchester, and events such as the First Fridays Art Walk are also great assets to downtown residents.

- Walkability: The Study Area neighborhoods are compact enough to walk from one end to the other, although, due to the number of open parking lots in each neighborhood, the quality of the pedestrian experience could be improved significantly.

What is the market currently able to pay?

—Rent and Price Ranges—

Based on the tenure preferences of draw area households and their income and equity levels, the general range of rents and prices for newly-developed residential units that could currently be sustained by the market is as follows (*see also* Table 13):

Rent, Price and Size Range
Newly-Created Housing (Adaptive Re-Use and New Construction)
THE DOWNTOWN STUDY AREA
City of Richmond, Virginia

HOUSING TYPE	RENT/PRICE RANGE	SIZE RANGE	RENT/PRICE PER SQ. FT.
FOR-RENT (MULTI-FAMILY)—			
Hard Lofts *	$500–$1,850/month	450–1,350 sf	$1.11–$1.37 psf
Soft Lofts †	$600–$2,100/month	500–1,450 sf	$1.20–$1.45 psf
High-End Apartments	$1,150–$2,500/month	600–1,750 sf	$1.43–$1.92 psf
FOR-SALE (MULTI-FAMILY)—			
Hard Lofts *	$90,000–$300,000	500–1,400 sf	$180–$214 psf
Soft Lofts †	$140,000–$350,000	700–1,500 sf	$200–$233 psf
High-End Condominiums	$300,000–$875,000 and up	1,000–2,500 sf and up	$300–$350 psf and up
FOR-SALE (SINGLE-FAMILY ATTACHED)—			
Townhouses	$145,000–$265,000	950–1,250 sf	$153–$212 psf
Live-Work	$275,000–$400,000	1,500–1,750 sf	$183–$229 psf
Townhouses	$325,000–$450,000 and up	1,350–2,000 sf and up	$225–$241 psf and up
FOR-SALE (SINGLE-FAMILY DETACHED)—			
Urban Houses	$150,000–$425,000	1,000–1,650 sf	$150–$258 psf
Larger Urban Houses	$475,000–$600,000 and up	1,800–2,400 sf and up	$250–$264 psf and up

* Unit interiors of "hard lofts" typically have high ceilings and commercial windows and are either minimally finished, limited to architectural elements such as columns and fin walls, or unfinished, with no interior partitions except those for bathrooms.

† Unit interiors of "soft lofts" may or may not have high ceilings and are fully finished, with the interiors partitioned into separate rooms.

SOURCE: Zimmerman/Volk Associates, Inc., 2007.

The above rents and prices are in year 2007 dollars, are exclusive of consumer options and upgrades, or floor or location premiums, and cover a broad range of rents and prices for newly-developed units currently sustainable by the market in the Downtown Study Area. However, for the most part (and depending on location), these rents and prices cannot be achieved by the development of one or two infill units, but require that projects be of sufficient size to achieve development efficiency and to support a high-impact marketing campaign.

As has been the experience in many revitalizing downtowns across the country, it is probable that many buildings or projects could require financing assistance, subsidies and/or tax incentives to provide units at the lower (affordable) end of the rent and price ranges.

How fast will the units lease or sell?

—Market Capture—

After nearly 20 years' experience in various cities across the country, and in the context of the target market methodology, Zimmerman/Volk Associates has determined that, for renovated and new housing units (including both adaptive re-use of existing non-residential buildings as well as new construction) within a downtown, an annual capture of between 10 and 15 percent of the potential market, depending on housing type, is achievable. Based on those capture rates, the Downtown Study Area should be able to support between 404 to 608 new housing units per year, as follows:

Annual Capture of Market Potential
THE DOWNTOWN STUDY AREA
City of Richmond, Virginia

HOUSING TYPE	NUMBER OF HOUSEHOLDS	CAPTURE RATE	NUMBER OF NEW UNITS
Rental Multi-Family (below market) (lofts/apartments, leaseholder)	590	10 - 15%	59 - 89
Rental Multi-Family (market rate) (lofts/apartments, leaseholder)	900	10 - 15%	90 - 135
For-Sale Multi-Family (all ranges) (lofts/apartments, condo/co-op ownership)	710	10 - 15%	71 - 107
For-Sale Single-Family Attached (all ranges) (townhouses/live-work units, fee-simple/condominium ownership)	400	10 - 15%	40 - 60
For-Sale Single-Family Detached (below market) (urban houses, fee-simple ownership)	310	10 - 15%	31 - 47
For-Sale Single-Family Detached (market rate) (urban houses, fee-simple ownership)	1,130	10 - 15%	113 - 170
Total	4,040 households		404 - 608 units

SOURCE: Zimmerman/Volk Associates, Inc., 2007.

Over 10 years, the realization of the 10 to 15 percent market capture could mean the addition of 4,000 to 6,000 new dwelling units in the Downtown, of which up to 30 percent should be

affordable to households earning at or below 80 percent of the area median family income. Based on the migration and mobility analyses, and dependent on the creation of appropriate new housing units, up to half of the 10-year market capture of 4,000 to 6,000 new dwelling units—or from 2,000 to 3,000 units—could be from households moving from outside Richmond's city limits. It is evident from this analysis that new housing development in the Downtown represents a significant opportunity to attract new residents to the city.

NOTE: See explanation of capture rates following the section on Annual Capture of Market Potential for the City of Richmond.

Rental Distribution

The rent ranges outlined above cover leases by households with annual incomes ranging between $38,000 and $100,000 or more. A single-person household with an income of $38,000 per year, paying no more than 25 percent of gross income for rent and utilities—the national standard for affordability is 30 percent—would qualify for a rent of $600 per month. A two-person household, with an income of $43,000 per year, paying no more than 25 percent of gross income for rent and utilities, could qualify for a rent of $700 per month. A three-person household, with an income of $50,000 per year, paying no more than 25 percent of gross income for rent and utilities, could qualify for a rent of $850 per month; at an income of $100,000 or more, a three-person household could afford a rent of up to $2,500 per month.

Based on the target household mix (*see* Table 14) and the financial capacities of the target households, the distribution by rent range of up to 224 rental units that could be absorbed each year over the next five years in the Downtown Study Area is as follows:

Loft/Apartment Distribution by Rent Range
THE DOWNTOWN STUDY AREA
City of Richmond, Virginia

MONTHLY RENT RANGE	UNITS PER YEAR	PERCENTAGE
Under $750	40	17.9%
$750–$1,000	44	19.6%
$1,000–$1,250	30	13.4%
$1,250–$1,500	30	13.4%
$1,500–$1,750	22	9.8%
$1,750–$2,000	16	7.1%
$2,000–$2,250	12	5.4%
$2,250–$2,500	12	5.4%
$2,500 and up	18	8.0%
Total:	224	100.0%

SOURCE: Zimmerman/Volk Associates, Inc., 2007.

Based on the target household incomes, nearly two-thirds of the lofts/apartments should carry monthly rents of $1,500 or less; more than 70 percent of units in this rent range would be

likely to be leased by younger singles and couples. Empty nesters and retirees represent the market for 21 percent of these units, and the remaining nine percent would be non-traditional families.

One-quarter of the lofts/apartments could carry monthly rents of $1,750 or more. Just over half of these units would be likely to be leased by affluent dual-income younger couples, another 29 percent by older couples, and the remaining 15 percent by compact families where both parents are employed.

For-Sale Distribution

The price ranges outlined above cover purchases by households with annual incomes ranging between $35,000 and $200,000. A single-person household with an income of $35,000 per year, paying no more than 25 percent of gross income for housing costs, including mortgage principal, interest, taxes, insurance and utilities, could qualify for a mortgage of $80,000 at current interest rates. A two- or three-person household with an income of $200,000 per year under the same criteria could qualify for a mortgage of at least $500,000 at current interest rates.

Based on the target household mix (*reference* Table 15) and financial capabilities of the target households, the distribution by price range of up to 107 for-sale lofts/apartments that could be absorbed each year over the next five years in the Downtown Study Area is as follows:

Loft/Apartment Distribution by Price Range
THE DOWNTOWN STUDY AREA
City of Richmond, Virginia

PRICE RANGE	UNITS PER YEAR	PERCENTAGE
Under $100,000	12	11.2%
$100,000–$150,000	12	11.2%
$150,000–$200,000	14	13.1%
$200,000–$250,000	14	13.1%
$250,000–$300,000	18	16.8%
$300,000–$350,000	9	8.4%
$350,000–$400,000	8	7.5%
$400,000–$450,000	8	7.5%
$450,000–$500,000	6	5.6%
$500,000 and up	6	5.6%
Total:	107	100.0%

SOURCE: Zimmerman/Volk Associates, Inc., 2007.

Based on the target household incomes, more than 65 percent of the lofts/apartments should be priced below $300,000. Younger singles and couples represent 60 percent of the market for hard and soft lofts priced at $300,000 or less; empty nesters and retirees comprise another 34

percent; and non-traditional families just 6 percent. Nearly three-quarters of the most expensive soft lofts and luxury apartments, priced at $300,000 or more, are likely to be purchased by empty nesters and retirees, with 21 percent likely to be purchased by affluent younger couples and the remaining five percent by urban families.

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Based on the target household mix (*reference* Table 16) and financial capabilities of the target groups, the distribution by price range of up to 60 townhouse/live-work units that could be absorbed each year over the next five years in the Downtown Study Area is as follows:

Townhouse Distribution by Price Range
THE DOWNTOWN STUDY AREA
City of Richmond, Virginia

PRICE RANGE	UNITS PER YEAR	PERCENTAGE
Under $150,000	6	10.0%
$150,000–$200,000	6	10.0%
$200,000–$250,000	8	13.3%
$250,000–$300,000	9	15.0%
$300,000–$350,000	9	15.0%
$350,000–$400,000	8	13.3%
$400,000–$450,000	8	13.3%
$450,000 and up	6	10.0%
Total:	60	100.0%

SOURCE: Zimmerman/Volk Associates, Inc., 2007.

In this case, based on the target household incomes, just under half of the townhouse/live-work units should be priced below $300,000. Younger singles and couples represent more than 86 percent of the market for townhouses or live-work units priced at $300,000 or less, and empty nesters and retirees the remaining 14 percent. Almost 55 percent of the townhouses/live-work units priced at $300,000 or more are likely to be purchased by empty nesters and retirees; 38.7 percent by entrepreneurial younger couples, and the remaining 6.5 percent by families.

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Based on the target household mix (*see* Table 17) and financial capabilities of the target groups, the distribution by price range of up to 144 urban detached houses that could be absorbed each year over the next five years in the Downtown Study Area is as follows:

Urban Detached House Distribution by Price Range
THE DOWNTOWN STUDY AREA
City of Richmond, Virginia

PRICE RANGE	UNITS PER YEAR	PERCENTAGE
Under $200,000	18	12.5%
$200,000–$250,000	18	12.5%
$250,000–$300,000	20	13.9%
$300,000–$350,000	16	11.1%
$350,000–$400,000	14	9.7%
$400,000–$450,000	16	11.1%
$450,000–$500,000	12	8.2%
$500,000–$550,000	10	7.0%
$550,000–$600,000	10	7.0%
$600,000 and up	10	7.0%
Total:	144	100.0%

SOURCE: Zimmerman/Volk Associates, Inc., 2007.

Based on the target household incomes, nearly 60 percent of the urban detached houses should be priced below $400,000. Younger singles and couples comprise just over half the market for urban detached houses priced at $400,000 or less; empty nesters and retirees represent 38.4 percent; and traditional and non-traditional families another eight percent. Two-thirds of the most expensive urban detached houses, priced at $400,000 or more, are likely to be purchased by empty nesters and retirees, with 19 percent likely to be purchased by urban families and the remaining 13.8 percent by affluent younger couples.

DOWNTOWN STUDY AREA NEIGHBORHOODS

SHOCKOE BOTTOM/TOBACCO ROW

Shockoe Bottom and Tobacco Row (Census block group 600205002 coincides approximately with these two areas) comprise the easternmost neighborhoods in the Downtown Study Area, and include those blocks bounded by the James River to the south, Interstate 95 to the west, the Martin Luther King Memorial Bridge to the northwest, and an eastern boundary following 18th Street to 19th Street, along East Marshall Street to 21st Street, along East Franklin Street to 27th Street, curving down to the river and following the river to just past Orleans Street.

According to Claritas, 2,030 people (1,231 households) currently live in this area; 53 percent are male and 47 percent are female. (*See again* Table 1.) More than 89 percent are white, just over seven percent are African-American, and the remaining four percent are mostly Asian. The median age of the population in Shockoe Bottom/Tobacco Row is 37.9 years. An extraordinary two-thirds of the people aged 25 and older living in this area hold a college or advanced degree.

Nearly 92 percent of the households that live in Shockoe Bottom/Tobacco Row consist of just one or two persons. At $47,800, the median income in this area is 79 percent higher than the $26,700 Downtown Study Area median, and 27 percent higher than the $37,600 city-wide median. (Per capita income is $37,900, 92 percent higher than the Downtown Study Area per capita income, and nearly 55 percent higher than the city-wide per capita income.) The median home value of $311,500 in Shockoe Bottom/Tobacco Row is considerably higher than the $146,200 in the Downtown Study Area or the $149,900 in the city as a whole. One reason for the higher home values is that nearly 46 percent of the dwelling units in this area were created since 1999, with 37 percent built prior to 1939. Because the neighborhood was a former manufacturing area, just 6.6 percent of the units are single-family detached houses; 39 percent are multi-family buildings of 50 or more units (adaptive re-use of the former manufacturing buildings), and the rest are smaller multi-family buildings as well as single-family attached.

Approximately 80 percent of the households living in Shockoe Bottom/Tobacco Row rent their units. Just seven percent do not own automobiles. Because of their high education levels, the majority of these residents are employed in management/business/finance, professional, or sales and office work, with 82 percent in white-collar occupations, nine percent blue-collar, and nine percent service occupations. Only six-tenths of one percent are unemployed, and less than 26 percent are not currently in the labor force. Just five percent of the employed residents walk to work, five percent car-pool, and nearly 87 percent drive alone, a substantial number of whom commute to employment outside the city. (The remaining three percent either work at home or have other means of getting to work.)

Based on historic trends, Claritas projects that, over the next five years, the population of Shockoe Bottom/Tobacco Row—which more than doubled during the 1990s and grew by more than 60 percent since the 2000 Census—will increase by almost 23 percent to nearly 2,500 persons in 2012.

SHOCKOE SLIP/RIVERFRONT/FINANCIAL DISTRICT/CITY CENTER

Shockoe Slip, the Riverfront, Financial District and City Center (Census block group 600305001 coincides approximately with these neighborhoods), situated in the center of the Downtown Study Area, includes those blocks bounded by Interstate 95 to the east, the James River to the south, Second Street on the west, and East Broad Street to the north.

According to Claritas, an estimated 920 people (512 households) live in this area of Downtown; 60 percent are male and 40 percent are female. (*See again* Table 1.) Two-thirds of the population in this area is white, more than a quarter are African-American, and the remaining seven percent are Asian or some other race. The median age of the population in this area is 34 years. More than 35 percent of the people aged 25 and older living in this area hold a college or advanced degree.

Nearly 96 percent of the households that live in the Shockoe Slip/Riverfront/Financial District/City Center area consist of one or two persons, the highest percentage within the Downtown Study Area. At $22,200, the median income in this area is 16 percent below the Downtown Study Area median; the per capita income of $21,200 is higher than the Downtown Study Area as a whole but lower than the citywide per capital income of $24,500. The $175,000 median home value is more than 16 percent higher than the $146,200 median home value in the Downtown Study Area, in large part because half of the dwelling units in this area were created since 1999, with 32 percent built prior to 1939. None of the units are single-family detached houses; most are multi-family and with a small percentage of single-family attached.

Only one percent of the households living in the Shockoe Slip/Riverfront/Financial District/City Center area own their units, and up to 19.3 percent do not own automobiles. The majority of the Shockoe Slip/Riverfront/Financial District/City Center residents are employed in service, professional, or sales and office employment, with half in white-collar occupations, 11 percent blue-collar, and 39 percent service occupations. Just under nine percent of the Shockoe Slip/Riverfront/Financial District/City Center population are

unemployed, with nearly 31 percent not currently in the labor force. Nearly 30 percent of employed residents walk to work, 10 percent take public transportation, 1.6 percent carpool, and nearly 56 percent drive alone.

Based on historic trends, Claritas projects that, over the next five years, the population of the Shockoe Slip/Riverfront/Financial District/City Center area will increase by more than 26 percent to 1,164 persons in 2012. This significant increase follows growth of just 9.8 percent during the 1990s, but a 78 percent increase since the 2000 Census.

COURT END/VCU MEDICAL CENTER/BIOTECH CENTER

The Court End, VCU Medical Center, and Biotech Center area (Census block group 600302002 coincides approximately with these districts), occupying the northeastern portion of the Downtown Study Area, includes those blocks bounded by Interstate 95 to the north and east, East Broad Street to the south, and North 3rd Street to the west.

According to Claritas, 612 people are residents of group quarters in this area of Downtown Richmond; 36 percent are male and 64 percent are female. (*See again* Table 1.) The median age of the population is 22.3 years; 26 percent are white, 58 percent are African-American, more than 10 percent are Asian, and the remaining six percent are a mix of other races. From the perspective of the U.S. Census, persons who live in group quarters, such as dormitories, do not count as households.

The majority of the Court End, VCU Medical Center, and Biotech Center area residents are graduate students; about a third also work in sales and office or service jobs, with 61 percent in white-collar occupations, 31 percent in service occupations, and eight percent in blue-collar occupations. Just over 11 percent of the Court End, VCU Medical Center, and Biotech Center area residents are unemployed, and more than 56 percent are not currently in the labor force. Per capita income stands at just $3,700. More than 46 percent of the employed residents walk to work, 31 percent take public transportation, and just over 14 percent drive alone (nine percent ride a motorcycle).

Based on historic trends, Claritas projects that, over the next five years, the population of this area will increase by 7.7 percent to 659 people in 2012, after having risen by nearly 13 percent during the 1990s and by 19 percent since the 2000 Census.

JACKSON WARD

Jackson Ward (Census block group 600302001 coincides approximately with this neighborhood), situated in the northern section of the Downtown Study Area, includes those blocks bounded by North 3rd Street to the east, Broad Street to the south, North Belvidere Street to the west, and Interstate 64 to the north.

According to Claritas, an estimated 1,028 people (484 households) currently live in this area; 51.5 percent are male and 48.5 percent are female. (*See again* Table 1.) Approximately 37 percent of the population is white, more than 57 percent are African-American, and the remaining six percent are other races, including Asian. The median age of the population in Jackson Ward is 37.4 years. Just over 24 percent of the people aged 25 and older living in Jackson Ward have a college or advanced degree.

Just under 71 percent of the households that live in Jackson Ward consist of one or two persons. At $24,600, the median income in Jackson Ward is slightly lower than the Downtown Study Area median of $26,700, and a third lower than the city median; per capita income is $15,500. The $153,300 median home value is more than two percent higher than the city-wide $149,900 median home value. Just two percent of the dwelling units in this area were created since 1999, with 59 percent built prior to 1939. Nearly 22 percent of the units are single-family detached houses; 26 percent are small multi-family buildings, and nearly all of the remaining units are single-family attached.

More than 30 percent of Jackson Ward's households own their units, although 28 percent do not own an automobile. The majority of the Jackson Ward residents are employed in service and sales and office work, with 51 percent in white-collar occupations, 16 percent blue-collar, and 33 percent service occupations. Just four percent of Jackson Ward households are unemployed, with approximately 31.5 percent not currently in the labor force. Approximately 11 percent of the employed residents walk to work, 8.7 percent take public transportation, 8.4 percent carpool, and nearly 56 percent drive alone.

Based on historic trends (and without consideration of proposed large-scale developments in the neighborhood), Claritas projects that, over the next five years, the population of the area will decline by nearly five percent to 977 people in 2012, after having lost nearly 27 percent of its population during the 1990s, and another six percent since the 2000 Census.

MONROE WARD

Monroe Ward (Census block group 600305002 coincides approximately with this neighborhood) is located south of Jackson Ward and includes those blocks bounded by Broad Street to the north, South 2nd Street to the east, the Downtown Expressway to the south, and South Belvidere Street to the west.

According to Claritas, an estimated 2,537 people (1,387 households) live in this area of Downtown; 53 percent are male and 47 percent are female; just over 37 percent of the population is white, approximately 42 percent are African-American, and the remaining 21 percent are primarily Asian. (*See again* Table 1.) The median age of the population in Monroe Ward is more than 37 years. Nearly 30 percent of the people aged 25 and older living in Monroe Ward hold a college or advanced.

More than 94 percent of the households that live in Monroe Ward consist of one or two persons. At $20,100, the median income in Monroe Ward is nearly 25 percent below the Downtown Study Area median. (Per capita income is $22,000.) The $176,800 median home value is more than 20 percent higher than the median home value of $146,200 in the Study Area as a whole. More than 33 percent of the dwelling units in this area were created since 1999, with just 12.6 percent built prior to 1939. A third of all dwelling units constructed in Monroe Ward were built during the 1960s and 1970s. Slightly over one percent of the units are single-family detached houses; three-quarters are in multi-family buildings of 50 units or more, and the remainder are in small multi-family buildings or are single-family attached units.

Like the Shockoe Slip/Riverfront/Financial District/City Center area, only one percent of the households living in Monroe Ward own their units, and more than 28 percent do not own automobiles. The majority of Monroe Ward residents are employed in professional and service jobs, with 60 percent in white-collar occupations, 14 percent blue-collar, and 26 percent service occupations. Just over 11 percent of the Monroe Ward population are unemployed, with more than 46 percent not currently in the labor force. More than 26 percent of the

employed residents walk to work, 20 percent take public transportation, 11 percent carpool, and over 41 percent drive alone.

Based on historic trends, Claritas projects that, over the next five years, the population of Monroe Ward will increase by more than 17 percent to 2,972 persons in 2012, after having risen by more than 41 percent since the 2000 Census, and by nearly 55 percent during the 1990s.

CARVER

Carver (Census block group 600402001 coincides approximately with this neighborhood) is the northwesternmost district in the Downtown Study Area, and includes those blocks bounded by Interstate 64 to the north, North Belvidere Street to the east, Broad Street to the south, and Lombardy Street to the west.

According to Claritas, an estimated 1,081 people (476 households) currently live in this neighborhood. (*See again* Table 1.) Just over half are male and just under half are female; nearly 16 percent of the population is white, almost 81 percent are African-American, and the remaining three percent are Asian. The median age of the population in Carver is more than 41 years, the highest in the Downtown Study Area. Approximately 13.5 percent of the people aged 25 and older living in Carver have a college or advanced degree.

Less than two-thirds of the households that live in Carver consist of one or two persons, the lowest percentage in the study area. Median income in this area is somewhat higher, at $32,100, than the $26,700 Downtown Study Area median or the $37,600 city-wide median. (Per capita income is $17,700.) However, the median home value of $102,200 in Carver is the lowest of all the neighborhoods in the Downtown Study Area, considerably below the $146,200 in the Downtown Study Area as a whole or the $149,900 citywide. Just 19.4 percent of the dwelling units in this area were created since 1999, with almost 24 percent built prior to 1939. Most of the dwelling units in Carver were built during the 1940s through the 1960s. Just under 17 percent of the units are single-family detached houses, and the rest are multi-family and single-family attached.

An estimated 49 percent of the households own their units, the highest percentage of owners in the Downtown Study Area. However, nearly 30 percent do not own automobiles. The majority of the Carver residents are employed in sales and office, and professional and related occupations, with 82 percent in white-collar occupations, nine percent blue-collar, and nine percent service occupations. Just six percent are unemployed, but nearly 41 percent are not

currently in the labor force. Five percent of the employed residents walk to work, 21 percent take public transportation, 29 percent carpool, and nearly 42 percent drive alone.

Based on historic trends, Claritas projects that, over the next five years, the population of Carver—which declined by 5.7 percent during the 1990s, and then grew by more than 17 percent since the 2000 Census—will increase by another eight percent to 1,171 persons in 2012.

VCU

The VCU area of Downtown Richmond (Census block group 600403001 coincides approximately with this neighborhood) is south of, and overlaps with Carver, and includes those blocks bounded by Broad Street to the north, North Belvidere Street to the east, the Downtown Expressway to the south, and North Harrison Street to the west.

According to Claritas, an estimated 2,800 people (266 households; a significant percentage of the population lives in dormitories) currently live in this district. Just under 43 percent are male and just over 57 percent are female; 54 percent of the population is white, just under 31 percent are African-American, 10 percent are Asian, and the remaining five percent are other races. As would be expected of a district dominated by a major university, with a high percentage of resident students, the median age of the population in the VCU area is just 20 years, the lowest in the Downtown Study Area. Of the small percentage of the population aged 25 and older, nearly 44 percent have a college or advanced degree.

Over 83 percent of the households that live in the VCU area consist of one or two persons. Primarily because of the high number of single-person households, median income in this area is somewhat lower, at $22,500, than the $26,700 Downtown Study Area median or the $37,600 city-wide median. (Per capita income is $13,500.) However, the median home value of those units that are owned is $204,300, considerably above the $146,200 in the Downtown Study Area or the $149,900 in the city as a whole. Just five percent of the dwelling units occupied by non-student households in this area were created since 1999, with three-quarters built prior to 1939. Just 7.5 percent of the units are single-family detached houses, and the rest are a relatively even mix of units in large and small multi-family buildings, including dormitories, and single-family attached units.

Three-quarters of the households rent their units. Only 14 percent do not own automobiles. As would be expected, the majority of the VCU area residents are employed in sales and office, service, and professional and related occupations, with 66 percent in white-collar occupations, 10 percent blue-collar, and 24 percent service occupations. A third are

unemployed, and another 31 percent are not currently in the labor force. Thirty percent of the employed residents walk to work, five percent take public transportation, 15 percent carpool, and nearly 49 percent drive alone; the remaining one percent ride bicycles.

Based on historic trends, Claritas projects that, after declining by seven-tenths of one percent during the 1990s and reversing that trend to increase by 11.6 percent since the 2000 census, the population of the VCU area will rise by another 4.5 percent over the next five years to reach 2,927 persons in 2012.

OREGON HILL

Oregon Hill (Census block group 600412001 coincides approximately with this neighborhood) is south of the VCU district in the Downtown Study Area, and includes those blocks bounded by the Downtown Expressway to the north, North Belvidere Street to the east, the James River to the south, and South Cherry Street to the west.

According to Claritas, an estimated 799 people (394 households) currently live in this area. (*See again* Table 1.) Just over 52 percent are male and just under 48 percent are female; nearly 91 percent of the population is white, just over two percent are African-American, and the remaining seven percent are Asian and other races. The median age of the population in Oregon Hill is more than 34.6 years. Nearly half of the people aged 25 and older living in Oregon Hill have a college or advanced degree, the second highest percentage of the Downtown Study Area neighborhoods.

Just under 73 percent of the households that live in Oregon Hill consist of one or two persons. Median income in this area, at $41,600, is the second highest of the Study Area neighborhoods, and 55 percent higher than the $26,700 Downtown Study Area median and 10.5 percent higher than the $37,600 city-wide median. (Per capita income is $30,000.) The median home value of $160,400 in Oregon Hill is also considerably higher than the $146,200 in the Downtown Study Area or the $149,900 in the city as a whole. Just 6.5 percent of the dwelling units in this area were created since 1999, with almost 69 percent built prior to 1939. Just under 27 percent of the units are single-family detached houses, and the rest are single-family attached units, with 6.5 percent of the units in small multi-family buildings.

Forty percent of the Oregon Hill households own their units, the second highest percentage in the Downtown Study Area. Nearly 16 percent do not own automobiles. The majority of the Oregon Hill residents are employed in sales and office, service, and professional and related jobs, with 58 percent in white-collar occupations, 19 percent blue-collar, and 23 percent service occupations. Just 2.2 percent are unemployed, and only 18 percent are not currently in the

labor force. Fifteen percent of the employed residents walk to work, 11.5 percent carpool, 63.4 percent drive alone, and the remaining 10 percent ride motorcycles.

Based on historic trends, Claritas projects that, over the next five years, the population of Oregon Hill—which declined by nearly 11 percent during the 1990s but recovered population since the 2000 Census with a gain of almost two percent—will increase by another 1.1 percent to 808 persons in 2012.

OLD MANCHESTER

The Old Manchester area (Census block groups 600601001, 600601002, 600603001, and 600603002 coincide approximately with this neighborhood) is the southernmost district in the Downtown Study Area, located south of the James River, and includes those blocks bounded by the James River to the north, Interstate 95 to the east, the on-off ramp to I-95, Maury Street, and Decatur Street to the south, and Cowardin Avenue to the west.

According to Claritas, an estimated 2,043 people (882 households) currently live in this area; 52 percent are male and 48 percent are female. Just over 30 percent are white, 62 percent are African-American, and the remaining 7.5 percent are Asian or a mix of two or more races. The median age of the population in Old Manchester is 38.2 years. Just under 22 percent of the people aged 25 and older living in this area have a college or advanced degree.

Seventy-two percent of the households that live in Old Manchester consist of one or two persons. At $26,800, median income in this area is slightly higher than the $26,700 Downtown Study Area median, but 29 percent lower than the $37,600 city-wide median. (Per capita income is $16,400.) Old Manchester's median home value of $116,300 is second lowest in the Downtown Study Area, well below the $146,200 in the Study Area as a whole or the citywide $149,900. Only 7.8 percent of the dwelling units in this area were created since 1999, with 22 percent built prior to 1939; 40 percent were built during the 1950s and 1960s. Over forty percent of the units are single-family detached houses (the highest percentage in the Downtown Study Area); 27 percent are multi-family buildings of 50 or more units, and the rest are smaller multi-family buildings as well as single-family attached.

Three-quarters of the households rent their units, and more than a third do not own automobiles. The majority of the Old Manchester residents are employed in service, or professional and related jobs, with 54 percent in white-collar occupations, 17 percent blue-collar, and 29 percent service occupations. Seven and a half percent are unemployed; however, more than 44 percent are not currently in the labor force. Six percent of the employed residents walk to work, 15 percent take public transportation, 18 percent car-pool, and 59

percent drive alone. (The remaining two percent ride bicycles or have other means of getting to work.)

Based on historic trends, (and without consideration of proposed developments in the neighborhood), Claritas projects that, over the next five years, the population of Old Manchester—which fell by 43 percent during the 1990s, and declined by another three percent since the 2000 Census—will shrink by another 2.5 percent to fewer than 2,000 persons in 2012.

DOWNTOWN HOUSING TYPES

Building and unit types most successfully used in residential redevelopment or new residential construction in other downtowns comparable in size and scale to Downtown Richmond include:

- Courtyard Apartment Building: In new construction, an urban, pedestrian-oriented equivalent to conventional garden apartments. An urban courtyard building is four or more stories, often combined with non-residential uses on the ground floor. The building should be built to the sidewalk edge and, to provide privacy and a sense of security, the first floor should be elevated significantly above the sidewalk. Parking is either below grade, at grade behind or interior to the building, or in an integral structure.

  The building's apartments can be leased, as in a conventional income property, or sold to individual buyers, under condominium or cooperative ownership, in which the owner pays a monthly maintenance fee in addition to the purchase price.

- Loft Apartment Building: As has been extensively developed in Richmond, adaptive re-use of older warehouse and manufacturing buildings or a new-construction building type inspired by those buildings. The new-construction version is usually elevator-served with double-loaded corridors.

  Hard Lofts: Unit interiors typically have high ceilings and commercial windows and are minimally finished (with minimal room delineations such as columns and fin walls), or unfinished (with no interior partitions except those for bathrooms).

  Soft Lofts: Unit interiors typically have high ceilings, are fully finished and partitioned into individual rooms. Units may also contain architectural elements reminiscent of "hard lofts," such as exposed ceiling beams and ductwork, concrete floors and industrial finishes, particularly if the building is an adaptive re-use of an existing industrial structure.

The building's loft apartments can be leased, as in a conventional income property, or sold to individual buyers, under condominium or cooperative ownership, in which the owner pays a monthly maintenance fee in addition to the purchase price. (Loft apartments can also be incorporated into multifamily buildings along with conventionally-finished apartment units.)

- Mansion Apartment Building: A two- to four-story flexible-use structure with a street façade resembling a large detached or attached house (hence, "mansion"). The attached version of the mansion, typically built to a sidewalk on the front lot line, is most appropriate for downtown locations. The building can accommodate a variety of uses—from rental or for-sale apartments, professional offices, any of these uses over ground-floor retail, a bed and breakfast inn, or a large single-family detached house—and its physical structure complements other buildings within a neighborhood.

  Parking behind the mansion buildings can be either alley-loaded, or front-loaded served by shared drives

  Mansion buildings should be strictly regulated in form, but flexible in use. However, flexibility in use is somewhat constrained by the handicapped accessibility regulations in both the Fair Housing Act and the Americans with Disabilities Act.

- Townhouse: Similar in form to a conventional suburban townhouse except that the garage—either attached or detached—is located to the rear of the unit and accessed from an alley or auto court. Unlike conventional townhouses, urban townhouses conform to the pattern of streets, typically with shallow front-yard setbacks. To provide privacy and a sense of security, the first floor should be elevated significantly above the sidewalk.

- Live-work is a unit or building type that accommodates non-residential uses in addition to, or combined with living quarters. The typical live-work unit is a building,

either attached or detached, with a principal dwelling unit that includes flexible space that can be used as office, retail, or studio space, or as an accessory dwelling unit.

Regardless of the form they take, live-work units should be flexible in order to respond to economic, social and technological changes over time and to accommodate as wide as possible a range of potential uses. The unit configuration must also be flexible in order to comply with the requirements of the Fair Housing Amendments Act and the Americans with Disabilities Act.

In New Urbanist developments that are currently under construction across the country, true live-work units tend to be most successful in projects that have been underway for several years, within an already established neighborhood or town center. In most of the developments for which information is available, live-work units are likely to be purchased by households for use as dwelling units only, or purchased by investors. A resident investor can lease the flex space for residential, retail or office use; a non-resident investor can lease both the main residential space or the flex space. Since experience shows that it is uncommon for retail operators to live above the store, live-work units must comply with local codes permitting the legal separation of uses in order to maintain investor flexibility.

- Urban House: A two- or three-story single-family detached house on a small lot, with the garage located to the rear of the house and accessed from an alley or auto courts.

UNIT, PROPERTY AND DOWNTOWN AMENITIES

In-Unit Amenities

To meet the expectations of urban residents, all units should be wired for cable television and high-speed internet or, if practical, be served by a building-wide Wi-Fi system. As has been amply demonstrated in Richmond, for "hard lofts" or "soft lofts" in adaptive re-use structures, existing floors should be salvaged and refinished wherever possible. Although hard lofts are typically designed without interior walls, with the exception of the bathroom, as much closet and storage space as possible should be provided in both hard and soft lofts. Wherever possible in both types, when masonry walls are present in the existing structure, they should be exposed.

In the kitchens, buyers in particular will expect countertops to be granite or Corian, with integral or undermount sinks, and with backsplashes either matching or finished in stainless steel; renters will expect contemporary, durable finishes appropriate to urban living, as opposed to the "beige" interiors of suburban multi-family housing. Cabinets should have flush fronts with integral or contemporary pulls, offered in a variety of finishes, ranging from bamboo to frosted glass. Appliances should be mid-grade with stainless fronts.

In new construction, suburban condominium finishes should be avoided. Larger units should be configured as "soft" lofts, with bedrooms separated by walls or, in cases of interior rooms, partitions that run only partially to the ceiling. HVAC should be designed with exposed spiral ductwork. Lighting fixtures should have clean and minimalist designs, capable of accommodating compact fluorescent bulbs.

Floors should not be carpeted, but instead, main rooms and bedrooms should be offered with scored, stained and polished concrete or bamboo as standard and with numerous options in the more expensive units, and slate as an option in the kitchens and baths.

Walls should be drywall finished with simple contemporary baseboards. Doors should be flush, matched-grain wood with stainless handles and hardware.

Bathrooms should have a standard contemporary finish package, including slate, marble or granite counter, shower and/or tub enclosures. All fixtures, faucets and lighting should be clean, minimalist and contemporary. Again, lighting should accommodate compact fluorescent bulbs.

Some of the "luxury apartments" will require more conventional finishes, such as crown molding, chair rails, five-panel interior doors, carpeted bedroom floors, with carpet or hardwood in living and dining areas and tile in the kitchens and baths. Kitchen countertops should be Corian, granite or bluestone, with integral or undermount ceramic sinks and upscale appliance, such as stainless steel, and a choice of European or traditional cabinets. Bathrooms should have ceramic tile floors and high-style, traditional fixtures.

Property Amenities

Larger rental properties, in order to be competitive, should provide the amenities that have become the norm for investment-grade assets: business center, clubroom with catering kitchen, and some level of exercise facility.

For condominiums, if the property is large enough (at least 50 units), property amenities could include a small fitness center with state-of-the-art treadmills, bikes, Stairmasters, free weights. Building amenities in a large condominium property could also include an owners' club with a full working bar, media area with flat-screen television, chess, backgammon and card room, library and either high-speed internet access or Wi-Fi.

If space within the building is available, other amenities that are not very expensive to provide include storage units, bicycle racks, and recycling bins.

Any additional property amenities would depend on the scale of the development and the proposed price points; the more expensive the units, the greater the number of amenities that the buyers will expect. For very high-end developments, concierge services, accommodating a wide range of personal services, from dry cleaning pick-up/delivery to theater reservations, would be appropriate. However, if these kinds of services generate high condominium fees, there is likely to be buyer resistance. It is for this reason that swimming pools are not recommended; pools are expensive to build and maintain, and are typically infrequently used by residents.

Downtown Amenities

Since the diversity, and social and cultural amenities of the city are one of the attractions of urban living, successful downtown housing is not necessarily dependent upon the creation of extensive (and expensive) recreational amenities.

However, locations that are within walking distance of parks and greenways, and entertainment venues—such as theaters, clubs and restaurants, as well as provide convenient access to a variety of retailers, including a grocery store—hold a significant market advantage. Because of the high value placed by the potential market on intimate urban green spaces, additional small "pocket parks" could be created on "leftover" land throughout the Downtown. Some of these parks could be specialized, such as "Bark Parks," where residents can take their dogs, or just a small green area, perhaps enhanced by a sculpture, but including seating that is shaded by trees.

The lifestyle affinities and purchase propensities of the target household groups for the Downtown Richmond Study Area support the idea that additional community amenities are not required. Most of the activities in which the potential market demonstrates the highest participation rates are natural for households with a propensity for downtown living. In aggregate, although the prospective residents have lifestyles that do not include extensive physical activities, they do have very strong interests in those activities that are typically only available in a downtown.

Relevant activities in which these groups participate at rates at least 25 percent higher than the national average are, in order:

- Belong to a health club, YWCA/YMCA (44 percent higher than the national average)
- Shop online (43 percent higher)
- Attend live theater (36 percent higher)
- Go to rock/pop concerts (34 percent higher)
- Belong to an arts association (32 percent higher)
- Take education courses (31 percent higher)
- Go to museums (30 percent higher)
- Go to music, dance performances (29 percent higher)
- Belong to an environmental organization (29 percent higher)
- Play soccer (29 percent higher)
- Belong to a business club (27 percent higher)
- Go to yoga (26 percent higher)
- Go to the movies six or more times a month (26 percent higher)

Tables

Study Area Characteristics

City of Richmond, Virginia

July, 2007

Study Area	2007 Population	Median Age	Percent Male	Per Capita Income	Percent 25+ w/ College Degree +	Occupation: White-Collar	Occupation: Blue-Collar	Occupation: Service	Means of Getting to Work: Walk	Means of Getting to Work: Public Transp.	Means of Getting to Work: Carpool	Means of Getting to Work: Drive	Means of Getting to Work: Other†
City	192,660	35.4	46.6%	$24,500	29%	62%	19%	19%	5%	8%	13%	70%	4%
Downtown	13,851	31.1	49.8%	$19,700	33%	62%	13%	25%	16%	10%	12%	58%	4%
Shockoe Bottom / Tobacco Row	2,030	37.9	53.0%	$37,900	67%	82%	9%	9%	5%	0%	5%	87%	3%
Shockoe Slip / Riverfront / Financial District / City Center	920	34.0	60.0%	$21,200	35%	50%	11%	39%	30%	10%	2%	56%	2%
Court End / VCU Medical Center / Biotech Center	612*	22.3	36.0%	$3,673	na	61%	8%	31%	46%	31%	0%	14%	9%
Jackson Ward	1,028	37.4	51.5%	$15,500	24%	51%	16%	33%	11%	9%	8%	56%	16%
Monroe Ward	2,537	37.1	53.0%	$22,000	30%	60%	14%	26%	26%	20%	11%	41%	2%
Carver	1,081	41.0	50.1%	$17,700	14%	82%	9%	9%	5%	21%	29%	42%	3%
VCU	2,802	20.0	43.0%	$13,500	44%	66%	10%	24%	30%	5%	15%	49%	1%
Oregon Hill	799	34.6	52.0%	$30,000	49%	58%	19%	23%	15%	0%	12%	63%	10%
Old Manchester	2,043	38.2	52.0%	$16,400	22%	54%	17%	29%	6%	15%	18%	59%	2%

* Residents of group quarters.

† Bicycle, motorcycle, work at home.

SOURCE: Claritas, Inc.; U.S. Census Bureau;
Zimmerman/Volk Associates, Inc.

Study Area Characteristics

City of Richmond, Virginia

July, 2007

Study Area	*2007 Households*	*Percent 1 & 2-pp HHs*	*Median HH Income*	*2007 Dwelling Units*	*2007 Percent Vacant Units*	*Percent Owners*	*Median Home Value*	*Percent SFD*	*Percent . . . . .Units Built . . . . . Before 1939*	*Since 1999*
City	82,505	70%	$37,600	92,355	11%	45%	$149,900	48%	27%	5%
Downtown	5,632	83%	$26,700	7,699	27%	19%	$146,200	14%	33%	25%
Shockoe Bottom / Tobacco Row	1,231	92%	$47,800	1,482	17%	20%	$311,500	7%	37%	46%
Shockoe Slip / Riverfront / Financial District / City Center	512	96%	$22,200	654	22%	1%	$175,000	0%	32%	50%
Court End / VCU Medical Center / Biotech Center	na	na	na	na	na	na	na	na	na	na
Jackson Ward	484	71%	$24,600	803	40%	30%	$153,300	22%	59%	2%
Monroe Ward	1,387	94%	$22,100	1,523	9%	1%	$176,800	1%	13%	33%
Carver	476	65%	$32,100	650	27%	49%	$102,200	17%	24%	19%
VCU	266	83%	$22,500	320	17%	25%	$204,300	8%	75%	5%
Oregon Hill	394	73%	$41,600	445	11%	40%	$160,400	27%	69%	7%
Old Manchester	882	72%	$26,800	1,153	24%	25%	$116,300	40%	22%	8%

SOURCE: Claritas, Inc.; U.S. Census Bureau;
Zimmerman / Volk Associates, Inc.

Table 2

Estimates

Housing Value, Owner-Occupied Housing Units

City of Richmond, Virginia

2000, 2007

	Actual		*Estimates*		*Change*	
	. . . . . 2000		**. . . . . 2007 . . . . . .**		**. . . . 2000-2007 . . . .**	
Value†	*Number*	*Share*	*Number*	*Share*	*Number*	*Percent*
Less than $20,000	660	1.7%	465	1.2%	-195	-41.9%
$20,000 to $39,999	1,904	4.9%	270	0.7%	-1,634	-605.2%
$40,000 to $59,999	6,467	16.6%	695	1.9%	-5,772	-830.5%
$60,000 to $79,999	8,108	20.8%	2,740	7.3%	-5,368	-195.9%
$80,000 to $99,999	5,676	14.6%	3,895	10.4%	-1,781	-45.7%
$100,000 to $149,999	7,179	18.4%	10,665	28.5%	3,486	32.7%
$150,000 to $199,999	3,528	9.0%	5,605	15.0%	2,077	37.1%
$200,000 to $299,999	2,916	7.5%	6,545	17.5%	3,629	55.4%
$300,000 to $399,999	1,009	2.6%	2,420	6.5%	1,411	58.3%
$400,000 to $499,999	495	1.3%	1,460	3.9%	965	66.1%
$500,000 to $749,999	571	1.5%	1,320	3.5%	749	56.7%
$750,000 to $999,999	319	0.8%	595	1.6%	276	46.4%
$1,000,000 or More	178	0.5%	725	1.9%	547	75.4%
Total Owner-Occupied:	39,010	100.0%	37,400	100.0%	-1,610	-4.3%
Median Housing Value:	$87,400		$149,900		$62,500	41.7%
Total Housing Units:	92,282	100.0%	92,355	100.0%	73	0.1%
Owner-Occupied:	39,010	42.3%	37,400	40.5%	-1,610	-4.3%
Renter-Occupied:	45,541	49.3%	45,107	48.8%	-434	-1.0%
Vacant:	7,731	8.4%	9,848	10.7%	2,117	21.5%

† Current dollars for each year.

SOURCE: U.S. Bureau of Census; Claritas, Inc.;
Zimmerman/Volk Associates, Inc.

Table 3

Estimates And Projections

Population Age Groups As A Share Of Total Population

City of Richmond, Virginia

2000, 2007, 2012

	Actual		*Estimates*		*Projections*		*Change*	
	. . . . . 2000		*. . . . . 2007 . . . . . .*		*. . . . . 2012 . . . . . .*		*. . . . 2007-2012 . . . .*	
Age Group	Number	Share	Number*	Share	Number*	Share	Number*	Percent
24 and Under	69,110	34.9%	68,185	35.4%	66,150	35.1%	-2,035	-3.0%
25 to 34	32,871	16.6%	27,215	14.1%	25,280	13.4%	-1,935	-7.1%
35 to 44	29,841	15.1%	26,445	13.7%	25,530	13.5%	-915	-3.5%
45 to 54	24,985	12.6%	25,465	13.2%	24,225	12.8%	-1,240	-4.9%
55 to 64	14,854	7.5%	18,555	9.6%	20,835	11.1%	**2,280**	**12.3%**
65 to 74	12,843	6.5%	11,815	6.1%	12,210	6.5%	**395**	**3.3%**
75 to 84	9,764	4.9%	9,905	5.1%	8,875	4.7%	-1,030	-10.4%
85 and Older	3,522	1.8%	5,075	2.6%	5,435	2.9%	360	7.1%
Total	197,790	100.0%	192,660	100.0%	188,540	100.0%	-4,120	-2.1%
Median Age	34.06		35.35		36.11		0.76	2.1%
Average Age	36.55		37.37		37.70		0.33	0.9%
Male Population	92,068	46.5%	89,685	46.6%	88,440	46.9%	-1,245	-1.4%
Female Population	105,722	53.5%	102,980	53.4%	100,100	53.1%	-2,880	-2.8%

* Rounded to nearest 5 (five).

SOURCE: U.S. Bureau of Census; Claritas, Inc.;
Zimmerman/Volk Associates, Inc.

Table 4

Estimates And Projections

Household Income Groups As A Share Of Total Households

City of Richmond, Virginia

2000, 2007, 2012

	Actual		*Estimates*		*Projections*		*Change*	
	2000		**2007**		**2012**		**2007-2012**	
Income†	*Number*	*Share*	*Number*	*Share*	*Number*	*Share*	*Number*	*Percent*
Less than $10,000	13,492	16.0%	11,040	13.4%	9,780	12.1%	-1,260	-11.4%
$10,000 to $14,999	6,914	8.2%	5,615	6.8%	4,950	6.1%	-665	-11.8%
$15,000 to $19,999	6,863	8.1%	5,650	6.8%	4,995	6.2%	-655	-11.6%
$20,000 to $24,999	6,825	8.1%	5,610	6.8%	4,980	6.2%	-630	-11.2%
$25,000 to $29,999	6,634	7.8%	5,590	6.8%	4,965	6.2%	-625	-11.2%
$30,000 to $34,999	5,563	6.6%	5,440	6.6%	4,900	6.1%	-540	-9.9%
$35,000 to $39,999	5,219	6.2%	4,680	5.7%	4,635	5.7%	-45	-1.0%
$40,000 to $44,999	4,459	5.3%	4,370	5.3%	4,100	5.1%	-270	-6.2%
$45,000 to $49,999	3,639	4.3%	3,975	4.8%	3,855	4.8%	-120	-3.0%
$50,000 to $59,999	6,265	7.4%	6,405	7.8%	6,390	7.9%	-15	-0.2%
$60,000 to $74,999	6,217	7.4%	7,080	8.6%	7,195	8.9%	115	1.6%
$75,000 to $99,999	5,465	6.5%	6,775	8.2%	7,390	9.2%	615	9.1%
$100,000 to $124,999	2,586	3.1%	3,910	4.7%	4,520	5.6%	610	15.6%
$125,000 to $149,999	1,413	1.7%	2,080	2.5%	2,685	3.3%	605	29.1%
$150,000 to $249,999	1,977	2.3%	2,685	3.3%	3,345	4.1%	660	24.6%
$250,000 or More	1,035	1.2%	1,605	1.9%	2,010	2.5%	405	25.2%
Total:	84,566	100.0%	82,510	100.0%	80,695	100.0%	-1,815	-2.2%
Median Household Income:	$31,715		$37,600		$41,800		$4,200	11.2%
Average Household Income:	$46,119		$55,500		$61,900		$6,400	11.5%
Per Capita Income:	$20,337		$24,500		$27,300		$2,800	11.4%

† Current dollars for each year.

SOURCE: U.S. Bureau of Census; Claritas, Inc.;
Zimmerman/Volk Associates, Inc.

Table 5

Estimates And Projections

Household Income By Age Of Head Of Household

City of Richmond, Virginia

2000, 2007, 2012

Age of Head Of Household	Household Income: Under $25,000	$25,000 to $34,999	$35,000 to $49,999	$50,000 to $74,999	$75,000 to $99,999	$100,000 And Over	**Total Households**	Median Household Income
2000 (Actual)								
24 and Under	5,109	818	1,059	447	93	63	7,589	$16,738
25 to 34	6,438	3,216	3,117	2,831	1,160	1,000	17,762	$32,467
35 to 44	5,427	2,839	2,979	2,970	1,197	1,513	16,925	$35,861
45 to 54	4,361	1,792	2,380	2,864	1,430	1,834	14,661	$41,898
55 to 64	3,142	1,195	1,416	1,427	754	1,223	9,157	$37,096
65 to 74	4,365	1,132	1,224	1,134	468	789	9,112	$26,688
75 and Older	5,252	1,205	1,142	809	363	589	9,360	$21,784
Total	**34,094**	**12,197**	**13,317**	**12,482**	**5,465**	**7,011**	**84,566**	**$31,398**
2007 (Estimates)								
24 and Under	4,250	995	945	700	220	125	7,235	$20,325
25 to 34	4,235	2,340	2,925	2,600	1,280	1,445	14,825	$38,755
35 to 44	3,920	2,095	2,780	2,980	1,335	1,975	15,085	$42,465
45 to 54	3,825	1,760	2,225	2,955	1,835	2,780	15,380	$49,215
55 to 64	3,350	1,530	1,705	2,050	1,000	2,140	11,775	$43,900
65 to 74	3,365	870	1,070	1,135	570	965	7,975	$31,940
75 and Older	4,970	1,440	1,375	1,065	535	850	10,235	$25,955
Total	**27,915**	**11,030**	**13,025**	**13,485**	**6,775**	**10,280**	**82,510**	**$37,600**
2012 (Projections)								
24 and Under	3,520	970	805	820	235	200	6,550	$22,940
25 to 34	3,475	1,885	2,695	2,540	1,365	1,810	13,770	$43,135
35 to 44	3,345	1,775	2,625	2,835	1,555	2,425	14,560	$47,080
45 to 54	3,310	1,480	2,010	2,760	1,815	3,255	14,630	$54,085
55 to 64	3,430	1,405	1,960	2,315	1,300	2,810	13,220	$48,545
65 to 74	3,205	945	1,105	1,175	630	1,165	8,225	$34,625
75 and Older	4,420	1,405	1,390	1,140	490	895	9,740	$27,860
Total	**24,705**	**9,865**	**12,590**	**13,585**	**7,390**	**12,560**	**80,695**	**$41,800**
2007-2012 Change								
24 and Under	(730)	(25)	(140)	120	15	75	(685)	$2,615
25 to 34	(760)	(455)	(230)	(60)	85	365	(1,055)	$4,380
35 to 44	(575)	(320)	(155)	(145)	220	450	(525)	$4,615
45 to 54	(515)	(280)	(215)	(195)	(20)	475	(750)	$4,870
55 to 64	80	(125)	255	265	300	670	1,445	$4,645
65 to 74	(160)	75	35	40	60	200	250	$2,685
75 and Older	(550)	(35)	15	75	(45)	45	(495)	$1,905
Total	**(3,210)**	**(1,165)**	**(435)**	**100**	**615**	**2,280**	**(1,815)**	**$4,200**

(Income expressed in current dollars for each year.)

SOURCE: U.S. Bureau of Census; Claritas, Inc.;
Zimmerman/Volk Associates, Inc.

Table 6

Potential Market For New And Existing Housing Units

Distribution Of Draw Area Households With The Potential
To Move Within/To The City Of Richmond In 2007
Based On Housing Preferences And Income Levels
City of Richmond, Virginia

City of Richmnond; Adjacent Counties; Northern Virginia Draw Area; All Other U.S. Counties Draw Areas

Total Target Market Households
With Potential To Rent/Purchase Within
City of Richmond, Virginia 16,050

Potential Housing Market

	. . . . . *Multi-Family*			. . . . . *Single-Family*			
	. . . . . *For-Rent*			. . . . . *For-Sale*			
	Below Market-Rate Apts.*	*Market-Rate* Apts.*	*AllRanges Apts.*	*AllRanges Attached*	*Below Market-Rate* Detached*	*Market-Rate* Detached*	Total
Total Households:	2,810	3,310	1,890	980	1,740	5,320	16,050
{Percent}:	17.5%	20.7%	11.8%	6.1%	10.8%	33.1%	100.0%

* Market rate is defined as affordable to households with incomes above 80 percent of the Richmond AMFI (Area Median Family Income), which is $68,700 for a family of four in 2007.

NOTE: Reference Appendix One, Tables 1 through 10.

SOURCE: Claritas, Inc.;
Zimmerman/Volk Associates, Inc.

Table 7

Potential Housing Market By Household Type

Distribution Of Draw Area Households With The Potential
To Move Within/To The City Of Richmond In 2007
Based On Housing Preferences And Income Levels
City of Richmond, Virginia

		. . . . . Multi-Family . . . . . For-Rent			*. . . . . Single-Family . . . . . For-Sale . . . . . .*		
	Total	*Below Market-Rate* Apts.*	*Market-Rate* Apts.*	*AllRanges Apts.*	*AllRanges Attached*	*Below Market-Rate* Detached*	*Market-Rate* Detached*
Number of Households:	16,050	2,810	3,310	1,890	980	1,740	5,320
Empty Nesters & Retirees	22%	16%	15%	25%	16%	30%	28%
Traditional & Non-Traditional Families	30%	20%	20%	15%	23%	36%	44%
Younger Singles & Couples	48%	64%	65%	60%	61%	34%	28%
	100%	100%	100%	100%	100%	100%	100%

* Market rate is defined as affordable to households with incomes above 80 percent of the Richmond AMFI (Area Median Family Income), which is $68,700 for a family of four in 2007.

NOTE: Reference Appendix One, Tables 1 through 10.

SOURCE: Claritas, Inc.;
Zimmerman/Volk Associates, Inc.

Summary Of Selected Rental Properties

City of Richmond, Virginia

July, 2007

Property (Date Opened) / *Address*	*Number of Units*	*Reported Base Rent*	*Reported Unit Size*	*Rent per Sq. Ft.*	*Additional Information*
		. . . . . Shockoe Bottom			
Market Villas (1853: 2003))	**31**				**91% occupancy**
15 North 18th Street	Studio	$595 to $725	500 to 600	$1.19 to $1.21	*WiFi internet.*
Adaptive Re-Use					
3 buildings	1BR/1BA	$695 to $995			
	2BR/1BA	$995 to $1,050	824 to 987	$1.06 to $1.21	
Poythress (2000)	**31**				**94% occupancy**
16 North 22nd Street	1BR/1BA	$610 to $1,050	511 to 1,000	$1.05 to $1.19	*Fitness center,*
Adaptive Re-Use					*courtyard.*
	2BR/2BA	$725 to $1,450	782 to 1,004	$0.93 to $1.44	
	2BR/2BA - loft	$1,080 to $1,450	1,028 to 1,400	$1.04 to $1.05	
American Tobacco Center	**153**				**100% occupancy**
2001 East Grace Street	1BR/1BA	$625 to $1,050	438 to 844	$1.24 to $1.43	*Pool, lounge,*
Adaptive Re-Use					*fitness center,*
4 buildings: Thacher,	2BR/2BA	$895 to $1,600	750 to 1,317	$1.19 to $1.21	*broadband internet.*
Franklin, Grace,					
Lucky Strike	3BR/3BA	$1,350 to $1,850	1,124 to 1,317	$1.20 to $1.40	
Lofts at Canal Walk (1893: 2002)	**100**				**99% occupancy**
1915 East Main Street	Studio	$705 to $1,525	400 to 1,100	$1.39 to $1.76	*Courtyard, pool,*
Adaptive Re-Use					*fitness center,*
	1BR/1BA - Loft	$800 to $1,525	500 to 1,100	$1.39 to $1.60	*high speed internet.*
	2BR/2BA - Loft	$1,525 to $1,825	900 to 1,300	$1.40 to $1.69	

SOURCE: Zimmerman/Volk Associates, Inc.

Summary Of Selected Rental Properties

City of Richmond, Virginia

July, 2007

Property (Date Opened) / *Address*	*Number of Units*	*Reported Base Rent*		*Reported Unit Size*		*Rent per Sq. Ft.*		*Additional Information*
			. . . . . Shockoe Bottom {continued}					
Rockett's View (1999)	**37**							**95% occupancy**
2701 East Main Street	1BR/1.5BA	$750	to	539	to	$1.00	to	*Utilities included.*
Adaptive Re-Use		$860		858		$1.39		
	2BR/2BA	$1,150	to	950	to	$1.08	to	
		$1,230		1,144		$1.21		
Tobacco Row (1910)	**259**							**94% occupancy**
2 South 25th Street	1BR/1BA	$750	to	690	to	$0.99	to	*Pool,*
Adaptive Re-Use		$925		930		$1.09		*clubhouse,*
	2BR/1BA	$875	to	875	to	$0.99	to	*exercise room,*
		$845		884		$1.00		*game room,*
	2BR/2BA	$1,075	to	1,000	to	$0.95	to	*business center,*
		$1,295		1,370		$1.08		*internet access*
	3BR/2BA	$1,495	to	1,400	to	$1.06	to	
		$1,595		1,500		$1.07		
17th Street Lofts								**100% occupancy**
333 Oliver Hill Way	1BR/1BA	$800						*Fitness center,*
Adaptive Re-Use	2BR/1BA	$925	to					*High-speed internet.*
		$1,200						
Pohlig Box Factory (2004)	**65**							**98% occupancy**
2411 East Franklin Street	Studio			610				*Concierge,*
Adaptive Re-Use	1BR/1BA	$800	to	570	to	$1.09	to	*fitness center,*
		$1,050		960		$1.40		*botanical courtyard.*
	2BR/1 & 2BA	$1,000	to	875	to	$1.14	to	
		$1,500		1,222		$1.23		
	2BR/2.5BA	$2,675	to	1,320	to	$2.03	to	
		$3,500		1,680		$2.08		

SOURCE: Zimmerman/Volk Associates, Inc.

Summary Of Selected Rental Properties

City of Richmond, Virginia

July, 2007

Property (Date Opened) / *Address*	*Number of Units*	*Reported Base Rent*	*Reported Unit Size*	*Rent per Sq. Ft.*	*Additional Information*
		. . . . . Shockoe Bottom {continued}			
River Lofts at Tobacco Row (American Cigar; Consolidated-Carolina)					
(1910: 2000, 2003)	**329**				**97% occupancy**
2300 East Cary Street	1BR/1BA	$865 to $1,080	600 to 925	$1.17 to $1.44	*Pool, elevators, fitness center, business center, high-speed internet, game room.*
Adaptive Re-Use	1BR/1BA w/den	$925 to $1,400	976 to 1,258	$0.95 to $1.11	
	2BR/1BA	$1,180 to $1,335	960 to 1,020	$1.23 to $1.31	
	2BR/2BA	$1,050 to $1,720	988 to 1,435	$1.06 to $1.20	
	2BR/2BA w/den	$1,285 to $1,605	1,540 to 1,855	$0.83 to $0.87	
	3BR/2BA	$1,490 to $2,300	1,396 to 1,855	$1.07 to $1.24	
Cutter's Ridge at The River Lofts (2006)	**12**				
25th & Main	2BR/3.5BA	$2,400	1,450	$1.66	*Converted from for-sale units. Previously priced at $449,000 to $485,000*
New Construction		$2,550	1,650	$1.55	
		. . . . . Church Hill			
Nolde Bakery (2007)	**77**				**In Lease-up**
306 North 26th Street	1BR/1BA	$985 to $1,450	789 to 1,205	$1.20 to $1.25	*Fitness center, theater.*
Adaptive Re-Use	1BR/1BA -office	$985 to $1,625	958 to 1,350	$1.03 to $1.20	
	2BR/1BA	$1,295 to $1,750	1,144 to 1,330	$1.13 to $1.32	
	2BR/2BA	$1,795 to $1,900	1,328 to 1,606	$1.18 to $1.35	

SOURCE: Zimmerman/Volk Associates, Inc.

Summary Of Selected Rental Properties

City of Richmond, Virginia

July, 2007

Property (Date Opened) *Address*	*Number of Units*	*Reported Base Rent*		*Reported Unit Size*		*Rent per Sq. Ft.*		*Additional Information*
			. . . . .Shockoe Slip					
American Heritage Place	**70**							**100% occupancy**
1001 East Main Street	1BR/1BA	$675	to	502	to	$1.25	to	*Fitness center,*
Adaptive Re-Use		$925		738		$1.34		*high-speed*
12 stories	2BR/2BA	$820	to	756	to	$1.08	to	*internet.*
		$1,440		1,331		$1.08		
	Lofts	$1,075		1,144		$0.94		
		$2,400						
Railroad YMCA Lofts (2005)	**30**							**100% occupancy**
1548 East Main Street	Studio/1BA	$725						*High-speed internet.*
Adaptive Re-Use	1BR/1.5BA	$850	to	600	to	$1.18	to	
		$1,300		1,100		$1.42		
Shockoe Commons (2002)	**47**							**97% occupancy**
1209 East Main Street	1BR/1BA	$805						*Fitness center,*
Adaptive Re-Use	2BR/2BA	$1,095						*pool,*
	2BR/2.5BA - Loft	$1,475						*high-speed internet.*
The Wedge at Courtyard Lofts								
(1870s; 2006)	**50**							**94% occupancy**
1321 East Main Street	Studio	$875	to	523	to	$1.39	to	*Fitnesscenter,*
		$975		700		$1.67		*high-speed internet,*
	1BR/1BA	$900	to	600	to	$1.14	to	
		$1,250		1,100		$1.50		

SOURCE: Zimmerman/Volk Associates, Inc.

Summary Of Selected Rental Properties

City of Richmond, Virginia

July, 2007

Property (Date Opened) / *Address*	*Number of Units*	*Reported Base Rent*		*Reported Unit Size*		*Rent per Sq. Ft.*		*Additional Information*
			. . . . . Old Manchester					
Commons at Plant Zero and Plant Zero Lofts (2007)	**52**							**96% occupancy**
220 Hull Street Road	Studio	$700	to	530	to	$0.68	to	*Fitness center,*
Adaptive Re-Use		$950		1,400		$1.32		*high speed internet,*
	1BR/1BA	$850	to	730	to	$0.54	to	
		$975		1,800		$1.16		
	1BR/1.5BA - Loft	$995		816		$1.22		
	2BR/1BA	$950		800		$1.19		
	2BR/2BA	$1,095		1,500		$0.73		
	3BR/2BA	$1,550		1,350		$1.15		
River Towers (1965: 2006)	**219**							**93% occupancy**
2000 Riverside Drive	Studio	$745	to	369	to	$1.86	to	*Fiitness center, pool,*
New construction in 1965		$785		422		$2.02		*business center,*
14 stories	1BR/1BA	$879	to	524	to	$1.45	to	*media lounge, concierge,*
		$960		664		$1.68		*high speed internet.*
	2BR/1BA	$1,120	to	927	to	$1.21	to	
		$1,160		937		$1.24		
Rowhouses on Bainbridge at 12th	**4**							**100% occupancy**
Bainbridge Street		$1,290		2,000		$0.65		
			. . . . . City Center					
Broadway (2005)	**104**							**98% occupancy**
312 East Broad Street	2BR/1BA	$690		711		$0.97		*High-speed internet.*
Adaptive Re-Use	2BR/2BA	$775	to	748	to	$1.04	to	
		$1,200		1,100		$1.09		

SOURCE: Zimmerman/Volk Associates, Inc.

Summary Of Selected Rental Properties

City of Richmond, Virginia

July, 2007

Property (Date Opened) / *Address*	*Number of Units*	*Reported Base Rent*	*Reported Unit Size*	*Rent per Sq. Ft.*	*Additional Information*
		. . . . . Monroe Ward			
Monroe Park Towers	**178**				
520 West Franklin Street	Studio	$621 to $657	451 to 485	$1.35 to $1.38	
Multi-story high-rise	1BR/1BA	$713 to $787	565 to 630	$1.25 to $1.26	
	2BR/1BA	$916 to $929	760 to	$1.21 to $1.22	
Trolley Square	**329**				**98% occupancy**
104 West Franklin St.	Studio	$655 to $852	343 to 480	$1.78 to $1.91	*Swimming pool,*
Multi-story high-rise	1BR/1BA	$800 to $1,110	585 to 707	$1.37 to $1.57	*billiards room, weight room, fitness center,*
	2BR/2BA	$1,350 to $1,620	1,110 to 1,260	$1.22 to $1.46	*tanning salon.*
The Berkshire					
300 West Broad Street	Studio	$700	576	$1.22	*Sundeck,*
Multi-story high-rise	1BR/1BA	$790 to $845	693 to 935	$0.90 to $1.14	*roof garden.*
	2BR/2BA	$1,200 to $1,260	1,385	$0.87 to $0.91	
	2BR/2.5BA PH	$1,600	1,940	$0.82	
Park Plaza at Belvidere (2006)	**92**				**99% occupancy**
515 West Franklin Street	1BR/1BA	$825 to $1,010	510 to 770	$1.31 to $1.62	*Media room,*
New Construction	2BR/2BA	$1,150 to $1,650	945 to 1,400	$1.22 to $1.18	*clubhouse, fitness center, business center,*
	2BR/2BA - TH	$1,685 to $1,700	1,380 to 1,400	$1.21 to $1.22	*elevator, concierge.*
	3BR/3BA - TH	$2,085 to $2,275	1,800 to 2,055	$1.11 to $1.16	

SOURCE: Zimmerman/Volk Associates, Inc.

Summary Of Selected Rental Properties

City of Richmond, Virginia

July, 2007

Property (Date Opened) / *Address*	*Number of Units*	*Reported Base Rent*	*Reported Unit Size*	*Rent per Sq. Ft.*	*Additional Information*
		. . . . . Jackson Ward			
Richmond Dairy Apts (2001)	**113**				**96% occupancy**
201 West Marshall Street	Studio	$505 to $530	350 to 410	$1.29 to $1.44	*Clubhouse,*
Adaptive Re-Use					*fitness center.*
Tax Credit Development	1BR/1BA	$595 to $755	520 to 600	$1.14 to $1.26	
	2BR/2BA	$770 to $805	760 to 780	$1.01 to $1.03	
	2BR/2BA - in the Bottle	$865	835	$1.04	
	2BR/2.5BA - in the Bottle	$905 to $1,050	925 to 1,075	$0.98 to $0.98	
		. . . . . VCU/Carver			
Broad Street Way (2004)	**99**				
5, 17, 27 West Broad St.	Studio	$560 to $685	525	$1.07 to $1.30	
	1BR/1BA	$570 to $850	550 to 650	$1.04 to $1.31	
	2BR/1&2BA	$895 to $1,250	900	$0.99 to $1.39	
	3BR/1BA	$1,500	1,454	$1.03	
Eagle Mill (2003)	**45**				**99% occupancy**
1400 West Marshall	1BR/1BA	$580 to $630	510	$1.14 to $1.24	*Controlled access,*
	2BR/1BA	$725 to $780	565	$1.28 to $1.38	*high-speed internet.*
	2BR/2BA	$925 to $1,050	625 to 700	$1.48 to $1.50	
Biggs Building	**65**				
900 West Marshall Street	Studio	$584	350	$1.67	*Business center,*
Adaptive Re-Use	1BR/1BA	$706 to $766	450	$1.57 to $1.70	*fitness center,*
	2BR/1BA	$811 to $999	600	$1.35 to $1.67	*clubhouse,*
	2BR/2BA	$1,181	900	$1.31	*high speed internet.*

SOURCE: Zimmerman/Volk Associates, Inc.

Summary Of Selected Rental Properties

City of Richmond, Virginia

July, 2007

Property (Date Opened) / *Address*	*Number of Units*	*Reported Base Rent*		*Reported Unit Size*		*Rent per Sq. Ft.*		*Additional Information*
			. . . . . VCU/Carver{continued}					
Coliseum Lofts (2001)	**124**							**99% occupancy**
1359 West Broad Street	Studio	$650		520		$1.25		*High-speed internet.*
Renovation 2001	1BR/1BA	$825	to	544		$1.52	to	
		$900				$1.65		
	2BR/2BA	$1,090	to	740		$1.72	to	
		$1,315		763		$1.78		
	3BR/2BA	$1,500		1,100		$1.36		
One Monument Ave. (1913: 2001)	**34**							**95% occupancy**
1 Monument Avenue	2BR/2BA	$1,350	to	1,500	to	$0.90	to	*High speed internet.*
Adaptive Re-Use		$1,950				$1.30		
Former hospital	3BR/2BA	$2,000	to	1,800	to	$1.11	to	
		$3,000		2,300		$1.30		
	4BR/2BA	$1,700	to	2,000		$0.85	to	
		$2,995				$1.50		
			. . . . . Scott's Addition					
Baker Atrium Lofts (2007)	**31**							**In lease-up.**
1716 Summit Avenue	1BR/1BA	$850		1,045		$0.81		*Clubhouse,*
Adaptive Re-Use	2BR/1BA	$1,000		1,099		$0.91		*internet access.*
	2BR/2BA	$1,200		1,509		$0.80		
	3BR/3BA	$1,800		1,676		$1.07		
			. . . . . Museums					
Todd Lofts at Hermitage (2002)	**100**							**99% occupancy**
1128 Hermitage Road	1BR/1BA	$825	to	500	to	$1.29	to	*Pool, game room,*
Adaptive Re-Use		$1,100		850		$1.65		*rec center, fitness center,*
	2BR/2BA	$1,175	to	809	to	$1.20	to	*high speed internet.*
		$1,325		1,106		$1.45		
	3BR/2BA	$1,475	to	1,055		$1.13	to	
		$1,600		1,417		$1.40		

SOURCE: Zimmerman/Volk Associates, Inc.

Summary Of Selected For-Sale Multi-Family And Single-Family Attached Developments

City of Richmond, Virginia

July, 2007

Development (Date Opened) / *Developer/Builder*	*Unit Type*	*Unit Price Range*	*Unit Size Range*	*Price Per Sq. Ft.*	*Total Units*	*Total Sales (Monthly Average)*
. . . . Shockoe Bottom						
The Reserve (2007)					**25**	
Clachan Properties	CO	$218,950 to $450,000	745 to 1,338	$294 to $336		
Sterling Row Townhouses (05/07)					**8**	**0**
Sterling-Bilder, developer	TH	$480,000 to $575,000	2,450 to 2,800	$196 to $205		
Gotham Condominiums (2002)					**8**	**7**
Jerry Peters; Howard Kellman, developers	CO	$549,000	1,586	$346		
. . . . Church Hill						
St. Patrick's Place (06/06)					**15**	
Stanley Shield, LLC	CO	$200,000 to $430,000	826 to 1,960	$219 to $242		
. . . . River District						
Vistas on the James (06/05)					**168**	**143 (6.2)**
Daniel Development	CO	$309,000 to $979,000	846 to 2,342	$365 to $418		
		$448,000 †	1,237	$362		
		$534,000 †	1,301	$410		
. . . . Old Manchester						
Old Manchester Lofts (2004)					**80**	**74 (2.0)**
Monroe Properties	CO	$165,000 to $285,000	800 to 1,400	$204 to $206		
(Original Price Range: $140,000 to $390,000)						

† Prices are for spec or model units.

SOURCE: Zimmerman/Volk Associates, Inc.

Summary Of Selected For-Sale Multi-Family And Single-Family Attached Developments

City of Richmond, Virginia

July, 2007

Development (Date Opened) / *Developer/Builder*	*Unit Type*	*Unit Price Range*	*Unit Size Range*	*Price Per Sq. Ft.*	*Total Units*	*Total Sales (Monthly Average)*
		. . . . Monroe Ward				
Presidential Court Club (2004)					**27**	**7 (0.3)**
Goodstein Development	CO	$178,000 to $598,400	875 to 1,876	$203 to $319		
		. . . . Jackson Ward				
Emrick Flats (2007)					**25**	**6 (1.5)**
Clachan Properties	CO	$130,000 to $325,000	516 to 1,225	$252 to $265		
Sanctuary Condominiums (04/07)					**8**	**2 (0.7)**
REO Enterprises	3-story CO	$189,950 to $199,950	894 to 929	$212 to $215		
Marshall St. THs (2007)					**5**	
The Hanson Company	TH	$220,000 to $270,000	1,700 to 2,300	$117 to $129		
2C Cos.					**12**	**6**
Ron Stallings	CO	$250,000 to $360,000	1,200 to 1,600	$208 to $225		
Jackson Commons (2006)					**52**	
Walker Row Partnership	TH	$325,000 to $335,000	2,300	$141 to $146	4	2
		. . . . VCU/Carver				
Eagle Mill Towers (Fall/06)					**30**	**6 (0.9)**
Hunt Investments, LLC	CO	$167,500 to $295,500	510 to 1,332	$222 to $328		
Ironhouse Place (Fall/06)					**28**	**12 (1.8)**
Hunt Investments, LLC	CO	$189,500 to $291,900	554 to 1,210	$241 to $342		

SOURCE: Zimmerman/Volk Associates, Inc.

Summary Of Selected For-Sale Multi-Family And Single-Family Attached Developments

City of Richmond, Virginia

July, 2007

Development (Date Opened) / *Developer/Builder*	*Unit Type*	*Unit Price Range*	*Unit Size Range*	*Price Per Sq. Ft.*	*Total Units*	*Total Sales (Monthly Average)*
. . . . Oregon Hill						
Overlook Townhouses (03/04)					**81**	**62 (1.6)**
Commonwealth Properties	TH	$269,500 to $539,900	1,320 to 2,378	$204 to $227		
. . . . The Fan						
Cary Place Lofts and Townes (01/06)					**10**	**9 (0.5)**
East West Partners	TH	$239,900 to $269,900	1,061 to 1,310	$206 to $226		
	CO					
. . . . Other Richmond						
Creek's Edge at Stony Point (2006)					**24**	**3**
	TH	$218,500 to $499,000	745 to 1,262	$293 to $395	1st Phase	
Lock Lane Condominiums (09/06)					**121**	**75 (6.3)**
Robinson Group	CO	$239,000 **	758	$315		
		$399,000 **	1,211	$329		
		$499,300 **	1,720	$290		
		$519,300 **	1,720	$302		
Ginter Place Condominiums (04/07)					**69**	**0**
GPCV, LLC	CO	$381,000 †	1,568	$243		
		$415,000 †	1,758	$236		
		$460,000 †	1,914	$240		
		$527,000 †	2,109	$250		

† Prices are for spec or model units.

** New-unit (investor) resales.

SOURCE: Zimmerman/Volk Associates, Inc.

Summary Of Selected For-Sale Multi-Family And Single-Family Attached Developments

City of Richmond, Virginia

July, 2007

Development (Date Opened) / *Developer/Builder*	*Unit Type*	*Unit Price Range*	*Unit Size Range*	*Price Per Sq. Ft.*	*Total Units*	*Total Sales (Monthly Average)*
		. . . . Western Henrico County				
Monument Square (01/06)					**238**	**19 (1.0)**
Gumenick Properties	Mansion	$294,300 to	1,218 to	$242 to	143	18 (1.0)
	CO	$860,000	3,400	$253		{contracts}
		$391,690 †	1,629	$240		
		$458,850 †	1,905	$241		
	TH	$550,000 to	2,300 to	$233 to	95	1
		$630,000	2,700	$239		
		. . . . Eastern Henrico County				
Rocketts Landing (06/05)					**233**	**141 (6.7)**
The WVS Companies						
Cedar Works (03/06)	CO	$125,000 to	657 to	$190 to	83	70 (4.7)
Adaptive Re-Use		$630,000	1,930	$326		
		$235,000 †	1,038	$226		
Fall Line (12/05)	CO	$275,000 to	1,221 to	$225 to	49	41 (2.3)
New Construction		$675,000	2,188	$309		
	3 PH	custom				
Sky Line (06/06)	CO	$335,000 to	1,221 to	$270 to	60	30 (2.5)
New Construction		$590,000	2,188	$274		
	2 PH	custom				
Scandia, USA						
Old Main Street; Rocketts Way; Cedar Works	TH	mid $400s to $1,000,000+	2,400 & 3,325	$188 to $301	41 1st Phase	under construction

† Prices are for spec or model units.

SOURCE: Zimmerman/Volk Associates, Inc.

Summary Of Selected For-Sale Single-Family Properties

New Construction

City of Richmond, Virginia

July, 2007

	Property (Year Built)	*Configuration*	*Unit Price*	*Unit Size*	*Price/sq.ft.*
		. . . . . Church Hill			
	Q Street (2007)	3br/2ba	$144,950	1,150	$126
	Q Street (2007)	3br/2.5ba	$169,500	1,728	$98
*	North 27th Street (2007)	3br/1.5ba	$149,500	1,344	$111
	North 28th Street (2007)	2br/1ba	$149,950	950	$158
	North 27th Street (2007)	3br/2ba	$150,000	1,469	$102
	30th Street (2006)	3br/2.5ba	$163,900	1,700	$96
	N Street (2007)	4br/2ba	$169,000	1,365	$124
	29th Street (2006)	3br/1.5ba	$175,000	1,200	$146
	North 25th Street (2006)	3br/2.5ba	$197,900	2,060	$96
	North 36th Street (2007)	4br/2.5ba	$224,000	2,400	$93
	North 31st Street (2007)	3br/2.5ba	$264,950	1,856	$143
	North 26th Street (2007)	3br/2.5ba	$239,000	1,700	$141
	North 33rd Street (2007)	3br/2.5ba	$245,000	1,950	$126
	North 29th Street (2006)	3br/2.5ba	$247,500	2,432	$102
	North 24th Street (2006)	3br/2.5ba	$249,950	1,703	$147
	M Street (2007)	3br/2.5ba	$255,000	1,920	$133
	North 26th Street (2007)	3br/2.5ba	$269,900	1,800	$150
	North 30th Street (2007)	3br/2.5ba	$294,950	2,412	$122
	North 21st Street (2007)	3br/2.5ba	$399,000	2,240	$178
		. . . . . Carver			
*	West Clay Street (2007)	3br/2.5ba	$260,000	1,700	$153
		. . . . . Jackson Ward			
	Jackson Commons (2006)	4br/3.5ba	$299,000	2,200	$136
*	West Jackson St. (2007)	3br/2.5ba	$229,000	1,700	$135
	North 1st St. (2007)	3br/3ba	$268,000	1,800	$149
		. . . . . Oregon Hill			
	Wallace Manor (2007)	3br/2.5ba	$229,950	1,800	$128
	Idlewood (2007)	3br/2.5ba	$299,950	1,872	$160
	Laurel Street (2008)	3br/2.5ba	$295,000	1,700	$174

* Neighborhoods in Bloom target area.

SOURCE: Multiple Listing Service;
Zimmerman/Volk Associates, Inc.

Summary Of Selected For-Sale Single-Family Properties

New Construction

City of Richmond, Virginia

July, 2007

	Property (Year Built)	*Configuration*	*Unit Price*	*Unit Size*	*Price/sq.ft.*
			. . . . . Randolph		
	Powhatan (2007)	3br/2.5ba	$164,500	1,475	$112
	Powhatan (2007)	3br/2ba	$164,950	1,568	$105
	Powhatan (2007)	3br/2.5ba	$174,000	1,571	$111
	Randolph West (2007)	3br/2.5ba	$279,900	1,904	$147
			. . . . . South of the James River		
	Fonticello Park (2007)	3br/2ba	$125,000	1,000	$125
	Mason Park (2007)	3br/2ba	$134,950	1,232	$110
	Mason Park (2006)	4br/2.5ba	$177,950	1,900	$94
	Melrose (2007)	3br/2ba	$144,950	1,200	$121
	British Camp Farms (2006)	3br/2ba	$149,950	1,092	$137
	British Camp Farms (2007)	4br/2.5ba	$199,950	1,900	$105
*	Blackwell (2007)	3br/2.5ba	$150,000	1,652	$91
	Blackwell (2007)	3br/2.5ba	$155,000	1,796	$86
	Blackwell (2007)	4br/2.5ba	$160,000	1,832	$87
	Blackwell (2007)	3br/2.5ba	$164,000	1,792	$92
	Blackwell (2007)	3br/2.5ba	$170,000	1,818	$94
	Blackwell (2007)	3br/2.5ba	$188,000	2,582	$73
	Royall Avenue (2007)	3br/2ba	$159,950	1,400	$114
	Cherry Gardens (2007)	3br/2ba	$164,995	1,200	$137
	Cherry Gardens (2007)	3br/2ba	$175,000	1,120	$156
	Cherry Gardens (2007)	3br/2ba	$179,950	1,536	$117
	Cherry Gardens (2007)	4br/2.5ba	$194,950	1,750	$111
	Scottdale (2007)	3br/2ba	$164,999	1,100	$150
	Scottdale (2007)	3br/2ba	$175,250	1,234	$142
	Scottdale (2007)	3br/2.5ba	$183,000	1,460	$125
	Villa Heights (2007)	3br/2ba	$169,000	1,234	$137
	Villa Heights (2007)	3br/2ba	$169,000	1,234	$137
	Forest Hill (2007)	3br/2.5ba	$169,900	1,475	$115
	Ampthill Heights (2007)	3br/2.5ba	$180,000	1,800	$100

* Neighborhoods in Bloom target area.

SOURCE: Multiple Listing Service;
Zimmerman/Volk Associates, Inc.

Summary Of Selected For-Sale Single-Family Properties

New Construction

City of Richmond, Virginia

July, 2007

Property (Year Built)	*Configuration*	*Unit Price*	*Unit Size*	*Price/sq.ft.*
		. . . . . South of the James River {continued}		
Broad Rock Garden (2007)	3br/2.5ba	$188,950	1,500	$126
Broad Rock Garden (2007)	3br/2.5ba	$188,950	1,500	$126
Broad Rock Garden (2007)	3br/2.5ba	$191,950	1,740	$110
Broad Rock Park (2007)	3br/2.5ba	$277,000	1,965	$141
Walmsley Blvd. (2007)	3br/2.5ba	$189,000	1,956	$97
Walmsley Blvd. (2007)	3br/2.5ba	$191,000	1,896	$101
Walmsley Blvd. (2007)	3br/2ba	$197,000	1,704	$116
Swanson Road (2007)	4br/2.5ba	$189,950	1,803	$105
Twyman Terrace (2007)	4br/2.5ba	$194,950	1,750	$111
Clopton (2007)	3br/2.5ba	$197,500	1,500	$132
Brookbury (2007)	3br/2.5ba	$215,000	1,800	$119
Brookbury (2007)	3br/2.5ba	$265,000	2,200	$120
Brookbury (2007)	4br/2.5ba	$269,000	2,100	$128
Westover Heights (2007)	4br/2.5ba	$239,900	1,850	$130
Westover Heights (2007)	4br/2.5ba	$259,950	2,069	$126
Westover Heights (2007)	4br/2.5ba	$259,950	1,957	$133
Westover Ridge (2007)	4br/2.5ba	$265,000	2,125	$125
Old Manchester (1912: 2007)	3br/2.5ba	$249,900		
Nottingham (2007)	3br/3.5ba	$299,950	2,000	$150
Greenleaf Lane (2007)	4br/2.5ba	$349,900	2,400	$146
West 19th Street (2007)	3br/2.5ba	$349,900	1,850	$189
Stony Point (2007)	4br/2.5ba	$384,950	1,986	$194
Stony Point (2007)	3br/2.5ba	$429,950	2,145	$200
Huguenot Farms (2007)	5br/2.5ba	$399,950	2,745	$146
Huguenot Farms (2007)	5br/2.5ba	$435,950	3,131	$139
Huguenot Farms (2007)	5br/2.5ba	$469,950	3,131	$150
Huguenot Farms (2007)	4br/2.5ba	$659,950	3,789	$174
James River Commons (2007)	5br/4ba	$490,958	3,960	$124
James River Commons (2007)	4br/4ba	$492,100	3,488	$141
James River Commons (2007)	5br/4ba	$528,480	4,135	$128
James River Commons (2007)	4br/4ba	$533,299	3,983	$134
Stratford Hills (2007)	5br/4.5ba	$699,000	3,729	$187

SOURCE: Multiple Listing Service;
Zimmerman/Volk Associates, Inc.

Summary Of Selected For-Sale Single-Family Properties

New Construction

City of Richmond, Virginia

July, 2007

	Property (Year Built)	*Configuration*	*Unit Price*	*Unit Size*	*Price/sq.ft.*
		. . . . . North of Downtown			
*	Highland Park (2007)	3br/2.5ba	$128,000	1,184	$108
	Highland Park (2007)	3br/3ba	$149,900	1,392	$108
	Highland Park (2006)	3br/2.5ba	$169,950	1,728	$98
	Highland Park (2007)	3br/2ba	$152,950	1,063	$144
	Highland Park (2007)	3br/2.5ba	$272,000	1,930	$141
	Highland Park (2007)	3br/2.5ba	$277,000	1,865	$149
	Highland Park (2007)	4br/2.5ba	$525,000	3,006	$175
	Providence Park (2007)	3br/2ba	$137,500	1,090	$126
	Providence Park (2007)	3br/2ba	$139,950	1,250	$112
	Chestnut Hills (2007)	3br/1.5ba	$149,950	1,400	$107
	Oak Park (2007)	3br/2.5ba	$159,500	1,500	$106
*	Barton Heights (2007)	3br/2.5ba	$179,950	1,600	$112
	Barton Heights (2007)	3br/2.5ba	$199,950	1,950	$103
	Barton Heights (2007)	4br/3ba	$210,000	1,875	$112
	Garland Avenue (2007)	3br/2.5ba	$194,950	1,632	$119
		. . . . . Northeast of Downtown			
	Woodville (2007)	3br/2ba	$125,000	1,064	$117
	Woodville (2007)	3br/2ba	$125,000	1,064	$117
	Eastview (2007)	3br/2ba	$138,000	1,128	$122
	N. 29th St. (2006)	3br/2.5ba	$149,950	1,344	$112
	Fairmount Park (2006)	4br/2.5ba	$186,000	1,724	$108
	Tuxedo Park (2007)	3br/2.5ba	$196,000	1,635	$120
	T Street (2006)	3br/2.5ba	$199,500	2,000	$100
		. . . . . West of Downtown			
	Museum District (2007)	3br/2.5ba	$375,000	2,400	$156

* Neighborhoods in Bloom target area.

SOURCE: Multiple Listing Service;
Zimmerman/Volk Associates, Inc.

Table 11

Potential Market For New And Existing Housing Units

Distribution Of Draw Area Households With The Potential
To Move Within/To The Downtown Study Area In 2007
Based On Housing Preferences And Income Levels

The Downtown Study Area

City of Richmond, Virginia

City of Richmnond; Adjacent Counties; Northern Virginia Draw Area; All Other U.S. Counties Draw Areas

Total Target Market Households With Potential To Rent/Purchase Within The City of Richmond, Virginia	16,050
Total Target Market Households With Potential To Rent/Purchase Within The Downtown Study Area	16,050

Citywide Housing Market

	Multi-Family			*Single-Family*			
	For-Rent			*For-Sale*			
	Below Market-Rate Apts.*	*Market-Rate* Apts.*	*AllRanges Apts.*	*AllRanges Attached*	*Below Market-Rate* Detached*	*Market-Rate* Detached*	Total
Total Households:	2,810	3,310	1,890	980	1,740	5,320	16,050
{Percent}:	17.5%	20.7%	11.8%	6.1%	10.8%	33.1%	100.0%

Downtown Housing Market

	Multi-Family			*Single-Family*			
	For-Rent			*For-Sale*			
	Below Market-Rate Apts.*	*Market-Rate* Apts.*	*AllRanges Apts.*	*AllRanges Attached*	*Below Market-Rate* Detached*	*Market-Rate* Detached*	Total
Total Households:	590	900	710	400	310	1,130	4,040
{Percent}:	14.5%	22.3%	17.6%	9.9%	7.7%	28.0%	100.0%

* Market rate is defined as affordable to households with incomes above 80 percent of the Richmond AMFI (Area Median Family Income), which is $68,700 for a family of four in 2007.

NOTE: Reference Appendix One, Tables 1 through 14.

SOURCE: Claritas, Inc.;
Zimmerman/Volk Associates, Inc.

Table 12

Downtown Housing Mix By Household Type

Distribution Of Draw Area Households With The Potential
To Move Within/To The Downtown Study Area In 2007
Based On Housing Preferences And Income Levels

The Downtown Study Area

City of Richmond, Virginia

		. . . . . *Multi-Family*			. . . . . *Single-Family*		
		. . . . . *For-Rent*			. . . . . *For-Sale*		
	Total	*Below Market-Rate* Apts.*	*Market-Rate* Apts.*	*AllRanges Apts.*	*AllRanges Attached*	*Below Market-Rate* Detached*	*Market-Rate* Detached*
Number of Households:	4,040	590	900	710	400	310	1,130
Empty Nesters & Retirees	37%	20%	21%	45%	33%	39%	53%
Traditional & Non-Traditional Families	9%	9%	10%	4%	3%	19%	11%
Younger Singles & Couples	54%	71%	69%	51%	64%	42%	36%
	100%	100%	100%	100%	100%	100%	100%

* Market rate is defined as affordable to households with incomes above 80 percent of the Richmond AMFI (Area Median Family Income), which is $68,700 for a family of four in 2007.

NOTE: Reference Appendix One, Tables 1 through 14.

SOURCE: Claritas, Inc.;
Zimmerman/Volk Associates, Inc.

Optimum Market Position
The Downtown Study Area
City of Richmond, Virginia
September, 2007

Housing Type	*Base Rent/Price Range**	*Base Unit Size Range*	*Base Rent/Price Per Sq. Ft.**	*Annual Market Capture*
Multi-Family For-Rent				**149 units**
Hard Lofts	$500 to	450 to	$1.11 to	**to**
Open Floorplans/1ba	$1,850	1,350	$1.37	
				224 units
Soft Lofts	$600 to	500 to	$1.20 to	
Studios to Two-Bedrooms	$2,100	1,450	$1.45	
High-End Apartments	$1,150 to	600 to	$1.43 to	
One- to Three-Bedrooms	$2,500	1,750	$1.92	
Multi-Family For-Sale				**71 units**
Hard Lofts	$90,000 to	500 to	$180 to	**to**
Open Floorplans/1ba	$300,000	1,400	$214	
				107 units
Soft Lofts	$140,000 to	700 to	$200 to	
One- and Two-Bedrooms	$350,000	1,500	$233	
High-End Condominiums	$300,000 to	1,000 to	$300 to	
Two- and Three-Bedrooms	$875,000	2,500	$350	
	and up	and up	and up	
Single-Family Attached For-Sale				**40 units**
Townhouses	$145,000 to	950 to	$153 to	**to**
Two-Bedrooms	$265,000	1,250	$212	
				60 units
Live-Work	$275,000 to	1,500 to	$183 to	
Two-Bedrooms	$400,000	1,750	$229	
300 to 350 sf work space				
Townhouses	$325,000 to	1,350 to	$225 to	
Two- and Three-Bedrooms	$450,000	2,000	$241	
	and up	and up	and up	

NOTE: Base rents/prices in year 2007 dollars and exclude floor and/or view premiums, or consumer options and upgrades.

SOURCE: Zimmerman/Volk Associates, Inc.

Optimum Market Position
The Downtown Study Area
City of Richmond, Virginia
September, 2007

Housing Type	*Base Rent/Price Range**	*Base Unit Size Range*	*Base Rent/Price Per Sq. Ft.**	*Annual Market Capture*
Single-Family Detached For-Sale				**144 units**
Urban Houses	$150,000 to	1,000 to	$150 to	**to**
Two- and Three-Bedrooms	$425,000	1,650	$258	
				217 units
Larger Urban Houses	$475,000 to	1,800 to	$250 to	
Three- and Four-Bedrooms	$600,000	2,400	$264	
	and up	and up	and up	

NOTE: Base rents/prices in year 2007 dollars and exclude floor and/or view premiums, or consumer options and upgrades.

SOURCE: Zimmerman/Volk Associates, Inc.

Target Groups For New Mixed-Income Multi-Family For Rent
The Downtown Study Area
City of Richmond, Virginia

	. . . . . Number of Households			
Empty Nesters & Retirees	*Below 80% AMI**	*Above 80% AMI**	*Total*	*At 15 Percent Capture*
Suburban Establishment	0	20	20	3
Affluent Empty Nesters	0	20	20	3
Small-Town Establishment	0	10	10	2
Cosmopolitan Elite	0	10	10	2
Cosmopolitan Couples	0	10	10	2
New Empty Nesters	0	10	10	2
Multi-Ethnic Empty Nesters	0	10	10	2
Middle-Class Move-Downs	10	20	30	5
Blue-Collar Retirees	10	10	20	3
Suburban Retirees	0	10	10	2
Suburban Seniors	50	30	80	11
Hometown Retirees	10	10	20	3
Second City Seniors	40	20	60	9
Subtotal:	120	190	310	49
Traditional & Non-Traditional Families				
The Entrepreneurs	0	20	20	3
Full-Nest Urbanites	0	10	10	2
Unibox Transferees	0	10	10	2
Multi-Cultural Families	0	10	10	2
Multi-Ethnic Families	10	10	20	3
Low-Rise Families	10	10	20	3
Mid-Rise Families	10	10	20	3
In-Town Families	10	10	20	3
High-Rise Families	10	0	10	2
Subtotal:	50	90	140	23

SOURCE: Claritas, Inc.;
Zimmerman/Volk Associates, Inc.

Target Groups For New Mixed-Income Multi-Family For Rent
The Downtown Study Area
City of Richmond, Virginia

. . . . . *Number of Households* . . . . . .

Younger Singles & Couples	*Below 80% AMI**	*Above 80% AMI**	*Total*	*At 15 Percent Capture*
e-Types	0	10	10	2
Fast-Track Professionals	0	40	40	6
The VIPs	0	50	50	8
Upscale Suburban Couples	0	30	30	5
New Bohemians	0	20	20	3
Twentysomethings	40	50	90	14
Suburban Achievers	50	110	160	24
Urban Achievers	10	20	30	5
No-Nest Suburbanites	30	30	60	9
Small-City Singles	90	110	200	27
Suburban Strivers	140	110	250	34
Blue-Collar Singles	20	20	40	6
Soul City Singles	40	20	60	9
Subtotal:	420	620	1,040	152
Total Households:	**590**	**900**	**1,490**	224

SOURCE: Claritas, Inc.;
Zimmerman/Volk Associates, Inc.

Target Groups For New Mixed-Income Multi-Family For Sale
The Downtown Study Area
City of Richmond, Virginia

Empty Nesters & Retirees	*Number of Households*	*At 15 Percent Capture*
Old Money	20	3
Urban Establishment	20	3
Suburban Establishment	20	3
Affluent Empty Nesters	20	3
Small-Town Establishment	30	5
Cosmopolitan Elite	20	3
Cosmopolitan Couples	10	2
New Empty Nesters	10	2
Multi-Ethnic Empty Nesters	20	3
Middle-Class Move-Downs	20	3
Blue-Collar Retirees	20	3
Suburban Retirees	20	3
Suburban Seniors	30	5
Downtown Retirees	10	2
Hometown Retirees	10	2
Multi-Ethnic Seniors	20	3
Second City Seniors	20	3
Subtotal:	320	51
Traditional & Non-Traditional Families		
The Entrepreneurs	10	2
Low-Rise Families	10	2
Mid-Rise Families	10	2
Subtotal:	30	6

SOURCE: Claritas, Inc.;
Zimmerman/Volk Associates, Inc.

Target Groups For New Mixed-Income Multi-Family For Sale
The Downtown Study Area
City of Richmond, Virginia

Younger Singles & Couples	*Number of Households*	*At 15 Percent Capture*
e-Types	10	2
Fast-Track Professionals	20	3
The VIPs	30	5
Upscale Suburban Couples	20	3
New Bohemians	20	3
Twentysomethings	20	3
Suburban Achievers	50	7
No-Nest Suburbanites	20	3
Small-City Singles	40	6
Suburban Strivers	40	6
Blue-Collar Singles	10	2
Soul City Singles	80	7
Subtotal:	360	50
Total Households:	**710**	107

SOURCE: Claritas, Inc.;
Zimmerman/Volk Associates, Inc.

Table 16

Target Groups For New Mixed-Income Single-Family Attached For Sale
The Downtown Study Area
City of Richmond, Virginia

Empty Nesters & Retirees	*Number of Households*	*At 15 Percent Capture*
Old Money	20	3
UrbanEstablishment	10	2
Suburban Establishment	20	3
Affluent Empty Nesters	10	2
Small-Town Establishment	10	2
Cosmopolitan Elite	10	2
New Empty Nesters	10	2
Multi-Ethnic Empty Nesters	20	2
Middle-Class Move-Downs	20	3
Subtotal:	130	21
Traditional & Non-Traditional Families		
The Entrepreneurs	10	2
Subtotal:	10	2
Younger Singles & Couples		
Fast-Track Professionals	20	3
The VIPs	40	5
Upscale Suburban Couples	30	4
New Bohemians	10	2
Twentysomethings	20	3
Suburban Achievers	30	4
Urban Achievers	10	2
No-Nest Suburbanites	10	2
Small-City Singles	50	6
Suburban Strivers	10	2
Blue-Collar Singles	10	2
Soul City Singles	20	2
Subtotal:	260	37
Total Households:	**400**	60

SOURCE: Claritas, Inc.;
Zimmerman/Volk Associates, Inc.

Target Groups For New Mixed-Income Urban Single-Family Detached For Sale
The Downtown Study Area
City of Richmond, Virginia

	. . . . . Number of Households			
Empty Nesters & Retirees	*Below 80% AMI**	*Above 80% AMI**	*Total*	*At 10 Percent Capture*
Old Money	0	130	130	13
Urban Establishment	0	20	20	2
Suburban Establishment	0	80	80	8
Affluent Empty Nesters	0	60	60	6
Small-Town Establishment	0	60	60	6
Cosmopolitan Elite	0	40	40	4
New Empty Nesters	0	50	50	5
Multi-Ethnic Empty Nesters	10	10	20	2
Middle-Class Move-Downs	20	90	110	11
Blue-Collar Retirees	20	20	40	4
Suburban Retirees	20	20	40	4
Suburban Seniors	20	10	30	3
Hometown Retirees	20	10	30	3
Second City Seniors	10	0	10	1
Subtotal:	120	600	720	72
Traditional & Non-Traditional Families				
The Entrepreneurs	10	60	70	7
Full-Nest Urbanites	0	10	10	1
Unibox Transferees	0	30	30	3
Multi-Cultural Families	10	0	10	1
Multi-Ethnic Families	20	10	30	3
Low-Rise Families	10	10	20	2
Mid-Rise Families	10	0	10	1
Subtotal:	60	120	180	18

SOURCE: Claritas, Inc.;
Zimmerman/Volk Associates, Inc.

Target Groups For New Mixed-Income Urban Single-Family Detached For Sale
The Downtown Study Area
City of Richmond, Virginia

	. . . . . Number of Households			
Younger Singles & Couples	*Below 80% AMI**	*Above 80% AMI**	*Total*	*At 10 Percent Capture*
e-Types	0	10	10	1
Fast-Track Professionals	0	40	40	4
The VIPs	10	100	110	11
Upscale Suburban Couples	10	70	80	8
Twentysomethings	0	40	40	4
Suburban Achievers	10	40	50	5
No-Nest Suburbanites	30	60	90	9
Small-City Singles	30	20	50	5
Suburban Strivers	10	10	20	2
Blue-Collar Singles	10	10	20	2
Soul City Singles	20	10	30	3
Subtotal:	130	410	540	54
Total Households:	**310**	**1,130**	**1,440**	144

SOURCE: Claritas, Inc.;
Zimmerman/Volk Associates, Inc.

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Research & Strategic Analysis

ASSUMPTIONS AND LIMITATIONS—

Every effort has been made to insure the accuracy of the data contained within this analysis. Demographic and economic estimates and projections have been obtained from government agencies at the national, state, and county levels. Market information has been obtained from sources presumed to be reliable, including developers, owners, and/or sales agents. However, this information cannot be warranted by Zimmerman/Volk Associates, Inc. While the methodology employed in this analysis allows for a margin of error in base data, it is assumed that the market data and government estimates and projections are substantially accurate.

Absorption scenarios are based upon the assumption that a normal economic environment will prevail in a relatively steady state during development of the subject property. Absorption paces are likely to be slower during recessionary periods and faster during periods of recovery and high growth. Absorption scenarios are also predicated on the assumption that the product recommendations will be implemented generally as outlined in this report and that the developer will apply high-caliber design, construction, marketing, and management techniques to the development of the property.

Recommendations are subject to compliance with all applicable regulations. Relevant accounting, tax, and legal matters should be substantiated by appropriate counsel.

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Research & Strategic Analysis

Transportation Report

For

Downtown Richmond
(Richmond, Virginia)

Prepared For

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October 31, 2007

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I. INTRODUCTION

The City of Richmond, VA, conducted a charrette with Dover, Kohl & Partners and Hall Planning & Engineering (HPE) from July 19-26, 2007 in Richmond. The focus was the revision of Richmond's downtown master plan. The charrette included interviews with stakeholders to identify transportation issues, as well as an examination by HPE of the area's transportation context. HPE studied traffic speeds and street designs in a sample of Richmond locations, conducted interviews with City Public Works and Planning staff, and met with local citizens and citizen groups.

The purpose of the charrette was to propose design solutions that could revive the economic life of the historic downtown area. HPE's goal during the charrette was to work with Richmond's existing streets, institutions, and traffic patterns to re-establish a balanced, multi-modal transportation system. This includes a walkable downtown core and walkable Old Manchester redevelopment. According to the City Traffic Engineering website, a pedestrian is struck by a car in Richmond every other day, on average. The website does not indicate if these crashes occur in any particular part of town, but this crash rate is much too high. Walkable redevelopment of the downtown area requires a safer condition overall. HPE's recommendations in this report are designed to address this problem and to refresh the city's transportation options..

II. PROJECT DESCRIPTION

Richmond, the capital city of Virginia, was the early Commonwealth in colonial times as well as the capital city of the Confederate States of America and is immersed in history and tradition. Much of Richmond's rich historic architecture and street design have been preserved. During the last 100 years, modifications to accommodate automobile traffic have begun to erode the historic urban fabric. Examples include the removal of the street car lines, "urban renewal" of the waterfront area, conversion of two-way streets to one-way operation, and disinvestment in the downtown. The areas surrounding downtown have also undergone automobile-oriented modifications. The study area, shown in **Figure 1**, includes the downtown river front, the Manchester community across the river, and several communities to the north of downtown. The James River divides the study area. Interstate highways traverse the study area on the north and east sides.

Challenges include reuniting the two sides of the river, from a bicycle and pedestrian perspective, as well as restoring the high levels of walkability that existed in Richmond prior to WWII. In the last fifty years, based on contemporary policies and thinking of the day, modern traffic engineering techniques and development patterns have emphasized automobile transportation over walkability. As a result, portions of downtown have become harsh and uninviting to pedestrians. Building on the fine urban heritage, HPE's assessment and recommendations attempt to soften the contemporary designs in these areas and restore greater levels of walkability to the city.

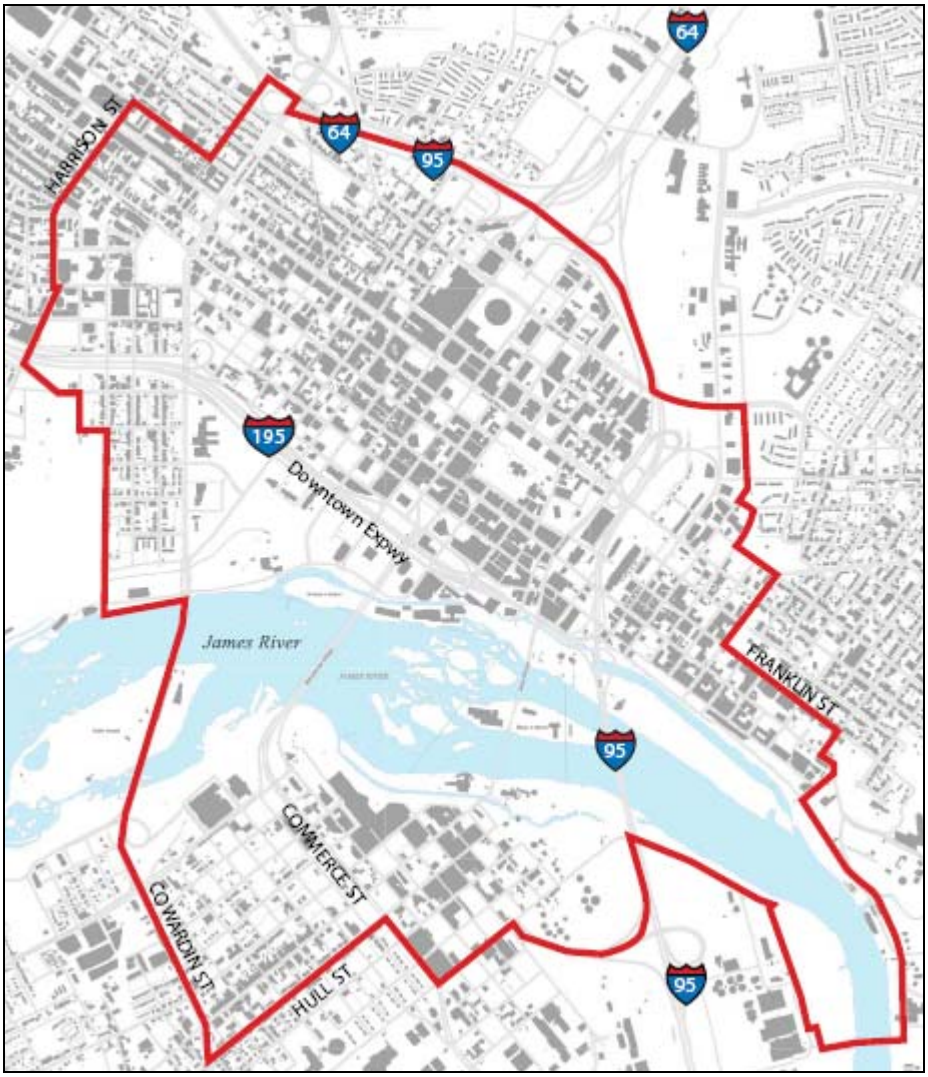

Figure 1: Location Map (Red Line Shows Project Limits)

III. TRANSPORTATION ISSUES

From a transportation planning context, HPE recognizes the following issues for the Downtown Richmond Plan:

A. Vision for Urban Design Patterns
B. Walkable Thoroughfares
C. Peer Communities
D. Speed Management
E. Transit (Rubber Tire and Streetcar)
F. Parking Supply and Management
G. Vehicle Circulation and Mobility
H. Bicycle and Pedestrian Planning

A. Urban Design Vision

Much of America's suburban land development pattern results from street and highway networks dictating its structure. Highways designated as arterials change little as they approach developed areas. Generally speeds drop from 55 to 45/35 mph, but on-street parking is usually not allowed in emerging areas and is often removed from older areas. Arterial street designs, by definition, tend to exclude intersections with side streets of limited volume, leading to longer block size (600 to 1,000 feet and higher) and higher speeds 45 mph or more, both of which cause difficulty for pedestrians. The arterial design concept emerged from a rural heritage and rarely serves urban peak travel demand well due to exclusive reliance on the single facility serving a single mode – the motor vehicle.

To achieve urban places that encourage (and thrive with) pedestrians, bicycles, and transit vehicles as part of the mobility mix, the patterns of proposed development must be specified first, during the community planning stage. Then, transportation plans for balanced mobility can be crafted with walkability considered first and vehicle mobility second. This is not to imply that motor vehicle mobility will be dramatically reduced, but that pedestrians, exposed to the open environment are more vulnerable than when they are drivers, and solutions for their comfort are more complex. Often, greater walkability yields only small reductions in vehicle capacity, even though vehicle speeds are lower. Generally more streets per square mile result from a more open network and drivers can avoid the degree of peak hour congestion that occurs when a limited number of large streets break down.

Downtown Richmond has retained much of its historic grid street network. Over time, some streets have been widened and some intersections have been modified to permit higher-speed traffic operations than desired for a walkable area. In addition, the conversion of two-way streets to one-way operation in the 1960's has reduced the walkability of the area and complicated local travel patterns. These modifications serve to allow speedy access into and out of the downtown area, emptying the downtown at 5:00 PM on weekdays. Richmond's experience with this type of system mirrors that of other cities, in that the downtown, especially the core, is largely unoccupied after the evening peak hour.

The urban design vision for downtown Richmond, as described by the community and refined by the design team during the charrette, is a return to the walkable city structure of the early 1900's, with downtown residences, places to shop and find entertainment, and restoration of the civic centers in the area. This urban design vision is also an important part of the transportation design criteria for downtown Richmond. The return to a walkable city requires managing traffic speeds to pedestrian friendly levels and ensuring connectivity of the street system. To accomplish this vision, HPE recommends the use of walkable thoroughfares for specific sections of the study area, as described below.

Walkability Districts

Given the clear direction and general thinking of the day, past conventional zoning and engineering standards, particularly those related to traffic engineering, tends to be focused on minimizing automobile delay, and not the creation of an environment attractive to and safe for pedestrians. These are not mutually exclusive goals, but the lack of pedestrian emphasis allows motor vehicle issues to further prevail. Street design standards, for instance, typically

require large (20' or greater) curb radii and wide (11' or wider) travel lanes. On-street parking may be restricted in some instances. While these standards may be appropriate in conventional areas, the creation of highly walkable places requires alternate standards. The thoroughfare types described in this report include narrow lane widths, on-street parking, and shorter curb radii, for instance, than conventional streets. These walkable thoroughfare designs are not intended for use in communities with contemporary patterns and features. Areas designed with cul-de-sacs, single land use types (such as residential only), garages facing the street, and long dead end streets encourage higher vehicle speeds, not walking. The higher vehicle speeds in contemporary city planning require wider streets. Thoroughfares designed using traditional, more narrow dimensions, however, will only function properly within areas adhering to Traditional Neighborhood Design (TND) patterns, such as the districts within the downtown Richmond study area.

New, walkable thoroughfare definitions should be adopted for the downtown study area. Transportation design engineers will have greater professional guidance when implementing the thoroughfares if the City adopts the Walkable Thoroughfare Definitions, which will be included as the recommended code modifications for Richmond. Richmond's recommended walkable thoroughfares are described below.

B. Walkable Thoroughfares

Following the paradigm of LU-1 TR-2, or Land Use First/Transportation Second, the design team identified areas for redevelopment and created specific land use designs for these areas. Walkable thoroughfares were then created or adapted from existing street sections to serve these areas with appropriate vehicle speeds. The vast majority of streets can be retrofit within the existing curb lines, but a few will require more extensive reconstruction. The proposed walkable thoroughfares are described below, organized by study area.

The title of each thoroughfare provides most of the information necessary to understand the thoroughfare's function and lane arrangement. An ST 66-40 8/12/12/8, for instance, is a 66' ROW Street with 40' of pavement, arranged in a pattern with two 8' parking lanes and two 12' vehicle travel lanes. The ST 32-20 6/14 is a 32' ROW Street with 20' of pavement arranged with a 6' parking lane and a 14' yield lane. The first two letters of the title indicate the thoroughfare type, such as ST – Street, AV – Avenue, or BV – Boulevard. Further definition is provided below.

Some features, such as planting strips and sidewalks, are not indicated in the Thoroughfare titles and must be determined by viewing the actual street section diagram.

All street widths are measured curb-face to curb-face. This "curb face" convention matches the practice of traditional street designers and stems from the majority of urban streets having on-street parking. Street lanes without parking are still measured to the face of curb, including the gutter pan. This does not assume vehicles will routinely travel in the gutter; just that the convention is uniformly applied in traditional street design

1. Core/Downtown

Richmond's existing downtown streets have a typical 66' ROW and curb-to-curb width of 40' on the streets parallel to the river. Cross streets west of 1st Street are typically 44' ROW and 30' curb-to-curb. In the downtown area, which would be assigned a T6 Urban Core land use context, these street widths are more than sufficient. Specific thoroughfares for the core/downtown area are described below.

BV 110-80 8/10/14/14/10/8

This Boulevard thoroughfare type is proposed for Broad Street. As shown in **Figure 2**, the section includes an 8' parking lane, 10' travel lane, and 14' travel lane, a median, and the same lane arrangement opposite the median. The Boulevard thoroughfare type is the widest and most traffic-intensive of the walkable thoroughfare designs. Boulevards typically have 4 or 6 central travel lanes and traverse longer distances. Managing traffic speeds on a boulevard can be difficult, so narrow lanes are usually recommended, along with short blocks and, if possible, use of traffic signals for speed management.

The proposed section for Broad Street includes a 14' inside lane that can eventually be shared with street car tracks. The outside 10' lane, placed against the on-street parking, will increase the driver's attention level, as it places the automobile within the "door zone". This increased vigilance is intentional and will have two effects. First, drivers will slow down to better avoid potential collisions with opening doors. Second, drivers will align vehicles in the center and left side of the outside lane, further enhancing speed management. Drivers may even prefer the inner 14' travel lane. The friction between the lanes will also help manage travel speeds.

Cyclists will find they are more comfortable in the center of the 10' lane with slow moving motor vehicles and adjacent parking. This will ensure that cyclists are well-clear of the door zone. A standard, exclusive bike lane would have the opposite effect and would endanger cyclists by placing them in the door zone.

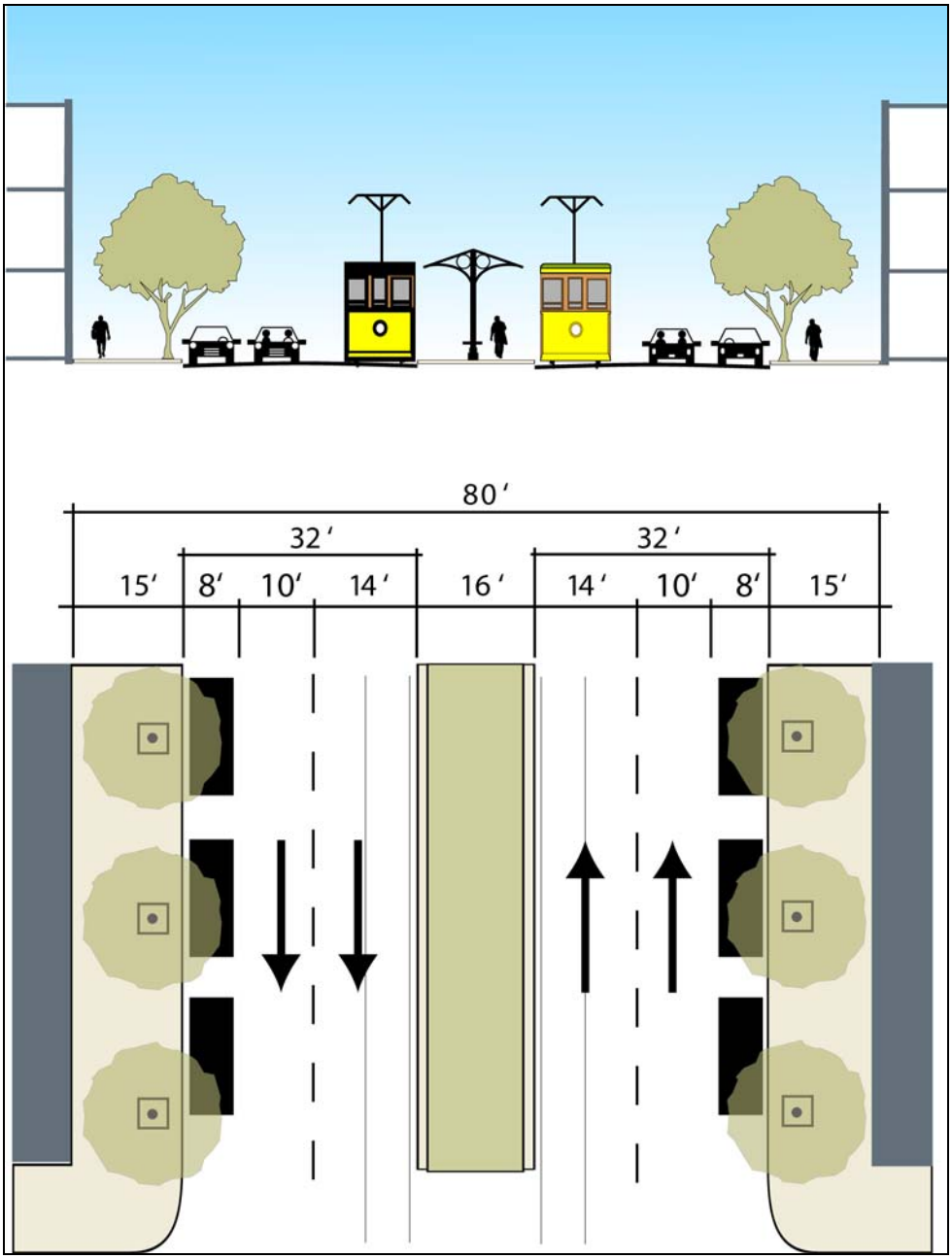

Figure 2: Proposed Section for Broad Street

ST 66-40 8/10/4/10/8

The typical street section for Richmond is 66' ROW with 40' curb-face to curb-face. This section provides ample sidewalk space, but is somewhat wide for effective speed management. An 8/12/12/8 arrangement, with two 8' parking lanes and two 12' travel lanes, would allow traffic speeds to be higher than desirable for good walkability. The proposed section uses two 8'

parking lanes, two 10' travel lanes, and a 4' "safety strip"/flush median between the travel lanes. This section is shown in **Figure 3**.

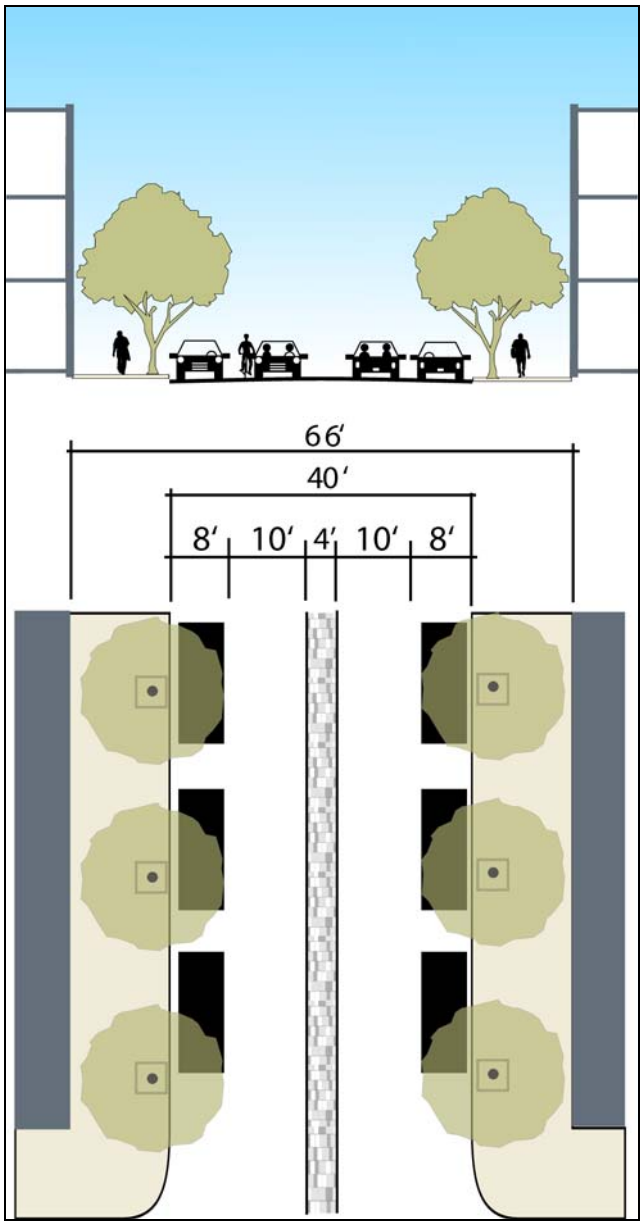

Figure 3: Typical Section for T6 Street (Two way Travel)

ST 44-30 6/9/9/6

West of 1st Street, the cross streets are reduced in ROW to about 44' and in pavement width to about 30'. Currently, most of these streets are one-way, with parking on one or both sides. The proposed section for most of these streets uses the same ROW and pavement width, but returns the streets to two-way operation. The streets will have 6' parking lanes on each side and two 9' travel lanes. This arrangement will provide more convenient circulation and will manage traffic speeds to a walkable level. The typical section is shown in **Figure 4**.

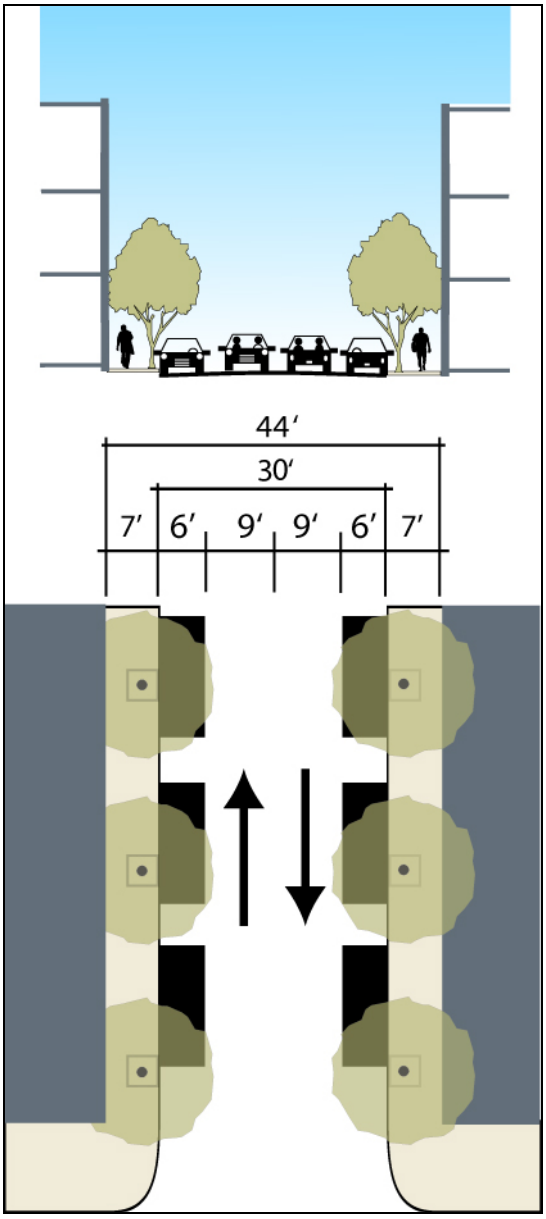

Figure 4: ST 44-30 6/9/9/6 Slow Street for T6/T5 Areas

2. Old Manchester Walkable Thoroughfares

The Old Manchester area across the river from downtown is primarily industrial and vacant, with some remaining residential and limited mix of neighborhood-scale commercial land uses along Hull Street. Proposed community designs for these areas recommend increasing the intensity of the neighborhood center areas using appropriately scaled new and in-fill development. The streets in these areas will carry primarily local traffic at relatively low volumes, with the exception of Commerce and Hull Streets. Walkable, traditional street design in this context calls for narrow streets to manage traffic speeds and, thus, encourage pedestrians.

HPE found the primary streets in this area have either a 20' or 40' pavement width (in fact, the same 66' ROW/40' pavement section as found in downtown). The 20' wide streets are optimal for this location, but the 40' streets are wide enough to encourage speeding. When the area redevelops as planned, the danger of the faster speeds will continue.

The 40' streets are designated with the same ST 66-40 8/10/4/10/8 section as the downtown/core area. This street section will also allow for the addition of a street car track, at some point in the future, if this transportation option is desired.

Additional sections are required for the Commerce Street and the 20' streets, as described below.

ST 32-20 6/14

These smaller streets run cross-grain to the 40' streets and generally form the block sides. The streets are currently one-way, which creates additional unnecessary vehicle circulation. The proposed section has a 6' parking lane and a 14' yield lane, allowing travel in both directions. The parking lane should be striped or signed, and should swap sides from one block to the next. This will create a natural "chicane" pattern to help manage traffic speeds. This section is shown in **Figure 5** below. This section does not provide room for street trees, which are normally included on all walkable thoroughfares. The narrow ROW and side-on lot arrangement preclude trees in the public ROW; they may be provided in the private ROW if desired.

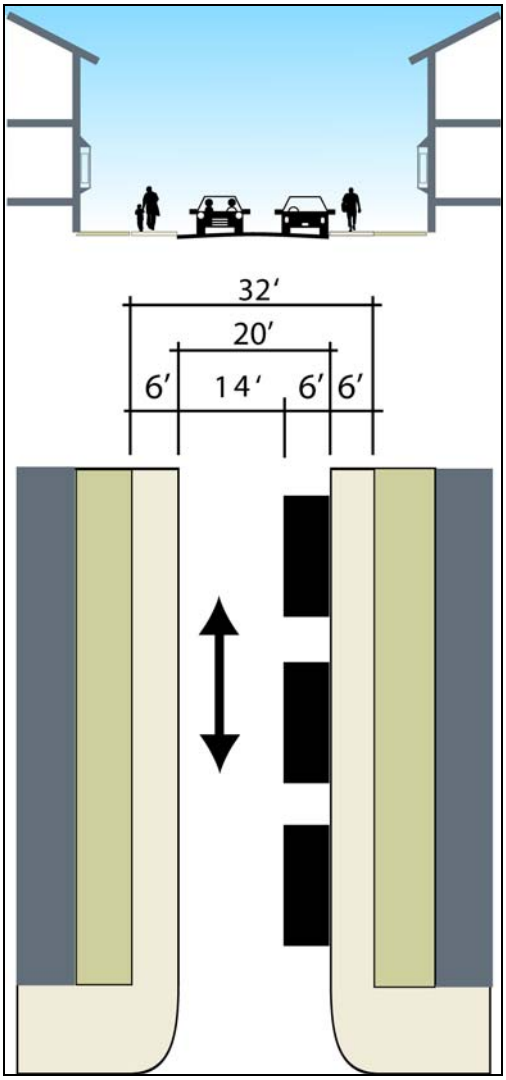

Figure 5: ST 32-20 6/14 Yield Street

AV 115-80 9/11/10/10/10/10/11/9

Commerce Street divides the east and west portions of the Old Manchester study area. Currently a six lane street with 12' travel lanes, this street carries less traffic than expected, given the number of lanes. However, there are six lanes on the Manchester Bridge, to the north end of Commerce, and six lanes south of the study area. Therefore, HPE does not recommend a road diet for this street, in terms of lane reduction. The street must be calmed, however, with managed traffic speeds to mitigate the division of the Old Manchester area.

The proposed section would create a short Avenue, with a central tree-planted median, on-street parking, and narrower travel lanes. The Avenue thoroughfare type is normally used for higher volumes of traffic and includes a planted median, similar to a Boulevard, but the Avenue is typically shorter and is designed to be more of grand place, rather than leading between two

places. The Avenue also includes street front development, as does the Boulevard. This mixed use re-development is already occurring along Commerce Street; the proposed section would enable more.

The Commerce Avenue section has a planted median. On either side of the median are two 10' travel lanes, an 11' travel lane, and a 9' parking lane. The section is shown below in **Figure 6**.

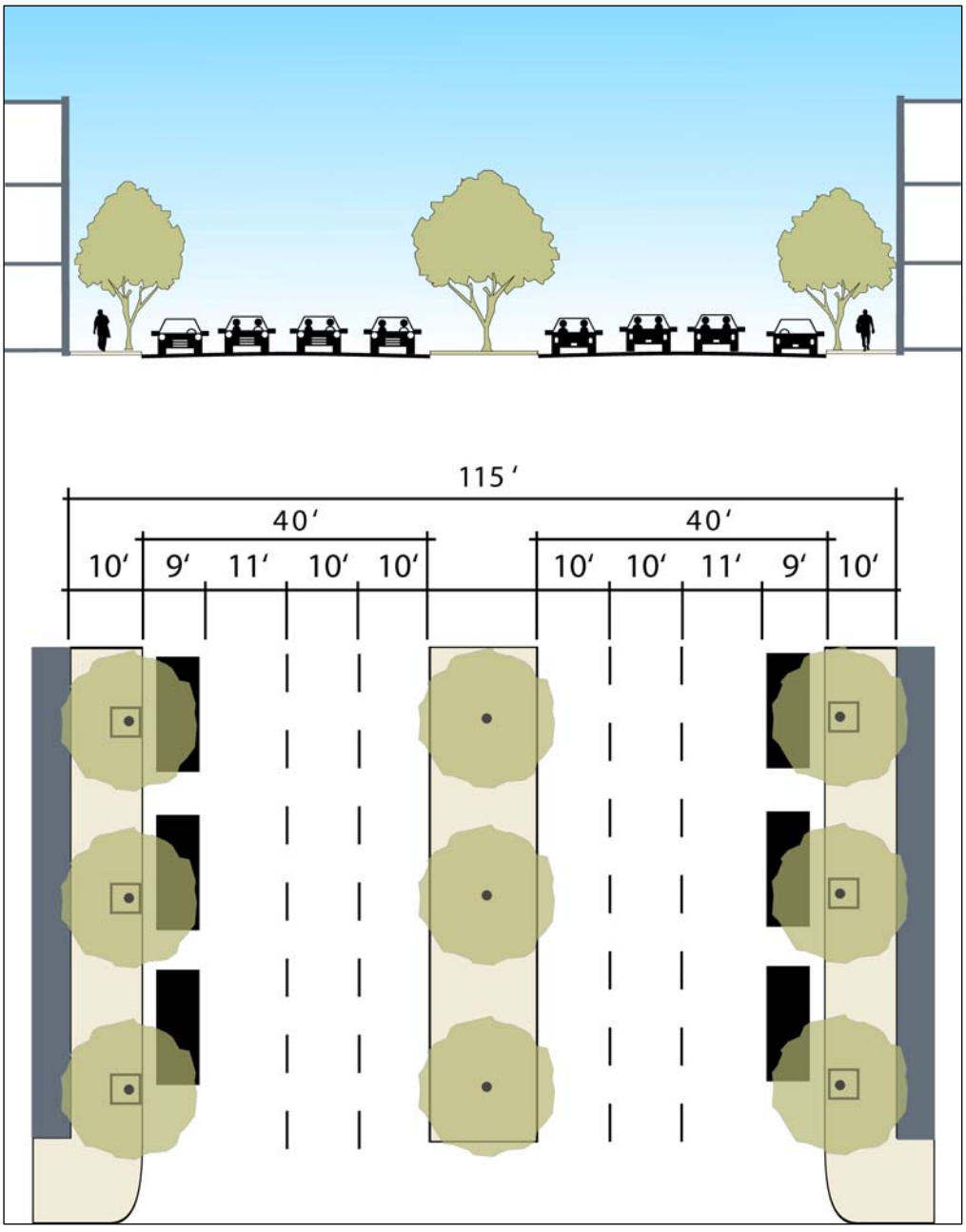

Figure 6: AV 115-80 9/11/10/10/10/10/11/9 Section for Commerce Street

BR 111-100 14/11/11/11/3/3/11/11/11/14

The Manchester Bridge connects Old Manchester to Downtown. The proposed six-lane bridge section has ample capacity for projected traffic. The outside lane is a 14' bike lane/breakdown lane. The interior of the bridge already has an elevated pedestrian/bicycle path that will remain.

Bicycle crossing of the bridge is problematic. The elevated central path is difficult to reach at either end of the bridge (the southern end is reached by a flight of stairs), and the high-speed entry and exit ramps are difficult to cross with bike lanes. The proposed section would have three lanes entering and exiting the bridge at Old Manchester. Going toward downtown, bicyclists can enter the bridge by riding up the ramp from Semmes Avenue and 7th Street. The ramp bike lane continues across the bridge, eliminating the merge movement. Exiting, cyclists will stay in the 14' outside lane, which will diverge at the Semmes Avenue exit. A proposed roundabout at the Semmes Avenue exit allows cyclists to disperse at low speed in whichever direction they are bound. This section is shown in **Figure 7**.

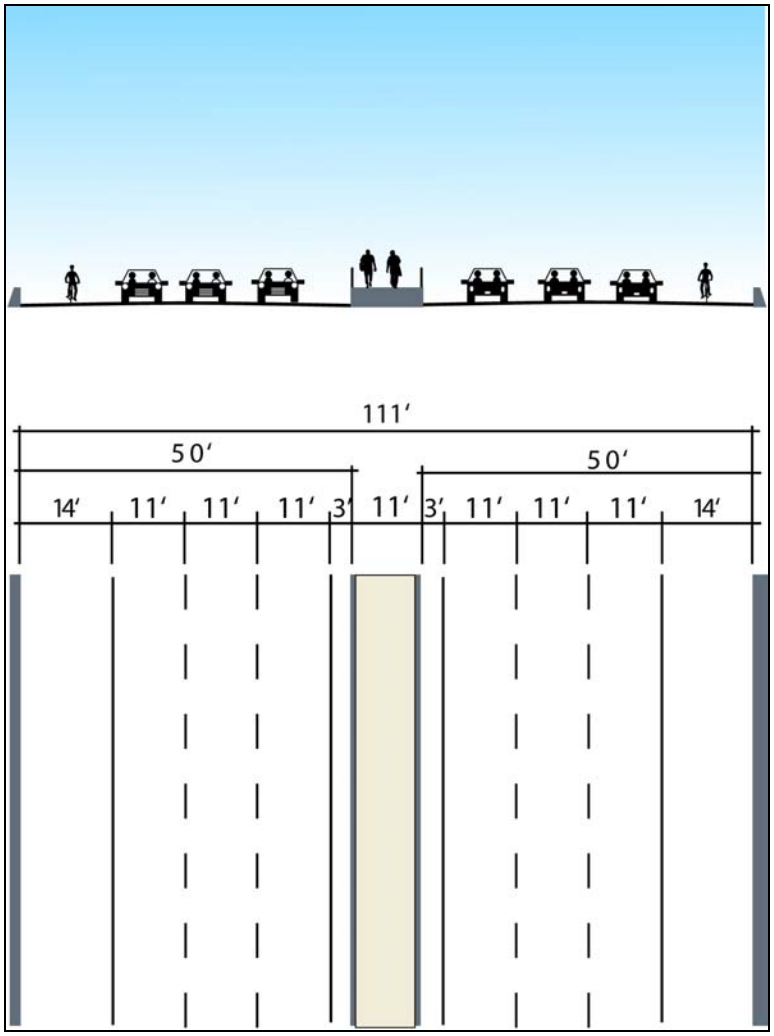

Figure 7: BR 14/11/11/11/11/11/11/14 Manchester Bridge

C. Peer Communities

In many ways, Richmond is a peerless city. No other city can claim Richmond's unique history, wealth of architectural treasures, and distinctive neighborhoods. In working with other, mostly Southern, cities, including a few state capitals, some striking similarities do occur, however. Montgomery, AL, which bills itself as the "birthplace of the Confederacy" as well as the "birthplace of the Civil Rights Movement," is another state capital that has retained much of its downtown core form, although it too has lost ground to Modernist development and conventional traffic patterns such as one-way streets. Montgomery is also a river town, and had one of the first electric streetcar systems in the world, similar to Richmond. Fayetteville, AR, is another Southern city that has recently sought to retain and rebuild its walkable downtown historic core areas, through use of a form-based code and Master Plan. Memphis, TN, is a river town that successfully reinstated a steel-rail trolley system, resulting in a rebirth of the Beal Street area.

These cities provide lessons for ways Richmond can meet future challenges, not only in terms of physical design but also in terms of political will. Perhaps the greatest gift these cities can provide to Richmond is the gift of self-awareness. Each of these cities has decided to take the reins of its own future and decide what is "right" for the redevelopment of the downtown. With the help of others who share their vision, these cities have created plans and are investing in these plans. Memphis is the furthest along, but Montgomery and Fayetteville are also seeing actual projects completed to realize the community vision. Richmond should be encouraged to face westward, very far across the river, and see what these peer cities have accomplished. Richmond's gifts are, arguably, as great as or greater than any of these cities. All that Richmond lacks is the desire to do the great things worthy of a great city.

D. Speed Management – Context, Design Speed, and Traffic Volumes

The safety strip, paved with a cobbled texture, makes it possible, but uncomfortable, to drive on at the posted speed. In standard operation, the narrower 10' travel lanes provide speed management by keeping drivers in a more confined lane area, but the safety strip provides excess space for extraordinary vehicular maneuvers such as carefully passing a parking vehicle or a bicyclist, or for emergency vehicle access. In summary, the safety strip provides the automobile speed management of narrower lanes and the extraordinary space needed for less frequent auto, truck and other large vehicle movements in the textured area.

Standard traffic engineering practice requires consideration of the function of a thoroughfare and the correct design to support that function. In a walkable environment, the function includes providing the thoroughfare as a public place where multiple modes of transportation occur – walking, bicycling and transit, as well as automobile travel. The function of the thoroughfare changes as the context of the street changes. In rural areas, for instance, the function of a road is more automobile-oriented, with minimal design for other modes. But a neighborhood street has a very strong public space function and will include on-street parking, sidewalks, shorter curb radii and related features to manage traffic speeds and provide for safe pedestrian travel and sharing of the thoroughfare by all modes.

The critical design parameter for each functional context is vehicle speed. The speed of automobile traffic directly affects the walkability of a street. If a pedestrian is hit by an

automobile traveling at 30 mph or more, the odds are better than even that the pedestrian will be killed. Pedestrians know this instinctively. HPE noted in recent work in Alexandria, VA, the difference between streets perceived as "safe" or "unsafe" was only a few miles per hour of speed. Traffic on the "unsafe" streets averaged just a little over 30 mph. Traffic on the "safe" streets averaged just a little below 30 mph. HPE determined this using a radar gun, but the residents of Alexandria had already determined experientially that the "unsafe" street was just a little too fast for comfort.

Depending on the level of walkability desired (the context), travel speeds must be managed to the 15-30 mph range in a TND. Neighborhood streets, for instance, with high levels of connectivity and greater use of the street for play and neighborhood activity, require very low design speeds of 15-20 mph. Town center and downtown areas, with the need for large truck movements, will have higher design speeds of 20-25 mph with walkability concerns mitigated by the short blocks of these areas. TND thoroughfares designed for longer travel, such as boulevards or avenues, will have the highest design speeds, but no more than 30 to 35 mph in most instances. The faster thoroughfare types have commensurately reduced levels of walkability and must be used very thoughtfully and sparingly in the town plan.

Traffic volumes are of secondary or tertiary concern when designing a TND thoroughfare system. The critical volume issue is simply the number of lanes required to accommodate peak hour traffic flow, usually estimated at 700-900 vehicles per hour (vph) per lane. Depending on local travel patterns (K and D factors,) these peak hour volumes generally equate to 7,000-9,000 vehicles per lane per day. Consequently, a two-lane street is considered sufficient to support up to 14,000-18,000 vehicles per day, again depending on local travel patterns and peaking characteristics.

Provided this general amount of capacity exists, TND thoroughfare design does not use traffic volume as a primary design parameter. Level of Service (LOS) is assumed to be acceptable at LOS E or lower in most TND situations. In actuality, the additional porosity of the thoroughfare network in a city such as Richmond allows a wide variety of routing choices during congested traffic periods, and the high levels of internal capture (trips from one land use, such as housing, captured by another land use, such as a grocery store) mitigate the traffic impacts of a downtown area to a much greater extent than possible in conventional suburban development. Traffic volume is therefore not used as a design parameter for travel lane width, for instance; instead, design speed is the overarching design parameter for thoroughfare design.

Design Speed Factors

Design speed is the most critical element of thoroughfare design. Managing traffic speeds to a safe level requires attention to detail to achieve this critical element. Consider that the modern automobile has been carefully refined over the past century to provide a perfect fit with the average human being's reflexes. Even the least expensive new automobiles respond nimbly to driver commands. In addition, humans are very adaptable and quickly learn how far and how fast a car can be pushed on a familiar street. Anyone who has taken a taxi from an airport has probably seen how fast the taxi drivers can maneuver their vehicles in tight, familiar conditions. Also, police traffic stops responding to speeding in neighborhoods invariably find the speeders are the residents themselves, not outsiders cutting through the area. In downtown Richmond, speeds over 40 mph have been reported by police, usually during the off-peak and by drivers

who have figured out how to double the signal timing cycles (i.e., if one drives fast enough, one can synchronize with the traffic signals at almost twice the intended speed). Familiarity with the local streets allows residents to achieve higher speeds than are safe for walkability. For these reasons, speed management in a walkable context has to be very carefully designed.

Travel lane width, parking lane width and curb radii are key factors in speed management in a TND. Additional factors, such as enclosure, short blocks, off-set intersections, roundabouts, and expected levels of pedestrian and automobile traffic, also help manage speeds, but these factors primarily set the context for the thoroughfare. The lane widths and curb radii are designed in response to the expected level of enclosure and intensity, not vice versa. Conventional "traffic calming" devices such as speed humps, curb extensions (bulb-outs) and raised intersections should not be needed at all if the other elements of thoroughfare design are correct. Conventional traffic calming devices, when used on an appropriately narrow TND thoroughfare system, create access problems for utility and emergency services vehicles and so should be avoided.

The design speed of a thoroughfare varies according to the context in which the thoroughfare is located. The Richmond Downtown Master Plan uses the Transect Zone to indicate context. The transect zones describe increasing levels of intensity and urban form, starting with T1 – Rural Preserve/no intensity to T6 – Urban Core/highest intensity. Thoroughfare design responds to this progression of transect zones as well.

TND streets are designed according for specific movement types in specific transect zones. Movement types are the expected driver experience on a given thoroughfare, as described below. **Table 1** below assigns lane widths and curb radii to specific movement types (described below) in each Transect Zone.

MOVEMENT TYPES

YIELD: Drivers must proceed slowly and with extreme care and must yield in order to pass a parked car or approaching vehicle. Functional equivalent of traffic calming. Design speed of 20 mph (30 kph) or less.

SLOW: Drivers can proceed carefully with an occasional stop to allow a pedestrian to cross or another car to park. Character of the street should make drivers uncomfortable exceeding design speed due to presence of parked cars, enclosure, tight turn radii and other design elements. Design speed of 20-25 mph (30-40 kph).

FREE: Drivers can expect to travel generally without delay at the design speed; street design supports safe pedestrian movement at the higher design speed. This movement type is appropriate for thoroughfares designed to traverse longer distances or connect to higher intensity locations. Design speed of 25-30 mph (40-50 kph).

SPEED: Drivers can expect travel similar to conventional street design, but with continued emphasis on pedestrian safety and comfort. Design speed of 30-35 mph 50-55 kph).

RURAL: Conventional street design in which drivers can expect a separation of modes – e.g., bike lanes, walking paths, and roads – allowing automobile travel unimpeded by pedestrians or walkability concerns. This movement is rarely used in traditional town planning but may be needed when traveling through T1, T2, or T3 transect zones. Design speed above 30 mph (50 kph).

The table below, adapted from the latest version of the SmartCode, describes how the thoroughfare design standards change from one transect to another. The SmartCode is a TND-based development code currently being implemented around the United States to allow and encourage this type of development. The table indicates that slower movement types in less-intense transects have narrow lanes and shorter curb radii, to manage travel speeds. Faster movement types, in more intense transects, have generally wider travel lanes and longer curb radii, with speed being managed through congestion and intersection control to a greater extent.

Table 1: Thoroughfare Design Standards by Movement Type and Transect

MOVEMENT TYPE	DESIGN SPEED	TRAVEL LANE WIDTH	T1	T2	T3	T4	T5	T6
YIELD	20 mph or less	8 feet	■	■	■	▫	▫	▫
SLOW	20-25 mph	9 feet	■	■	■	■	■	▫
FREE	25-30 mph	10 feet	■	■	■	■	■	■
SPEED	30-35 mph	11-12 feet	■	■	■	▫	▫	▫
RURAL	Above 35 mph	12 feet	■	■				

MOVEMENT TYPE	DESIGN SPEED	PARKING LANE WIDTH						
YIELD	20 mph or less	(Parallel) 6 feet			■	■	▫	
YIELD, SLOW	20-25 mph	(Parallel) 7 feet			■	■	▫	▫
SLOW, FREE	20-30 mph	(Angle) 18 feet				■	■	■
FREE, SPEED	25-35 mph	(Parallel) 8 feet			■	■	■	■

MOVEMENT TYPE	DESIGN SPEED	CURB RADIUS WITH PARKING* (See Table 16b)						
YIELD	20 mph or less	5-10 feet			■	■	▫	▫
SLOW	20-25 mph	10-15 feet	▫	■	■	■	■	■
FREE	25-30mph	15-20 feet	▫	■	■	■	■	■
SPEED	30-35 mph	20-30 feet		■			▫	▫

■ BY RIGHT

▫ BY EXCEPTION

* Dimensions with parking on each leg of intersection. Both tangent sections adjacent to the curb return must be parked, or else curb radii must be evaluated using "design vehicle" and AutoTurn or turning templates.

Given the emphasis placed on walkability, rather than traffic volume, in a walkable area, the ultimate determination of a "successful" thoroughfare is the management of traffic speed and the presence of pedestrians, rather than the ability to handle traffic volume. However, HPE did perform a post-construction study for the I'On TND located in Mt. Pleasant, South Carolina, to evaluate traffic performance. That study found that the total thoroughfare system functions well to distribute approximately 7,700 daily trips to the local transportation system, and that speeds were as expected with the design standards. The exceptions were streets that had not yet been fully developed and consequently had unused on-street parking. The unused parking functioned as a wider lane and allowed higher traffic speeds than expected. Long, unbroken block lengths and wide building setbacks also contributed to speeding on some streets.

Richmond Design Speeds

Applying these findings and principles to Richmond's street design, several things become clear. First, anything that contributes to higher vehicle speeds should be carefully considered and weighed against the goal of walkability. Second, the physical design of the street, with lane widths and curb radii the most critical elements, must be optimized to manage traffic speeds to appropriate levels. Third, the street must continue to function for the design vehicle appropriate to the context – typically an SU truck (such as a FedEx delivery truck) in T3-T4 contexts, and a WB-50 tractor trailer in the T-5 and T-6 context.

Observations of Richmond's traffic speeds cannot be considered without noting the extensive (almost exclusive) system of one-way streets in the downtown area, and the synchronization of the traffic signals. Both of these elements have been provided by City Traffic Engineering to assist in the movement of vehicle traffic through the downtown area. Traffic signals, according to information provided during the charrette, are timed at 32 mph. One-way streets are designed to move additional traffic more quickly, compared to two-way streets. In fact, one-way operation does typically provide about a 20% increase in vehicle capacity.

The one-way street system was implemented in the 1960's, during an era when many cities established this type of system. There is no evidence that the system was created for any other purpose than the rapid movement of automobiles and relief of traffic congestion. The prevailing thought at the time was that allowing easier traffic access in and out of the downtown area would stem the decline of these districts and slow suburban sprawl. Today, many cities have found the one-way systems have the opposite effect. The higher travel speeds and convoluted travel patterns required by these systems serve to reduce walkability and the overall attractiveness of the downtown areas.

Richmond's one-way streets operate, based on HPE's observations, near the posted 30 mph speed limit and in accordance with the 32 mph signal progression. This speed is the fastest desirable for any walkable street, and is faster than desirable for most walkable locations. Any benefits provided by the one-way system must be weighed against the goal of walkability. Note that most of Richmond's streets are classified as "Local" or "Collector" streets under the city's conventional traffic engineering functional classification. The 30 mph design speed, however, is considered appropriate for Class IV Urban Arterials, much bigger and faster streets than those envisioned for downtown Richmond. A target speed of 25 mph is more appropriate for these downtown streets.

Signal synchronization can still be used on the two-way street system, though the synchronization system is more complex. As traffic signals are replaced through regular maintenance, more complex signal systems should be installed to accommodate this type of synchronization.

The lane widths on the primary streets (streets with 40' curb-to-curb dimensions) are wider than desirable for effective speed management. Even with both sides parked using standard 8' parking lanes, the two remaining 12' travel lanes are highway-sized and will present difficulties with speed management. Therefore, the walkable thoroughfare standards provided above

specify several ways to reduce the travel lane width to 10'. In addition, conversion of the street from one-way to two-way operation will manage traffic speeds.

The vernacular curb radius in Richmond appears to be about 18", which is wonderful for walkability. Given the 40' clear between the curbs, this very short curb radius is also adequate for vehicle turning movements. HPE recommends this radius be maintained and continued in future thoroughfare development.

Transit – Rubber Tire and Street Car

Rubber Tire Transit

The Greater Richmond Transit Company (GRTC) provides bus transit in the Richmond area. GRTC serves not only Richmond, but also the surrounding counties. The system map is included as **Figure 8**. In 2004, the most recent year for which data are available, GRTC carried 11.35 million passenger trips, using a maximum of 148 vehicles in service. The system recovers 27% of its revenue through the farebox, which is comparable to the national average.

Figure 8: GRTC Regional System Map

GRTC is the Designated Recipient of Federal Transit Administration funds for transit operations in the Richmond area. This means GRTC is responsible for providing public transportation in the area and is the only agency that can receive Federal funding for this purpose. GRTC is currently completing a Comprehensive Operations Analysis (COA) intended to revise current missions, routes, and services. The COA is scheduled to be completed by the end of 2007.

As shown in **Figure 8**, GRTC operates in a classic "hub and spoke" route system, focused on the downtown area. The system does not have a dedicated transfer facility, however, and transfers are accomplished along city streets. This arrangement causes concern, expressed by some merchants during the charrette, with crowds of passengers waiting at bus stops along Broad Street. GRTC indicated that as part of the COA, the location of one and possibly two

dedicated transfer facilities is being considered. These facilities should mitigate the bus stop crowding problem.

In a revitalized downtown area, GRTC could play a key role in providing affordable public transportation for employees and residents. As the downtown infills, parking will become more valuable and in greater demand, and greater reliance must be placed on public transit. GRTC's connection to the rest of the region will be a critical part of the multimodal transportation system. If downtown redevelopment is walkable, per this downtown plan, it will also be transit-friendly and transit-supportive.

Every so often, downtown areas institute rubber-tired trolley replica vehicles to provide local circulator service. These vehicles are regular rubber-tired bus or truck chassis skinned to resemble classic streetcar trolleys. They have several advantages over actual steel-wheel street cars in that they are cheaper to purchase and operate and are more flexible in their routing. Routing flexibility, however, though it is convenient for planning purposes, also fails to leverage land use investment. Nonetheless, such a system, if operated with sufficiently short headways (5 minutes or so between buses) could be a valuable part of the downtown circulation system.

Revival of the Electric Streetcar System

Richmond was one of the first cities in the United States to implement an electric streetcar system, in the 1800's (Richmond and Montgomery, AL, both claim to have had the first electric streetcar). Richmond's streetcar system was extensive and provided affordable public transportation for almost 100 years. The last electric streetcar run was made in the mid-twentieth century, after which the streetcars were replaced by rubber-tired buses. One focus of the Downtown Plan was the reintroduction of an electric streetcar system to downtown Richmond. A complete electric streetcar study and analysis was completed in 2002 and provided detailed information on the projected costs and routing of a new streetcar line.

1. Feasibility

Over the past twenty years, many U.S. cities have reintroduced light rail and electric streetcar systems, including Portland, Oregon; St. Louis, Missouri; Little Rock, Arkansas; Tampa, Florida; and Memphis, Tennessee. The reintroduction of streetcar lines is no longer a novel idea but is becoming a key feature for cities interested in restoring life to their downtown areas. The New Urbanist/Traditional Neighborhood Design principles underlying the Downtown Richmond plan are very supportive of public transportation in general, so the plan itself is a next step toward making an electric streetcar line feasible. Other feasibility factors include space/ROW and cost. As shown in the Broad Street Boulevard street section, ample space exists for reintroduction of the streetcar line. Cost is considered below.

During the charrette, there was a significant community expression of concern that the streetcar would compete with the existing bus transit system in Richmond. The GRTC itself expressed this concern, as well as a number of local transit advocates. HPE agrees and recommends that the street car system should not be viewed as a competitor with bus transit. Studies indicate that bus transit and streetcars serve different markets, although there is some overlap. The low cost of bus transit, compared to a street car, makes it the preferred choice for larger service areas and more diverse populations. Streetcar service would be used for regular transportation,

but would also be a choice mode for highly discretionary users, such as tourists or conventioneers. These market segments tend not to use bus transit, so would not be competing with bus transit ridership.

The 2002 study calls for the streetcar to be funded under the FTA transit funding program, meaning that GRTC would be the responsible agency. To avoid a conflict with existing transit programs, funding for the streetcar could be identified from new transit funding sources, rather than reallocating current transit funding to the streetcar system.

2. Cost

The 2002 Streetcar Study provided projected costs for constructing and operating the streetcar system, and these costs correlate with the cost of such systems in similar communities. HPE finds that the Little Rock, Arkansas system may be the most similar to Richmond's system, in terms of scale and available ROW. That system cost $7.6 million/mile to construct and $230,000 per year to operate (per 2004 National Transit Database report, for two service vehicles.) Cost rise annually, however, the cost issue will need to be revisited when the community is prepared to start investing in the streetcar system. The 2002 study estimated a $15.7 million per mile construction cost and an annual operating budget of $800,000. For further comparison, Memphis' street car system cost about $13 million per mile to construct.

3. Routing

HPE's proposed initial route for the streetcar is provided below in **Figure 9**. This route differs slightly from the 2002 study proposed route, due to recent modifications to the street system and proposed circulation changes. The route shown in blue and red in Figure 9 goes down Broad Street, Main and Canal, providing service to Shockoe Bottom and the multi-modal Train Station. The route shown in gold is a much more conceptual routing into the VSU campus, providing access across downtown to the VSU medical center. The route shown in green is an even more conceptual route crossing the river on the historic Mayo Bridge and providing service to Old Manchester.

Due to its expense, the streetcar concept is sometimes dismissed as improbable. However, nothing could be further from the truth. In the general scheme of transportation funding, layout and operation of a streetcar system is really no more expensive than the acquisition of right-of-way and construction for a major road or street. In an industry where numbers are rounded to the nearest million, street car systems are not unreasonably expensive, vast though the cost may seem to the average citizen, who may be comparing the cost to a City budget or a personal bank account. Cost alone should not deter Richmond from pursuing a street car system.

The advantages of a streetcar system are compelling. In terms of walkability, the recommendations for narrower streets, more on-street parking, and slower traffic speeds will tend to increase local traffic congestion. As the city redevelops, this pressure will only increase. A steel-wheel trolley is an effective way to address congestion by providing access into and through the downtown area. All of old Richmond was essentially built around streetcar lines, so the city is spatially very adaptable for a return to this kind of transportation. Only a streetcar will be able to carry sufficient passengers to support the intensity of development possible in downtown Richmond.

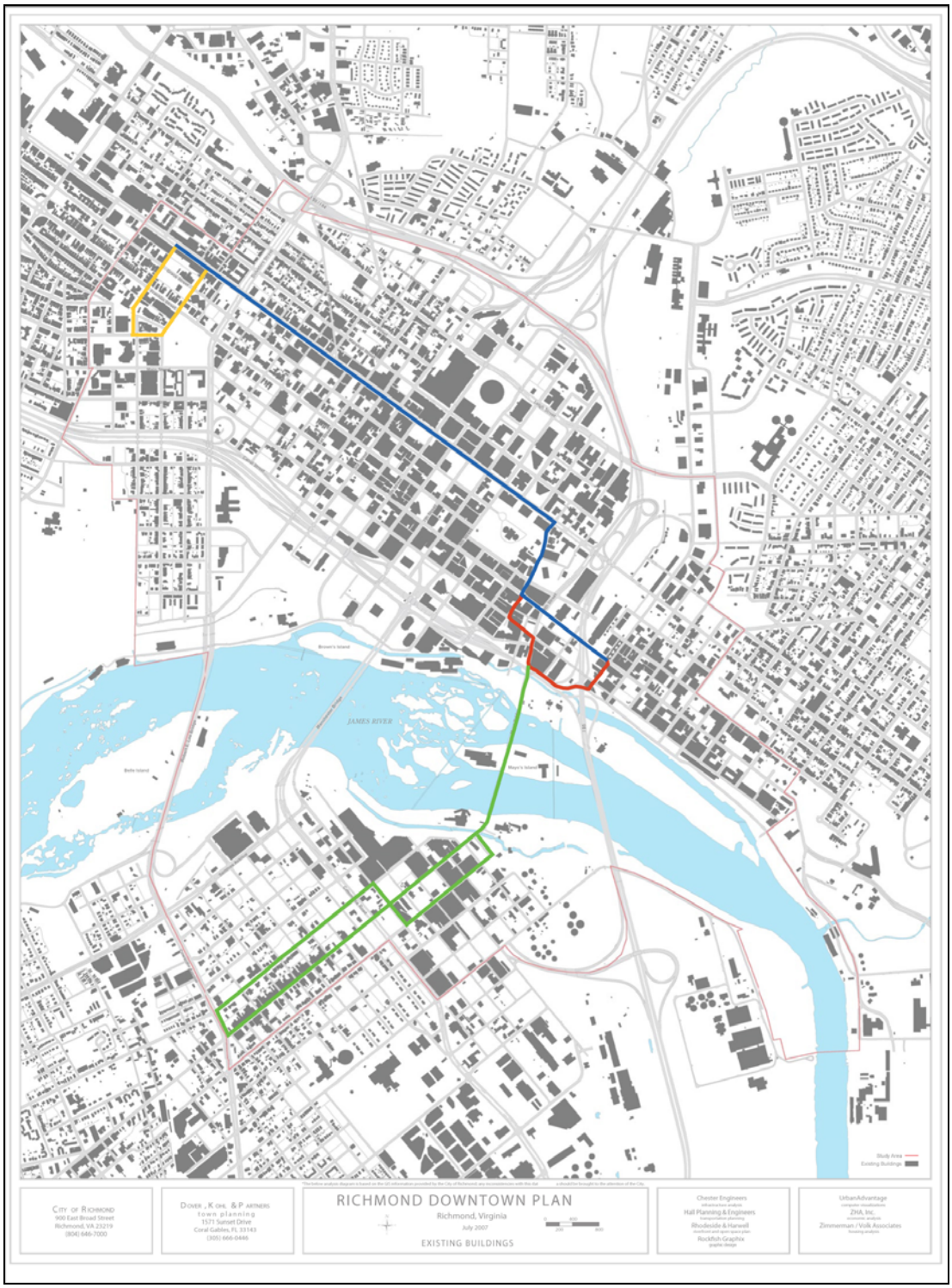

Figure 9: Proposed Routing of Streetcar
(Blue is Initial Route, Red is Downtown Loop,
Gold is University Connector, Green is Potential Manchester Line)

The original streetcars were themselves land development tools, and modern streetcars often serve the same purpose. Experience in other cities has shown that streetcars have an ability to leverage investment and redevelopment that rubber-tired vehicles simply do not have. From this perspective, investment in a streetcar system is actually an investment in economic development of the city, should the city decide to pursue this option.

E. Parking Supply and Management

As part of the charrette, HPE also performed an assessment of parking supply and demand for the downtown study area. As explained in the Urban Land Institute's (ULI's) "Dimensions of Parking", there are no single parking factors or ratios that can be expected to apply over a range of areas. The factors affecting parking demand, such as (but not limited to) automobile ownership, land use, transit, and urban design, are so varied as to provide only very rough parking demand estimates. Local studies are indicated to help establish a general level of demand for a specific area.

Parking availability and pricing (which is generally related to availability) are the two greatest influences on the use of transportation other than the single-occupant automobile. Study after study since the 1980's has indicated that rates of carpooling, transit, and to a lesser extent walking and bicycling, are closely correlated to parking pricing and availability. As the cost of parking goes up (and availability goes down), people shift to other modes of transportation. Those who cannot shift to other modes will often shift travel times to take advantage of cheaper or more available parking at different times of day.

Consequently, urban areas with high levels of transit accessibility and walkability, such as the future vision for the study area, are expected to have fewer parking spaces and/or more expensive parking spaces, compared to areas that are less urban and have lower levels of transit and walkability. This means that residents in the study area should not expect to have the level of parking accessibility that residents and employees in lower-density, less-urban parts of Richmond experience. The trade-off is that residents in the study area will have much higher access to transit and a vibrant, walkable community.

Several recent studies, reviewed by HPE during the charrette, have examined the downtown parking situation. The studies, including the Shockoe Bottom Transportation Study, indicate parking demand is met through on-street parking, garage facilities, and surface lots. However, on-street parking is limited by the requirement for removal of on-street parking during the PM peak hour, and many surface lots are in poor condition. Given the low levels of residency and high levels of vacancy in the downtown area, parking is generally oversupplied in most areas. As redevelopment occurs, on-street parking should be maximized first, followed by off-street parking in garages or shared surface lots. In general, findings are that the necessary parking square footage exists, but it may need to be renovated in some cases to be attractive to users.

If additional parking availability is needed as redevelopment occurs, the community could invest in structured parking, require additional parking as part of new development, charge market rates for parking, or attempt to create additional shared parking.

As described above, on-street parking will meet a portion of the demand for parking in the study area, but additional parking will eventually be needed. Additional parking demand will be mitigated by the ability to park once and walk or use transit, but will also be mitigated by the ability to share parking between land uses. This concept is called "shared parking" and will be described further below. In addition, the City can continue to rely on paid parking standards to manage parking demand, as is also described below.

1. Shared Parking

Conventional parking standards require a certain number of parking spaces for each land use – x number of spaces per square foot, per number of tables, or per number of washing machines, for instance. These standards assume that each land use is stand-alone – i.e., that a customer doing laundry will require a parking space at the Laundromat and will require another parking space at a restaurant if he decides to get a sandwich while his whites are in the dryer. So, the Laundromat has a set of parking requirements, and the restaurant has an additional set. These assumptions are generally valid in a conventional, non-walkable location.

Shared parking, however, recognizes that in urban locations such as downtown Richmond, with high levels of walkability and easy pedestrian access between land uses, large amounts of separate parking are not required for each land use. Instead, land uses may share parking. For example, an office building that is open during the day requires parking for its employees during business hours, but not during the evening when the office is closed. A dinner restaurant/club requires parking at night, but not during the day when the restaurant/club is closed. Under conventional parking demand, each land use would require its own parking supply, even if they were located adjacent to one another. Shared parking recognizes that the same parking lot can serve both uses with minimal amounts of overlap (there will probably be some demand for office parking at night and restaurant parking during the day, if only for maintenance staff and management).

The Urban Land Institute publishes a shared parking guide that can be used to estimate the level of shared parking availability for various mixes of land uses. In addition, New Urbanists utilize the SmartCode, which incorporates shared parking principles, to determine parking demand. Either approach will yield a better estimate of parking demand in urban area such as downtown Richmond than conventional parking standards, such as those promulgated by ITE (the Institute of Transportation Engineers, which produces excellent reference materials for conventional development). As the area develops, the City should utilize these shared parking methodologies to estimate parking requirements. Using conventional standards would result in overestimation of parking requirements.

The City of Richmond's Parking Overlay Districts, as described in Article IX Division 1 of the Municipal Code, actually provide the groundwork for this type of analysis. Much of the data required for the Parking Overlay District parking determination can also be used for a shared parking analysis. The greatest modification is that rather than use a standard number of parking spaces per 1,000 square feet (such as 3 per thousand in Richmond's code), the shared parking analysis goes into greater detail to determine peak parking demands by time of day. This can result in a more realistic estimate of parking demand.

2. Paid Parking

Shared parking arrangements will help match parking supply to the demand for parking generated in an urban context, but on-street parking will still need to be supplemented by additional off-street parking. In a traditional urban context, off-street parking should be confined to the interior of a block and shielded from the street by liner buildings. Liner buildings are thin buildings that provide a store-front and street presence and are usually employed to block a view and provide an urban context along the street. Interior parking areas can be surface lots, or if demand requires, structured parking decks. In either case, paid parking may be used to help finance parking spaces and parking structures.

Parking management practices generally consider parking to be at capacity when 85% of available parking spaces are full. At this point (actually prior to this point), users of the parking spaces will complain about a lack of parking. If a parking survey indicates that parking is at 85% of capacity or higher, the recommended option is to implement paid parking. Under paid parking, users of the parking spaces pay a fee to park. The fee can be collected in a variety of ways, including meters, debit and credit cards, pass programs, smart cards, or parking attendants. Parking meters are more customer-friendly than ever, according to Ralph Rhudy in the City Traffic Engineering Department. Richmond parking meters can be paid by coin, tokens, smart cards, and even telephone calls to provide a credit card number. In addition, the "smart" meters used in Richmond provide a five minute grace period for parkers who overstay their time slightly. HPE agrees that parking meter technology has entered a new phase of customer-friendliness and profitability, and encourages used of on-street parking and paid parking to address parking concerns. Parking meters that allow real-time adjustment of parking rates, for instance, allow the parking fee to be adjusted to control the demand for parking and keep demand at about 85% of capacity. As an example, **Figure 10** is a "meter-less" parking meter in Portland, OR. Patrons pay a fee at the meter, using a credit card or cash, and receive a "Post It" receipt that is stuck inside the vehicle window. This system allows variable parking rates without the installation and maintenance of conventional parking meter hardware at each parking space. These solar-powered "pay and display" kiosks cost $6,100 for the Portland installation.

Figure 10: Pay and Display Parking Meter Kiosk
Note Self-Pay Receipt Stuck to Inside of Car Window

CASE STUDY – ALEXANDRIA, VA

The City of Alexandria, VA, responded to complaints about parking availability in the Parker Gray neighborhood (adjacent to Old Town and the Braddock Road Metro Station) by conducting a parking survey. The survey indicated that on most streets, peak parking demand was less than 80% of capacity. Therefore, paid parking was not indicated for those locations. Some blocks, however, closer to high-intensity areas such as US 1 and the Metro Station, did have over-capacity situations. On those blocks, increased use of shared parking and increased parking fees were recommended to match parking demand with parking supply. Using the 85% rule, the City was able to determine that parking complaints, which are common in urban areas, did not merit a major change in parking policy for most of the neighborhood and instead focused efforts on areas that did require help. As a rule, if no one is complaining about parking, in an

> *urban setting, then there is likely too much parking available. If there are complaints, the 85% rule can be used to estimate the best response, whether the response is to provide additional free parking or to increase parking fees.*

As downtown Richmond re-develops, the City will need to track the intensity of development and use shared-parking arrangements to the greatest extent possible. Ensuring good transit service and requiring on-street parking, consistent with the Master Plan, will keep parking demand as low as possible. The ULI shared-parking methodology or the New Urbanist/SmartCode parking standards can be used to estimate parking demand as new development comes online. Utilizing interior surface lots to supplement on-street parking, paid parking should be implemented when demand exceeds 85% of supply (or when this is projected to occur, for instance, if a block redevelops and several large land uses move in, such as a large corporation or retailer). At this point, structured parking becomes viable and may be provided for either through negotiation with the developer, bonds, or other City financing mechanism.

The critical parking concepts to remember are to let the urban form help mitigate the demand for parking, including a mix of uses, on-street parking, and buildings built up to the street. Then use shared parking to accommodate the demand. And when available shared parking and on-street parking reach 85% of capacity (in either actuality or with projected development), implement paid parking strategies to keep demand in the 85% range. These strategies will ensure that adequate parking always exists in the area, but that parking facilities will not define the area or be the most obvious land use (such as is the case along downtown Cary Street and Canal Street at the present time).

During the charrette, HPE was presented with the Shockoe Bottom Parking Management Plan. This plan has, according to the information presented at the charrette, already been completed and can be implemented once approved by the City Commission. The plan includes many of the strategies described above, as well as a parking management company to oversee the entire operation. HPE recommends that this plan be implemented as the most expedient and cost-effective way to provide for parking needs.

Another parking concern relates to spillover into residential streets from large parking generators, such as universities and business centers. Many towns and cities address this problem through residential parking permits, allowing non-residents to be easily spotted and ticketed or towed from residential parking streets. The Oregon Hill neighborhood, for instance, could use this method to protect residential parking from incursion by nearby commercial or university land uses.

G. Vehicle Circulation and Mobility

Transportation facilities and systems provide excellent tools to support the future vision for Richmond, as set by the community. As noted earlier, the Richmond community desires a return to the walkable city structure and a place where pedestrians can live, shop and find entertainment.

What factors contribute to an excellent pedestrian experience? Observations and design know-how suggest the following prioritized features, listed in reverse order of importance.

10. Narrower Streets
9. Street Trees
8. Lower Traffic Volumes
7. Sidewalks
6. Interconnected Streets
5. On-street Parking
4. Lower Traffic Speeds
3. Mixed Land Use
2. Buildings Fronting the Street
1. Small Block Size

These parameters have proven themselves in the field. When a majority of these are combined in one location, pedestrians are routinely seen. Richmond's walkable streets are no exception to this experience.

The Richmond study area has an excellent physical network of streets. The tight grid of small blocks provides multiple routes for pedestrians and vehicle operators and should provide high levels of accessibility and traffic capacity. However, the system does not operate at full efficiency, from a walkability and redevelopment perspective, due to the extensive one-way street arrangements and left turn prohibitions. These two operations issues result in increased and unnecessary vehicle miles of travel (VMT), frustration to locally circulating traffic (pedestrian, bike, and transit as well as automobile) and increased operating speeds.

Along with the thoroughfare redesigns discussed above, HPE recommends returning most of the downtown's one-way pairs to two-way operations. As stated above, managed motor vehicle speeds are essential to pedestrian comfort and safety. Historically, two-way streets have slower speeds than one-way streets; therefore, within the downtown Richmond study area, all one-way streets (shown in **Figure 11**) were reviewed to determine the feasibility of one-way operation reverting to two-way operation.

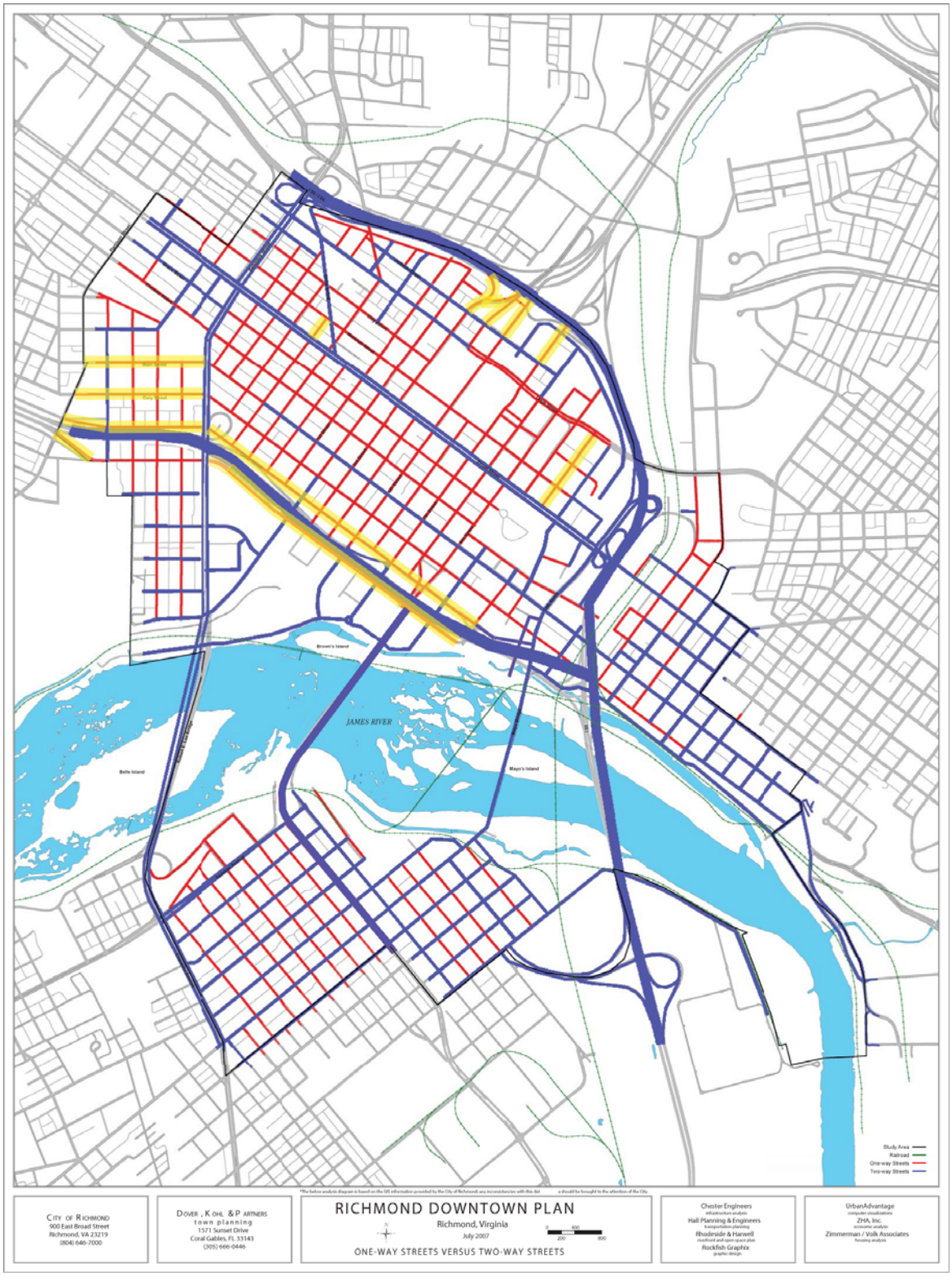

Figure 11: Downtown Richmond's Existing One-way Streets in Red; Remaining One-way Streets in Gold

Reversion to two-way traffic will lower speeds on those streets, while still sufficiently accommodating current traffic volumes and reducing unnecessary circulation. With only nine exceptions (Figure 11), all current one-way streets can feasibly revert to two-way operation. The following streets should continue to operate as one-ways to ensure sufficient circulation around the town center:

- Byrd and Canal Streets, which are physically designed to operate one-way with the ramps connecting to the Expressway
- 11th Street, which connects into the university medical complex
- 3rd, 4th, 5th, and 7th Streets, which serve as access to the Interstate
- Cary Street and Main Street west of Belvidere, which will continue to operate as a one-way pair with lower levels of walkability (these are the only streets for which there seemed to be community support for leaving one-way.)

Note that the most recent previous downtown plan as well as the Shockoe Bottom transportation study also recommended returning streets to two-way operation.

1. One-way Streets and VMT Reduction

One way streets typically increase overall VMT, due to the circuitous routing required to reach a given address. HPE conducted a simple exercise to demonstrate this. As shown in **Figure 12**, HPE estimated the vehicle miles of travel (VMT) needed to access locations along Main Street and Grace Street from 9th Street. The estimated mileage, based on the one-way system, was 15.2 miles, due to the number of additional turns required. For direct access to these locations, VMT required was only 12.3 miles. In this example, the one-way system required 23% more vehicle miles of travel to reach the same set of shops along the street. This figure is consistent with other estimates of additional travel required for one-way circulation, as described by Walker, Kulash, and McHugh in “Downtown Streets: Are We Strangling Ourselves on One-Way Street Networks?”

Figure 12: One-way Street Access Example

2. One-way Streets and Circulation – Bicycles, Transit, and Pedestrians

Bicycle Circulation: Bicycle transportation planning is covered in greater detail below, but in terms of circulation, one-way streets present greater difficulty for cyclists than almost any other user group. A bicyclist provides his or her own power for vehicle operation and typically tries to conserve that power by choosing the shortest path between destinations. Ideally, this path should also be safe and legal. One-way streets make all of these criteria more difficult to achieve. If bicyclists ride legally and safely on the street, one-way routing forces more circuitous paths to a destination, just as for buses and automobiles. The difference is that a hill, for instance, is not an inconvenience to a bus or car, but can be a major inconvenience to a cyclist. HPE experienced this during the charrette when bicycling around the downtown area. In some cases, the one-way system required bicycling to the top of a hill, coasting back down the hill to a different street, and riding back up to the top of the same hill, but a block away, in order to reach a destination on bicycle. The additional time and effort involved in this type of routing does not encourage or support bicycling as a transportation mode.

Consequently, one-way streets encourage wrong-way riding, because that may be the most direct route to a destination, and sidewalk riding, for the same reason. Wrong-way riding and sidewalk riding are common causes of bicycle crashes, however, so a safe bicycling system should discourage this type of riding. Converting the one-way streets to two-way operation will, essentially, double the available routing options and cut in-half the distance required to reach many destinations by bicycle.

Transit Circulation: Transit buses face two dilemmas with one-way streets. First, the circuitous routing required to reach a destination means that often passengers have to be

dropped off on one street and picked up on another street, which is a challenge to increasing transit ridership. Second, because buses have doors on only one side, buses are not able to access some locations, requiring unnecessary street crossings to reach a destination.

Pedestrian Circulation: One-way streets may appear, at first glance, to be of little concern for pedestrian circulation. Pedestrians, after all, walk on the sidewalks, and sidewalks still go in both directions, even on a one-way street. However, there are several circulation issues associated with one-way streets and pedestrians:

- Sign placement and navigation: In many cases, street signs and traffic signals on one-way streets are oriented for the convenience of drivers and are not even visible to pedestrians walking toward traffic. Richmond has less of a problem with this than some other cities, but it will become a greater problem as more intersections are equipped with mast arm signals. The antique pole-mounted signals on many of the downtown intersections are equally visible from all directions; mast arms do not have this quality and care must be taken to sign the mast arm signals correctly on one-way streets.

- Choice of facing toward or away from traffic: Depending on the situation, pedestrians may find it safer to walk facing traffic, rather than away from traffic. At night, for instance, pedestrians may feel safer walking toward their destination on the side of the street facing traffic, or they may prefer to walk with traffic to avoid the glare of oncoming traffic. One-way streets limit this option. The difference is subtle, but it affects how pedestrians perceive safety and convenience on a street and is just one of the factors that contribute to great walkability.

- Vehicle Speed: Traffic engineering handbooks estimate that one-way streets provide a 10-20% increase in vehicle capacity. This is accomplished, in part, by allowing higher vehicle speeds (as well as the additional lane capacity in the case of a two-lane one-way street). Reduced side friction, fewer potential intersection conflicts, simplified signage, and in some cases synchronized traffic signals all allow higher vehicle speeds. As shown below in **Figure 13**, vehicle speed through an intersection has serious consequences for pedestrian safety. In Figure 13, a pedestrian's chance of being killed in a crash is graphed against vehicle speed. The graph indicates that in a crash with a vehicle traveling greater than 30 mph, a pedestrian's odds of dying are almost 50%. Signal synchronization can be used on one-way streets, as on two-way streets, to encourage lower traffic speeds, and Richmond currently uses this approach. The danger of this approach, however, is that with synchronized speeds of 30 mph or less, some drivers learn to "double" the signal – i.e., synchronization at 25 mph is also synchronization at 50 mph. According to the Richmond Police department, this type of synchronization abuse does occur on some streets, such as 9th Street going up the hill toward Broad. Therefore, this plan should consider any means available to manage and reduce vehicle speed, including elimination of one-way operation.

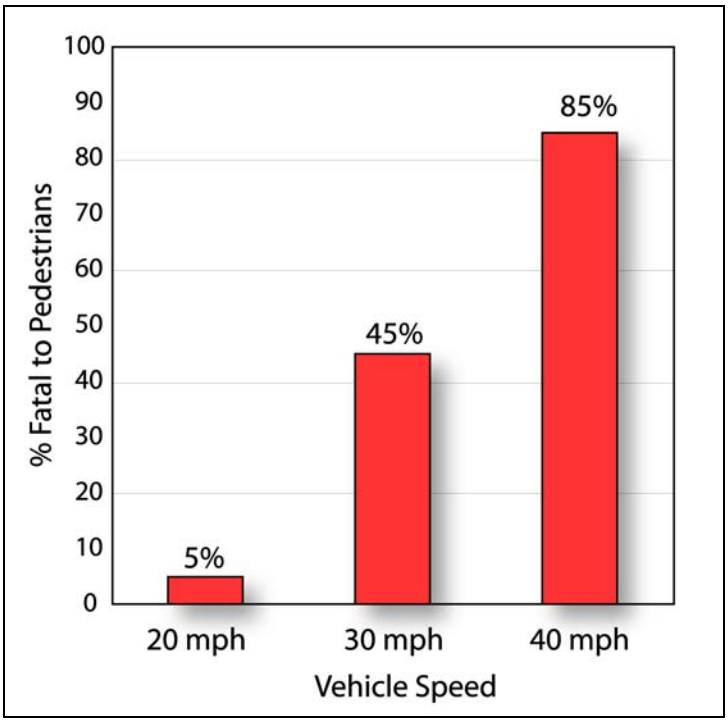

Figure 13: Effect of Vehicle Speed on Pedestrian Crash Survival Rates

- Intersection safety: At first glance, intersections of one-way streets may appear safer for pedestrians, because of a reduction in turning conflicts. This may be important for high speed highway operation, where a driver's attention is spread thin, speeds are high and decisions must be made quickly. Operations on low-speed, walkable street, however, are expected to be more complex, due to the greater interaction and activity of the urban context. Complexity at an intersection is actually preferable, because it requires vehicle operators to focus on their environment (including any pedestrians in the intersection). In situations where higher speed street design (such as twelve foot travel lanes and large radius curb returns) is combined with pedestrian travel, safety and conflicts can become an issue. In low-speed street design, however, such as that recommended for Richmond, with narrower travel lanes and very short curb return radii, the complexity of the intersection is in itself a safety feature.

  Also, as pointed out by Walker, Kulash, and McHugh in "Downtown Streets: Are We Strangling Ourselves on One-Way Street Networks?" a one-way street system presents a more varied set of intersection conflicts than a one-way street system. Consider that a pedestrian approaching an intersection of two two-lane streets, operating as two-way streets, walking in the direction of traffic, has the following sequence of potential conflicts:

  1. Cars approaching from behind may turn right across the crosswalk, so the pedestrian must be aware of a conflict from the rear left

2. Cars traveling on the cross street may run a stop sign or signal, so the pedestrian must look both ways before crossing the street (standard instructions for anyone old enough to walk)
3. Cars turning left from the approaching direction may cut across the crosswalk, so the pedestrian must look ahead and to the left
4. Cars turning right from the cross street may cut across the pedestrian's path so the pedestrian must look ahead (where the pedestrian is already looking, and the "look in both directions rule" really addresses this conflict as well)

These four conflicts, in this sequence, are the only ones the pedestrian will experience, they will be exactly the same at every two-way intersection. They are of course reversed for pedestrians traveling the opposite direction, so a pedestrian on a two-way street network has exactly two conflict sequences to consider, and they are mirror images of each other. Once the pedestrian has learned to beware of these conflicts, all two-way intersections can be traversed safely, and the pedestrian has a very high level of understanding of potential conflicts and how to address them.

Under a one-way street system, however, there are 16 different conflict sequences that a pedestrian may encounter. Some of the sequences are, indeed, individually simpler than a two-way street intersection, with only one or two conflicts, but the sequence varies according to the direction the pedestrian approaches the street. The pedestrian has to know the directions of the one way streets, prior to reaching the intersection, in order to know where the conflicts may occur. Without that knowledge, the pedestrian has to perform essentially the same scan and conflict avoidance protocol as for a two-way intersection.

Consider a pedestrian walking in the direction of traffic approaching the intersection of two two-lane, one-way streets. The cross street is approaching from the pedestrian's left. The following conflict sequence could occur:

1. Cars approaching from behind and turning right may turn across the sidewalk, so the pedestrian must be aware of a conflict from the rear left
2. Cars traveling on the cross street, in the nearer lane, may run a stop sign or signal, so the pedestrian must look carefully to ensure the lane is clear
3. Cars traveling on the cross street, in the further lane, may run a stop sign or signal, so the pedestrian must look carefully to ensure the lane is clear (and that a car in the nearer lane is not obscuring a car in the further lane)
4. The pedestrian must also look for wrong-way driving traffic on the one-way street, as this does happen on one-way street systems

This is the first conflict sequence for this intersection.

Now consider a pedestrian approaching from the opposite direction. The following conflict sequence could occur:

1. Cars approaching from ahead could turn left across the crosswalk, so the pedestrian must look for nearside approaching vehicles making a left turn

2. Cars traveling on the cross street, in the nearer lane, may run a stop sign or signal, so the pedestrian must look carefully to ensure the lane is clear
3. Cars traveling on the cross street, in the further lane, may run a stop sign or signal, so the pedestrian must look carefully to ensure the lane is clear (and that a car in the nearer lane is not obscuring a car in the further lane)
4. The pedestrian must also look for wrong-way driving traffic on the one way street, as this does happen on one-way street systems

This is the second conflict sequence for this intersection, and it is not simply a mirror image of the first sequence, but has different approaches and turning movements (approaching car turning left, instead of car from the rear turning right).

If one of the approaching streets is a single lane one-way street (something that is not possible on a two-way street system), a new and different conflict sequence is presented. And if a one-way street is intersecting a two-way street, yet another completely different conflict sequence is introduced.

So while the assertion that conflicts are reduced at one-way street intersections is true for some very simple one-way intersections, the assertion that one-way street systems are easier for pedestrians to understand and cross is not true. In fact, one-way street system intersections are much more complex – the simple examples here indicate at least two different conflict sequences for each intersection type, and at least three different intersection types (there are conceivably many more). This compares to only two conflict sequences for two-way operations, and those same two conflict sequences can be used over and over at each two-lane, two-way intersection.

So in practice, one-way operation does not provide an advantage for pedestrians. Pedestrians in walkable areas do a complete scan of every intersection, regardless of street type. Even on one-way streets, kindergarten traffic safety instructs pedestrians to look both ways before crossing the street (after all, people sometimes go the wrong way on a one-way street, whether from confusion, frustration, or emergency response).

Pedestrians who do not scan an intersection for conflicts are going to have conflicts, regardless, no matter the intersection type. Pedestrians who are drunk, for instance, cannot be expected to behave rationally at any intersection type, nor can children. The safest street design choice for these types of pedestrians is to manage traffic speeds to the lowest possible level, through two-way street operation, on-street parking, narrower travel lanes, safety strips, and whatever other means are available and appropriate. One-way streets are not an appropriate solution, as they are designed to increase traffic volumes and speeds.

The one-way street system is primarily an advantage to drivers, although even then drivers unfamiliar with the area will experience some level of difficulty figuring out the operations of the various one-way intersection types.

Case Study – Grace Street

As a case study in Richmond, HPE presents the section of Grace Street from Belvidere to Lombardy Street. Prior to the 1980's, this street was one-way west-bound, as Grace Street is today from Belvidere to 9th Street. In the early 1980's, this section of Grace Street was returned to two-way operation. City Traffic Engineering reported an increase in crashes along Grace Street during the following few years, which is not unusual any time a major change is made to a traffic pattern. Today, however, Grace Street operates as safely as any other street, according to the Richmond Police and to Traffic Engineering's accident reports.

During the charrette, HPE spoke with a Richmond resident who lived on Grace Street during the transition period. This resident indicated that the transition to two-way was perceived as a good thing by residents of that street, and in fact ushered in a renaissance of Grace Street. And indeed, HPE's own observations of this portion of Grace Street indicate a wonderful activity and street life, with people sitting on porches talking, students riding through on bicycles, and a general buzz of activity. During the site visit, an HPE staff member was questioned by residents about taking photographs of the area. This generally indicates positive control of the street by residents and is considered a sign of a healthy street.

City traffic engineering has a "safety" project funded to return Grace Street to one way operation in the next two years. No safety problems have been reported on Grace Street in the two-way blocks, according "Frequent Accident Location" data provided to HPE, which date back to 2004. HPE strongly recommends against implementation of this project.

On a final note, HPE interviewed the Richmond Police Department regarding traffic safety issues. The police department indicated that two-way street operations have an additional benefit of reducing crimes that require "cruising," such as prostitution and drug dealing. On a one-way street, a stopped car does not present an impediment to traffic. On a two-way street, however, a stopped car does stop traffic and draws immediate attention, which of course is undesirable to people cruising for prostitutes or drugs.

H. Bicycle and Pedestrian Planning

The Romans are widely credited with invention of the sidewalk to separate pedestrians from vehicle and horse traffic. Between that occurrence in ancient times and the early twentieth century, pedestrian transportation planning did not exist as a separate field from the general art of city planning and street design. Pedestrians were simply a part of the transportation system and were provided for with ample sidewalks, if necessary or directly in the travel way, if the street was small and carried little traffic. Transit systems, including carriages, horse-drawn omnibuses, and later streetcars, were merely platforms for moving pedestrians *en masse* from one place to another, and were not considered to be in competition with any other travel mode. In fact, all the modes worked together, and a pedestrian might use several modes in the course of the day in a walkable town such as Richmond before WWII. There was no need for a separate field of "pedestrian planning."

Bicycles, on the other hand, were not widely accepted, nor always welcome. Following the invention of the safety bicycle and the "bicycle boom" in the 1890's, bicycles did become immensely popular, but they did not fit as seamlessly into the transportation system as other modes. Compared to horses, for instance, early bicycles with a single speed and non-pneumatic tires could not travel over as many different types of surfaces. Bikes required (and cyclists still prefer) smooth, hard surfaces like roads or sidewalks. But sharing the sidewalk with pedestrians is difficult, because simply pedaling a bicycle fast enough to stay upright will move a cyclist at about 6 mph or faster – too fast for a crowded city sidewalk. Newspapers from the early days of bicycling were full of diatribes about the "scorchers" – reckless youths zooming down the sidewalks and endangering the pedestrian public. Bicycles then, as now, were preferably kept on the street.

However, most streets in the early days were not paved, or were paved with cobble or brick, neither of which is ideal for cycling, so mixing a bicycle into street traffic was also a trick (not to mention the problem of avoiding horse droppings). The Sportworks™ rack for transit buses was not invented until the 1990's, so bicycles were never really welcome on public transportation, either.

In fact, according to the literature of cycling history, bicycles were most likely to be used by those enthusiastic enough about bicycling to overlook the various shortcomings and conflicts inherent with the two-wheel transportation mode. Undeniably cheaper than a horse, but faster than transit and much faster than walking, bicycles since their beginning have always been favored by the poor, for utilitarian cycling, and the rich, as expensive precision-built toys. Today, we can add a third category, the eco-cyclist, who commits to the bicycle for earth-friendly transportation out of concern for the environment.

Bicyclists and bicycle clubs were the original advocates for paved roads. The League of American Wheelmen (now the League of American Bicyclists) began campaigning in the late 19th century for more and better paved roads for bicyclists. In a classic case of "be careful what you ask for, because you might get it," the Twentieth Century delivered roads to all of America, but almost exclusively for the benefit of the newest transportation mode, the private automobile.

And the twentieth century's almost exclusive focus on transportation planning as "automobile planning" led naturally to the separation of modes, so that today we talk about "transit planning", "pedestrian planning", and "bicycle planning", when at one time these were all more or less the same as "city planning".

From a New Urbanist perspective and concern with walkability and human-scale urban form, the old way is actually preferable. Therefore, all of the street sections and transportation planning presented in this report incorporate "pedestrian planning" features for walkability, such as wide sidewalks, street trees, and managed vehicle speeds as part of the overall plan. No separate pedestrian planning is required.

Bicycles, however, continue to require additional consideration. The bicycle is supremely well-adapted to human locomotion, using 90% of its power production directly for transportation. A bicycle provides a human being with the equivalent of superhuman legs and enormous stride. The same energy required to propel a pedestrian one pace forward (about three feet) will propel

a bicycle ten times the same distance on level ground, not to mention coasting. The effect is the same as walking along with huge steps, like an astronaut on the Moon.

Which is part of the problem. Superhuman walkers, or bicyclists, don't mix well with regular human walkers. On a sidewalk, for instance, bicycles typically go too fast for safe interaction. Most cyclists will dismount and walk their bicycles on a crowded sidewalk, because the riding speed is really too slow to remain upright on the bicycle. This problem points cyclists to the street.

And paved streets are wonderful for bicycling. Automobiles, however, as the prima donna transportation mode of the late twentieth century, have completely dominated the design of streets and relegated bicycles to a second-class stature on conventional streets. Automobile-based street design speeds of 30 mph or higher, which are standard in conventional street design, make sharing the road with bicycles very difficult, if not dangerous, due to the great difference in operating speed between the car and the bicycle. An average bicycle speed on level ground is about 12 mph; club cyclists and racers may reach 25 mph or faster for brief periods, but an average utility cyclist, such as a college student or construction worker, will average 12 mph or less. This creates noticeable and uncomfortable differences in speed when automobile traffic exceeds 30 mph.

The same speed factors that create discomfort in pedestrians, as described above, also create discomfort for cyclists. Once automobile speeds go above 30 mph, many, if not most, cyclists get uncomfortable attempting to share the road with motorists. And unfortunately, some motorists are reluctant to share the road with anyone (including other motorists) and treat all non-automobile transportation as a threat or an infringement on the "right" of automobiles to use the street exclusively.

Modern street design addresses this problem with the bike lane. The bike lane is a 4'-6' lane along the right side of the street for use of bicyclists. Brought to the United States in the 1970's as a way to keep bicyclists out of the way of motorists (by keeping cyclists off the regular travel lane), bicycle lanes have evolved from being quite treacherous, in terms of their design and implementation, to being a great benefit on high-speed urban arterials and rural roads. During the 1980's and 1990's, bicycle lanes received a great deal of attention from the newly-established Bicycle Pedestrian Coordinators in various state departments of transportation, including Florida, and serious thought and consideration has been given to the design and operation of bike lanes. Bike lane treatment at intersections, for instance, has been revised over the years to help train cyclists to ride safely, rather than reinforce unsafe riding habits (such as attempting to turn left from the right-most lane, a novice bicyclist mistake). For high-speed roads, then, bicycle lanes are the preferred way to encourage and permit safe bicycle usage of the street.

Nevertheless, even where bike lanes are provided, cyclists are commonly found on the sidewalk rather than in the bike lane. Perhaps these cyclists recognize that far from being a panacea for bicycle safety, bike lanes also create their own special set of safety concerns. For instance, consider the following:

1. Conflicts: The addition of a new lane on the right side of the street immediately creates an entirely new set of turning conflicts at any intersection. This is not as much of a

problem on arterial streets with few intersections, but can be much bigger problem if bike lanes are used in areas with small block sizes, frequent driveway accesses, or other frequent intersections. Anyone trained to operate a motor vehicle on the street already knows 90% of what is required for safe bicycle operation in traffic, but the addition of a bike lane onto the street creates an entirely new set of issues and conflicts for cyclists as well as motorists. For instance, many motorists (and cyclists) do not know that a motorist is supposed to merge into the bicycle lane before turning right. Doing so is technically correct, from a traffic operations perspective requiring all right turns to be made from the right-most lane, but it feels "weird" and is counterintuitive to cyclists as well as motorists.

2. Motorist Attention: Motorists who would fail to pay attention to a cyclist in the regular travel lane may be even less likely to pay attention to a cyclist in a bicycle lane, resulting in lane encroachment and sometimes fatality for the cyclist legally using the bike lane. After all, the bike lane is simply a 6" wide stripe of wide paint; if either the cyclist or the motorist fails to follow the rules of the road, trouble can occur. Cyclists are smaller than motor cars and much less visible, and a cyclist may be moving much faster than a motorist expects (especially going downhill). Fatalities have occurred because a turning motorist did not notice a fast-moving cyclist in the bicycle lane and turned across the bike lane, colliding with the cyclist.

3. Bike Lane Invulnerability: This is the corollary to motorist inattention. Some cyclists, especially untrained but enthusiastic cyclists who may be the most attracted to bike lanes, seem to regard the bike lane as a place of invulnerability, forgetting that the cyclist is operating a vehicle on the street along with other traffic. Unlike a bike path, which is completely separate from the roadway and has no interaction with automobiles, the bike lane is simply another lane on the street, and all the rules of the road still apply. Novice cyclists may not recognize the difference, and fatalities have occurred because fast-moving cyclists failed to pay attention to the traffic around them and respond appropriately to a motorist's error in judgment. Errors in judgment happen routinely in traffic operations, so all users of the street must be vigilant and remember that driving is a team sport. Bike lanes interfere with this thought process.

4. Passing Distance: Motorists generally allow less passing distance for a cyclist in a bike lane, versus a cyclist in the regular travel lane, adding to the sense of discomfort some cyclists associate with bicycle lanes ("Evaluation of Shared Use Facilities for Bicycles and Motor Vehicles", Florida Department of Transportation/University of North Carolina at Chapel Hill, 1996).

5. On-street Parking: On streets with on-street parking, a standard 5' bike lane places bicyclists directly in the "door zone" of parked cars. Bicyclists are trained to ride a good 5'-6' away from a parked car to avoid the "door zone"; riding the center of a bike lane places the cyclist only 2.5' from the parked car, directly in the "door zone". A 1999 FHWA report, conducted by the University of North Carolina at Chapel Hill, videotaped over 2,500 cyclists riding in bike lanes and concluded that bike lanes adjacent to on-street parking was positively correlated with an increase in collisions between cyclists and parked cars (FHWA FHWA-RD-99–034 A COMPARATIVE ANALYSIS OF BICYCLE LANES VERSUS WIDE CURB LANES: FINAL REPORT).

6. Speed Management: On-street parking, in conjunction with 10' or narrower travel lanes, calms traffic by creating uncertainty in the mind of the passing motorist. There is no way to avoid a suddenly-opened car door, so the motorist must travel more slowly and pay attention. If a 5' bike lane is striped next to the parked car, however, motorists in the adjacent travel lane can safely ignore the parked cars entirely, which completely eliminates the speed-management benefits of having on-street parking. The Institute of Transportation Engineers recognized in their "Residential Street Design and Traffic Control" (1989) report that travel lanes wider than 10' limit the ability to achieve design speeds of 25 mph or lower; a 10' lane with a 5' bike reads as a 15' wide lane to a motorist (p. 23, p. 68).

Despite these safety issues, bike lanes are widely regarded by some in the bicycle planning profession, and many in the "green"/environmentalist movement, as a universal good and a universal approach to improving bicycle safety. This philosophy is particularly harmful in walkable contexts, where the misapplication of bike lanes next to on-street parking allows faster vehicle speeds, reducing the overall walkability of the street, as described in #6, above. On streets with design speeds of 30 mph or less, therefore, bike lanes are contraindicated in this plan.

In most transportation networks, including Richmond's, there are times when bicyclists should share the road safely with motor vehicles, such as in a walkable area, and times when a bike lane is indicated. Therefore, the only part of this plan that contains specific "bicycle and pedestrian planning" relates to street sections where speeds are expected to be higher than 30 mph, such as the Manchester Bridge. In all other areas, walkable street designs are provided complete with built-in provisions for pedestrians as well as bicyclists.

Bicycle Parking: More important than bike lanes, from the perspective encouraging walkability and bikeability, is the provision of adequate bicycle parking at either end of the bicyclist's trip. Bicycle parking is often overlooked but critical to encouraging bicycle usage. Ideally, bicycle parking should be provided in the front of a store or building, in plain sight, easily visible from inside the store or building. HPE recommend the simple "u" rack for bicycle parking and provides specifications for this rack in the Appendix (see **Figure 14**). The "u" rack is simply 2" or 3" diameter pipe, bent into a "u" shape, and anchored into the sidewalk like an upside-down "u". A single rack can accommodate two bikes, one on either side, locked through the front wheel as well as the bike frame. Alternatively, the rack can accommodate up to four bikes if only the front wheels are locked to the rack, but the bikes will have no other support and will need kickstands to remain upright.

Figure 14: U-racks Installed on a Sidewalk
(Photo from Cycle Safe (tm) Bike Racks)

Based on Richmond's sidewalk configurations, HPE recommends installing two U racks in front of each store front, oriented parallel to the street. This will allow the parked bicycles to take up space between the tree wells, rather than block the sidewalk.

IV. PHASING

Some of the recommendations in this report can be implemented immediately; others require more time due to cost or developer initiative required. For instance, a stop-controlled one-way street can be returned to two way operation very quickly. Similarly, left turn restrictions can be lifted at some intersections quickly. Installation of new traffic signals to permit two-way operation, however, is expensive and may be best programmed as part of the routine traffic signal replacement cycle over the next 5-10 years. And streets that require on-street parking for traffic calming, such as many of the streets in Old Manchester, must wait until the development occurs to generate the demand for on-street parking. With these provisions in mind, HPE recommends the following phasing program:

1. Near Term Improvements – Less than five years
2. Long Term Improvements – Five to ten years
3. Opportunistic Improvements – As soon as possible based on development in the area

Near Term Improvements – Less than five years

- Road diet and installation of bike lanes on Manchester Bridge
- Initial two-way reversion pilot
- Installation of Pay and Display parking system (or similar system to manage downtown parking)
- Start-up of rubber tire trolley circulator system
- Installation of bicycle racks in front of commercial venues

Long Term Improvements – Five to ten years

- Reversion of all recommended streets to two-way operation
- Complete two-way reversion
- Implementation of recommended street sections in downtown area

- Implementation of Commerce Boulevard revised street section
- Begin return of street car system, per Streetcar Study

Opportunistic Improvements

- Old Manchester Street modifications
- Extension of streetcar to Old Manchester
- Implement downtown street sections as part of redevelopment downtown
- Implement parking management program as part of redevelopment programs

V. COST ESTIMATES

General cost unit cost estimate assumptions are provided below in **Table 2**. These estimates are based on Virginia DOT estimates per recent VDOT studies; City of Richmond Traffic Engineering Project estimates; and estimates from the Shockoe Bottom plan, grown from 2004 dollars to 2007 dollars at 4% annually. Modifications required by this plan are minimal, in terms of new street construction, requiring only restriping, resignalization, and some cases, the construction of brick or cobble safety strips.

Table 2: Unit Cost Estimates

ITEM	COST ESTIMATE (2007 Dollars)
Brick Safety Strips	$200/yd^2
Milling of street to expose cobble (alternative to safety strip construction)	$6/yd^2
4" Paint Striping	$1.25/lineal foot
Intersection Signalization	$90,000-$120,000: depends on size and complexity of intersection and whether the intersection is receiving a new signal or an upgrade of an existing signal
Pay and Display Parking Meter	$7,000 each, one per side per block
Bicycle U-racks for bike parking	$170 per rack, installed, for surface-mounted racks

VI. CONCLUSION

Citizens indicated the desire during the charrette to revive economic life in Richmond's historic downtown area. The residents further envisioned a return to the walkable city structure of the early 1900's, with downtown residences, places to shop and find entertainment, and restoration of the civic centers in the area. The traffic engineering and transportation planning approaches described here respect that vision. HPE recommends following items:

- Use walkable thoroughfares to manage traffic speeds and ensure pedestrian safety
- Reawaken Old Manchester with two-way streets, a grand Commerce Boulevard, a revitalized Hull Street, and, someday, the extension electric streetcar service
- Continue to refine the City's parking policies and include shared parking and new technologies in paid parking as tools for parking management
- Revive the electric street car system to leverage additional urban investment
- Continuing to fund the existing bus transit system providing the bulk of the area's public transit service

- Return most of the downtown's one-way streets to two-way operation for easier navigation, reduced vehicle miles of travel, speed management, and revitalization of darkened store fronts
- Keep the existing two-way section of Grace Street in two-way operation

With its small blocks, compact urban structure, and diverse mix of university, government, and private sector land uses, Richmond is also an ideal city for bicycling. The existing street system, if returned to two way operation, will work well for bicycle transportation without the addition of bicycle lanes. The installation of bicycle lanes is not recommended for this area due to the proximity of on-street parking and the need to keep automobile speeds at or below 30 mph.

Everything the City of Richmond needs to know to build its future is contained in the bones of its traditional downtown area. Small blocks, small streets, sidewalks, and buildings that create enclosure and a sense of place are the primary elements. The downtown was designed before the automobile appeared on the scene, and in rebuilding Richmond's downtown, designers must consciously return to that type of planning. Put aside the past 100 years of automobile-oriented development, and treat the vital automobile as a servant to the pedestrian, not vice versa. The transportation proposals in this report are all based on this concept.

APPENDIX