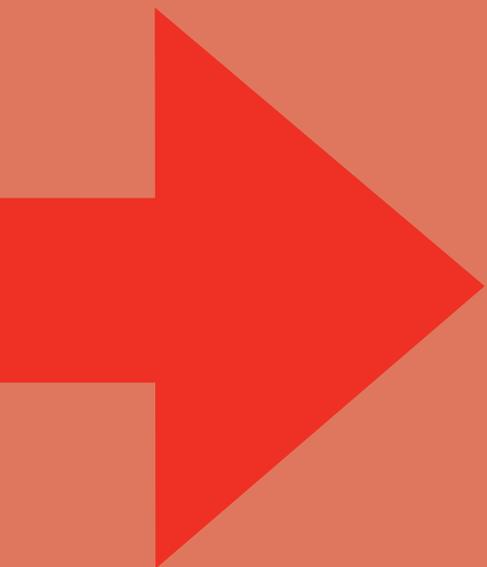




**Arlington County Capital Bikeshare
TRANSIT DEVELOPMENT PLAN**
Fiscal Years 2013 to 2018

**executive
summary**



Executive Summary

ARLINGTON COUNTY CAPITAL BIKESHARE TRANSIT DEVELOPMENT PLAN

Fiscal Years 2013 to 2018

Prepared by **Foursquare Integrated Transportation Planning**

For **Arlington County Commuter Services**

November 2012

a special thanks to our partners...

Arlington County Transportation Division

Bike Arlington

Capital Bikeshare

District Department of Transportation

Overview of Capital Bikeshare

Since its launch on September 20th, 2010, Capital Bikeshare has grown to become one of the largest and most successful public bikeshare systems in North America. The system provides publicly available bicycles 24 hours a day, 7 days a week at automated, solar-powered stations. Today Capital Bikeshare has over 1,670 bicycles distributed at more than 175 stations in Arlington, Alexandria and Washington DC, with plans for additional stations in the existing system plus expansion to Montgomery County, Maryland. Other local governments in the Washington, DC region, including Prince George’s County, the City of Greenbelt, and the City of College Park – all in Maryland – are exploring the possibility of joining Capital Bikeshare in the next several years.



join



take



ride



return

↑ use bikeshare in four easy steps!

Capital Bikeshare is designed for short point to point journeys. Riders can use the system in four simple steps: join, take, ride, and return. To join the system, riders purchase memberships varying in length from 24 hours to one year. Once a member, riders can take any available bicycle at a docking station and return the bicycle at the end of their ride to any station within the system. All trips under 30 minutes incur no additional charge, with escalating usage fees for trips over 30 minutes.

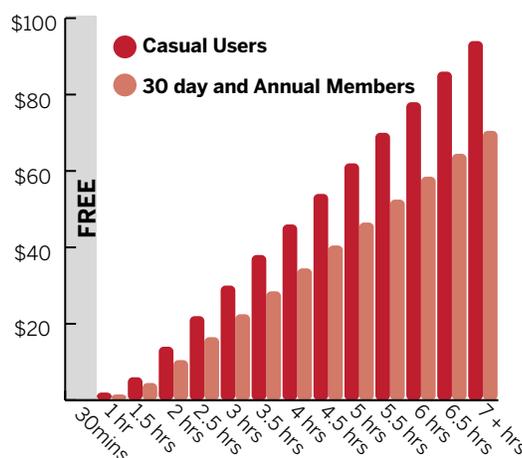
Capital Bikeshare is operated cooperatively by its member jurisdictions: Arlington County, Washington DC, Montgomery County, and the City of Alexandria. These jurisdictions plan and finance the system, while private operator Alta Bicycle Share manages day-to-day operations and maintenance.

Arlington, along with Washington DC, was a founding member of Capital Bikeshare. To date, the system has expanded along the County’s Metrorail corridors, with stations concentrated in the Rosslyn- Ballston Corridor (R-B Corridor), Crystal City, Pentagon City, and Potomac Yard (see map on page 2). As of September 4, 2012, the Capital Bikeshare system in Arlington was comprised of 44 stations with 568 docks and 306 bicycles. By the end of fall of 2012, Arlington will have a total of 52 bikeshare stations.

Membership Type	Membership Fees
24 hours	\$7
3 days	\$15
30 days	\$25
Annual Membership	\$75
Annual Membership with Monthly Installments	\$84 (12 payments of \$7)

↑ membership options

↓ fee structure encourages short trips

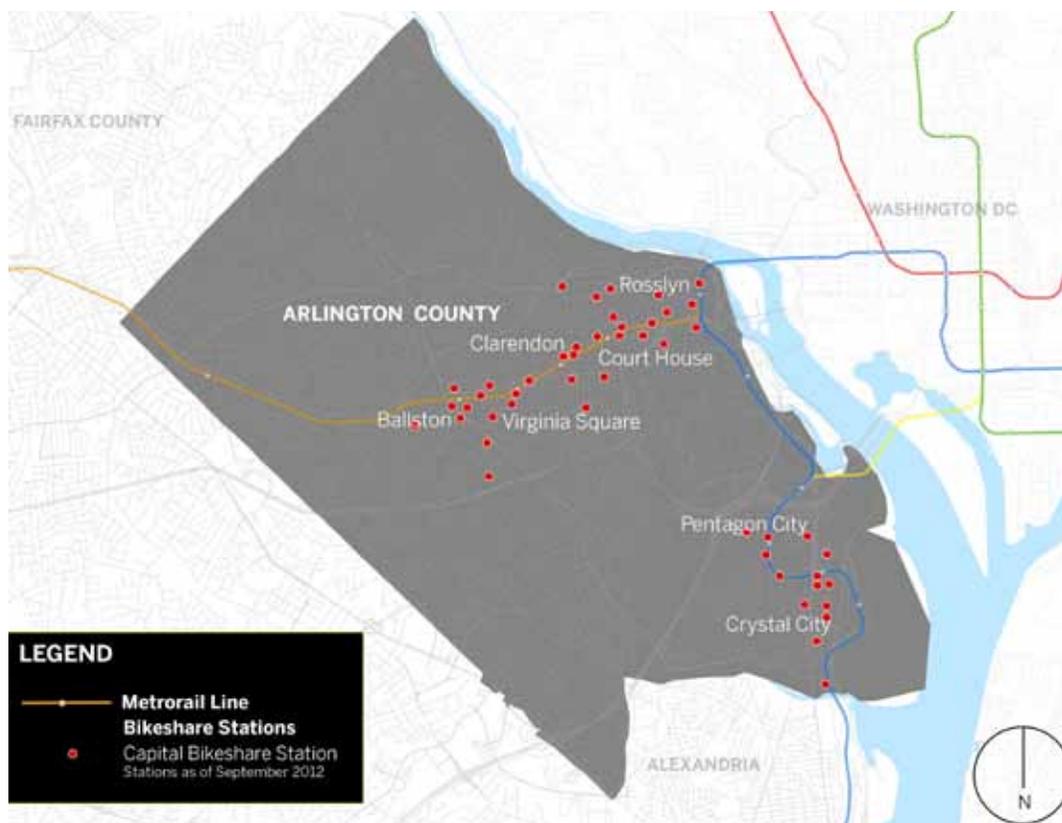


Background on the Plan

Arlington County commissioned the Capital Bikeshare Transit Development Plan (TDP) to provide a strategic blueprint for expanding the system over the next six years, as well as to better understand the financial needs of a growing system. This plan is the first time a short-range strategic planning process driven by available capital and operating funding has been completed for an American bikeshare system.

The contents of Arlington's Capital Bikeshare Plan were adapted from the Virginia Department of Rail and Public Transportation's (DRPT) Transit Development Plan guidelines. One of the primary purposes of completing a TDP is to enable the agency to project capital and operating costs for the six-year period to support adequate budgeting and the identification of any unmet funding needs. TDPs allow agencies to plan for service expansion and improvements in a strategic and fiscally realistic fashion. TDPs establish objectives and measures of effectiveness to track system performance both in the

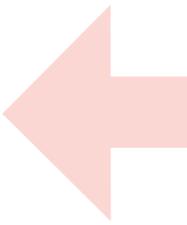
short- and long-term periods. All transit agencies in Virginia are required to complete a TDP every six years; the Transit Development Plan for Arlington's fixed-route bus (ART) and paratransit service (STAR) was adopted by the County Board in December 2010. Following appropriate planning practices, a TDP has now been developed for Capital Bikeshare in Arlington County, emphasizing Arlington's recognition of bikeshare as an important form of public transportation.



- October 2011** Planning process commences.
- December 2011** Project team finalizes plan goals and objectives.
- February 2012** Peer review and system evaluation complete. Stakeholder team convened to develop expansion scenarios.
- March - April 2012** First public outreach and comment period.
- May 2012** Draft expansion plan developed. Stakeholder team reviews plan.
- June 2012** Draft plan released.
- June - July 2012** Second public outreach and comment period.
- August - November 2012** Plan finalized.
- Fall 2012 - Spring 2013** Implementation of plan begins

↑ extent of bikeshare system in Fall 2012

↑ project timeline



System Goals and Objectives

To guide the planning process for the Capital Bikeshare system in Arlington, County stakeholders developed a list of goals and objectives for Capital Bikeshare. Five strategic goals for Capital Bikeshare in Arlington, ranging from promoting sustainability to encouraging a culture of cycling in the community, were identified. Each goal is further supported by measurable objectives, each with at least one performance measure to track success of the program.

Goals desired results for bikeshare in Arlington	Objectives approaches to meet Goals	Performance Measures how to track program success
1: Reduce the environmental impacts of travel, improve public health, and promote energy efficiency	1.1: Divert vehicle miles traveled from automobile to bicycle.	a: Ratio of Arlington bikeshare miles traveled to total vehicle miles traveled (VMT)
	1.2: Foster improved public health by increasing bicycle vehicle miles traveled.	b: Total calories burned and average calories burned per trip
2: Support economic sustainability and growth.	2.1: Support regional and local economic development, especially in transit-oriented, mixed-use communities.	c: Combined number of bikeshare trips for shopping, errands, eating-out, and socializing d: Average money saved per bikeshare user and total annual savings among all Arlington Capital Bikeshare users
	2.2: Attract a wide variety of users, including by age, race, income, and gender.	e: Percentage of members by age bracket, race, household income bracket, and gender
3: Increase accessibility to jobs, recreation and other locations, enhancing the quality of life.	3.1: Increase the reach of other transportation modes that complement bicycle use, particularly transit and walking.	f: Percent of bikeshare trips that link to another mode (broken down by mode)
	3.2: Provide mobility through bicycle and transit connections to Arlington residents, employees, and visitors to and between Regional Activity Centers and mixed-use corridors.	g: Absolute number and percent of Arlington jobs and population within a quarter mile of a bikeshare station h: Percentage of hotel rooms in Arlington within a quarter mile of a Capital Bikeshare station
4: Create a community culture that embraces bicycle use as a convenient and safe travel choice.	4.1: Increase bicycle mode share for a variety of trip types, contributing to the County objective of an annual one-half percent SOV mode share reduction.	i: Bicycle commute mode share j: Public opinion on bicycling as a legitimate transportation option
	4.2: Reduce bikesharing crashes and encourage a culture of safety among users.	k: Helmet use among bikeshare users l: Crash rates among bikeshare users
5: Fund, manage, and operate the regional system in an efficient and cost-effective manner.	5.1: Minimize operating costs while providing an effective service at the regional and local levels.	m: Cost recovery ratio
	5.2: Provide cost-competitive transportation for individual users.	n: Average cost per trip for bikeshare users

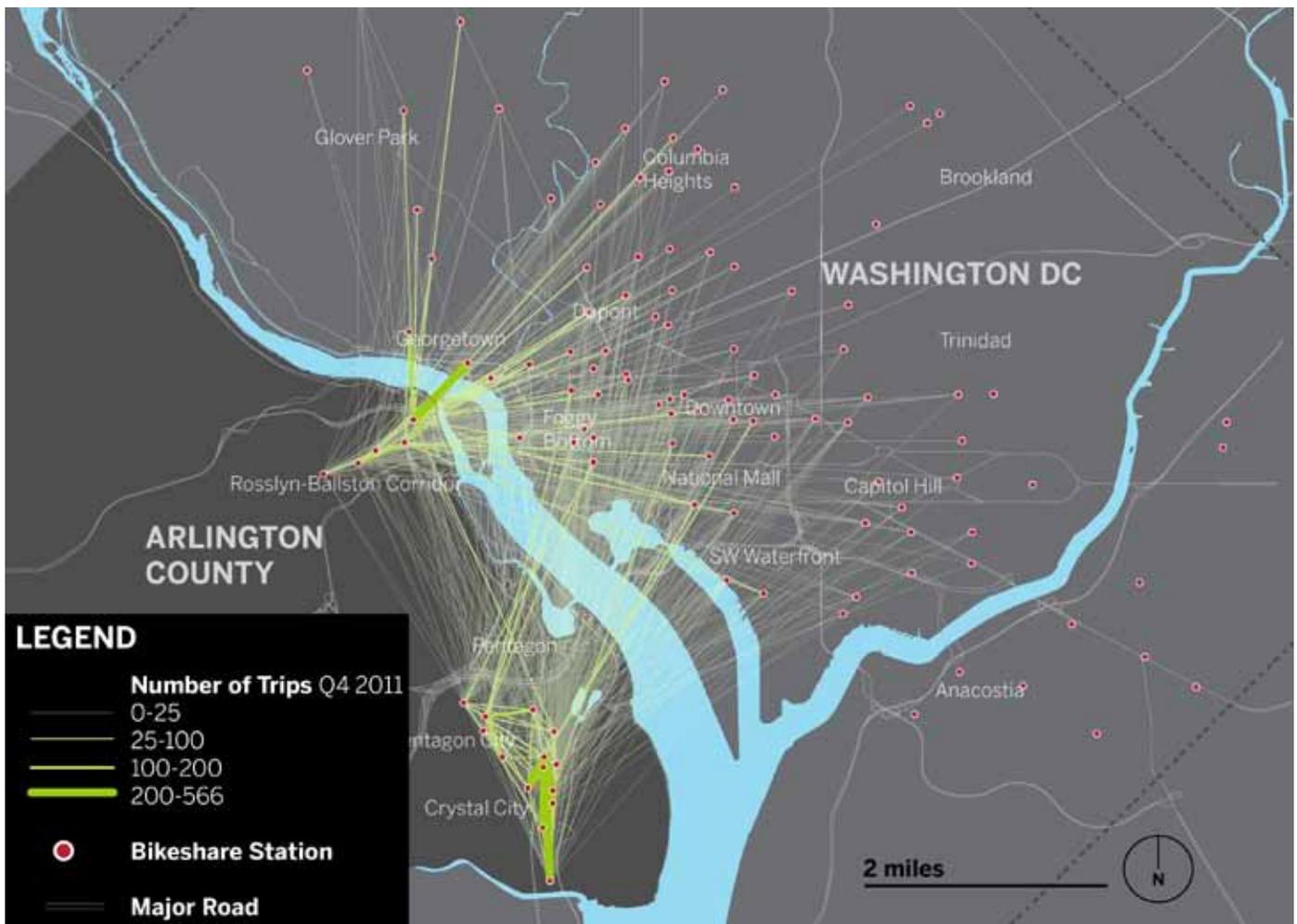
System Evaluation

Arlington's Capital Bikeshare Plan included a service and system evaluation that document how the existing system is operating. This evaluation covered a wide range of topics – from where riders were going to how well the system performs financially – to give Arlington a detailed understanding of Capital Bikeshare's first full calendar year of operation, 2011.

This system evaluation was conducted using Capital Bikeshare system data from calendar year 2011. At the end of 2011 there were only 23 Capital Bikeshare stations in Arlington, with 14 of these stations in the Crystal City / Pentagon City corridor. Of the nine stations in the Rosslyn-Ballston corridor in place, only four were installed before November of that year, with five more installed in the last two months of the year. The data presented in the system evaluation is a snapshot of the system's performance in 2011,

prior to the significant expansion in the Rosslyn-Ballston corridor that took place throughout 2012. This analysis showed a system serving diverse needs and destinations through primarily short trips.

One of the strengths of Capital Bikeshare is its flexibility to serve a wide variety of trips. As users do not have to adhere to pre-established schedules and operating hours, ridership is more uniform across the week and time of day than with typical transit. Commute trips, the focus of

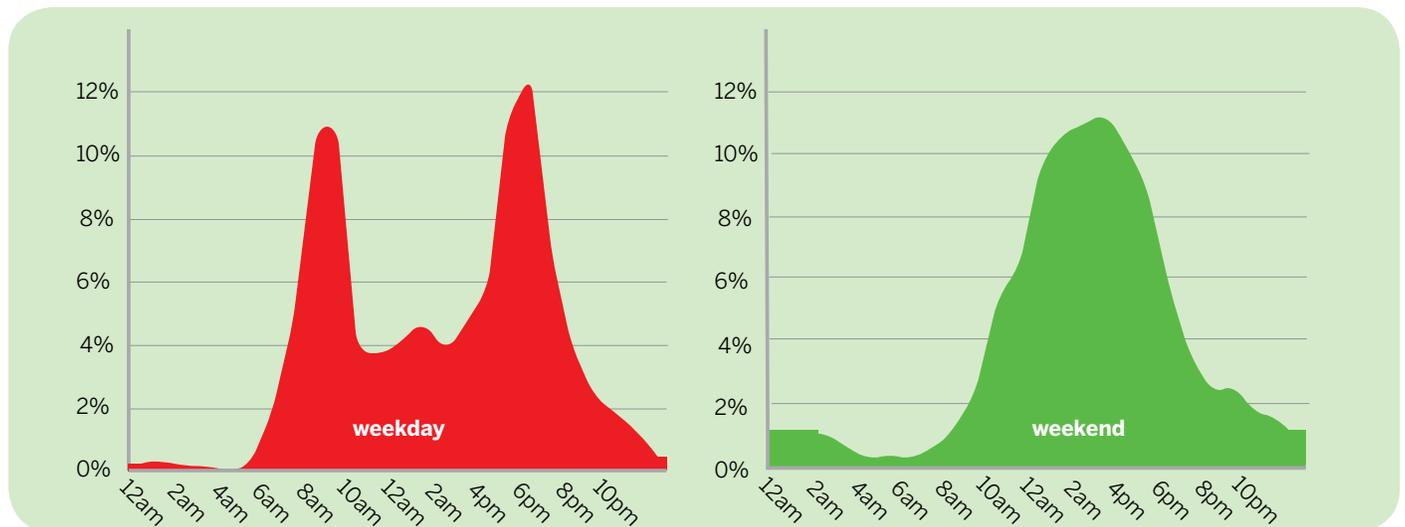


📍 **map of all trips taken in the fourth quarter of 2011 that start or end in Arlington County***
only stations installed before October 1st, 2011 included in this analysis

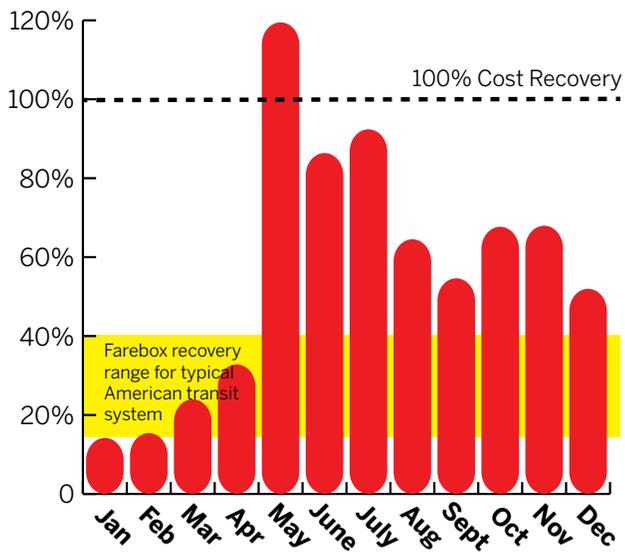
traditional transit, make up approximately a third of bikeshare trips.

The destinations accessed through bikeshare are as diverse as the trip types being served. In 2011, nearly half of Arlington bikeshare trips began or ended in Washington DC. While the majority of trips were less than 1.5 miles in length, riders originating in Arlington used the service to access nearly every other station in the system.

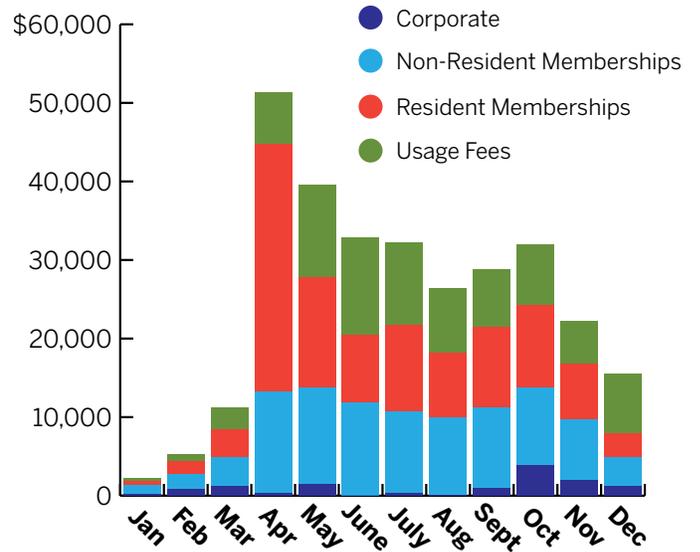
Many factors, from topography to neighborhood density and land use, influence bikeshare station ridership. The most popular stations in the system often had demand driven by external factors such as nearby regional destinations, tourist attractions, or simply being downhill from other highly utilized stations. In a statistical analysis of the factors that influence bikeshare ridership, four factors appeared to correlate with higher ridership across the system: proximity to transit, access to bicycle infrastructure, existing bicycle and walk mode share of adjacent neighborhoods, and population and job densities of surrounding neighborhoods. The least used stations in the system tended to be located on the periphery of the bikeshare network and could only be reached by a limited number of other stations within 1.5 miles.



distribution of bikeshare trips by time of day - ridership remains high during the weekend and midday



↑ The cost recovery ratio of Capital Bikeshare in Arlington (2011)

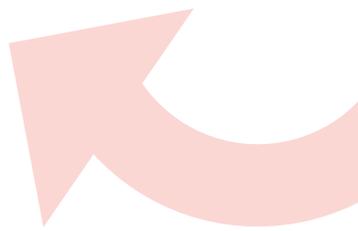


↑ bikeshare revenue to Arlington County by month and source (2011)

Capital Bikeshare revenue is highly variable, largely due to the system's reliance on 24-hour and 3-day users to generate revenue. These short-term users – referred to as casual users – make up the majority of trips lasting over 30 minutes, even though they comprised fewer than 20 percent of riders in 2011. The usage fees incurred over 30 minutes are an important revenue source for the system; however, casual users are a seasonably variable group, taking fewer and shorter trips during the winter months. Stations located in proximity to hotels and tourist sites attract a large number of casual users, generating higher revenue per trip than the average Capital Bikeshare station.

Compared to revenue, the cost of operating Capital Bikeshare is largely fixed and based on the number of bicycle docks in service. Maintenance and the redistribution of bicycles are the two largest components of operating costs. Station location impacts cost; densely placed stations cost less to operate as they require less bicycle redistribution and allow a maintenance vehicle to quickly serve multiple stations.





Expansion Plan Development

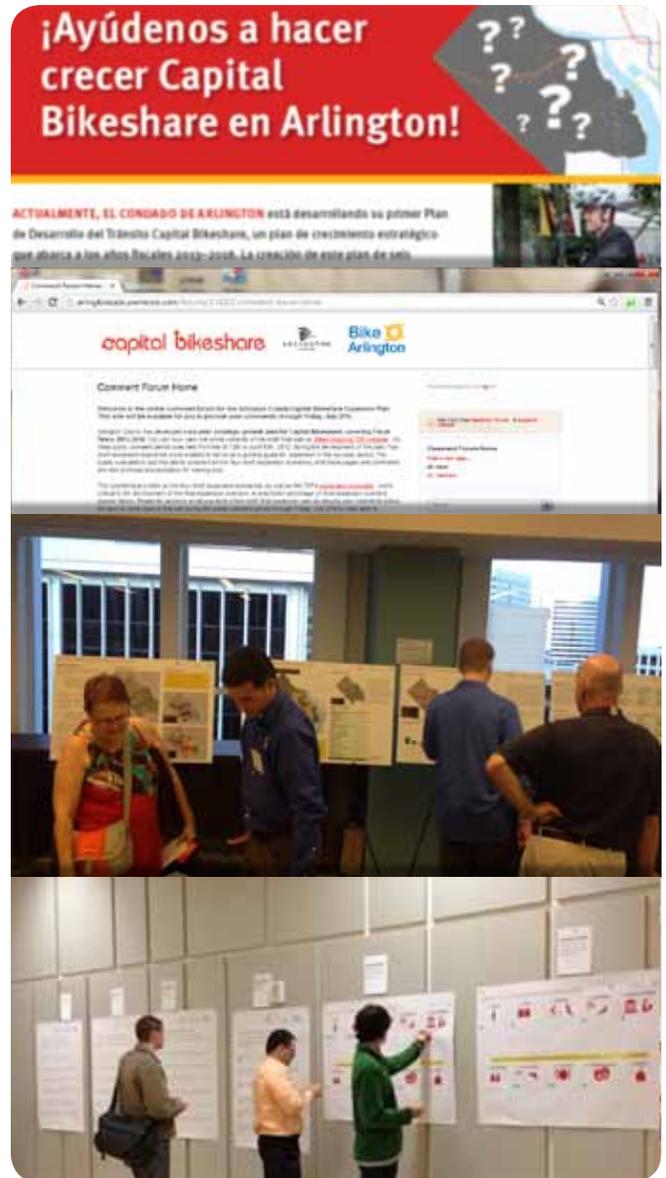
The expansion plan for Arlington's bikeshare network was developed through a collaborative multi-step process that included a regional stakeholder team, various County departments, community representatives, and the general public. Starting with four expansion scenarios, the planning team worked with the public and stakeholders to create a single expansion plan that included the best aspects of each scenario. A detailed analysis of station demand fed into the planning process and allowed the team to identify the expansion needs. Because of financial constraints that limit the scope of expansion, the final plan had to balance the desire to reach new neighborhoods while keeping stations relatively close together.

Expansion Scenarios

A key component of Arlington's Capital Bikeshare Plan is its six year service expansion and continuation plan. At the outset of the expansion planning process, the study team, including BikeArlington staff and other Arlington County staff members and key stakeholders, convened to develop a set of draft expansion scenarios to help frame the discussion on how and where to expand bikeshare in Arlington. The group ultimately developed four unique draft expansion scenarios, each envisioned to reflect a different fundamental strategy for growing the Capital Bikeshare system in Arlington. The expansion scenarios were created to serve as a general guide for expansion in the six-year period; it was not anticipated that any one of these draft expansion scenarios would be selected and adopted strictly as described, but that elements of all of the scenarios would likely be present in the final expansion plan. The four scenarios represent differing strategies for growing bikeshare: (1) expand in and around the existing bikeshare corridors, (2) connect the existing bikeshare network through residential neighborhoods, (3) bring bikeshare to new major corridors, and (4) focus bikeshare expansion along the trail network.

System Sizing

To better understand the potential size of a built out bikeshare system, two analyses were conducted of bikeshare demand in Arlington. The first analysis looked at existing station level ridership to estimate the number of additional stations that Arlington could support based on a number of physical and demographic factors. The second analysis identified important destinations and clusters of development that could support bikeshare in Arlington, and estimated how many additional locations



▲ Arlington County reached out to the public through print media, an online crowdsourcing forum, and a series of public meetings

in the County held potential for future bikeshare stations.

Public Outreach and Input

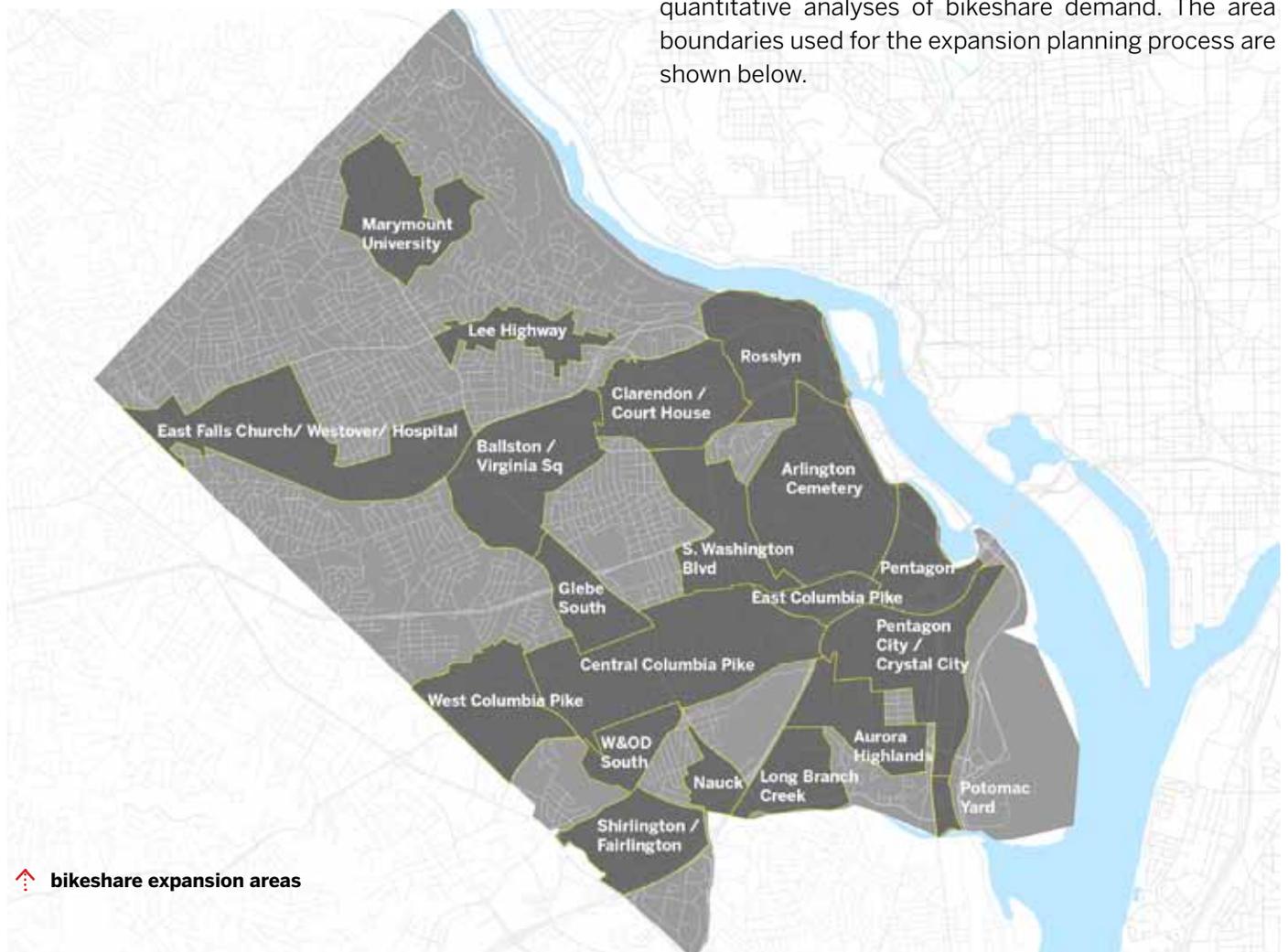
Public outreach and input was integral to the development of Arlington's Capital Bikeshare expansion plan. The four draft expansion scenarios were presented to the public for comment in a number of forums. The general public was offered the option of commenting at an in-person general public meeting or online at a dedicated online comment forum. A significant effort was made to reach a diverse array of citizens and stakeholders from all areas of Arlington County, including residents, individuals working in Arlington, both members and non-members of Capital Bikeshare, Arlington employers, retailers, and hotels. A targeted effort was made to advertise the opportunity for public comment to members of minority and low-income communities. In addition to the general public,

two to three meetings were held with four of Arlington County's citizen commissions/committees.

The public input process revealed a strong preference for expanding the system to outside the Rosslyn-Ballston Corridor, Crystal City, and Pentagon City, with the greatest support for Shirlington, the Columbia Pike Corridor, the Lee Highway Corridor and East Falls Church. Participants also voiced a desire for future stations to take advantage of existing trail and transit connections.

Development of Proposed System Expansion

At the end of the public outreach and plan development process, there was a list of areas determined to be the focus for bikeshare expansion within the six year timeframe of this plan. These areas show the most demand for future bikeshare stations and generally had support from the public through the public meetings, online forum, bikeshare suggestion map and the quantitative analyses of bikeshare demand. The area boundaries used for the expansion planning process are shown below.



Final Expansion Plan

While Arlington County would like to see bikeshare rolled out in all the expansion areas identified through public input and system analysis, financial constraints for system expansion and operation required the planning team to make tough decisions on where to invest the limited funds available. The final expansion plan includes two sets of plans. The first, the “constrained plan,” shows what expansion can happen with the existing funding available. The second plan, an “unconstrained plan,” shows the full expansion needs over the next six years. As new funding becomes available, Arlington County can begin implementing portions of the unconstrained plan.

Constrained Expansion Plan

Nearly all of the system growth for the six-year plan period will occur in FY2013, the first year of the six-year plan, due to availability of funding. In total, 39 new stations will be added between FY2013 and FY2015, with 33 of these stations alone planned for implementation in FY2013. Three of the 39 planned stations will be funded through external sponsorships, while the remainder will be funded through transportation grants and \$200,000 in Arlington County decal fees dedicated annually to Capital Bikeshare. After FY2015, the available capital funding will be needed to keep the system in a state of good repair, as the original bicycles and station equipment will be reaching the end of their useful life and require replacement.

Expansion will focus on building out the system in South Arlington, especially along Columbia Pike east of the Washington & Old Dominion trail, and in Shirlington. Stations will also be placed at Arlington National Cemetery and at the Pentagon, pending approval by the National Park Service and Department of Defense, respectively.

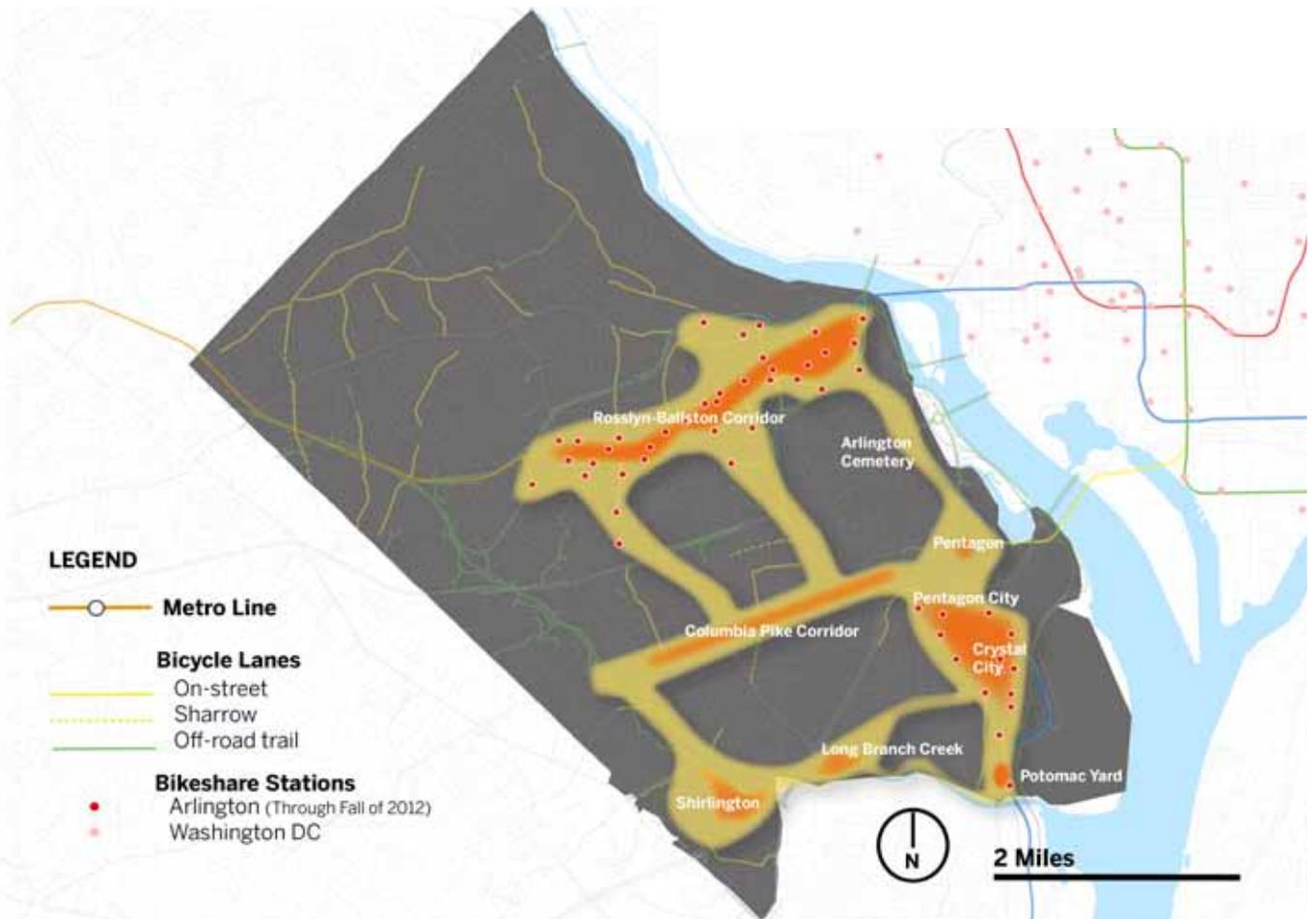
Outside the major destination clusters of South Arlington, stations will be placed at a lower density along key connecting corridors, while still maintaining a one-half mile maximum distance between stations. In addition to the connecting corridors of the Four Mile Run and Washington & Old Dominion trails, bikeshare expansion in the neighborhoods along Washington Boulevard and Glebe Road will form two connections between the Rosslyn-Ballston corridor and Columbia Pike, while stations in Long Branch Creek and Aurora

Highlands will help complete the connection between Crystal City and Shirlington.

The constrained expansion plan includes holding two stations in reserve to be placed anywhere in the system based on future needs. The plan also calls for a portion of capital funding to be reserved for a pilot project to bring smaller stations with reduced functionality to neighborhoods without sufficient density to support full size, full service stations.

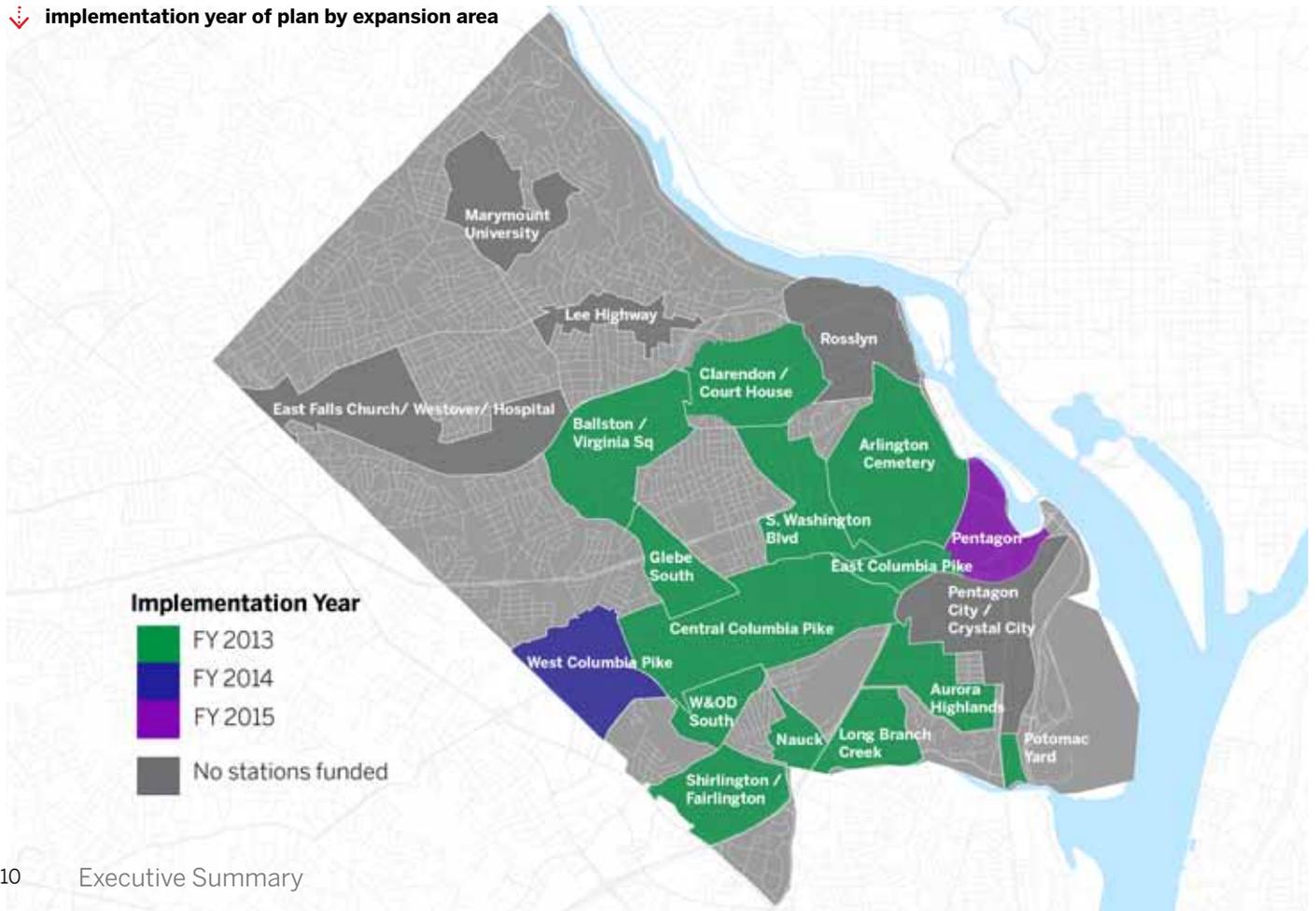
The plan does not identify specific locations for bikeshare stations, but instead allocates stations to the bikeshare areas outlined on page 8. The following page illustrates the general locations for the planned additional stations.





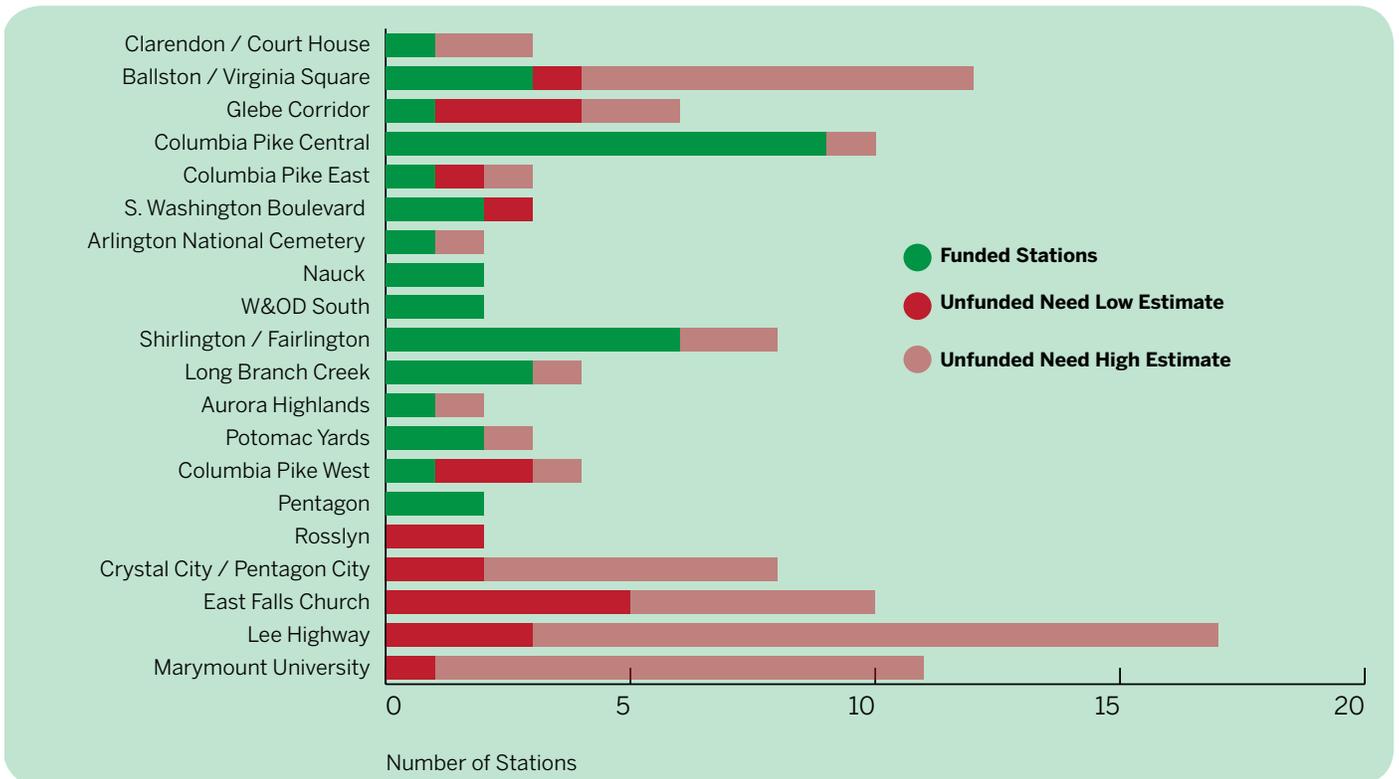
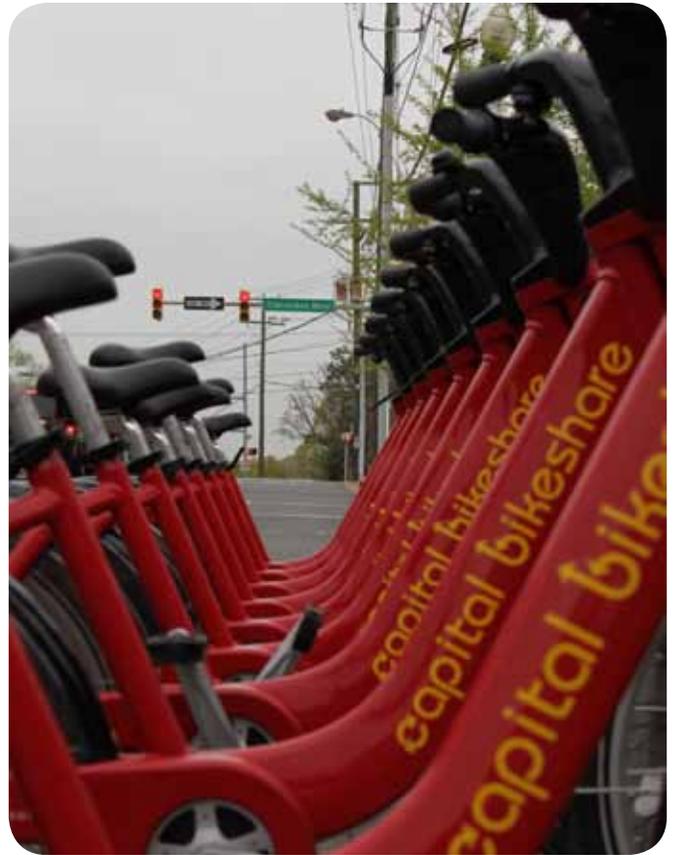
↗ anticipated extent of the system under the constrained plan.

↘ implementation year of plan by expansion area

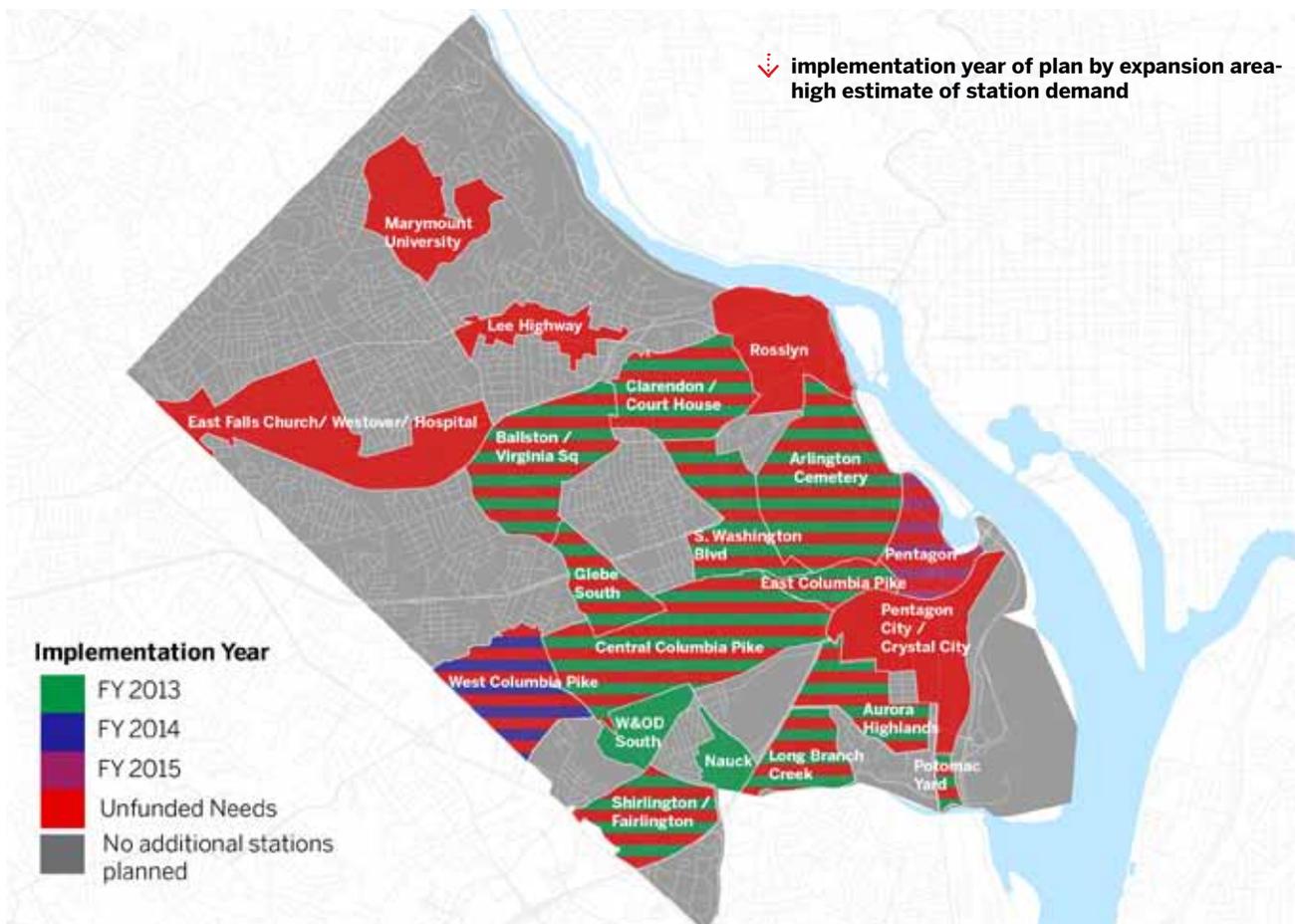
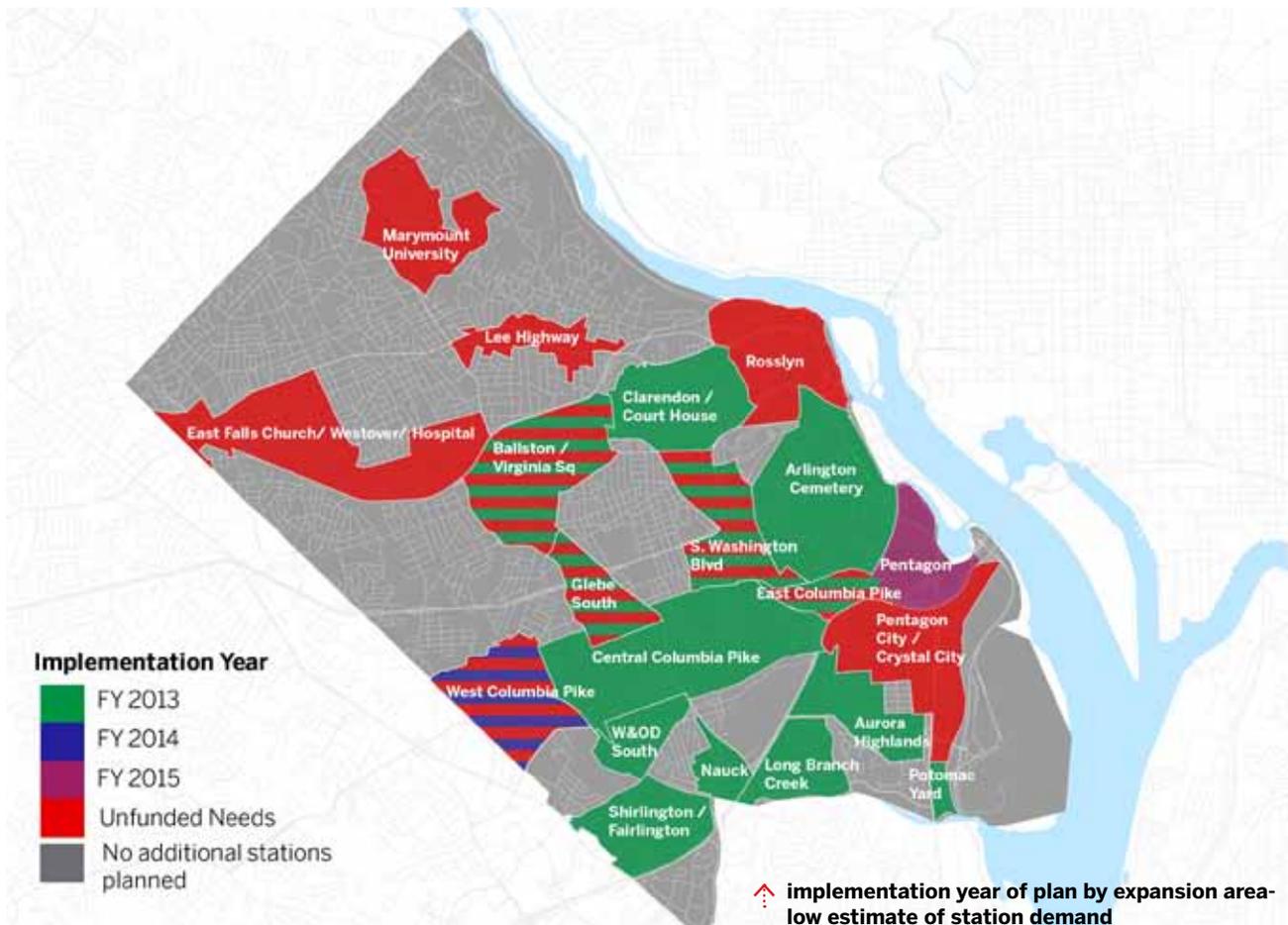


Unconstrained Expansion Plan

The TDP estimates that at full build out, there is total demand for between 57 and 115 additional stations within the bikeshare expansion areas; even with the existing funding for 40 additional stations, there remain a significant number of unfunded stations. The list of unfunded station needs allows the County to prioritize investments in bikeshare expansion as new funding sources are made available. Locations in North Arlington at East Falls Church and Lee Highway are logical next steps for bikeshare expansion, and would provide the system new connections to retail destinations and transit. Within the existing bikeshare corridors and South Arlington, the unconstrained plan projects additional demand for bikeshare stations, especially in the neighborhoods between Shirlington and Columbia Pike. As the system grows, demand in the core of the system will also increase, necessitating additional docks and bicycles in places such as Crystal City, Rosslyn, and Court House Square. The chart below shows all bikeshare areas and corridors and the projected demand for additional bikeshare stations. The maps on the following page show the phasing and unmet needs of the unconstrained plan for the low and high demand estimates.



funded stations and unfunded needs





Financial Plan

Along with the final expansion plan, the financial plan is the centerpiece of the transit development planning process. A financial plan allows the local government or transportation agency to appropriately budget and plan for known expenses in future years, ensuring the continued viability of service.

Operating Budget

An operating deficit is projected for each year in the FY2013-FY2018 period; however, Arlington County is committed to identifying new funding sources and strategies that will close the projected operating deficit. Once a new station is installed, Arlington must begin paying a fixed operating cost per dock for it; the new stations outlined in the constrained expansion plan will not be installed until adequate funding for their operation has been identified.

The potential shortfalls in operating revenue needed for the planned expansion of Capital Bikeshare in Arlington (see table below) has led the County to explore new strategies for securing additional sources of operating revenue. The County presently has two sources of operating revenue: farebox revenue and station sponsorships. Another potential source could

“...the new stations outlined in the constrained expansion plan will not be installed until adequate funding for their operation has been identified.”

be through advertising; many bikeshare systems around the world generate significant revenue through the sale of advertising on bikeshare station panels. Arlington County currently doesn't allow on-street advertising, so an Arlington County Board action authorizing on-street advertising on stations is critical to allow these sources of revenue to support Capital Bikeshare in Arlington. Chapter Six discusses in greater detail potential sources of additional operating revenue.

↓ projected operating expenses and revenue for Capital Bikeshare's Arlington operations

Fiscal Year	2013	2014	2015	2016	2017	2018
Operating Expenses						
Contract Operations	\$880,725	\$1,336,141	\$1,457,335	\$1,546,383	\$1,600,507	\$1,656,524
Administration and Marketing	\$180,044	\$186,346	\$192,868	\$199,618	\$206,605	\$213,836
TOTAL	\$1,060,769	\$1,522,487	\$1,650,203	\$1,746,001	\$1,807,111	\$1,870,360
Operating Revenue						
Station Sponsorships	\$84,155	\$67,656	\$69,209	\$70,817	\$72,481	\$50,924
Advertising	-	-	-	-	-	-
Arlington County Commuter Services Revenues	\$180,044	\$186,346	\$192,868	\$199,618	\$206,605	\$213,836
Farebox Revenue Projection	\$530,384	\$761,243	\$825,101	\$873,001	\$903,556	\$935,180
TOTAL	\$832,755	\$1,029,894	\$1,102,340	\$1,159,127	\$1,198,882	\$1,216,749
Operating Deficit	\$(304,356)	\$(521,891)	\$(578,186)	\$(618,258)	\$(640,712)	\$(687,230)

Capital Budget

This financial plan also represents the first attempt at state of good repair planning for a bikeshare system, that is, planning for the replacement of equipment as needed over the short and mid-term periods. By understanding the need for asset replacement in future years, Arlington can pursue funding opportunities to replace Capital Bikeshare capital equipment as needed, maintaining the quality of the system.

Currently, there is only one dedicated funding source for Capital Bikeshare capital expenses in Arlington, a flat \$200,000 coming from the Arlington County vehicle decal fee. In FY2013 and in prior fiscal years, Arlington has used Federal grant funding from a program known as Congestion Mitigation and Air Quality (CMAQ) for the system's implementation. However, there has been no additional CMAQ funding identified for Capital Bikeshare beyond FY 2013.

Fiscal Year	2013	2014	2015	2016	2017	2018
Capital Expenditures						
New Capital Equipment and Installation	\$1,333,732	\$161,838	\$142,248	-	-	-
New Station Site Planning and Pad Construction	\$66,274	\$6,430	\$5,848	-	-	-
Replacement Bicycles ¹	\$12,039	\$30,706	\$52,161	\$222,688	\$343,991	\$492,877
TOTAL	\$1,412,046	\$198,974	\$200,256	\$222,688	\$343,991	\$492,877
CAPITAL REVENUES						
Decal Fee	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000
CMAQ	\$1,236,000	-	-	-	-	-
TOTAL	\$1,436,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000
Capital Plan Balance	\$23,954	\$1,026	(\$256)	(\$22,688)	(\$143,991)	(\$292,877)

↑ projected capital expenses and revenue for the Arlington portion of Capital Bikeshare

¹Replacement bicycles, but not replacement stations, are required within the six-year period. Chapter 8: Financial Plan, Table 8.5, presents the mid-term replacement schedule costs and captures the cost of the station replacements in the system. The highest costs for station replacement begin in 2021, when the oldest stations reach the end of their useful life.

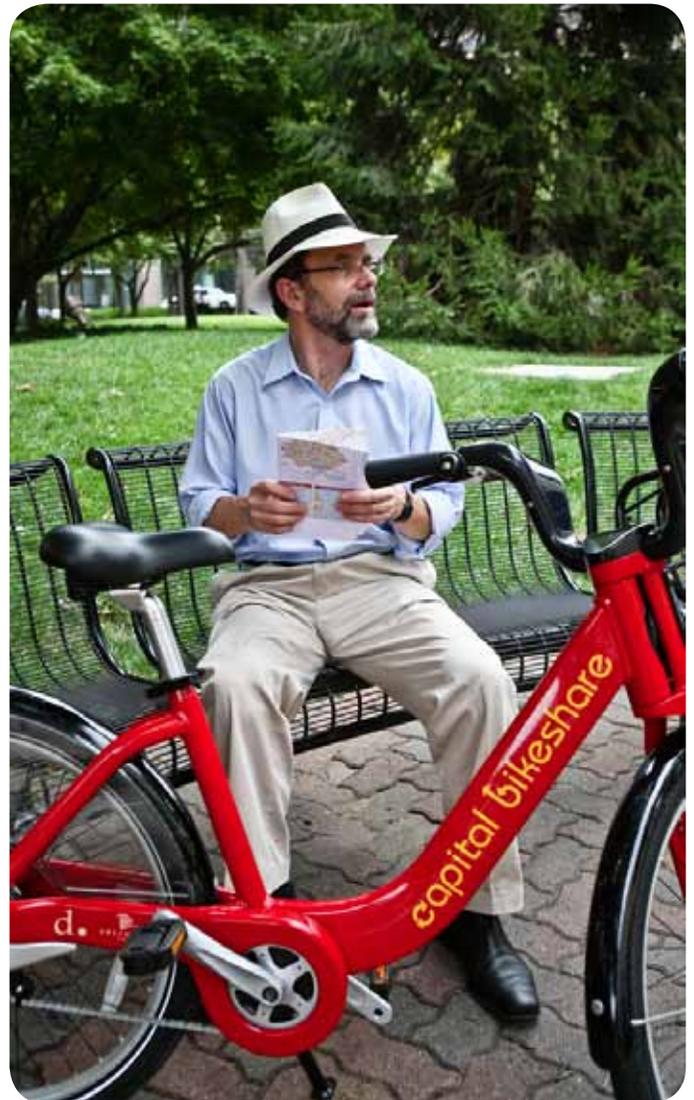
Next Steps

The Capital Bikeshare Transit Development Plan is the first step in planning for the expansion of bikeshare in Arlington County. This planning process has focused on identifying the demand for bikeshare at the neighborhood level and the best scenario for meeting the demand in an environment of limited funding. Arlington will continue to solicit public input through its “Suggest a Station” Crowdsourcing Map and by providing other venues for public input to identify specific potential locations for Capital Bikeshare stations as the Plan recommendations move to implementation.

Arlington County is committed to furthering the success of Capital Bikeshare. To measure the performance of the system, the 15 performance measures will be tracked on an annual basis, and the results will influence how the system is expanded over time.

Capital Bikeshare is an important part of Arlington’s transportation network – the service provides residents, workers, and visitors a flexible and affordable option for getting around. As the system expands, bikeshare will reach not only new destinations but new groups of people throughout the County. Arlington is committed to supporting Capital Bikeshare and making the service available to a wide and diverse body of users. Just as Arlington helped pioneer modern bikeshare at the system’s launch in 2010, this Capital Bikeshare Plan will keep Arlington at the forefront of bikesharing in the United States.

to learn more about the TDP and read the full plan, please visit the Bike Arlington’s TDP website at www.bikearlington.com/bikeshare



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