

EXECUTIVE SUMMARY

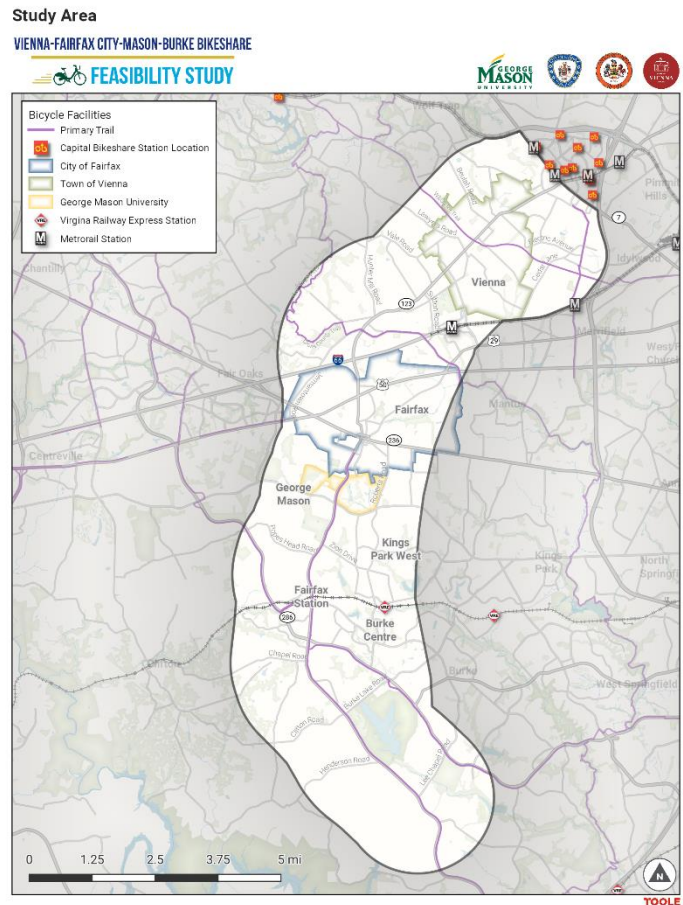
This bikeshare feasibility study outlines implementation recommendations for dockless shared bikes and e-scooters (also known as shared mobility devices or SMDs) and station-based Capital Bikeshare within the Route 123 corridor from Vienna to Burke. The project process included community analysis and stakeholder outreach leading to system development and business plan recommendations.

STUDY BACKGROUND AND GOALS

With two Capital Bikeshare stations located at the Tysons Corner Metrorail station along Route 123, and a bikeshare feasibility study completed by Virginia Tech for the Merrifield area, the next logical step for expanding bikeshare in the region is to expand into Vienna, Fairfax, and George Mason University. The study area runs from Tysons Corner southwest through the Town of Vienna, the City of Fairfax, and George Mason University. Within and between these communities, the Fairfax-Mason-Vienna Bikeshare Feasibility Study's study area have great potential for connecting residents, students, and visitors to transit, trails, and activity centers. A map of the study area is shown at right and in Chapter 3.

The Fairfax-Mason-Vienna Bikeshare Feasibility Study is a collaborative effort by the City of Fairfax, Town of Vienna, Fairfax County, and George Mason University to determine the feasibility of a bikeshare program in the area. Given the different bikeshare technologies available, the study considered Capital Bikeshare, dockless bikeshare, e-bikes, and e-scooters. While this study identified potential interest and opportunities in e-scooters as part of a dockless vehicle program, specific recommendations for implementing this technology are limited given that this is a new and rapidly evolving option.

Moreover, as the shared mobility industry continues to evolve, recommendations in this study may need to be updated periodically to reflect current practices. For example, while dockless bikeshare was a larger industry and dockless e-scooters were still emerging while this study was being conducted, between the end of the study and the publication of this document that balance has shifted. As observed in the 2018 report on shared mobility (published by the National Association of City Transportation Officials, or NACTO), shared scooters had far surpassed dockless bikeshare by the end of the year despite the later introduction of this technology¹. As a result, many private for-profit dockless bikeshare companies either left the industry or shifted focus to e-scooters since



¹ NACTO Bike Share and Shared Micromobility Initiative, "Shared Micromobility in the U.S.: 2018". <https://nacto.org/shared-micromobility-2018/>

this study began. Virginia legislation enacted near the end of this study will also impact how dockless e-scooters and bikeshare vendors are regulated².

Despite the shifting industry, all the technologies reviewed in this study have the potential to meet some or all of the goals of this project (described in [Chapter 1](#)). Goals include:

- Improving livability and economic competitiveness (attracting employers, businesses, and tourism, and increasing connections within and between communities)
- Supporting social and geographic equity (providing affordable access to jobs, transit and recreation, and marketing to all segments of the community)
- Improving quality of life through bicycling (providing a last-mile connection to complement transit, and provide an active transportation option)

TECHNOLOGY EVALUATION, EXISTING CONDITIONS AND PUBLIC INPUT

The study evaluated several bikeshare technology options ([Chapter 2](#)), analyzed existing conditions ([Chapter 3](#)), and collected public input ([Chapter 4](#)).

The evaluation of bikeshare technologies identified opportunities and challenges with each technology. For example, a publically-owned docked bikeshare system such as Capital Bikeshare requires a larger public investment than a dockless system operated by private, for-profit companies. However, a publically-owned system allows the partner agencies more control over the system than a privately operated system. A docked system is also typically more organized (since bikes must be returned to specific locations), but a dockless system allows users more flexibility and reduces barriers to growth and change within the system. Based on observations of programs within the Washington, DC region and around the country, it is likely that a shared mobility system could include both docked bikeshare and dockless bikes and scooters.

Existing conditions evaluated in this study include topography, demographic and employment factors, current levels of bicycle commuting, multimodal transportation services and infrastructure (such as transit and bicycle routes), and potential destinations (such as schools, retail, community destinations, and tourism destinations). Limited bicycle and transit connectivity is currently a key challenge. However, there are opportunities in the region as well: demographic characteristics indicate a potential market for bikeshare users, and the presence of several regional trails and activity hubs with higher employment and destination densities may benefit from and support demand for bikeshare.

Public input was gathered through a series of in-person outreach events and through an online survey and crowdsourcing map. Overall, the outreach showed community interest in bikeshare. There was some variation in technology preferences within the study – participants at the Mason outreach event showed somewhat more interest in dockless bikeshare and e-scooters compared to other events, while residents in other communities tended to prefer docked bikeshare.

RECOMMENDATIONS

Based on public input and analysis of existing conditions and technology options, the study recommends that project partners implement both Capital Bikeshare and dockless mobility in the study area. This approach is similar to that taken in other parts of the region. The technologies may be implemented in phases or in parallel,

² HB 2752 of the 2019 Virginia General Assembly Session. <http://lis.virginia.gov/cgi-bin/legp604.exe?191+ful+CHAP0780>

depending on funding availability, capacity to develop and implement local policies and manage operations, and local priorities. Recommendations for system planning and management are detailed in [Chapter 5](#).

[Chapter 6](#) provides a financial analysis to determine the program’s likely funding needs. Capital funding for a 30-station Capital Bikeshare system would be approximately \$1.8 million. Funding for capital equipment typically comes from public grants and private funding. Approximately \$830,000 would be required to cover the first three years of operations across the participating jurisdictions, depending on how quickly new stations were added to the system and assuming approximately 50% of operational revenues could be covered by user fees. Funding for operating costs typically comes from a combination of user revenues and other sources, such as sponsorship of the system’s assets. In addition to user revenues, other sources of funding such as advertising and other mechanisms should be explored further.

Compared to a docked system such as Capital Bikeshare, dockless mobility does not typically require as much public funding to cover capital and operating costs, as private operators primarily bear these costs. However, it is estimated that a dockless program would require \$300,000 in capital costs to pay for supportive infrastructure such as bicycle parking, and approximately \$150,000 for administrative and program costs over the first three years of operations. Depending on the fee structure and program use, these operating costs could be partially offset by a per-trip fee, a per-bike fee, or other permit fees. Based on assumptions about fleet sizes and demand, typical permit fees could cover approximately 35-45% of the operational costs (based a low estimate) or could generate a small amount of income for the program (based on a higher estimate of ridership and assuming a per-trip fee).

Using the factors analyzed in the existing conditions, a list of criteria were developed to identify and prioritize potential locations for bikeshare stations. These criteria were used to identify an initial set of locations for bikeshare implementation. The criteria and initial locations are shown in the table and map below and discussed in more detail in [Chapter 5](#).

It may also be useful to consider these criteria and locations when planning for a dockless mobility program. While the dockless mobility options provide more flexibility and do not necessarily require fixed infrastructure, there may be benefits to prioritizing some parking or other supportive infrastructure to develop these locations as “mobility hubs”, either for a dockless system on its own or in a hybrid system that includes both docked and dockless options.

Finally, [Chapter 7](#) summarizes the recommendations and system needs and identifies a number of questions that may need further consideration when the recommendations are implemented.

Prioritization Criterion	Metric
Transit Proximity	Metrorail station within 2 miles
Destinations	Density of destinations near station location
Bicycle Network	Density of bicycle facilities near station location
Capital Bikeshare Network	Capital Bikeshare station within 0.5 miles (recalculate as station expands)
Development Opportunity	Station adjacent to new development
University	Station within or near a university campus area
Local Priority	Station preferred by community feedback or available funding

Capital Bikeshare Implementation Recommendations: Study Area

VIENNA-FAIRFAX CITY-MASON-BURKE BIKESHARE

