FXBGO!

Fredericksburg Regional Transit

Transit Strategic Plan

Fiscal Year 2025 – 2034

Final: June 2024

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Fredericksburg Regional Transit

Table of Contents

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Fredericksburg Regional Transit

Transit Strategic Plan

Chapter 1: Overview of Services and Strategic Vision

FINAL: June 2024

FXBGO!
Fredericksburg Regional Transit

Table of Contents

1 System Overview and Strategic Vision

1.1 System Overview

Chapter 1 of the Transit Strategic Plan (TSP) provides an overview of the Fredericksburg Regional Transit (FXBGO!) system, a description of the service area, current/recent agency initiatives, as well as the strategic vision of the agency. This strategic vision is used as a framework for service recommendations throughout the FXBGO! TSP development process.

1.1.1 SERVICES PROVIDED AND AREAS SERVED

FXBGO! serves a 78-square-mile area within the greater Fredericksburg region, operating within the City of Fredericksburg, Stafford County and Spotsylvania County (**Figure 1-1**). Service hours vary by route but is primarily provided Monday through Friday, with the earliest routes beginning at 6:30 a.m. and the latest routes ending at 8:30 p.m., with most routes operating every 60 minutes. Late night and weekend service is provided from 7:00 p.m. to 12:30 a.m. on Friday, 8:00 a.m. to 10:30 p.m. on Saturday, and 9:00 a.m. to 6:30 p.m. on Sunday via the “Eagle Express” (EX) which operates during the University of Mary Washington’s fall and spring academic semesters.

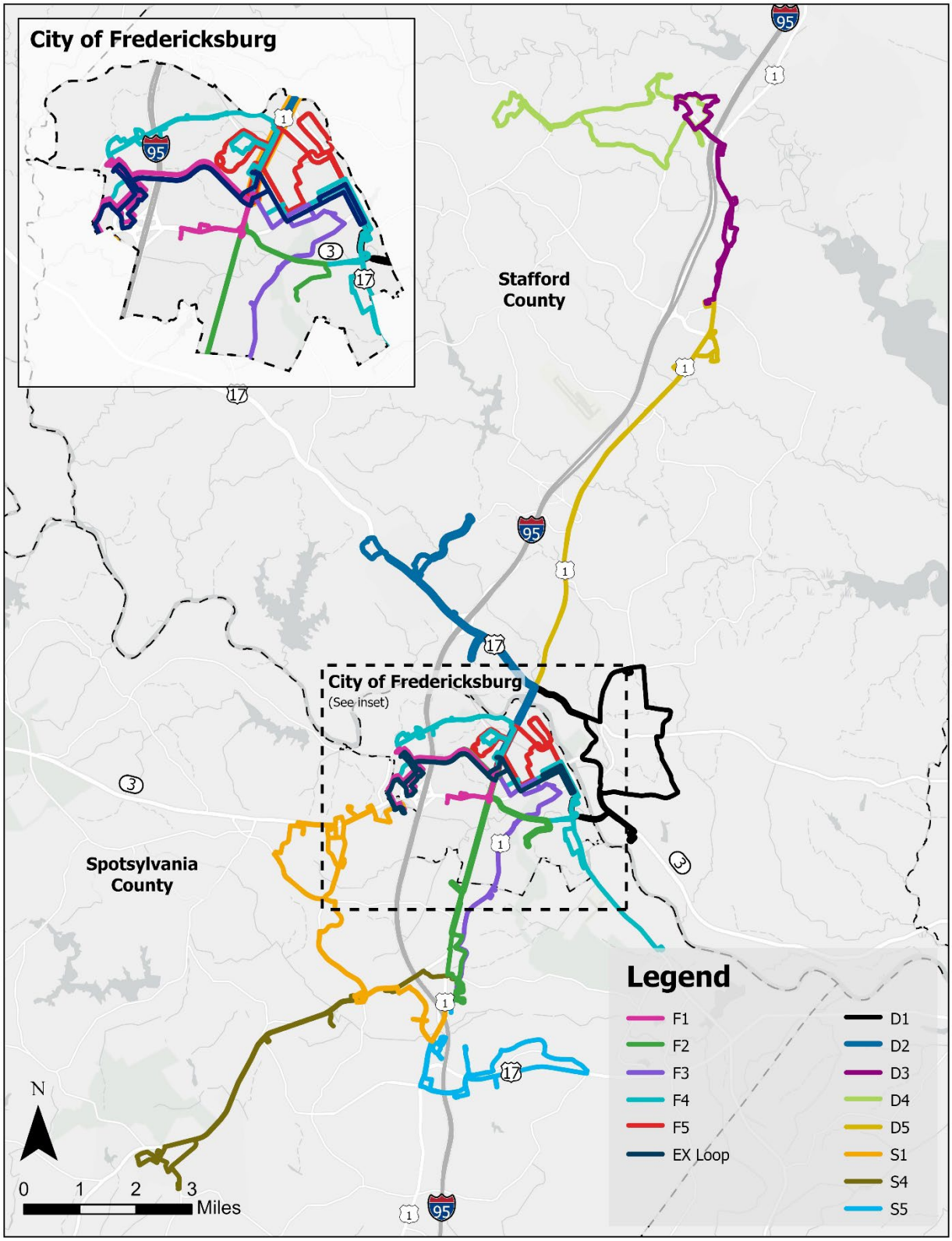
Table 1-1 provides an overview of FXBGO!’s current transit service. Performance assessments of each route and an in-depth service analysis are included in Chapter 2: System Performance and Operations Analysis.

TABLE 1-1: FXBGO! DEVIATED FIXED ROUTE SERVICE

Route No.	Area Served	Major Origin-Destination	Service Hours
D1	South Stafford County	Fredericksburg VRE/Amtrak Station – Olde Forge	Monday-Friday: 8:00 a.m.–7:00 p.m.
D2	South Stafford County	Central[4] – GEICO	Monday-Friday: 7:00 a.m.–8:00 p.m.
D3[1]	North Stafford County	Stafford County Courthouse – Stafford Marketplace – Doc Stone	Monday-Friday: 7:00 a.m.–8:00 p.m.
D4	North Stafford County	Stafford Market Place – Doc Stone – Vista Woods	Monday-Friday: 8:50 a.m.–4:20 p.m.
D5[1]	South Stafford County	Central[4] – Stafford County Courthouse	Monday-Friday: 7:00 a.m.–8:00 p.m.
F1	Fredericksburg	Central[4] – Central Park – Spotsylvania Towne Centre	Monday-Friday: 8:30 a.m.–7:30 p.m.
F2	Fredericksburg	Central[4] – Townsend – Four Mile Fork – Lee's Hill Center	Monday-Friday: 6:30 a.m.–8:30 p.m.
F3	Fredericksburg	Central[4] – Lafayette Blvd – Lee's Hill Center	Monday-Friday: 6:30 a.m.–8:30 p.m.
F4A[2]	Fredericksburg	Central[4] – Fredericksburg Train Station - River Club Shopping Center	Monday-Friday: 6:30 a.m.–8:30 p.m.
F4B[2]	Fredericksburg	Mary Washington Hospital – Central – Forest Hill Apartments	Monday-Friday: 8:30 a.m.–4:30 p.m.
F5	Fredericksburg	Fredericksburg Downtown Loop	Monday-Friday: 7:30 a.m.–8:30 p.m.
S1A	Spotsylvania County	Lee's Hill Center – Salem Run Apartments	Monday-Friday: 8:00 p.m.–8:00 p.m.
S1B	Spotsylvania County	Hilltop Plaza – Spotsylvania Towne Centre	Monday-Friday: 9:00 a.m.–5:00 p.m.
S4	Spotsylvania County	Lee's Hill Center – Spotsylvania County Courthouse	Monday-Friday: 8:00 a.m.–8:00 p.m.
S5	Spotsylvania County	Lee's Hill Center – Germanna Community College	Monday-Friday: 8:30 p.m.–7:30 p.m.
EX	Eagle Express	University of Mary Washington – Eagle Village – Central Park – Spotsylvania Towne Centre	Friday: 7:00 p.m.–12:30 a.m. Saturday: 8:00 a.m.–10:30 p.m. Sunday: 9:00 a.m.–6:30 p.m.

1. Note: Routes and service hours listed are current as of May 2024
2. Routes D4 and D5 are combined and operating on a temporary, modified, two-hour headway
3. Route F4 operates in two (2) separate operational patterns, each with one-hour headways: F4A and F4B. The two (2) patterns then combine into one (1) route at 4:30 p.m.
4. Route S1 operates in two (2) separate operational patterns, each with one-hour headways: S1A and S1B.
5. Lawrence A. Davis Transit Center, also known as FRED Central, will be renamed "Central" to be consistent with the new agency naming convention established in the FXBGO! Marketing and Rebranding Plan
6. VRE Shuttle Service routes is suspended as of May 2024

FIGURE 1-1: FXBGO! SYSTEM MAP



Description of Service Types

All FXBGO! routes provide deviated fixed-route service which allows buses to travel off regular routes to serve destinations requested in advance by passengers. FXBGO! buses can serve destinations up to 0.75 miles off the route. The deviated fixed-route service is open to all customers; those interested in utilizing this service must complete a deviated stop request a minimum of 24 hours in advance before the service is needed[1].

FXBGO! also provides transit service to and from the downtown Fredericksburg VRE/Amtrak station to connect to VRE commuter rail service. VRE runs eight (8) northbound trains from Fredericksburg to Washington Union Station in the morning peak period and seven (7) southbound trains from Washington Union Station to Fredericksburg in the evening peak period. One (1) additional southbound train operates in the midday.

1.1.2 CURRENT/RECENT INITIATIVES

FXBGO! has participated in several initiatives aimed at improving transit service and the overall customer experience including recent branding and marketing efforts, technology improvements, and fare-free service.

Branding

Fredericksburg Regional Transit underwent a rebranding effort which changed the agency's abbreviated name from "FRED" or "FRED Transit" to "Fredericksburg GO!" or "FXBGO!" (incorporating the "FXBG" abbreviation often used by the City of Fredericksburg) and introduced consistent messaging, color palettes, communication material templates, and logos. The rebranding effort aims to build familiarity between the agency and the public, clearly communicating FXBGO!'s personality, voice, values, and vision to residents, visitors, and businesses. The new brand values are summarized in **Figure 1-2**.

The new branding (as seen depicted on a bus wrap in the photograph to the right) fully launched in April 2023 and appears across the system, including on buses, transit operator uniforms, bus stop signage, schedules, and maps.

[1] For new route deviation requests that have not been previously requested, FXBGO! requests that passengers submit the request (online or via customer service phone number) one-week in advance to determine if the requested pickup or drop-off site is approved.

FIGURE 1-2: FXBGO! BRAND ESSENCE AND VALUES

Mission
To provide an accessible, dependable, and safe transportation service for residents and visitors of the greater Fredericksburg region.

Vision
To be the region's most trusted public transportation solution for all residents and guests.

Purpose
To help our communities thrive by connecting residents and visitors to the places they need to go.

Personality
Our brand personality is courteous, inclusive, and responsible. We take pride in providing a welcoming environment and reliable service. An ordinary person doing extraordinary things.

Voice
Genuine with a sense of belonging or being part of a group, of friendship, and care.

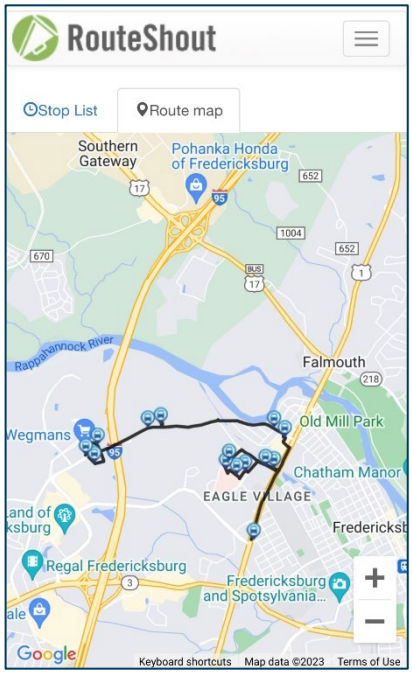
Audience
Residents, visitors, and businesses of the City of Fredericksburg, Spotsylvania, and Stafford Counties.

Source: Fredericksburg Regional Transit, Brand Guidelines, Summer 2022

Technology

Intelligent Transportation System (ITS) applications in public transportation encompass a broad range of communication-based information technologies that serve to improve safety, efficiency, scheduling, and service through the use of real-time information. FXBGO! implemented vehicle location software with RouteMatch to increase the quantity and quality of data recorded/available to assist staff in tracking system performance.

RouteMatch includes the installation of location-tracking technology on each vehicle, which enables stop-level data for boardings, trips, odometer, farebox, etc. to be logged and reported. In addition to improvements in performance-tracking capabilities, FXBGO! also launched RouteShout, which allows customers to track buses in real-time through a smartphone application. The new tool improves the customer experience by allowing riders to plan trips more easily, reducing wait time at bus stops, and notifying customers of any schedule or route changes. FXBGO! route information is also available on Google Maps and Apple Maps.



Fare-Free Service

FXBGO! partnered with the Virginia Department of Rail and Public Transportation (DRPT) to deploy systemwide zero-fare (also known as "fare-free") operations for all FXBGO! routes. Fare-fare service was made possible through funding received through DRPT's Transit Ridership Incentive Program (TRIP). The 2020 Virginia General Assembly established the TRIP in Virginia Code § 33.2-1526.3 with two (2) distinct goals:

1. Improve regional connectivity of urban areas with a population in excess of 100,000.
2. Reduce barriers to transit use for low-income riders.

FXBGO! was approved for fare-free service by DRPT, along with five (5) other transit agencies. Fare-free service began on February 28, 2022, with service remaining free for a period of four years. Throughout the grant's duration, FXBGO! will evaluate the policy decision and develop recommendations for how to proceed after four (4) years.

Service Partnerships

Prior to the systemwide fare-free (or zero-fare) service funded through DRPT, FXBGO! also had partnerships with multiple private and public organizations to provide fare-free service to employees, faculty, staff, and students of these organizations with a valid ID. The partner organizations included:

- Mary Washington Healthcare
- University of Mary Washington
- Germanna Community College

1.2 Strategic Vision

The development and documentation of consistent goals, objectives, and service design standards helps establish a baseline for future service recommendations. This baseline will assist the transit agency in developing service improvement priorities, identify how best to measure system performance, and create an understanding of tradeoffs associated with different service priorities. FXBGO!'s proposed goals and objectives were developed through a process that included a review of goals from recently completed transit plans and studies from agencies and jurisdictions within the study area, FXBGO!'s previous Transit Development Plan (TDP), and input from key stakeholders and the broader public.

FXBGO! conducted public outreach and stakeholder interviews during the fall of 2022 to understand transit service priorities and ensure any potential service adjustments would be developed in agreement with community interests and needs as well as agency goals, objectives, and service standards. Multiple rounds of stakeholder outreach were conducted with local and regional jurisdictions, community and advocacy groups, and education and healthcare institutions. Current FXBGO! customers, as well as those who identified themselves as non-riders, were engaged through virtual and in-person open houses, pop-up events, "bus stop chats," and both online and paper surveys. A full summary of public and stakeholder engagement can be found in Chapter 2: System Performance and Operations Analysis.

1.2.1 GOALS AND OBJECTIVES

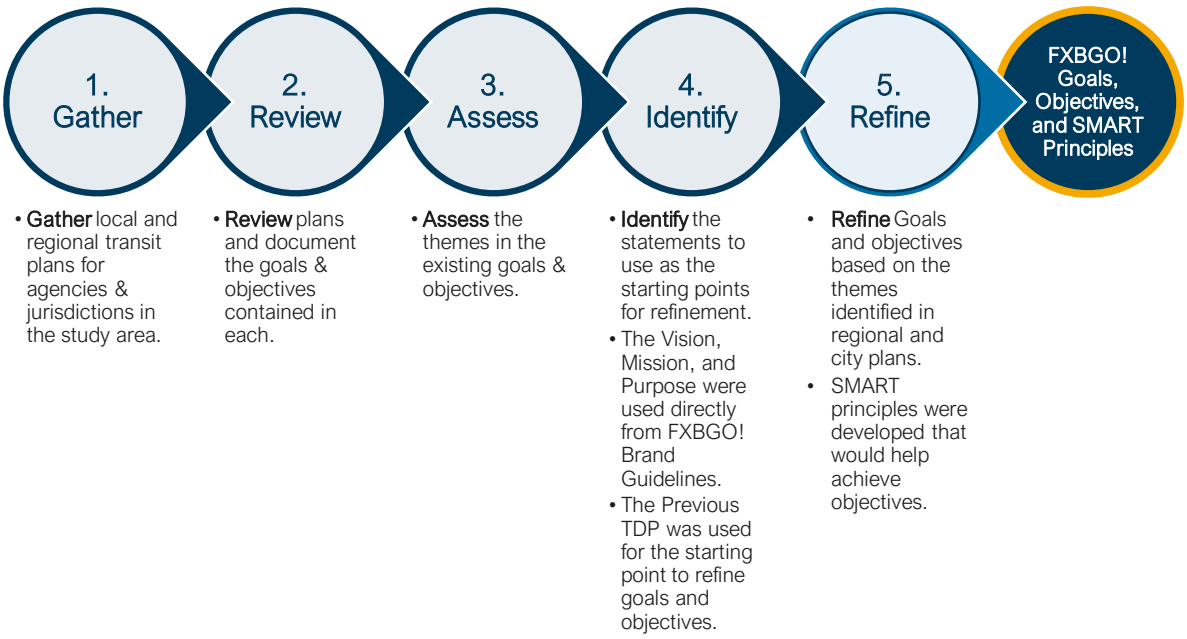
Development Process

As part of FXBGO!'s recent rebranding effort, FXBGO! adopted an updated mission, vision, and purpose:

- **Mission**: To provide an accessible, dependable, and safe transportation service for residents and visitors within the greater Fredericksburg region (the City of Fredericksburg and the counties of Spotsylvania and Stafford).
- **Vision**: To be the region's most trusted transit solution for all residents and guests.
- **Purpose**: To help our community thrive by connecting residents and visitors to the places they need to go.

These guiding principles, as well as goals from previous City of Fredericksburg and regional plans[2] and public input gathered during public engagement efforts, were reviewed, compared, and documented to identify shared priorities across the region that would be relevant to FXBGO!. Based on the resulting common themes, a series of proposed goals and objectives were developed together with Specific, Measurable, Attainable, Realistic, and Time-bound (SMART) principles. The previous TDP was used as the starting point for refining goals and objectives. **Figure 1-3** describes this process for the development of Goals and Objectives.

FIGURE 1-3: GOALS AND OBJECTIVES DEVELOPMENT PROCESS



[2] *Plans consulted for existing policy included the FXBGO! Transit Development Plan (TDP) FY 2018-2027, Fredericksburg Area Metropolitan Planning Organization (FAMPO) 2050 Long-Range Transportation Plan (LRPT), City of Fredericksburg Comprehensive Plan, Fredericksburg Economic Development Strategic Plan, Fredericksburg Pathways: Bicycle and Pedestrian Master Plan, Spotsylvania County Comprehensive Plan, DRPT Statewide Transit Equity and Modernization Study, Stafford County Comprehensive Plan, and FXBGO!'s Public Transit Advisory Board's (PTAB) "Mission, Goals, and Objectives for Transit Year 2023".*

Common Themes From Existing Plans

Based on the review of City of Fredericksburg, regional, and statewide plans, the common themes identified that were relevant to transit and could be used to refine the goals and objectives include:

- **Encouraging alternative modes of travel (transit, rail, and trails)** – Multiple city and regional plans, such as the Fredericksburg Area Metropolitan Planning Organization Long-Range Transportation Plan and the City of Fredericksburg Pathways Plan, call for providing viable non-automobile options for those who need or choose to travel without a personal automobile.
    - *Example*: The City of Fredericksburg Comprehensive Plan has a goal area entitled "Alternative Modes of Travel" which describes expanding the FXBGO! system, developing a coordinated system of trails, and enhancing the downtown rail station.
- **Improving transportation safety and implementing complete streets infrastructure –** Safety was emphasized in all plans, specifically referencing concerns with providing safe access to bus stops. Street designs that emphasizes safe accommodations for all modes of travel was also referenced in multiple plans.
    - *Example:* The Fredericksburg Pathways Plan (Bicycle and Pedestrian Master Plan)[3] calls for safe pedestrian crossings at bus stops and ensuring bus stops have shelters and benches.
    - *Example:* The City of Fredericksburg Comprehensive Plan transportation policy states "Design complete streets for new development and existing roadways, to integrate automobiles, buses, bicycles, and pedestrians within the same right-of-way." [4]
- **Strengthening communities** – Building a stronger community by attracting jobs, encouraging growth in targeted areas, and supporting traditionally underrepresented groups.
    - *Example:* The FAMPO 2050 LRTP goal to "Provide multimodal transportation options that enhance the quality of life and improve mobility for vulnerable groups such as minority, low-income, seniors, and limited mobility groups."[5]

Goals

The following summarizes the proposed goal statements. The sections below describe the process of developing each goal statement and elaborate on the meaning of each goal.

1. Provide equitable transit service that increases access to goods and services, recreation, education, and employment opportunities
2. Leverage available funding to maximize service access, efficiency, and affordability
3. Ensure a reliable, high-quality customer experience
4. Strengthen community partnerships through transit
5. Prioritize safety and security of riders, personnel, and facilities

[3] *City of Fredericksburg. (2018). City of Fredericksburg Pathways Plan. Page 10-11*
[4] *City of Fredericksburg. (2015). City of Fredericksburg Comprehensive Plan. Page 3-16*
[5] *Fredericksburg Area Metropolitan Regional Planning Organization (2022). Long Range Transportation Plan (LRTP). Chapter 2, Page 4.*

Goal 1: Provide equitable transit service that increases access to goods and services, recreation, education, and employment opportunities.

This goal statement is a refinement of TDP Goal A: "Provide a widely accessible public transit service to the region". The expanded wording emphasizes that access should be equitable across demographic groups, and the importance of focusing on more destinations than just jobs. Goal 1 is one of the ways FXBGO! aims to strengthen communities by providing transit service to various types of destinations throughout the day and week, and ensuring access to service for those who need service the most. **Table 1-2** provides objectives and associated principles associated with Goal 1.

TABLE 1-2: LIST OF OBJECTIVES AND SMART PRINCIPLES FOR GOAL 1

Objective	SMART Principle
Assess level of transit service access for persons of color, low-income households, households with no access to a personal vehicle, limited English proficiency, and persons with disabilities within the FXBGO! service area to better ensure an equitable distribution of transit service.	• Annually track and document TSP elements that have been implemented. • Annually analyze and compare implemented TSP elements and the level of accessibility, level of service, and service span they provide to transit dependent populations.
Document current and planned social service locations, medical service providers, employment areas, and activity centers within the FXBGO! service area to better ensure access to key destinations is available via transit.	• Meet with partner jurisdiction planning and/or economic development departments annually regarding planned and proposed projects and developments. • Develop a map of key destinations relative to their distance from current FXBGO! transit service and update annually. • Prepare and annually update targets for service levels to the key destinations, including daily hours of operation, frequency, and days of the week the service is operational.
Ensure that transit operators are properly trained to meet ADA requirements while transporting persons with disabilities, including wheelchair securement training.	• Hold annual refresher safety and sensitivity training sessions for all FXBGO! operations staff.

Goal 2: Leverage available funding to maximize service access, efficiency, and affordability.

This goal is a refinement to TDP Goal B: "Provide an affordable public transit service to the region through funding by grants and contributions from local, state, and federal funding entities and public/private partnerships". The proposed goal shifts the focus to be more user-centric but maintains the importance of leveraging funding sources from different entities. The specific language related to funding partners as well as TDP Goal F, "Comply with city, state and federal policies, and regulations", has been captured in the objectives. This TSP plan will identify the potential geographic and level of service areas for which improvement is necessary, but this will only be achieved with appropriate levels of funding.

TABLE 1-3: LIST OF OBJECTIVES AND SMART PRINCIPLES FOR GOAL 2

Objective	SMART Principle
Continue to maximize all funding opportunities to support the jurisdictions' ability to deliver affordable, quality transit service throughout the Fredericksburg region.	• Market bus advertising program to businesses and organizations throughout the region to meet an annual revenue goal of $5,000. • Apply for, and obtain, formula and competitive grant funding for annual service expansions and improvements.
Actively seek new public and private partners through the PTAB Partnership/Marketing Committee and jurisdictional planners.	• Collaborate with PTAB's Partnership/Marketing Committee and jurisdictional planners to increase total Partnership/Marketing funding for FXBGO! by $5,000 in cash or in kind by meeting with a minimum of one business or organization.
Evaluate transit routes and stops with no, low, or infrequent ridership that reduce service efficiency.	• Establish service performance benchmarks that set minimum thresholds for ridership, productivity, and efficiency. • On a monthly basis, collect and document ITS data related to service performance metrics such as on-time performance, ridership, efficiency, and productivity. • Eliminate inefficient and/or duplicative services as part of annual service monitoring and service adjustment process, while maintaining compliance with FTA and Title VI requirements.
Comply with City, State, and Federal Policies and Regulations.	• Annually monitor and document compliance with Public Transportation Agency Safety Plan (PTASP), Transit Asset Management (TAM), Disadvantaged Business Enterprise (DBE) policies, FTA Triennial Review compliance activities, and City audits.

Goal 3: Ensure a reliable, high-quality customer experience.

This goal builds upon TDP Goal C: "Provide dependable transit service within the region", with an additional focus on the customer experience. At FXBGO!, much of the qualitative feedback the team received during initial phase of project outreach related to people's experience riding the bus and their level of physical comfort. Statewide, one of the DRPT Transit Equity and Modernization Study's[6] primary recommendations was improved processes focused on riders' needs. This goal is intended to make sure FXBGO! customers are listened to regarding their experience, have a reliable experience while riding the bus, and are informed about service and potential changes.

TABLE 1-4: LIST OF OBJECTIVES AND SMART PRINCIPLES FOR GOAL 3

Objective	SMART Principle
Collect and document customer satisfaction data to ensure FXBGO! service meets the needs of transit riders in areas such as trip times, convenience, safety, conditions of facilities, and cost.	• Regularly categorize and document the type and number of customer complaints, as well as other customer survey feedback, to track service quality and the effectiveness of related FXBGO! improvements over time.
Collect ITS data including on-time performance, ridership, route efficiency, and possible schedule adjustments to maintain on-time performance of FXBGO! service within the Fredericksburg region.	• Begin to procure and install automatic passenger counters (APCs) on FXBGO! buses by FY 2025. • Complete plan for service adjustments identified in the planned service analysis to better ensure routes meet the on-time performance metric established through this TSP process.
Use print, social, and digital media solutions to increase information to the public about FXBGO!.	• Implement components of the Marketing and Rebranding Plan by June 2024.

[6] *Virginia DRPT. (2022). Virginia Transit Equity and Modernization Study.Pages 35-43*

Goal 4*:* Strengthen community partnerships through transit.

This goal is a new goal statement that was built around the common theme in City and regional plans of strengthening communities. Transit can strengthen communities by providing links to key destinations, developing partnerships with community organizations to provide service or teach people how to use service, and by more intentionally linking public transportation to economic development opportunities.

TABLE 1-5: LIST OF OBJECTIVES AND SMART PRINCIPLES FOR GOAL 4

Objective	SMART Principle
Identify opportunities for FXBGO! to contribute to, and/or participate in, community events with staff, vehicles, and/or resources.	• Meet with partner organizations, jurisdictions, and planning and/or economic development departments annually regarding planned and proposed projects, developments, and events.
Educate employees of partners on how to use the FXBGO! system.	• Conduct at least six (6) outreach sessions each year for local businesses, civic groups, schools, and other constituencies to inform them on how to use FXBGO! for their benefit and the benefit of their employees, customers, and clients. • Conduct at least ten (10) educational outreach sessions each year with partners, residents, and business leaders on the benefits and values of FXBGO!, which include “Ride FXBGO!” seminars and online videos to educate the public and partners on how to use the system.

Goal 5: Prioritize safety and security of riders, personnel, and facilities.

This goal is very similar to TDP Goal E: "Promote safety and security in maintaining and operating the FXBGO! system to include personnel, ridership and facilities within the Fredericksburg region." The intention is to shorten the language, rather than change the meaning. Safety should be the primary concern for everything that FXBGO! does. This goal also incorporates some of the themes from the regional and City plans to improve safety for customers accessing the bus stops and system.

TABLE 1-6: LIST OF OBJECTIVES AND SMART PRINCIPLES FOR GOAL 5

Objective	SMART Principle
Continue safety and security training for FXBGO! employees.	• Hold annual refresher safety and sensitivity training sessions for all FXBGO! operations staff. • Each year, analyze employee training program to determine whether changes or updates are necessary. • Maintain reportable events to one (1) per 100,000 vehicle revenue miles.
Finalize and implement a transit amenities plan, which includes the installation of shelters, benches, and trash receptacles at appropriate locations in the region and related cleaning and maintenance of those facilities.	• Install 25 FXBGO! shelters and/or benches related to TSP and SMART SCALE grant funding at appropriate locations throughout the service area by June 2026.
Monitor and review reports related to suspicious activity, incident reports, and general safety concerns related to facilities (lighting, visibility at bus stops, and facility conditions).	• Maintain adherence to FXBGO! Safety Performance Targets as identified in the Public Transit Agency Safety Plan (PTASP)

1.2.2 SERVICE DESIGN PRINCIPLES AND STANDARDS

The following section describes guidelines that FXBGO! strives for in service design and planning. Some service elements are considered principles and are more general qualitative approaches to providing service that meet the goals and objectives described above. Other service elements focus on existing standards from established documents, such as the Title VI plan, and are more quantitative and measurable.

TABLE 1-7: SERVICE DESIGN PRINCIPLES AND STANDARDS

Service Element	Guidance Type	Guidelines
Route Planning	Principles	FXBGO! strives for the following route principles in designing new and improving existing deviated fixed-route service: • Service Legibility: Making routes easy to understand and navigate. • Route Linearity: Maximizing the distances routes travel in a straight and direct path. • Create Bi-Directional Service: Maximizing the opportunity for passengers to be dropped off where they are picked up. • Maximize Transfer Opportunities: Streamlining connections, especially at Central between routes. • Avoid Duplicative Service: Distributing service efficiently with overlap only where needed.
Scheduling	Principle	• Primary hours of service are 7:00 a.m. to 8:30 p.m. Monday through Friday, although select routes start and end outside these hours. The Eagle Express (EX) operates late-night and weekend service when the University of Mary Washington is in session.
	Standard (Title VI Plan)	• Vehicle headways should not exceed one (1) hour on FXBGO!'s regular route operations.
	Standard (Title VI Plan)	• Schedules and headways for VRE feeder service are coordinated with the arrival and departure times of the VRE commuter trains.

Service Element	Guidance Type	Guidelines
On-time Performance	Standard (Title VI Plan)	• A bus is considered on time if it departs a scheduled time point no more than one (1) minute early and no more than five (5) minutes late. • FXBGO! Transit's on-time performance objective is 90% or greater. • As FXBGO! operates a deviated fixed-route system, some routes may be subject to wide variations in on-time performance when a large number of deviations are scheduled.
Vehicle Assignment	Principle (Title VI Plan)	• FXBGO!'s assignment of vehicles to routes will consider ridership and accessibility of streets and roadways (e.g., width, tightness of turns, and rotation of buses) among high and low-density routes to enhance vehicle performance.
	Standard (Title VI Plan)	• All buses on all routes are similarly equipped with wheelchair lifts, stop signaling pulls or bars, PA systems, air conditioning and heating, two-way radios, GPS systems, and video cameras.
Vehicle Load	Standard (Title VI Plan)	• Buses will be assigned to regular routes in a manner that avoids the need for any passenger to stand (vehicle load, which is the ratio of passengers to seats, is no greater than one (1.0)). • For FXBGO!'s VRE feeder service, the vehicle loads should not exceed 1.2.
Service Availability	Standard (Title VI Plan)	• Distribute transit service so that 75% of all residents in the service area are within a 0.25-mile walk of regular route bus service. • This measure is affected by the fact that FXBGO! operates many miles over roads in lightly populated areas; it is also affected by local partner jurisdictions' funding of transit, which determines the extent of FXBGO! operations.
Safety and Security	Principles	• FXBGO! maintains a Public Transit Agency Safety Plan (PTASP), which states the policy to "provide its customers with safe and secure transit at all times". The plan dictates many more detailed safety policies and practices.

1.2.3 PERFORMANCE STANDARDS

Performance standards are metrics developed to create a consistent evaluation for transit service and provide insight into how services should be modified and implemented. The following statistics are currently monitored by FXBGO! for all services. These standards are also required for reporting to DRPT as part of the annual funding process.

TABLE 1-8: FXBGO! CURRENT PERFORMANCE STANDARDS

Category	Metrics	Performance Standard
Productivity	• Passengers per revenue hour • Passengers per revenue mile	• 4.67 • 0.30
Cost Efficiency	• Cost per trip • Farebox recovery	• $19.65 • 6.6%
Reliability	• On-time performance	• 90% or better (between one (1) minute early and five (5) minutes late)
System Accessibility	• Percent of residents in area served	• 75% of residents are within a 0.25 mile walk of bus service

1. Process for productivity metrics is described below
2. Source for reliability and system accessibility metrics is the Title VI plan

As part of the TSP process, a new methodology was developed to update the productivity metrics and targets FXBGO! uses to assess if changes are necessary or recommended for the routes. This process is described below. In Chapter 2, each of the routes is identified for how they have performed compared to the performance standard.

Development of Productivity Standards

Updated productivity performance standards were identified as part of the TSP process based on how FXBGO! compares to a group of peer agencies. The peers included in the analysis were County Commissioners of Charles County, Central Shenandoah Planning District Commission, Pueblo Transit, Billings Metropolitan Transit System, and Clarkesville Transit. More information about how and why the peers were selected is included in Chapter 2. Performance measure targets for productivity and cost per trip measures were developed by 75 percent (75%) of the peer average.

Safety Standards

FXBGO! has outlined a set of safety performance targets in their Public Transit Agency Safety Plan (PTASP) in accordance with Federal Transit Administration regulations. FXBGO! collaborates with the PTAB every six (6) months and conducts an evaluation of how well the agency has adhered to safety performance metrics in compliance with the requirements of the National Public Transportation Safety Plan. In the agency's most recent PTASP the following measurable safety performance targets were established as a benchmark for the overall safety performance of the agency.

The safety performance targets listed in **Table 1-9** serve as benchmarks to evaluate the overall safety performance of the agency.

TABLE 1-99: FXBGO! SAFETY PERFORMANCE TARGETS

Safety Performance Metric	Target
Fatalities (total number of reportable fatalities per year)	Zero (0)
Fatalities (rate per total vehicle revenue miles by mode)	Zero (0)
Injuries (total number of reportable injuries per year)	Fewer than five (5)
Injuries (rate per total vehicle revenue miles by mode)	Fewer than 0.5 injuries per 100,000 vehicle revenue miles
Safety events (total number of safety events per year)	Fewer than eight (8)
Safety events (rate per total vehicle revenue miles by mode)	Fewer than one (1) reportable event per 100,000 vehicle revenue miles
Distance between Major Failures	10,000 miles
Distance between Minor Failures	3,200 miles

Source: FXBGO! PTASP, May 2022.

FXBGO!

Fredericksburg Regional Transit

Transit Strategic Plan

Chapter 2: System Performance and Operations Analysis

FINAL: June 2024

FXBGO!
Fredericksburg Regional Transit

Table of Contents

2 System Performance and Operations Analysis

The system performance and operations analysis portion of the Transit Strategic Plan (TSP) provides both quantitative and qualitative evaluation of the existing Fredericksburg Regional Transit (FXBGO!) service and operating environment. Chapter 2 will highlight the following topics related to system performance and operations:

- **System and Service Data** – Introduction to the service area with summary-level statistics, service design standards, survey results, and a summary of stakeholder input.
- **Evaluation of Transit Market Demand and Underserved Areas** – In-depth analysis of various factors that influence the demand for transit, such as land use, jobs, population, and the sociodemographic variables associated with ridership. Transit supply and demand is then analyzed to identify areas with potential transit riders.
- **Performance Evaluation** – Analysis of ridership and performance metrics at the system level, route level, and stop level. An evaluation of peers, route deviations, accessibility, and safety is also included.
- **Operating and Network Efficiency Evaluation** – Evaluation of the service network using efficiency metrics that assess frequency, span, speed, and reliability of the transit system.
- **Analysis of Opportunities to Collaborate with Other Transit Providers** – Identification of opportunities for FXBGO! to improve connections with nearby transit providers.

Section 2.1 focuses on system and service data. Each subsequent section of Chapter 2 concludes by identifying opportunities for improvement. The service changes that address the opportunities for improvement will be provided in Chapter 3: Planned Improvements and Modifications.

2.1 System and Service Data

The system and service data section provides high-level service statistics, results from the fall 2022 public survey (conducted as part of the TSP effort), and takeaways from discussions with key stakeholders.

2.1.1 EXISTING SYSTEM SERVICE STATISTICS

Fiscal Year 2021 (FY 2021) system-level service statistics from the National Transit Database (NTD) are shown in **Table 2-1**. FXBGO!'s fiscal year begins in July and ends in June. From July 2020 through June 2021, FXBGO! operated 40,706 revenue hours and 598,250 revenue miles, which cost $5,296,892 in operating expenses. FXBGO! had 179,874 passenger trips during this time. The service area is 89.6 square miles, which had a population of 167,670 according to the 2020 Census.

TABLE 2-1: EXISTING SERVICE SUMMARY FY 2021 (JULY 2020 – JUNE 2021)

Operational Measure	FXBGO!
Service Area Population	167,670
Service Area Population Density in Square Miles (Acres)	1,871 (0.731 acres)
Service Area in Square Miles (Acres)	89.6 (154,880)
Operating Expenses	$5,296,892
Vehicles Operated in Maximum Service	20
Revenue Hours	40,706
Revenue Miles	598,250
Passenger Trips	179,874

Source: 2022 National Transit Database (NTD) and 2020 Census.
1. Service Area is defined as area within 0.75 mile from route alignments.

FXBGO! operates seven (7) days a week. Service levels for each day of the week are shown below in **Table 2-2**. These service levels are accurate as of fall 2022, the time period of analysis but differ from the current route patterns and service levels at time of publication (June 2024). At the time of analysis, FXBGO! had a total of 12 active routes, 11 of which operated Monday through Friday, and one (1) route (EX – Eagle Express) that operated Friday through Sunday. FXBGO! also operates VRE Feeder routes which were, and continue to be, temporarily suspended due to the COVID-19 pandemic. The VRE Feeder routes will begin service once the demand for commuter service has returned. The most frequent route in the network is the Route EX – Eagle Express, which operated 30-minute headways. At the time of analysis, two routes (Routes D3-D5 and S4-S5) operated 120-minute headways in response to the COVID-19 pandemic. The remaining nine routes (D1, D2, D4, F1, F2, F3, F4, F5, S1) operate 60-minute headways.

TABLE 2-2: LEVEL OF SERVICE BY DAY OF WEEK (FALL 2022)

Day of Week	Total Trips	Number of Routes in Operation	Headways
Monday – Thursday	304	11	Nine (9) routes operate every 60 minutes Two (2) routes operates every 120 minutes
Friday	314	12	Nine (9) routes operate every 60 minutes Two (2) routes operate every 120 minutes One (1) route (EX - Eagle Express) operates every 30 minutes
Saturday	28	1	One (1) route (EX - Eagle Express) operates every 30 minutes during the University of Mary Washington Academic Calendar only
Sunday	18	1	One (1) route (EX - Eagle Express) operates every 30 minutes during the University of Mary Washington Academic Calendar only

2.1.2 EXISTING SERVICE DESIGN STANDARDS

FXBGO! does not currently have officially adopted guidelines for service design standards in implementing new or modified services. In practice, routes and schedules generally adhere to certain route and schedule standards shown in **Table 2-3.**

Route Design Standards

Routes are distinguished by jurisdiction (Stafford County, City of Fredericksburg, or Spotsylvania County) and classified by where the majority of the route operates. Stafford County routes have a prefix of "D", City of Fredericksburg routes have a prefix of "F", and Spotsylvania County routes have a prefix of "S" to help distinguish where each route operates. VRE Feeder routes, which are suspended due to the COVID-19 pandemic, begin with a "V" prefix. Aside from this existing categorization, FXBGO! does not have official, adopted route design standards.

Schedule Standards

FXBGO! currently does not have an officially adopted set of schedule standards. FXBGO! service is available between the hours of 6:30 a.m. and 8:30 p.m., but specific route times vary (e.g. Route F1 begins service at 8:30 a.m. and Route D4 ends service at 4:20 p.m.) **Table 2-3** shows the start and end times of each route in service in March 2023.

TABLE 2-3: FXBGO! ROUTE SCHEDULES (MARCH 2023)

Route	Start Time	End Time
D1	8:00 a.m.	7:00 p.m.
D2	7:00 a.m.	8:00 p.m.
D3-D5	7:00 a.m.	8:00 p.m.
D4	8:50 a.m.	4:20 p.m.
F1	8:30 a.m.	7:30 p.m.
F2	6:30 a.m.	8:30 p.m.
F3	6:30 a.m.	8:30 p.m.
F4	6:30 a.m.	8:30 p.m.
F5	7:30 a.m.	8:30 p.m.
S1	7:00 a.m.	8:00 p.m.
S4[1]	8:00 a.m.	8:00 p.m.
S5[1]	8:30 a.m.	7:30 p.m.

Source: FXBGO! service schedules, March 2023

2.1.3 PUBLIC SURVEY RESULTS

As part of the first phase of engagement for the TSP, an online public survey was conducted to guide the TSP process and inform the development of recommendations. The survey had three (3) sections that focused on priorities for transit, mapping of customer origins and destinations, and a series of multiple choice and free-response questions. The survey was made available in English and Spanish and a link to the survey was published on FXBGO!'s website as well as on public engagement materials distributed at in-person engagement events across the region. The online survey was open for four (4) weeks between October 12, 2022 and November 18, 2022 and collected a total of 325 responses.

Results from the survey were used to discern general trends, but the results were not given significant weight for determining service changes, nor were they used to serve as official data sources. The number of responses the survey received—325 responses—is not enough to be considered statistically significant for the region and its population of over 140,000[1]. A response-weighting formula was not developed for this

[1] *Routes S4 and S5 were combined into Route S4-S5 during the analysis period.*

survey, therefore the survey results are only representative of the population that responded, and not of the Fredericksburg region. Based on survey traffic data, there was an increase in the rate of responses during and in the days following in-person public engagement events, which consisted of one (1) open house and five (5) pop-up events—four (4) of which were held in the City of Fredericksburg. As a result, the survey responses skew towards the perspectives of people who live, work, and/or visit Fredericksburg to a higher degree than the broader service region. Additionally, a well-attended pop-up event was held at Germanna Community College campus in Spotsylvania County, resulting in college students comprising approximately one third of total survey responses.

The following sections summarize key takeaways from the survey.

Demographics

Survey respondents reported the following demographic characteristics:

- 32 percent (32%) of survey respondents indicated that they are students.
- Gender identity of survey respondents was about evenly split (48 percent (48%) male, 50 percent (50%) female, and two percent (2%) other/prefer not to answer).
- 35 percent (35%) of respondents indicated an age 60 or older; ten percent (10%) indicated an age of 19 or under.
- 26 percent (26%) of respondents reported an annual household income of $30,000 or under, and 60 percent (60%) of respondents reported an annual household income of $60,000 or under.
- Nine percent (9%) of respondents reported having zero (0) vehicles at their household, and 38 percent (38%) of respondents reported having one (1) vehicle at their household.

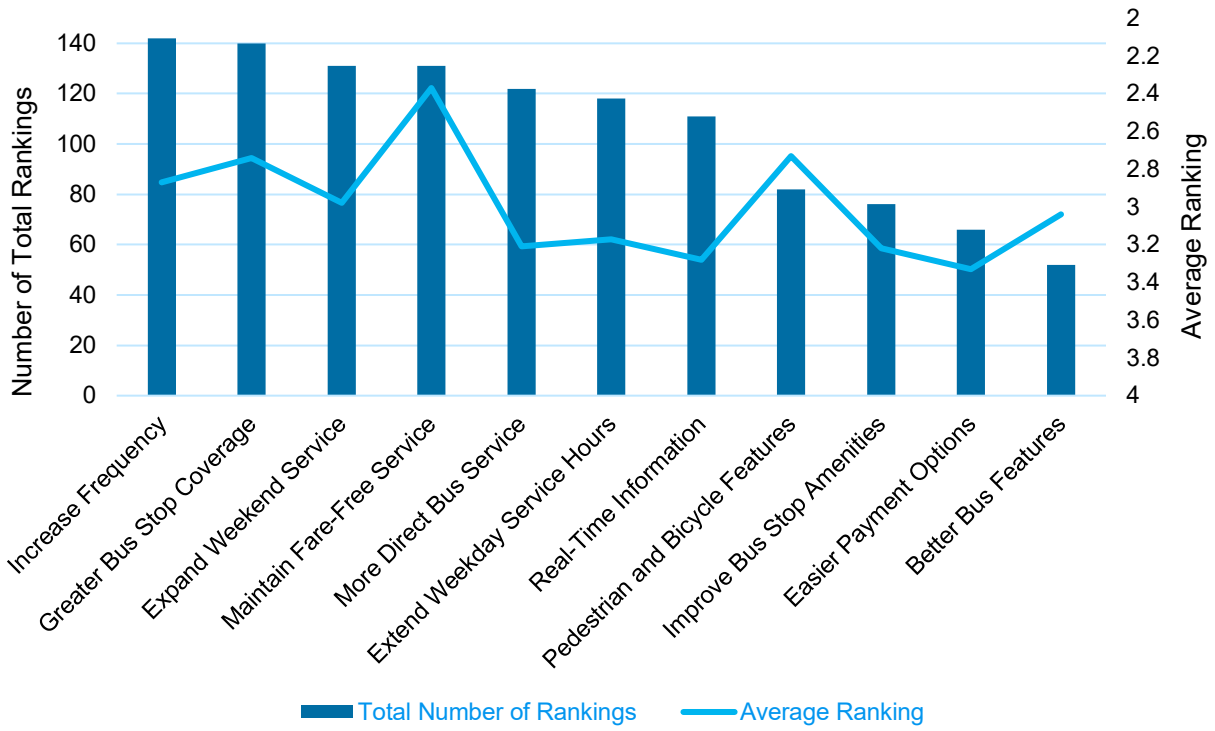
Priorities for Transit

The “Priority Ranking” section provided a list of 11 potential improvements to FXBGO!’s service and amenities. The 11 potential improvements were developed by staff to relate to the many facets of the transit riding experience—including frequency, days and hours of operation, bus stop amenities, and more. Survey participants were prompted to select up to five (5) of the potential improvements and rank them in their preferred order of importance, creating a personal “wish list” of suggested improvement types.

Figure 2-1 provides summary of the Priority Ranking survey section. Key takeaways from this section include the following:

- The top selected improvements among survey respondents included increased frequency, greater bus stop coverage (more bus stops along existing routes), expanded weekend service, and maintaining of fare-free service.
- Compared to service-related factors (i.e., frequency and days/hours of operation), lower priority was given to amenities at bus stops or on board buses; such as shelters, seating, lighting, and Wi-Fi.

FIGURE 2-1: PRIORITY RANKING OF POTENTIAL IMPROVEMENTS



Travel Pattern and Mode

The "Map Markers" section of the survey provided participants with an interactive map and five (5) markers to place across the greater Fredericksburg region to denote approximate locations of their frequent travel destinations (regardless of method of transportation) including: their home, their place of work, common shopping destinations, and two (2) additional other frequent destinations. After each marker was placed, survey participants were prompted with additional questions about mode of transportation choice and their likelihood of taking transit in the future if service to this destination was improved. Key takeaways from this activity include the following:

- The geographic dispersion of trips depends, in part, on trip type:
    - The largest concentrations of survey respondents' home locations are in Fredericksburg.
    - Jobs of survey respondents are concentrated in downtown Fredericksburg, along Carl D. Silver Parkway, and at Germanna Community College.
    - Shopping destinations of survey respondents are most prevalent west of Interstate 95 in the retail development at Spotsylvania Towne Center, along Carl D. Silver Parkway, and at Cosner's Corner.
    - Downtown Fredericksburg is the predominant location for all other frequent destinations of survey respondents.
- Most survey respondents indicated that they would use transit more often if FXBGO! increased service near their frequent travel destinations (85-89 percent (85-89%)).

Trip Behavior

The multiple choice and free-response section of the survey was divided into three (3) subsections: a subsection for individuals who currently use FXBGO!'s service, a subsection for people who have reduced their use of FXBGO!'s service within the past five (5) years, and a subsection for individuals who do not currently use FXBGO!'s service. Survey respondents were instructed to only fill out the section that reflected their current transit ridership habits. Key takeaways from this section of the survey include the following:

- Respondents Who Identified as Current Transit Users
    - 32 percent (32%) of respondents that identified as current transit users indicated that they use transit "four (4) or more days a week." The next most common response was "less than once a month" (27 percent (27%) of respondents).
    - Approximately two-thirds of current transit user respondents' trips required one (1) or more transfers.
    - 30 percent (30%) of respondents that identified as current transit users indicated that they spend more than one (1) hour on transit to get to their destinations, and nine percent (9%) indicated that they spend more than two (2) hours to get to their destinations.
    - Approximately a quarter of respondents indicated that they use transit to save money.
    - Approximately two-thirds of respondents reported walking to get to their bus stop, with 16 percent (16%) indicating that they take a rideshare to get to their bus stop.
- Respondents Who Have Reduced Their Transit Use
    - 23 percent (23%) of survey respondents that indicated having reduced their transit use have stopped using transit completely.
    - The most cited reasons for why these respondents have reduced their transit use include, in descending order, "I get a ride from friends and family", "service was reduced on my route", and "safety concerns," which may be in part due to the COVID-19 pandemic.
- Respondents Who Do Not Currently Use Transit
    - Among survey respondents that identified as non-transit users, the most frequent reasons for why the respondents do not currently use transit included "It doesn't go where I need it to" and "It takes too long."

2.1.4 STAKEHOLDER FEEDBACK

As part of the first phase of engagement for the TSP, a series of stakeholder interviews and workshops were conducted to better understand the use of and support for transit in the community and identify unmet needs. Several key qualitative themes emerged from the perspectives and perceptions shared during the stakeholder interviews and discussions, which are listed below.

- **System Coverage:** Stakeholder representatives expressed that the coverage of the existing transit system is strong, and that most of the region's key destinations are accessible via transit.
- **Service Hours:** FXBGO! service operates primarily from 6:30 a.m. to 8:30 p.m. on weekdays, and only one (1) route, the Eagle Express, operates on weekends. Stakeholder representatives expressed that the lack of early morning, late-night, and weekend service leaves many people unable to use FXBGO! service as they travel during non-service hours, including certain service workers.

- **Frequency:** Stakeholder representatives expressed that service is too infrequent, with most current routes having 60-minute frequencies. Stakeholders indicated a strong desire to improve service frequency to every 30 minutes or better.
- **Pedestrian Accessibility:** Stakeholder representatives expressed that there are bus stops that are difficult to access because of missing sidewalks and crosswalks.
- **FXBGO! Branding:** The reaction to the new FXBGO! brand is that it is bold, exciting, and refreshing. It promotes a positive public-facing image to the community.
- **Awareness:** Stakeholder representatives expressed that many people lack awareness and understanding of the transit system and the services provided by FXBGO!, mainly the existence of fare-free service, deviated fixed-route service, and the RouteShout app.
- **King George County:** Staff stakeholders from King George County indicated a desire for expansion of transit service to serve their jurisdiction, citing various planned development areas and Naval Surface Warfare Center Dahlgren Division (Dahlgren) as potential destinations for future service.

During May 2024, project stakeholders were briefed on the draft recommendations included in the TSP. Overall there was support for the recommendations. Some of the main comments received from stakeholders included a desire for increased frequency, further coordination with VRE current and future service, provision of FXBGO! service to new developments, and incorporation of committed SMART SCALE funding and potential regional Congestion Mitigation & Air Quality (CMAQ) funds into financial considerations.

2.2 Evaluation of Transit Market Demand and Underserved Areas

An evaluation of transit market demand and underserved areas was conducted to understand the demand for transit in the Fredericksburg region. The results of the demand analysis are then compared to how transit service is distributed in the area to reveal potential opportunities for service modifications.

2.2.1 TRANSIT DEMAND AND UNDERSERVED AREA EVALUATION

The demand for transit is influenced by a variety of factors, such as land use, development patterns, population, employment density, the prevalence of disadvantaged populations and the associated costs of various modes of transport. Of these factors, population and employment density are the most important in determining the underlying demand for transit. This is because the reach of transit is generally limited to walking distance to/from a bus stop (typically 0.25 miles) and therefore relies on higher numbers of people and jobs in high concentration. Some examples of new or key population centers or destinations within the region that will be important to serve by transit are the apartments at Bowman Center and the new Veterans Affairs (VA) Clinic.

This section presents land use, employment, population, and demographic data to reveal opportunities both inside and outside of the existing FXBGO! service area. Locations with high concentrations of variables that influence transit demand are highlighted. For every variable analyzed, the concentrations of variables that influence transit demand are higher inside the existing service area relative to outside of the existing service area.

Land Use, Employment, Population, and Demographics

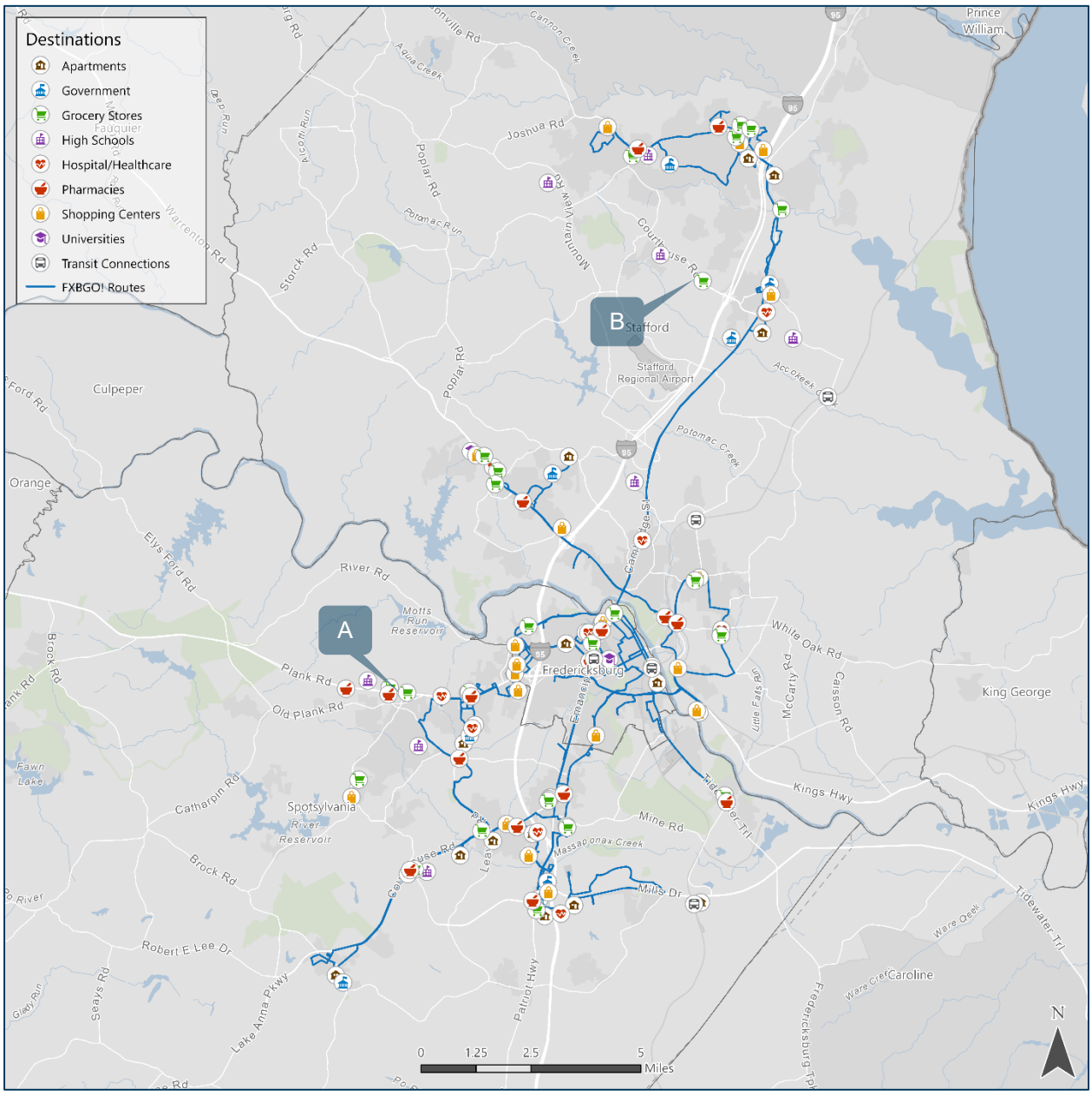
This section explores several of the most influential factors in determining transit demand, including land use and development patterns, employment, and population and sociodemographic characteristics (e.g., minorities, older adults, low-income, those with limited English proficiency, persons with disability, and zero-car populations).

Land Use and Development Patterns

The FXBGO! service area includes the City of Fredericksburg and parts of Stafford and Spotsylvania counties. Development is the most concentrated in Fredericksburg and presents the best opportunity for transit in the region. Within Fredericksburg, much of the development is in the downtown area and along Cowan Boulevard and Central Park Boulevard. Spotsylvania is developed along Plank Road and US Route 1. Development in Stafford County is concentrated along US Route 1 and Interstate 95, but also includes US Route 17 and Garrisonville Road. The locations with higher development density represent opportunities for the highest transit ridership in the region. Development density decreases outside of the service area. The remainder of this section discusses land use in more detail by locating destinations and land use development that attract transit riders.

Destinations such as healthcare, shopping, and education commonly attract transit riders. **Figure 2-2** shows the locations of these types of destinations in the City of Fredericksburg, Spotsylvania County, and Stafford County. Most of the identified destinations are accessible via transit. However, several areas without a clear connection to FXBGO! service are the shopping areas along Plank Road in Spotsylvania County (**Location A**) and schools and shopping along Courthouse Road in Stafford County (**Location B**).

FIGURE 2-2: DESTINATIONS

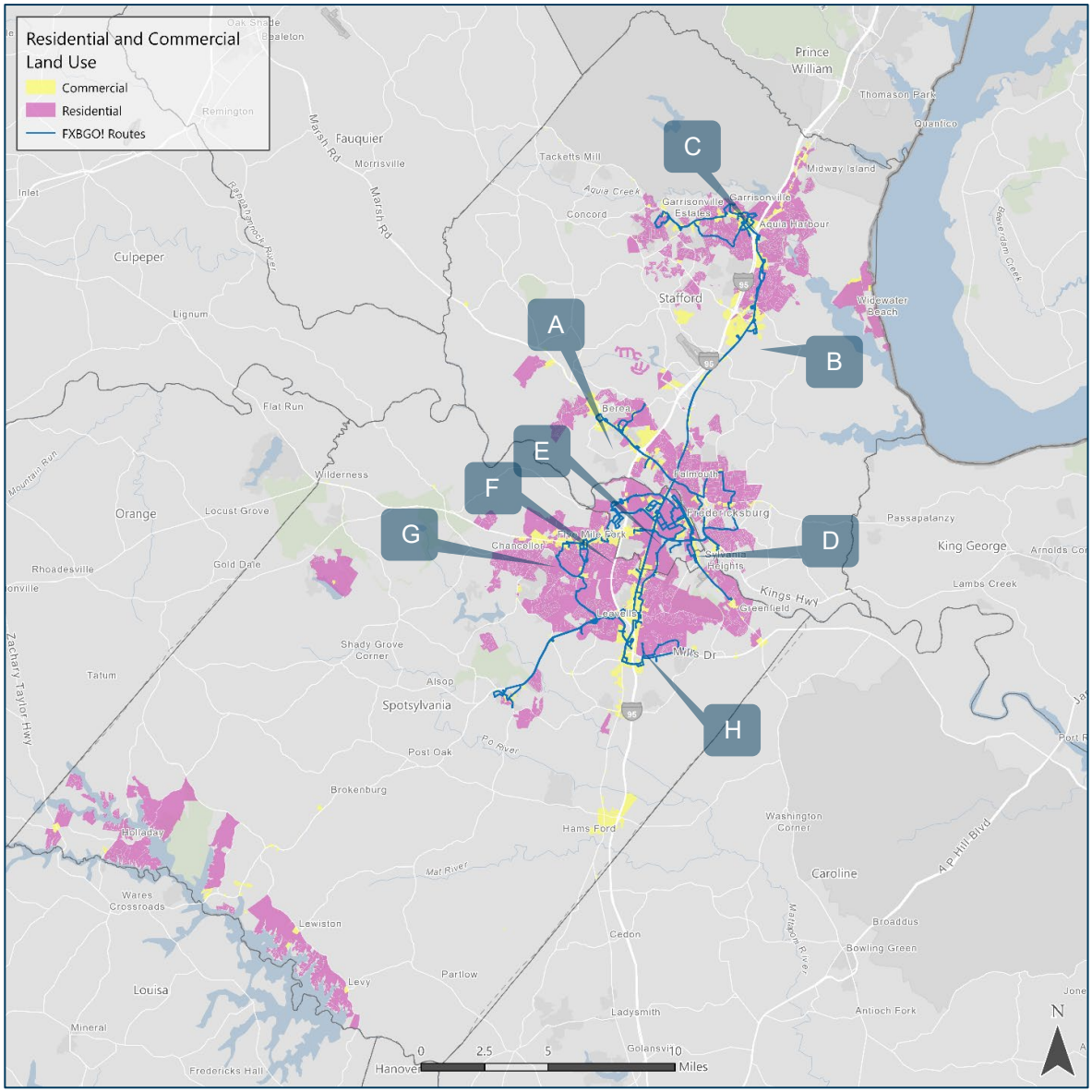


Source: 2022 Google Earth

Residential and commercial land-use in Fredericksburg, Spotsylvania, and Stafford are shown in **Figure 2-3**. The geographic trends of residential and commercial land uses are described below.

- In Stafford County, major locations of commercial activity include Warrenton Road (**Location A**), Courthouse Road and US Route 1 (**Location B**), and Garrisonville Road (**Location C**).
- Fredericksburg has commercial development in downtown (**Location D**), along US Route 1 (**Location E**), and along Plank Road (**Location F**).
- In Spotsylvania, commercial activity occurs along US Route 1 (**Location G**) and Plank Road (**Location H**).

FIGURE 2-3: STAFFORD, FREDERICKSBURG, AND SPOTSYLVANIA RESIDENTIAL AND COMMERCIAL LAND USE (2022)



Source: City of Fredericksburg, Stafford County, Spotsylvania County

Employment

Employment is one of the strongest factors in predicting demand for transit because places of employment generate work trips. This section displays and describes employment throughout the FXBGO! service area using employment totals and employment density. Although both employment totals and employment densities are correlated with transit ridership, employment density is a better predictor of transit ridership and is therefore emphasized in this section.

Two (2) employment datasets are used in this section: 2019 Longitudinal Employer Household Dynamics (LEHD) and 2022 Data Axle data. LEHD datasets are released by the U.S. Census Bureau and provide data for where people work and live for 95 percent (95%) of employment in the United States.[2] LEHD data are commonly used in transit and transportation analyses to understand where employees live and work at the census block group level. However, LEHD datasets are typically representative of employment locations two (2) or three (3) years old. Given the geographic and temporal limitations of LEHD data, a Data Axle dataset was obtained and utilized in this section as well. Data Axle is a data analytics marking firm that provides information on businesses around the world, including quarterly job counts of specific employment locations.

Table 2-4 provides regional employment totals and densities using 2019 LEHD data. The existing service area (as defined as 0.25 miles from stop locations) has an overall employment density of 1.89 jobs per acre. As shown, Fredericksburg has fewer jobs than Spotsylvania and Stafford counties, but Fredericksburg has much higher job density than Spotsylvania and Stafford.

TABLE 2-4: EMPLOYMENT TOTALS AND DENSITY (2019 LEHD)

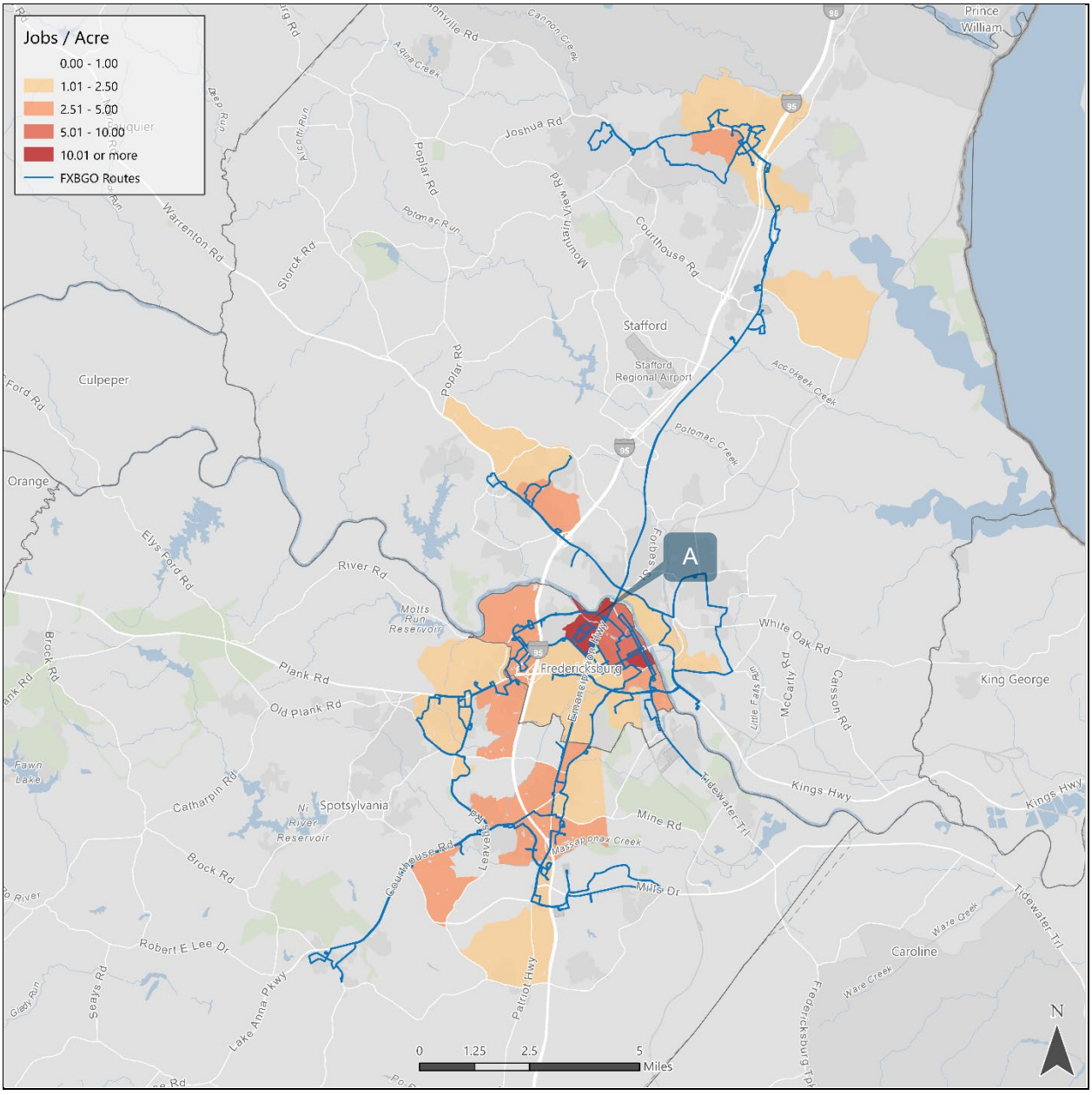
	FXBGO! Routes	Fredericksburg	Spotsylvania	Stafford	Total
Total	33,730	23,920	37,260	39,160	100,340
Acres	17,806	6,688	256,891	172,272	435,850
Density (Jobs per Acre)	1.89	3.58	0.15	0.23	0.23

Source: 2019 LEHD

Figure 2-4 visualizes number of jobs per acre. The high job density in Fredericksburg is driven by government jobs in downtown Fredericksburg and hospital and university jobs in northern Fredericksburg **(Location A)** as shown in **Figure 2-4**. Spotsylvania and Stafford are mostly made up of areas with less than one (1) job per acre.

[2] *United States Census: LEHD Data (2019) https://www.census.gov/programs-surveys/ces/data/restricted-use-data/lehd-data.html*

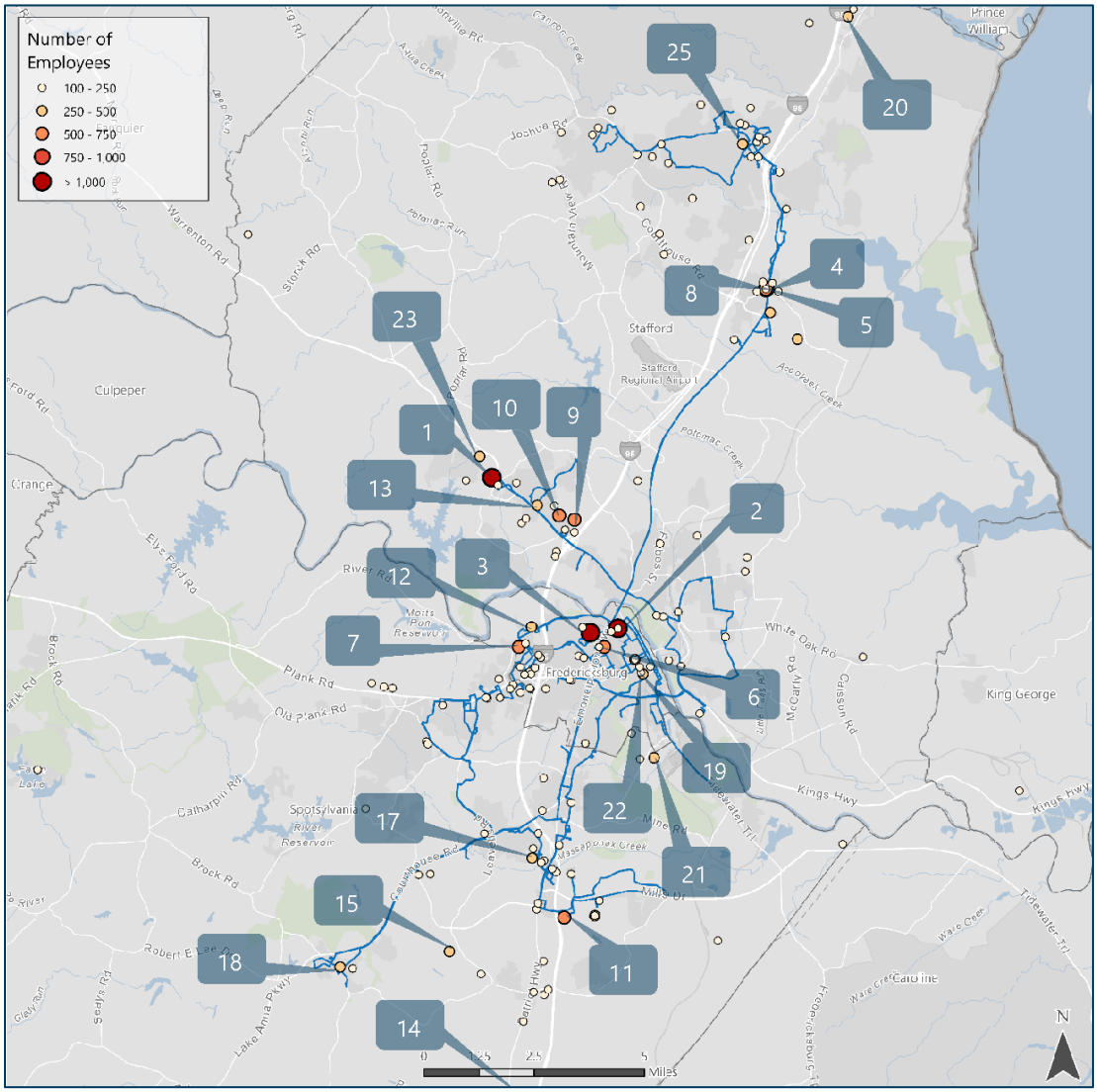
FIGURE 2-4: JOBS PER ACRE (2019 LEHD)



Source: 2019 Longitudinal Employer-Household Dynamics (LEHD)

Data Axle data is mapped in **Figure 2-5**. Specific job counts of the largest employers can be found in **Table 2-5**, which correspond to the labels shown in **Figure 2-5**. It should be noted that some employers have multiple locations, which are represented as separate locations. The data shows employment along Warrenton Road in Stafford County, driven by various retail employment, as well as jobs at GEICO Insurance. Additionally, retail employment at Central Park shows several locations with large numbers of employees. Courthouse Road at US Route 1 has high employment generated by Stafford Hospital and Stafford County municipal offices. In Fredericksburg, large employers include the University of Mary Washington, Mary Washington Healthcare, and Walmart. In King George County, several employers near Dahlgren have more than 100 employees; including Walmart, EG & G Technical Service Inc., and Naval Surface Warfare Center. King George County is currently not part of the FXBGO! service area but could be a potential expansion in the future.

FIGURE 2-5: EMPLOYERS WITH 100 OR MORE EMPLOYEES (2022)



Source: 2022 Data Axle.

1. Russell Stover Distribution and King George Walmart are outside of map extent.

Table 2-5 shows the top 25 employers in terms of total employers by location. Specific locations of each of the top 25 employers can be referenced in **Figure 2-5**. The largest employer is GEICO Insurance, located in Stafford County. A total of eight (8) of the top 25 employers are found within the City of Fredericksburg, ten (10) in Stafford County, and five (5) in Spotsylvania. The only other jurisdictions that made the top 25 were Russell Stover Distribution in Caroline with 475 employees and Walmart in King George with 335 employees.

TABLE 2-5: LARGE EMPLOYERS BY SIZE (2022)

Rank	Name	Location	Employees
1	GEICO Insurance	Stafford	4,000
2	Mary Washington Healthcare	Fredericksburg	2,800
3	Mary Washington Hospital	Fredericksburg	1,746
4	Stafford County Clerk-Board	Stafford	800
5	Stafford County, VA	Stafford	800
6	University of Mary Washington	Fredericksburg	750
7	Walmart Supercenter	Fredericksburg	650
8	Stafford County Zoning	Stafford	640
9	Manheim Fredericksburg	Stafford	600
10	McLane Mid-Atlantic	Stafford	600
11	Spotsylvania Regional Medical Center	Fredericksburg	600
12	Wegmans	Fredericksburg	500
13	Arrow Security, Incorporated	Stafford	500
14	Spotsylvania School Transportation	Spotsylvania	500
15	Lidl Distribution Center	Spotsylvania	475
16	Russell Stover Distribution	Caroline	475
17	Walmart Supercenter	Spotsylvania	468
18	Spotsylvania County Board	Spotsylvania	450
19	Fredericksburg.com/The Free Lance-Star	Fredericksburg	400
20	ManTech Advanced Systems International	Stafford	400
21	CVS Caremark	Spotsylvania	400
22	Rappahannock Area Community Services	Fredericksburg	350
23	Walmart Supercenter	Stafford	335
24	Walmart Supercenter	King George	335
25	Walmart Supercenter	Stafford	310

Source: 2022 Data Axle.

1. Russell Stover Distribution and King George Walmart Supercenter are outside of map extent.

Population

In addition to employment data, population density represents one of the most predictive variables in estimating demand for transit because people tend to travel to and from the locations they live. The Five-Year 2020 American Community Survey (ACS) was utilized in assessing population density across the region. **Table 2-6** provides a comparison of population density in Fredericksburg and the surrounding region. Fredericksburg has higher population density (4.35 people per acre), than Spotsylvania County (0.52 people per acre) or Stafford County (0.87 people per acre).

TABLE 2-6: POPULATION TOTAL AND DENSITY (2020 ACS)

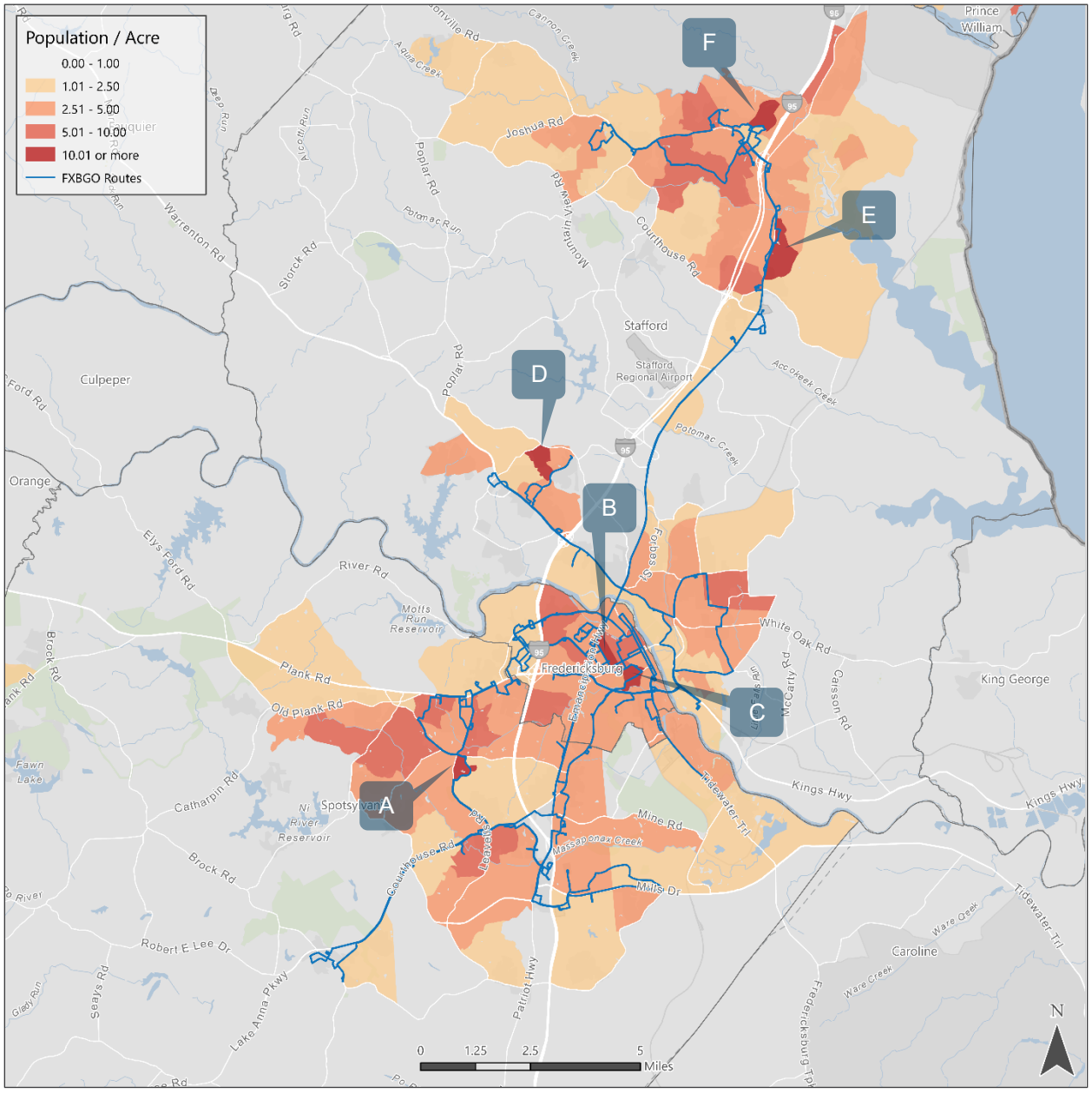
	FXBGO! Routes	Fredericksburg	Spotsylvania	Stafford
Acres	17,806	6,688	256,891	172,272
Population	64,740	29,060	134,680	150,190
Density (Population per Acre)	3.64	4.35	0.52	0.87

Source: 2020 American Community Survey (ACS)

Figure 2-6 shows the population per acre. Locations with the highest population densities include:

- Salem Station Boulevard (**Location A**), served by Route S1.
- The University of Mary Washington campus in Fredericksburg (**Location B**), served by Routes D2, D5, F3, F4, F5, and EX.
- West of downtown Fredericksburg, bounded by Hanover Street, Kenmore Avenue, Cobblestone Circle, and Hazel Run (**Location C**), served by Routes F2 and F3.
- Western Falmouth in Stafford, bounded by Falls Run, Berea Church Road, Truslow Road, Ellerslie Road, Lyons Boulevard, and Plantation Drive (**Location D**), served by Route D2.
- Northwest Aquia in Stafford, bounded by US Route 1, Hope Road, Olde Concord Road, Jason Lane, and Confederate Way (**Location E**), served by Route D3.
- Foxwood Village north of Stafford Marketplace, bounded by Doc Stone Road, Short Branch Road, Juggins Connector Road, Staffordboro Boulevard, and Pike Place (**Location F**), served by Routes D3 and D4.

FIGURE 2-6: POPULATION PER ACRE (2020 ACS)



Source: 2020 American Community Survey (ACS)

Minority Population

This section discusses minority populations, defined here as any race/ethnicity other than white/non-Hispanic. **Table 2-7** shows the total and density of minority populations in the City of Fredericksburg, Spotsylvania County, and Stafford County. The total minority population in the City of Fredericksburg is 12,180, compared to 44,100 in Spotsylvania County and 60,340 in Stafford County.

TABLE 2-7: MINORITY POPULATION TOTAL AND DENSITY (2020 ACS)

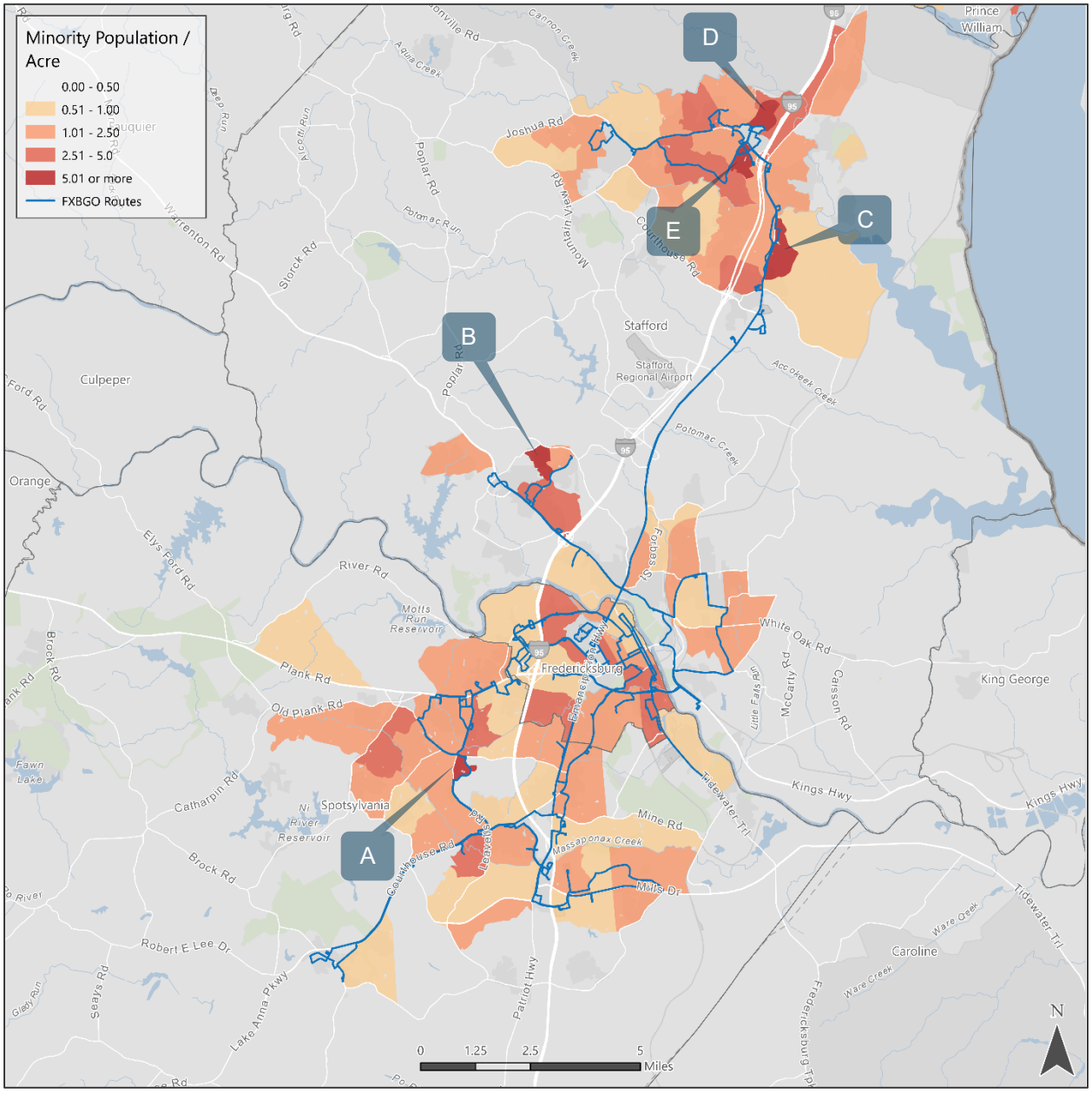
	FXBGO! Routes	Fredericksburg	Spotsylvania	Stafford
Acres	17,806	6,688	256,891	172,272
Minority Population	28,070	12,180	44,100	60,340
Density (Minority Population per Acre)	1.58	1.82	0.17	0.35

Source: 2020 American Community Survey (ACS)

In terms of geographic distribution, higher densities of minority populations in Fredericksburg are located south along Interstate 95 and west along Plank Road. High densities of minority populations are also present along Interstate 95 in Stafford from Courthouse Road north to Garrisonville Road. Areas with a high minority population, defined as five (5) or more people per acre, are shown in **Figure 2-7** and described below.

- Southeast Courtland in Spotsylvania, bounded by Harrison Road, Leavells Road, Queens Mill Circle, and Salem Station Boulevard (**Location A**), currently served by Route S1.
- Portions of Falmouth and Stafford, bounded by Falls Run, Berea Church Road, Truslow Road, Ellerslie Road, Lyons Boulevard, and Plantation Drive (**Location B**), currently served by Route D2.
- Northwest Aquia and Stafford, bounded by US Route 1, Hope Road, Olde Concord Road, Jason Lane, and Confederate Way (**Location C**), currently served by Route D3.
- Foxwood Village north of Stafford Marketplace, bounded by Doc Stone Road, Short Branch Road, Juggins Connector Road, Staffordboro Boulevard, and Pike Place (**Location D**), currently served by Routes D3 and D4.
- A neighborhood in northeast Garrisonville in Stafford, bounded by Mine Road to the west, and Garrisonville Road, Salisbury Drive, Greenspring Drive, and Tanglewood Lane to the east (**Location E**), currently served by Routes D3 and D4.

FIGURE 2-7: MINORITY POPULATION PER ACRE



Source: 2020 American Community Survey (ACS)

Older Adults Population

The older adult population is defined as the total population age 65 and older. **Table 2-8** compares the total number and density of older adult populations in the City of Fredericksburg, Spotsylvania County, and Stafford County. The density of older adult population is higher near FXBGO! routes (0.44 per acre) and Fredericksburg (0.47) compared to Spotsylvania County (0.07) and Stafford County (0.09).

TABLE 2-8: OLDER ADULTS POPULATION TOTAL AND DENSITY (2020 ACS)

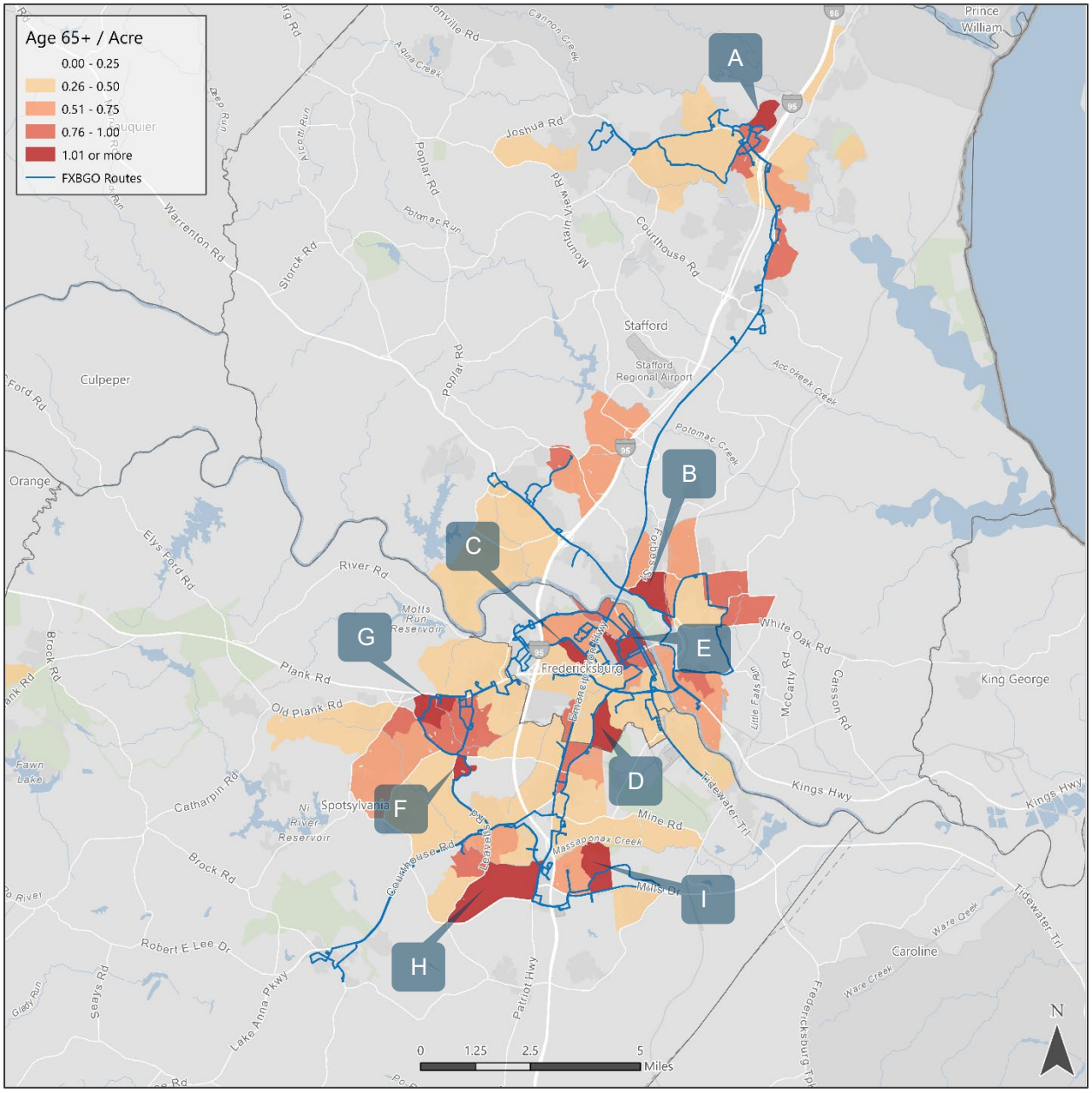
	FXBGO! Routes	Fredericksburg	Spotsylvania	Stafford
Acres	17,806	6,688	256,891	172,272
Older Adults Population	7,790	3,170	19,030	15,640
Density (Older Adults Population per Acre)	0.44	0.47	0.07	0.09

Source: 2020 American Community Survey (ACS)

Figure 2-8 provides a geographic distribution of older adult population per acre. Higher concentrations of older adult populations occur in the Cosner's Corner area, Plank Road and Salem Church Road, downtown Fredericksburg, and Garrisonville Road at Interstate 95. More specifically, areas with more than one (1) older adult per acre are shown in **Figure 2-8** are identified below:

- Foxwood Village north of Stafford Marketplace, bounded by Doc Stone Road, Short Branch Road, Juggins Connector Road, Staffordboro Boulevard, and Pike Place (**Location A**), currently served by Routes D3 and D4.
- Southwest Falmouth in Stafford, bounded by Butler Road, Forbes Street, and Harrell Road (**Location B**), currently served by Routes D1 and D5.
- Southwest of the intersection at Cowan Boulevard and Emancipation Highway in Fredericksburg (**Location C**), currently served by Routes D2, D5, EX, and F1 through F5.
- Southern Fredericksburg along Lafayette Boulevard (**Location D**), currently served by Route F3.
- A portion of northeast Fredericksburg bounded by VEPCO Canal to the North, Sunken Road to the west, and Hanover Street and Amelia Street to the south (**Location E**), currently served by Routes EX and F3 through F5.
- Southeast Courtland in Spotsylvania, bounded by Harrison Road, Leavells Road, Queens Mill Circle, and Salem Station Boulevard (**Location F**), currently served by Route S1.
- Central-west Courtland in Spotsylvania, bounded by North Dickinson Drive, Plank Road, and Hoover Lane (**Location G**), currently served by Route S1.
- A neighborhood in Battlefield, Spotsylvania, bounded by Spotsylvania Parkway, Leavells Road, Massaponax Creek, and Patriot Highway (**Location H**), currently served by Routes S1, S4, and S5.
- Lee Hill in Spotsylvania, bounded by Massaponax Creek, Old Dominion Parkway, and Overview Drive (**Location I**), currently served by Route S5.

FIGURE 2-8: OLDER ADULTS POPULATION PER ACRE (2020 ACS)



Source: 2020 American Community Survey (ACS)

Low-Income Population

Low-income populations are identified as a population at or below 150 percent (150%) of the poverty line [3]. **Table 2-9** shows a comparison of low-income population density for the City of Fredericksburg, Spotsylvania County, and Stafford County.

TABLE 2-9: LOW-INCOME POPULATION TOTAL AND DENSITY (2020 ACS)

	FXBGO! Routes	Fredericksburg	Spotsylvania	Stafford
Acres	17,806	6,688	256,891	172,272
Low-Income Population	9,520	5,180	16,030	12,720
Density (Low-Income Population per Acre)	0.53	0.77	0.06	0.07

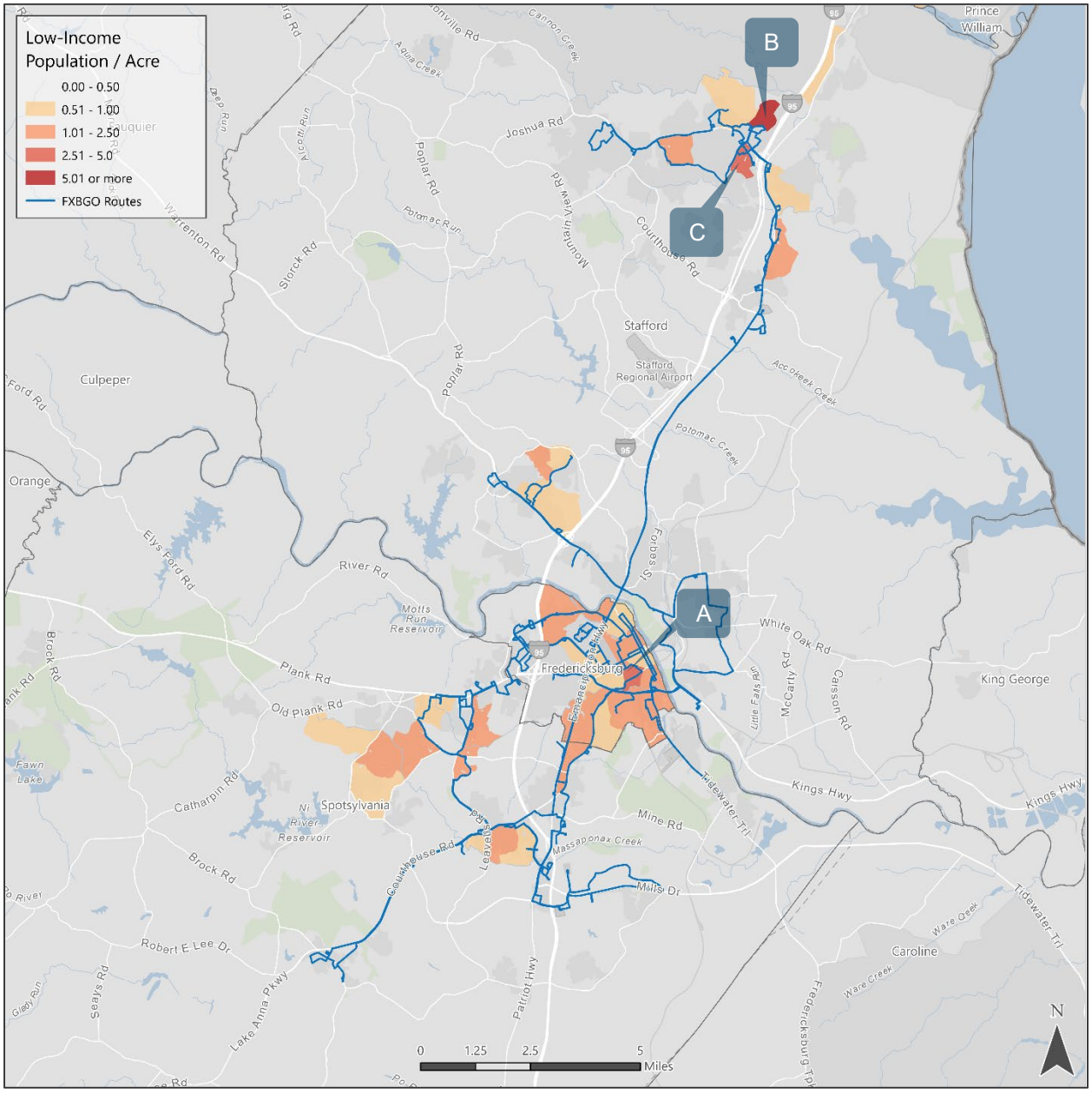
Source: 2020 American Community Survey (ACS)

Figure 2-9 shows low-income population per acre. Most locations with low-income population are in Fredericksburg, with some isolated areas in Spotsylvania and Stafford counties. Areas with higher densities of low-income individuals (over two (2) per acre) are shown in **Figure 2-9** include the below:

- The area in Fredericksburg bounded by Hanover Street, Kenmore Avenue, Cobblestone Circle, and Hazel Run (**Location A**), currently served by Routes F2 and F3.
- The neighborhood north of Stafford Marketplace behind Lowes Home Improvement (**Location B**). This neighborhood has the highest density of low-income population in the service area.
- Northeast Garrisonville in Stafford, bounded by Mine Road to the west and Garrisonville Road, Salisbury Drive, Greenspring Drive, and Tanglewood Lane to the east (**Location C**), currently served by Routes D3 and D4.

[3] *Public Law 112-141 (MAP-21) definition of "low-income individual" is "an individual whose family income is at or below 150 percent (150%) of the poverty line".*

FIGURE 2-9: LOW-INCOME POPULATION PER ACRE (2020 ACS)

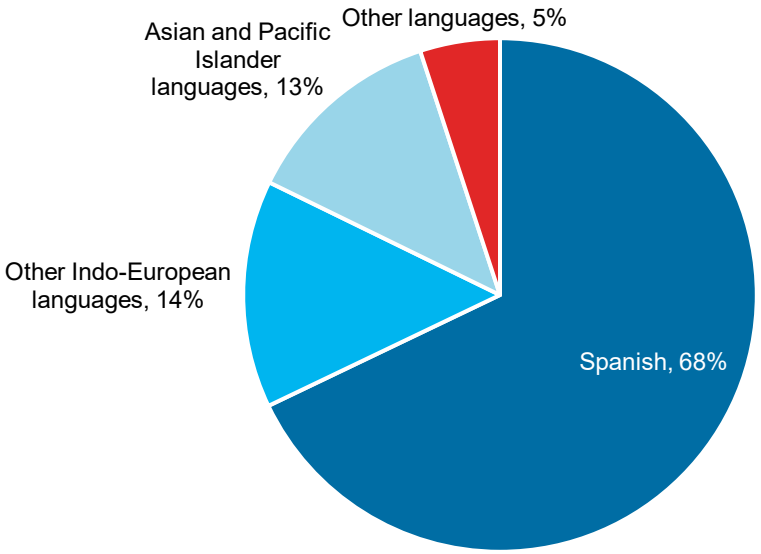


Source: 2020 American Community Survey (ACS)

Limited-English Proficiency Population

The limited-English proficiency (LEP) population is defined as those who either "speak English less than very well" or "speak English not at all". The languages spoken by LEP populations are shown in **Figure 2-10**. Of the LEP population, 68 percent (68%) speak Spanish, 14 percent (14%) speak other Indo-European languages, 13 percent (13%) speak Asian and Pacific Islander languages, and 5 percent (5%) speak other languages.

FIGURE 2-10: LANGUAGE SPOKEN AMONG THOSE WITH LIMITED ENGLISH PROFICIENCY



Source: 2020 American Community Survey (ACS)

Table 2-10 reveals the total and density of LEP populations in the City of Fredericksburg, Spotsylvania County, and Stafford County. Overall, the LEP population has the lowest total observed population out of all the sociodemographic populations analyzed.

TABLE 2-10: LIMITED ENGLISH PROFICIENCY POPULATION TOTAL AND DENSITY (2020 ACS)

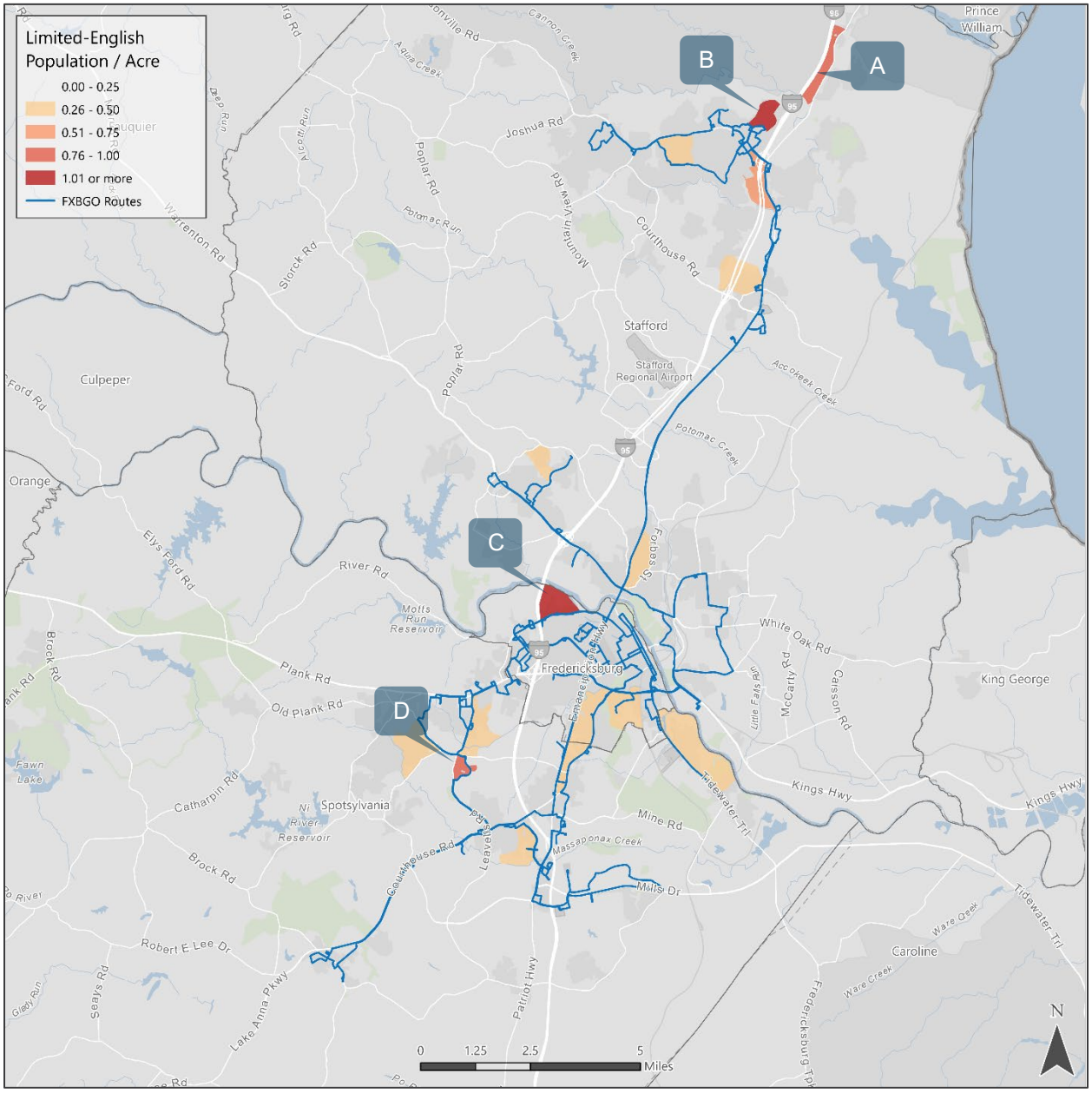
	FXBGO! Routes	Fredericksburg	Spotsylvania	Stafford
Acres	17,806	6,688	256,891	172,272
Limited English Proficiency Population	1,990	900	2,080	3,420
Density (Limited English Proficiency Population per Acre)	0.11	0.13	0.01	0.02

Source: 2020 American Community Survey (ACS)

The density of LEP populations is shown in **Figure 2-11**. Very few neighborhoods in the region have high densities of LEP populations. However, some neighborhoods with relatively higher LEP populations are:

- The area between Interstate 95 and US Route 1, south of Telegraph Road, in Stafford (**Location A**), with over 0.75 LEP individuals per acre. This area is not currently served by FXBGO!.
- The Foxwood Village neighborhood in Stafford, north of Stafford Marketplace (**Location B**), with over one (1.0) LEP population per acre. This is currently serviced by Route D3.
- In Fredericksburg, the area northeast of the intersection of Fall Hill Avenue and Interstate 95 (**Location C**) served by Route F4, with over one (1) LEP individual per acre.
- The residential area in southeast Courtland, Spotsylvania, bounded by Harrison Road, Leavells Road, Queens Mill Circle, and Salem Station Boulevard (**Location D**), with over 0.75 LEP individuals per acre. This area is currently served by Route S1.

FIGURE 2-11: LIMITED ENGLISH PROFICIENCY POPULATION PER ACRE (2020 ACS)



Source: 2020 American Community Survey (ACS)

Population with Disabilities

The population with disabilities in the City of Fredericksburg, Spotsylvania County, and Stafford County is shown in **Table 2-11**.

TABLE 2-11: POPULATION WITH DISABILITY TOTAL AND DENSITY (2020 ACS)

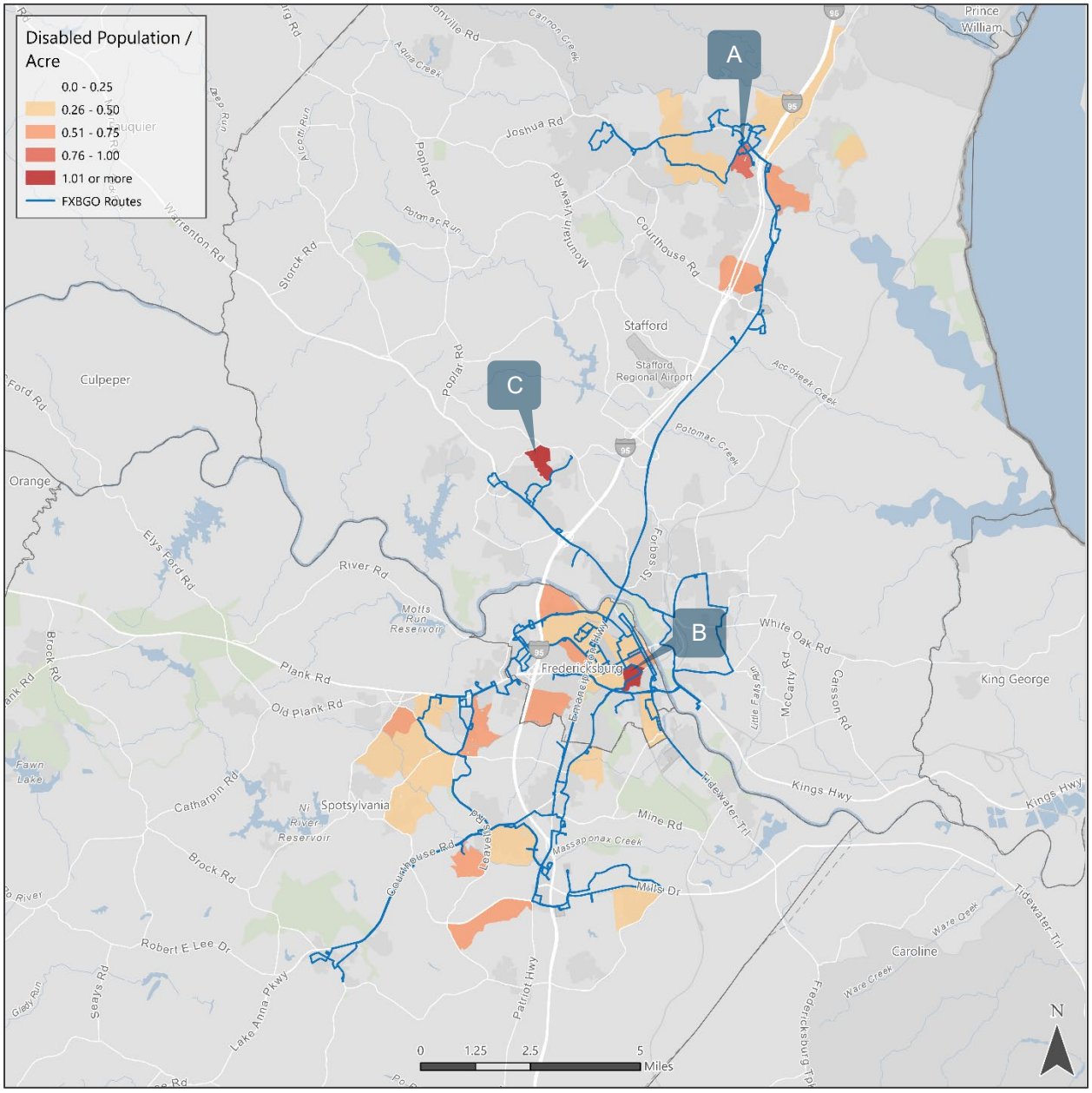
	FXBGO! Routes	Fredericksburg	Spotsylvania	Stafford
Acres	17,806	6,688	256,891	172,272
Population with Disabilities	3,380	1,990	7,240	6,550
Density (Population with Disabilities per Acre)	0.19	0.30	0.03	0.04

Source: 2020 American Community Survey (ACS)

Figure 2-12 shows the population with disabilities geographically. Specific locations with persons with disabilities density of over 0.75 individuals per acre include:

- An area in northeast Garrisonville in Stafford County along Mine Road (**Location A**), with over 0.75 persons with a disability per acre. This area is currently served by Route D3 and Route D4.
- The area along Cobblestone Circle, Kenmore Avenue, and Sunken Road (**Location B**), with over one (1) person with a disability per acre. This area is currently served by Route F3.
- The area east of the intersection at Falls Run and Berea Church Road (**Location C**), with over one (1) person with a disability per acre. This area is currently served by Route D2.

FIGURE 2-12: POPULATION WITH DISABILITIES/ACRE (2020 ACS)



Source: 2020 American Community Survey (ACS)

Zero-Car Population

Zero-car population is calculated as the estimated population without access to a vehicle. **Table 2-12** reveals the total and density of zero-car population in the City of Fredericksburg, Spotsylvania County and Stafford County.

TABLE 2-12: ZERO-CAR POPULATION TOTAL AND DENSITY (2020 ACS)

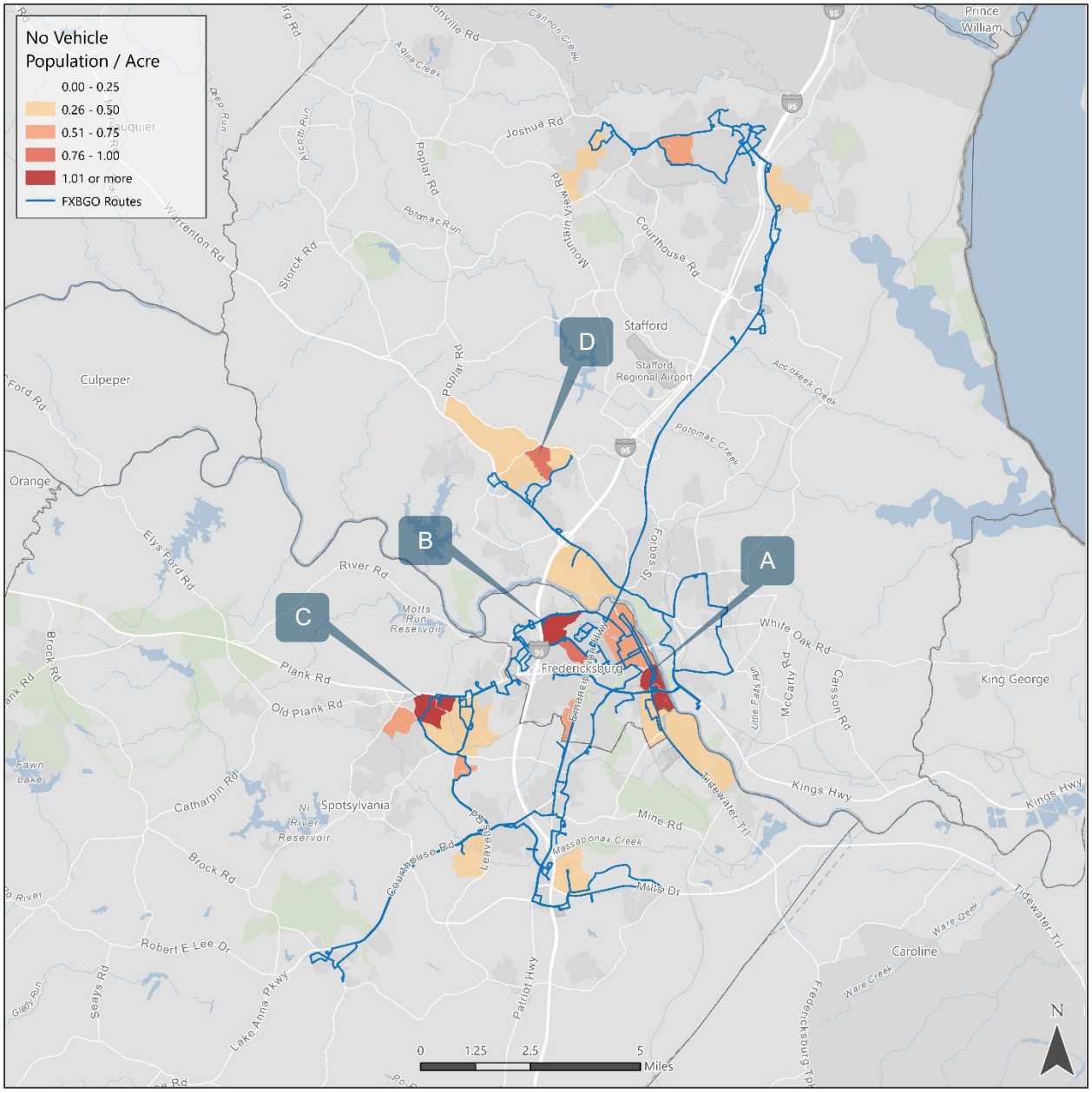
	FXBGO! Routes	Fredericksburg	Spotsylvania	Stafford
Acres	17,806	6,688	256,891	172,272
Zero-Car Population	3,180	2,150	3,960	2,920
Density (Zero-Car Population per Acre)	0.18	0.32	0.02	0.02

Source: 2020 American Community Survey (ACS)

The density of zero-car populations is shown in **Figure 2-13**. Generally, there are very few areas that have elevated densities of zero-car populations. Areas with relative high densities are identified below.

- In Fredericksburg, the highest density of zero-car population is in the southern portion of downtown (**Location A**) with 1.49 per acre, and along Cowan Boulevard (**Location B**) with 1.82 people per acre, currently served by F routes.
- In Spotsylvania, south of Plank Road to Harrison Road (**Location C**) with 1.34 people per acre, currently served by Route S1.
- In Stafford, the area of Berea, (**Location D**) with 0.88 people per acre, which is currently served by Route D2 near the terminus of the route.

FIGURE 2-13: ZERO-CAR POPULATION/ACRE (2020 ACS)



Source: 2020 American Community Survey (ACS)

Projected Population and Employment Growth

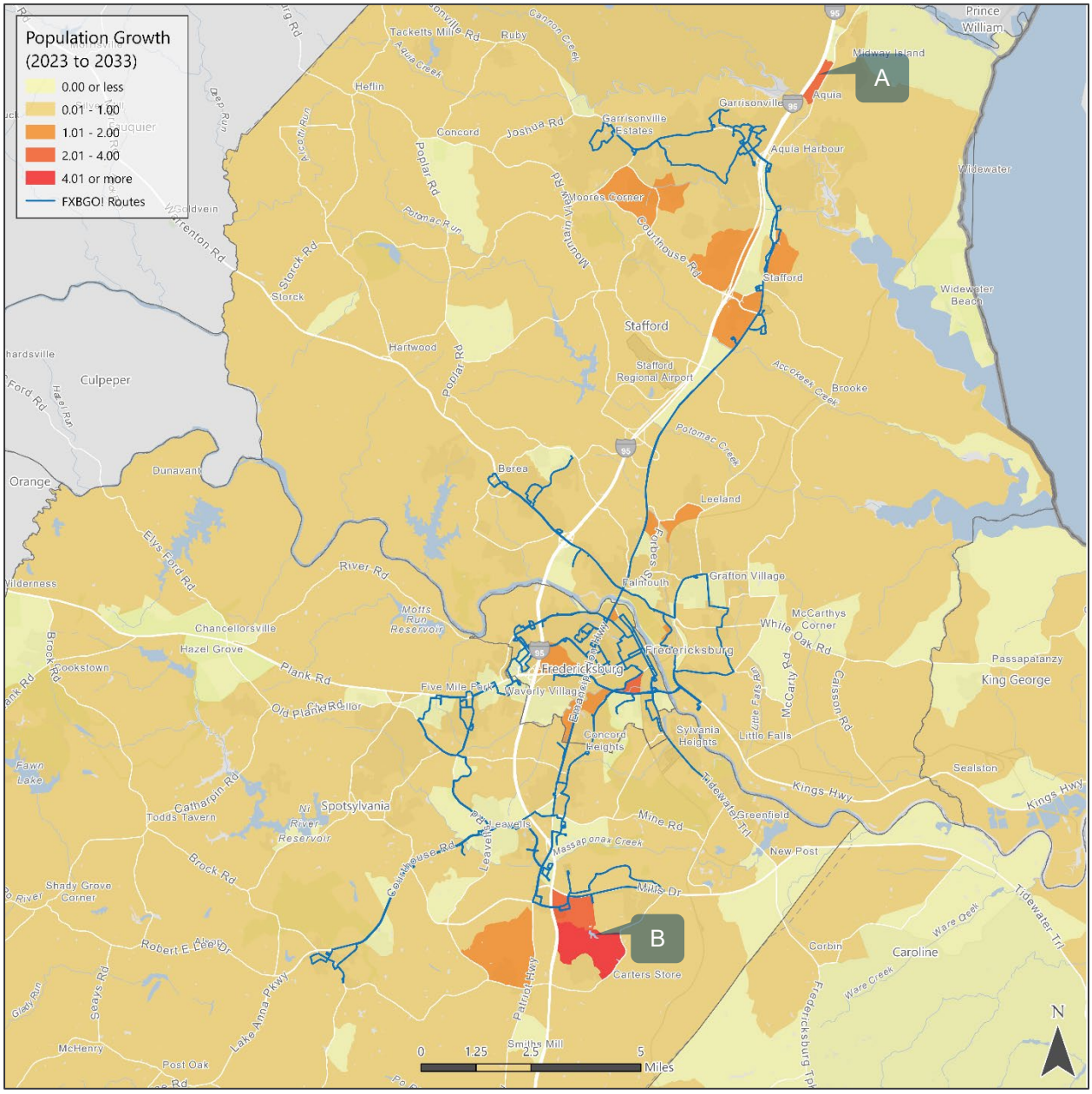
Projected population and employment data was obtained from the FAMPO 2050 Long-Range Transportation Plan (LRTP)[4] to understand the future anticipated growth. LRTPs with at least a 20-year horizon are required by the Moving Ahead for Progress in the 21st Century Act (MAP-21) and need to be updated at least every four (4) years. The FAMPO 2050 LRTP was adopted on March 28, 2022, and was utilized here to show projected growth over the ten-year TSP planning period. Population and employment growth for 2023 to 2033 was calculated by measuring the difference of estimates based on straight line interpolation of intermediate years.

Figure 2-14 shows the projected population growth over the next ten (10) years. Most of the region is expected to grow modestly, with pockets of higher population concentrations primarily along the Interstate 95 corridor. Specific areas with the highest anticipated population growth include:

- The area between US Route 1 and Interstate 95 in Stafford County, north of Smith Lake (**Location A**). This area is not currently served by FXBGO!.
- The area east of Interstate 95 and south of Mills Drive around Spotsylvania Regional Medical Center (**Location B**) in Spotsylvania County. The northern portion of this area is currently served by Routes S4 and S5, while the southern portion along Massaponax Church Road is not currently serviced by FXBGO!

[4] *Fredericksburg Area Metropolitan Regional Planning Organization (2022). Long Range Transportation Plan (LRTP)*

FIGURE 2-14: PROJECTED POPULATION GROWTH (2023 TO 2033)

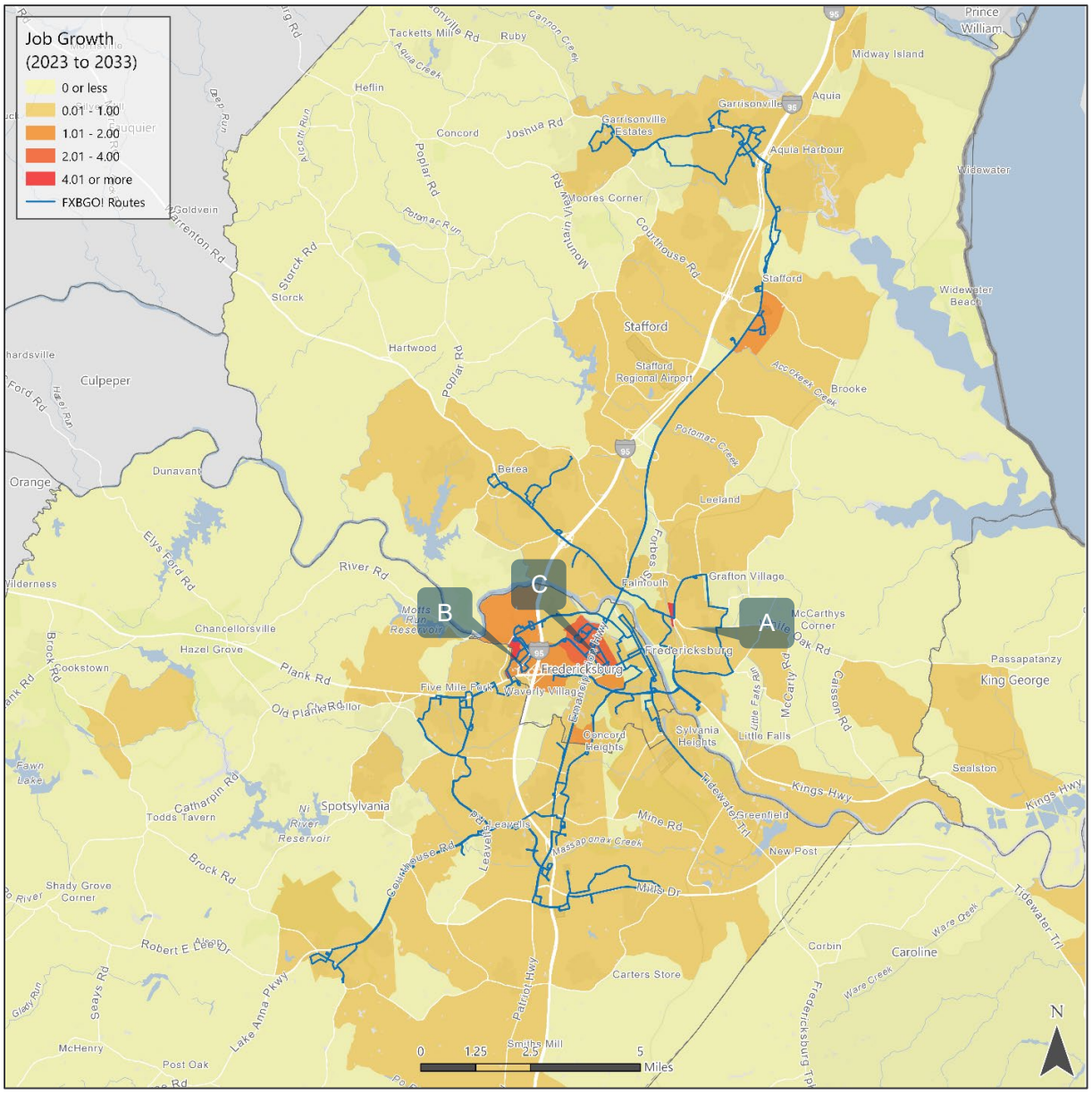


Source: FAMPO 2050 Long Range Transportation Plan

Figure 2-15 shows the projected job growth in Fredericksburg and the surrounding area over the next ten (10) years. Job growth is expected to be more centralized than population growth, with almost all job growth occurring within approximately four (4) miles of the Interstate 95 corridor. The highest job growth is expected to occur in Fredericksburg. Specific locations of job growth include:

- Dahlgren Junction in Stafford County (**Location A**), currently served by Route D1.
- The retail development along Carl D. Silver Parkway and around the Walmart in Fredericksburg (**Location B**), currently served by Routes F1, F4, and EX.
- Along Cowan Boulevard in Fredericksburg near Mary Washington Hospital (**Location C**). This area is currently served by Routes F1, F2, and EX.

FIGURE 2-15: PROJECTED JOB GROWTH (2023 TO 2033)



Source: FAMPO 2050 Long Range Transportation Plan

Opportunities to Expand Service to Underserved Areas

This section analyzes opportunities to expand service to underserved areas. To identify locations and times that are underserved, transit service is evaluated against the demand for transit. This is completed by comparing demand with the availability and frequency of the existing transit service. The analysis therefore enables identification of areas with an imbalance between FXBGO! transit services and the need for transit service.

The framework for evaluating transit supply and demand can be summarized into the following three steps:

1. Evaluate transit demand using demand metrics (activity density and transit propensity density)
2. Assess transit supply using service data (transit supply)
3. Compare transit supply and demand metrics (activity density and transit propensity density) to locate areas of imbalance (low supply and high demand)

Places with low supply and high transit demand may represent opportunities for increasing or expanding service. Conversely, places with low transit demand and high supply may represent opportunities for reducing or eliminating service.

Activity Density

To measure activity-based demand for transit in the region, activity densities were calculated based on the aggregate population and jobs at the Census Block Group level. Because job density tends to have a greater effect on transit ridership than population,[5] the total jobs in each census block group is increased by a factor of two (2) to create a jobs score. The total population for each census block group is then added to the jobs score for an overall activity score. The activity scores are then normalized by accessible area, which omits water bodies. Activity density is thereby calculated using the following formula:

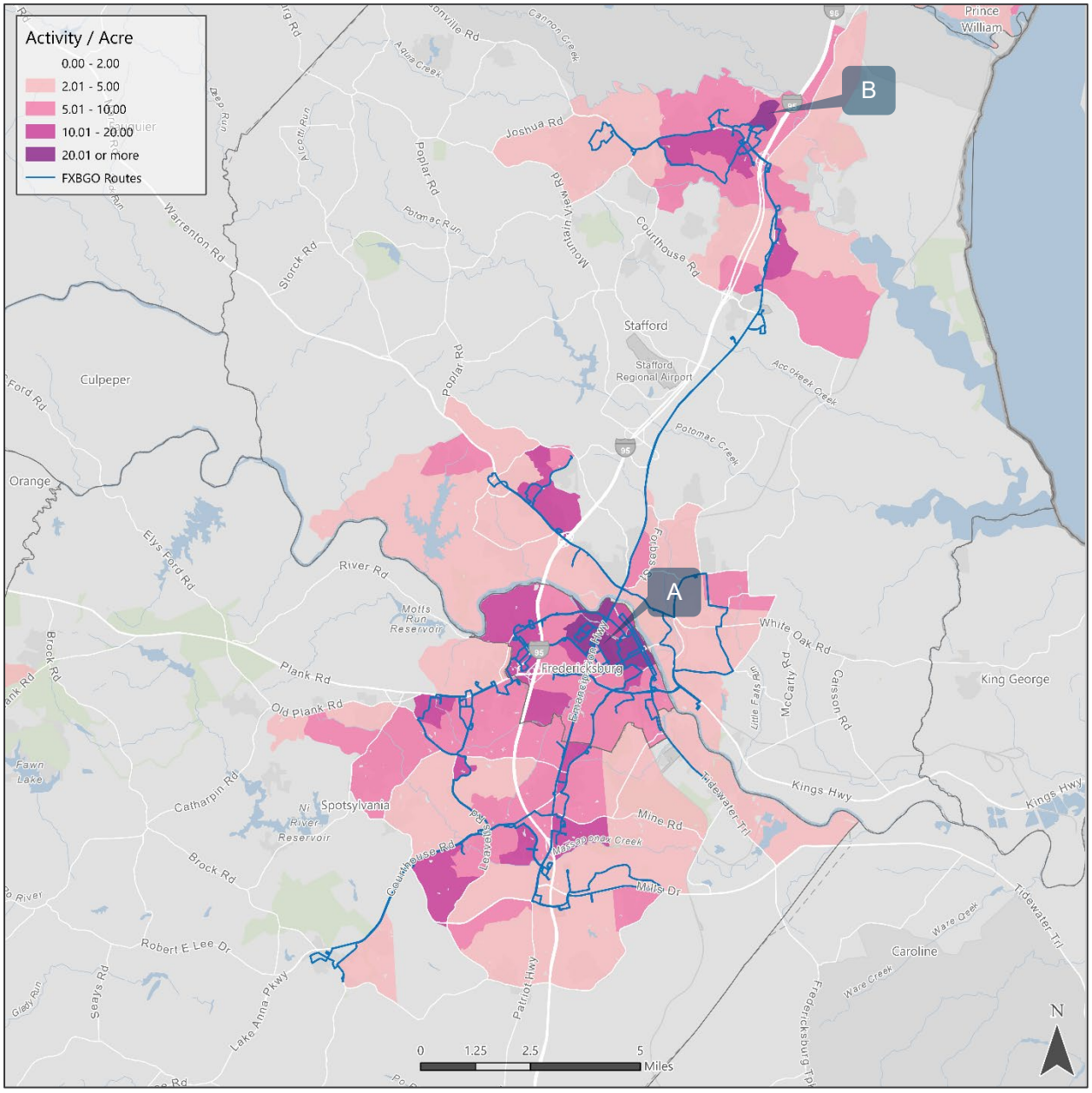
Activity Density = (Population + (2 x Jobs)) / Accessible Area

The results of the activity density calculations are shown in **Figure 2-16**. Activity is generally strongest within Fredericksburg, driven by a combination of high population and job densities. There is high activity along the Interstate 95 corridor from Fredericksburg into Spotsylvania through Bellvue and Cosner's Corner. High activity also exists along Plank Road and Old Plank Road west of Fredericksburg. Activity density in Stafford is primarily concentrated along the Fredericksburg boarder on the south, and Garrisonville in the north. Specific locations with high density include:

- The Fredericksburg neighborhoods west of Emancipation Highway and northeast of Cowan Boulevard, both north and south of VEPCO Canal and served by Routes F4 and F5 (**Location A**). The area also includes neighborhoods east of Emancipation Highway and northeast of College Avenue, but exclusively south of VEPCO Canal. and served by Route F5.
- Foxwood Village neighborhood north of Stafford Marketplace, served by Route D3 and Route D4 and bounded by Doc Stone Road, Short Branch Road, Juggins Road Connector, Staffordboro Boulevard, and Pike Place (**Location B**).

[5] *Arrington and Cervero, 2008; Transportation Research Board 2009; Kolko 2011*

FIGURE 2-16: ACTIVITY DENSITY



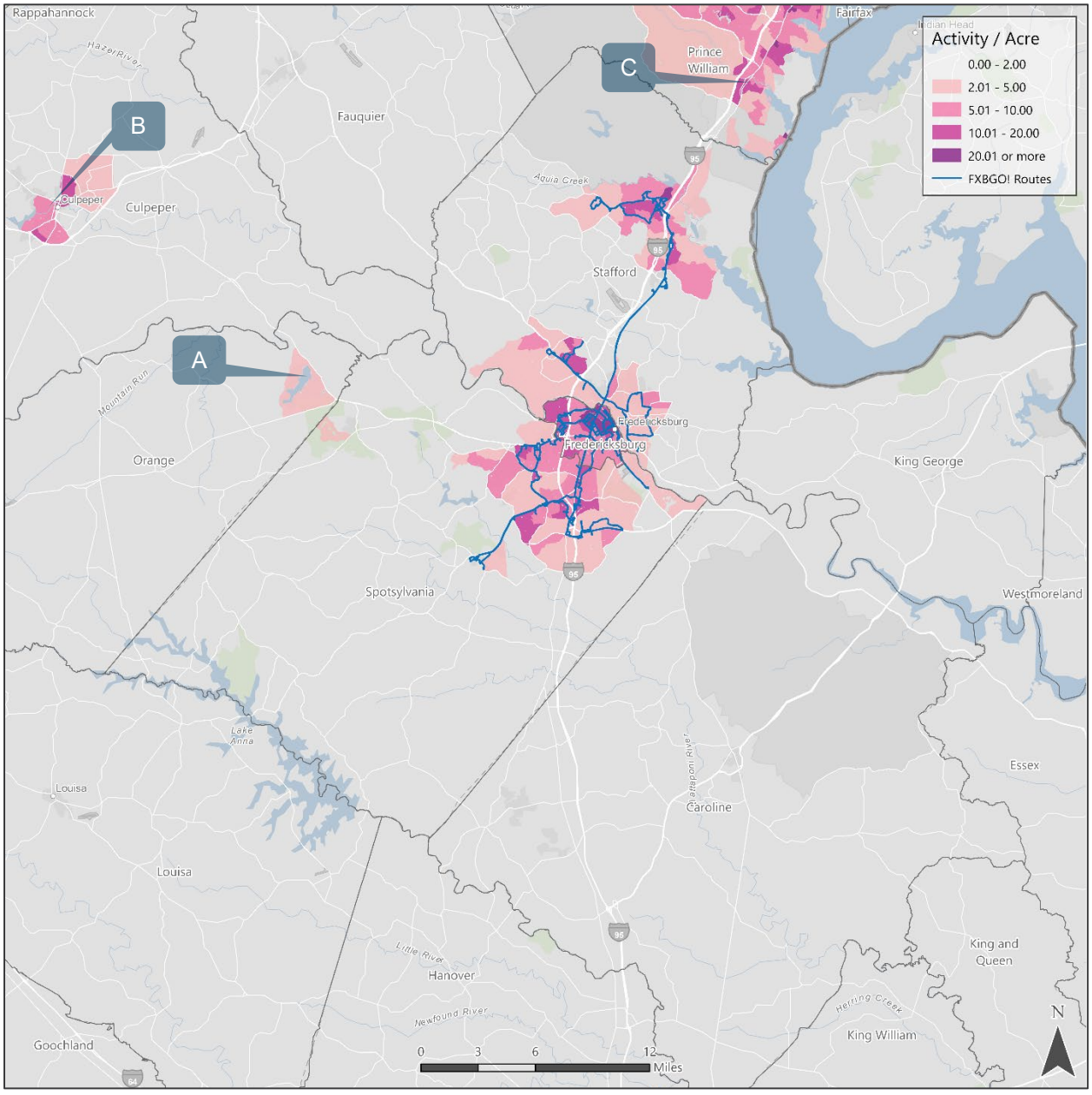
Source: 2020 American Community Survey (ACS) and 2019 Longitudinal Employer-Household Dynamics (LEHD)

Regional activity density is illustrated in **Figure 2-17** to show opportunities to expand service outside the existing service area. Several areas with elevated activity densities are described below in the context of potential transit service expansion.

- Residential development around Lake Wilderness, Lake of the Woods, and Wilderness Crossing, located at the boundary of Spotsylvania and Orange Counties have elevated activity density of two (2) to five (5) per acre (**Location A**).
- The town of Culpeper, in Culpeper County (**Location B**) has activity densities as high as 15 per acre. This area is served by Virginia Regional Transit.

- The high activity density along Interstate 95 and US Route 1 corridor continues from Stafford County into Prince William County (**Location C**). Transit services are operated by OmniRide in Prince William County.
- Nearby King George County and Caroline County exhibit low demand, resulting in no activity densities over two (2) anywhere in the county.

FIGURE 2-17: REGIONAL ACTIVITY DENSITY



Source: 2020 American Community Survey (ACS) and 2019 Longitudinal Employer-Household Dynamics (LEHD)

Transit Propensity

Aside from concentration of population and employment, there are a number of sociodemographic characteristics that increase the likelihood of riding transit based on need. Evidence from comparable communities indicate that these traditionally transit-dependent populations, especially low-income households, and those without access to automobiles, have the highest rates of transit patronage. Transit propensity was estimated by calculating the density of these populations and aggregated to summarize the relative need for transit service. A total of six (6) variables were utilized in the transit propensity density calculation, listed below: [6]

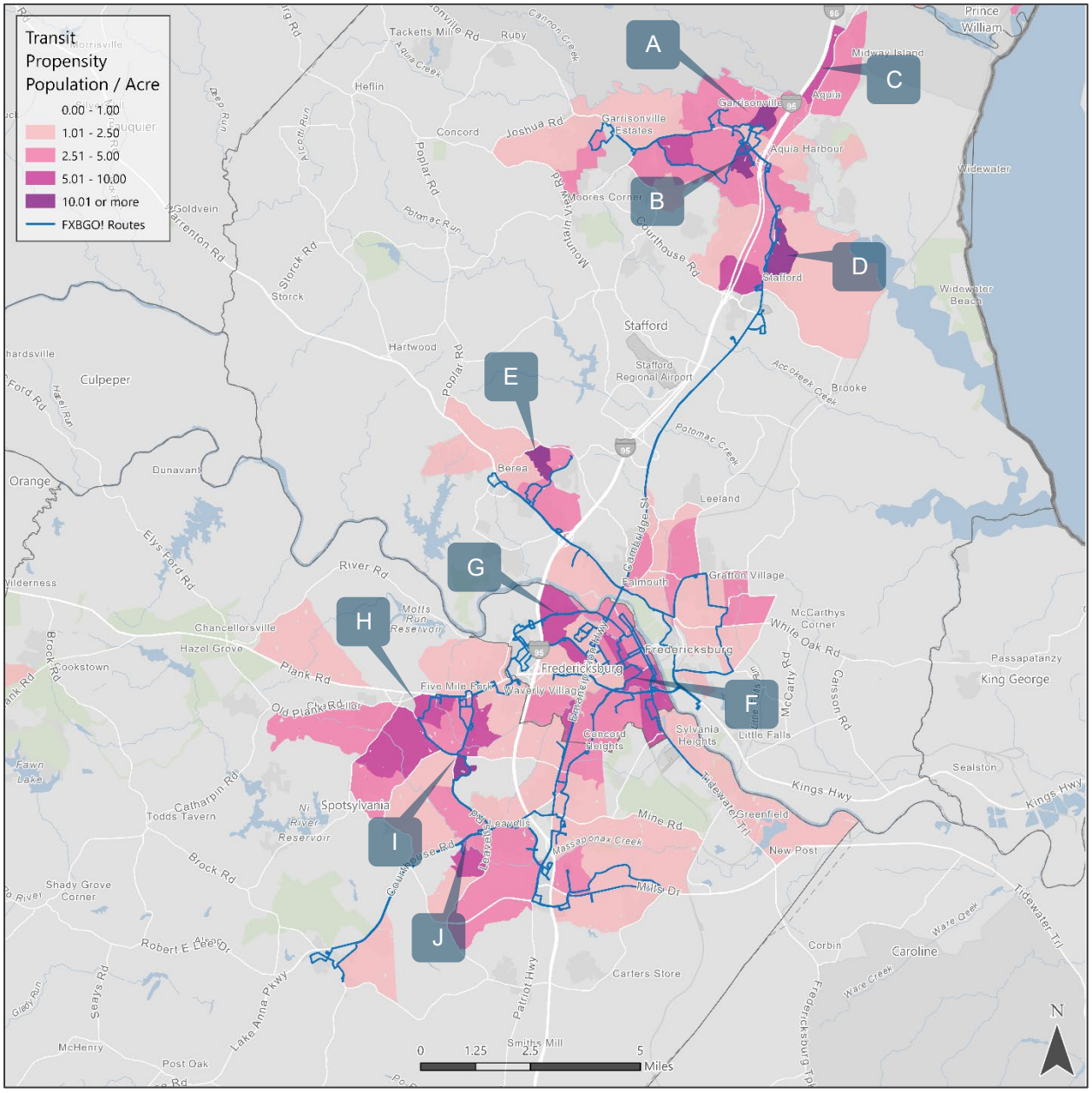
- Low-income population (below 150 percent (150%) of the federal poverty line)
- Minority population (any race/ethnicity other than white/non-Hispanic)
- Zero-car population
- Limited English proficiency (LEP) population
- Persons with disabilities population
- Older adults population (age 65+)

Transit propensity density is illustrated in **Figure 2-18**, with key locations described below:

- The map shows several areas in Stafford County that result in high propensity in Garrisonville (**Locations A and B**), and along parts of US Route 1 (**Locations C and D**). Warrenton Road, in southern Stafford County has multiple areas with elevated need densities as well (**Location E**).
- Fredericksburg shows elevated propensity downtown (**Location F**) and along Fall Hill Avenue east of Interstate 95 (**Location G**). Most of Fredericksburg has at least some level of elevated need density.
- Most of the elevated propensity densities in Spotsylvania occur west of Interstate 95, especially along Plank Road (**Location H**), Harrison Road (**Location I**), and around Leavells Road (**Location J**).

[6] *Each variable in the transit propensity analysis was given equal weight so that an individual counted as elderly has equal weight as a student, minority individual, etc. Because zero-vehicle households are on the household level (instead of at the population level), it was multiplied by the average household size for that specific Census Block Group (CBG). Using this methodology creates six (6) variables at the population level for every CBG in the study area. Therefore, the transit propensity density does not give variables at the population level more weight than the variables at the household level. Each of the six (6) variables were then added together and normalized using accessible area that omits bodies of water.*

FIGURE 2-18: TRANSIT PROPENSITY

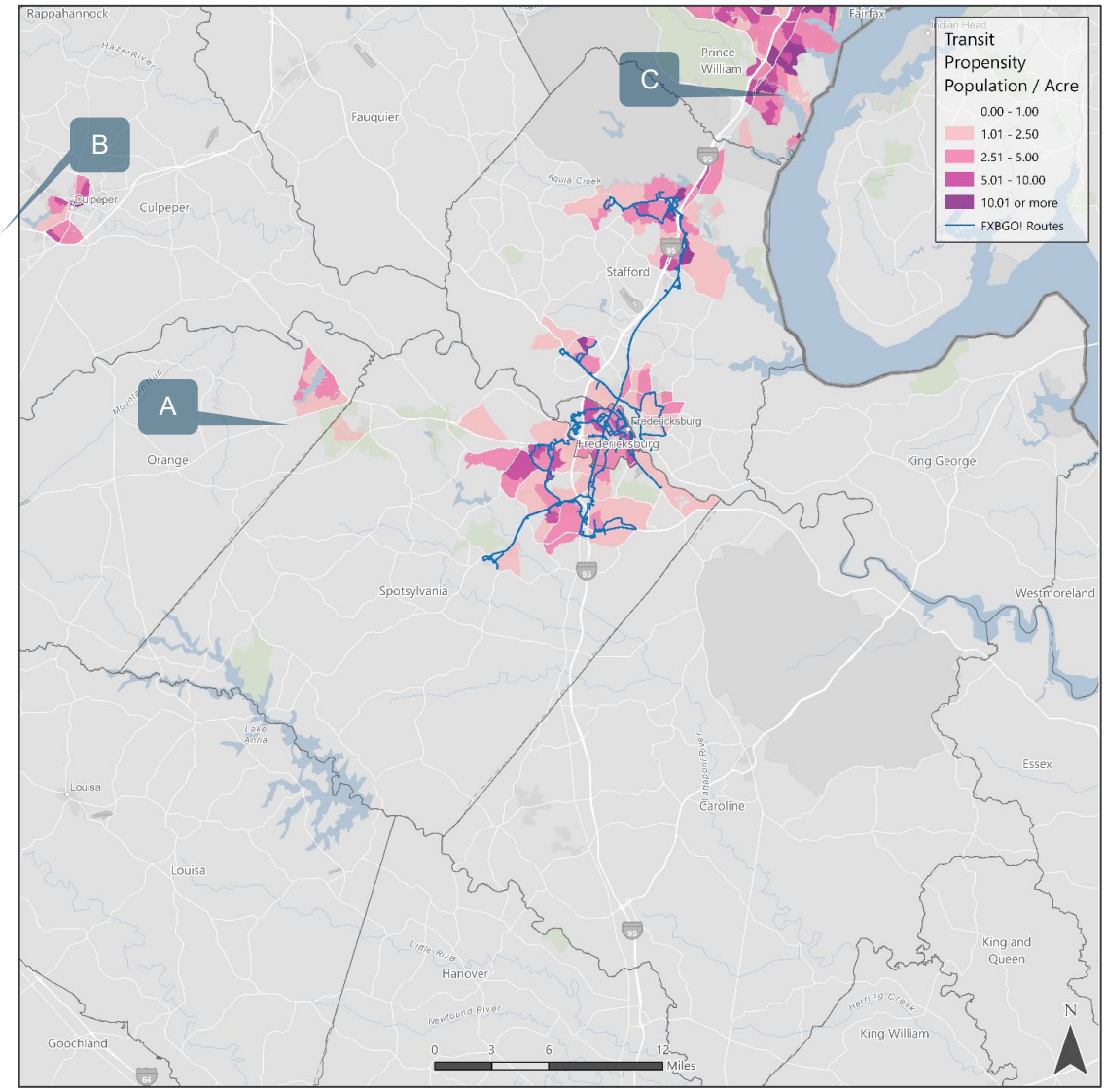


Source: 2020 American Community Survey (ACS)

Regional transit propensity density is illustrated in **Figure 2-19.** The results of the regional transit propensity analysis were similar to the activity density analysis in the previous section. Specific areas with elevated transit propensity are described below.

- The residential development around Lake of the Woods in Orange County (**Location A**) is the closest area that shows elevated transit propensity (over one (1.00) per acre).
- Downtown Culpeper (**Location B**) has elevated transit propensity (between one (1.0) and ten (10.00) per acre). Downtown Culpeper is served by Virginia Regional Transit.
- The Interstate 95 and US Route 1 corridor north of Stafford County has high transit propensity, with Dumfries in Prince William County showing high transit propensity. Some Census Block Groups in the area have transit propensity densities of over 20.00 per acre (**Location C**).

FIGURE 2-19: REGIONAL TRANSIT PROPENSITY



Source: 2020 American Community Survey (ACS)

Transit Supply

Transit demand was described in the previous section. In order to evaluate how the existing FXBGO! transit service is meeting that demand and to identify opportunities to expand, transit supply must be measured. Transit supply is measured here using a methodology that incorporates aspects of coverage, frequency, and accessibility. This section describes the how transit supply is quantified. The following section describes how transit supply compares to the transit demand, including identification of transit gaps.

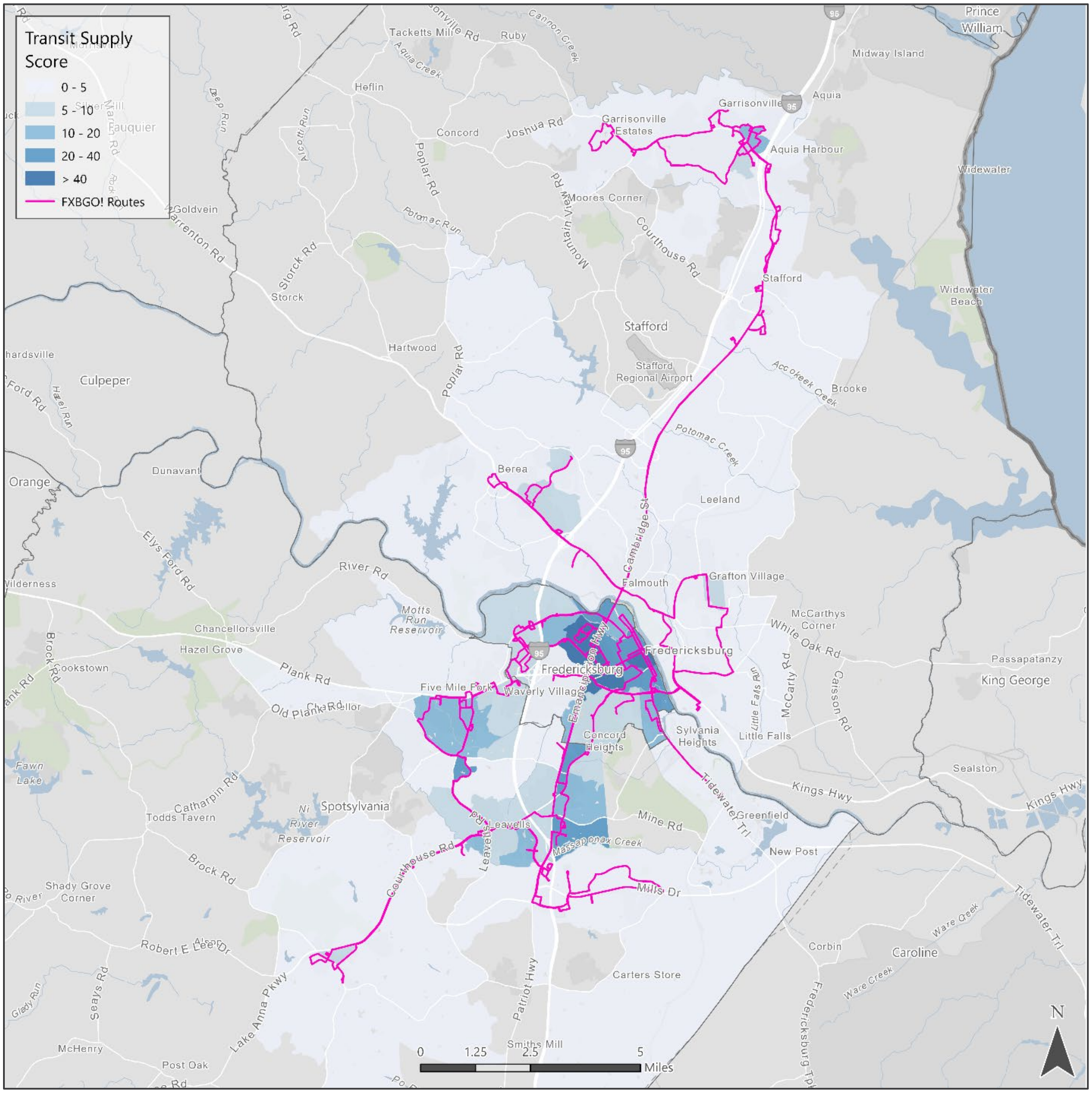
The process of calculating transit supply generally falls into two (2) steps:

1. A 0.25 mile walk network was created to model the accessible area around each bus stop in the FXBGO! transit network.
2. Using the Fall 2022 General Transit Feed Specification (GTFS), a trip dataset was created showing the accessible area around each bus stop for every trip during a weekday.

The result of this analysis, shown in **Figure 2-20**, is a single score for every Census Block Group (CBG) in the region that accounts for both the transit coverage and frequency using a 0.25-mile network walk distance from bus stops. It is important to note that the size and shape of each CBG influences the transit supply in some places, especially in areas where CBGs have large and/or irregular shapes. Despite this limitation, the results of the transit supply still provide valuable insights into how service is distributed in the region.

As shown in **Figure 2-20**, most of the areas with high transit density are areas where multiple routes serve the same CBG. This is because FXBGO! service primarily operates on 60-minute headways, and these areas primarily occur in Fredericksburg where most of the routes in the transit network connect. Most of the remaining service in the area is low density.

FIGURE 2-20: TRANSIT SUPPLY SCORE



Source: Fall 2022 General Transit Feed Specification (GTFS)

Transit Supply and Activity Density

Transit supply was combined with activity density to form a composite that shows combinations of supply and demand. **Figure 2-21** shows the number of CBGs that fall into categories of transit density and activity density. Activity densities are separated into quartiles in shades of magenta. Transit supply densities are shown as high, medium, low, or no service, represented in shades of blue. Each combination of activity density and transit supply has a unique color, showing the relationship of the supply and demand.

FIGURE 2-21: ACTIVITY DENSITY AND TRANSIT SUPPLY

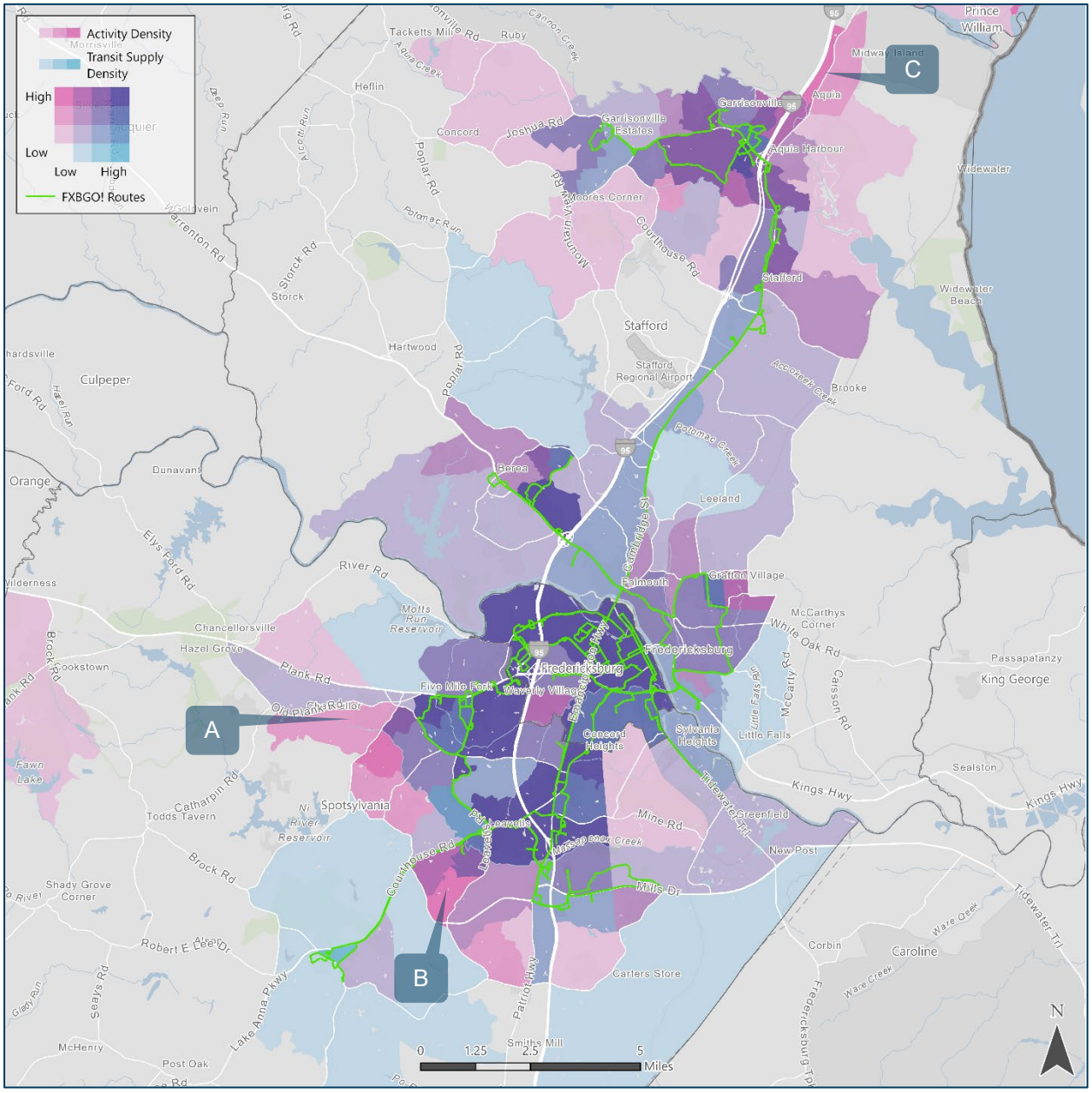
High Activity	4	High (Highest 25%)	3 (2%)	5 (3%)	11 (6%)	28 (15%)
	3	Medium High (50-75%)	8 (4%)	11 (6%)	19 (10%)	9 (5%)
	2	Medium Low (25-50%)	7 (11%)	15 (8%)	10 (5%)	1 (1%)
Low Activity	1	Low (Lowest 25%)	20 (20%)	8 (4%)	0 (0%)	1 (1%)
			No Service	Low (Lowest 33%)	Medium (33-66%)	High (Highest 33%)
			1	2	3	4
			Low Transit Supply			High Transit Supply

Potential service gaps can be found the upper left quadrant of the matrix. These cells represent higher activity and lower service supply. Conversely, potential service inefficiencies can be found in the lower right quadrant of the matrix. These cells represent lower activity and higher transit service.

The results of this approach are also shown as a bivariate choropleth map in **Figure 2-22**. Findings from the analysis are summarized below:

- Overall, transit supply aligned well with activity. Most of the CBGs with high activity also had high transit supply. Conversely, most of the CBGs with low activity and also had low supply.
- Most of Fredericksburg shows a balance of high activity and high transit supply. The Emancipation Highway and Plank Road corridors show balance as well.
- Service gaps occur mostly just beyond the reach of the transit network, in places like Chancellor (**Location A**) and west of Cosner's Corner in Spotsylvania (**Location B**), and along Interstate 95 just north of the Stafford routes (**Location C**).

FIGURE 2-22: TRANSIT SUPPLY AND ACTIVITY DENSITY



Source: 2020 American Community Survey (ACS), 2019 Longitudinal Employer-Household Dynamics (LEHD), and 2022 General Transit Feed Specification (GTFS)

Transit Supply and Transit Propensity Composite

Transit supply also was combined with the transit propensity to form a composite that shows combinations of categories. **Figure 2-23** shows the number of CBGs that fall into each category of transit propensity density and transit supply combination. Transit propensity densities are grouped into quartiles, shown in magenta. Similar to composite with activity density, the transit supply is shown as high, medium, low, or no service, represented in shades of blue. Each combination of transit propensity density and transit supply has a unique color, showing the relationship of the supply and demand. The potential service gaps of high need and low supply can be found in the upper left quadrant of the matrix. Potential oversupply can be found in the lower right quadrant of the matrix, representing high supply and low need.

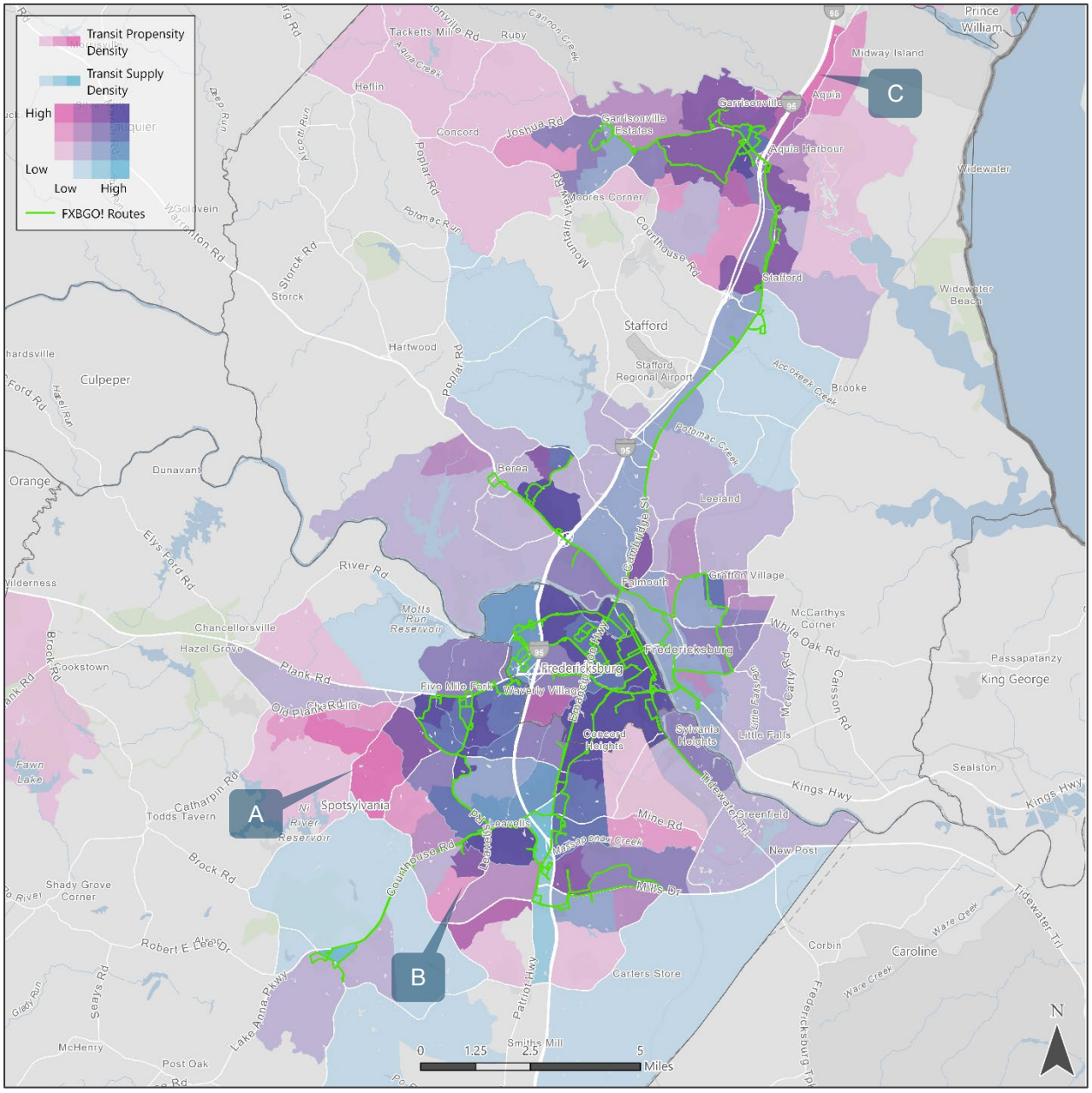
FIGURE 2-23: TRANSIT PROPENSITY DENSITY AND TRANSIT SUPPLY

High Need	4	High (Highest 25%)	4 (2%)	4 (2%)	15 (8%)	24 (13%)
	3	Medium High (50-75%)	9 (5%)	11 (6%)	15 (8%)	11 (6%)
	2	Medium Low (25-50%)	18 (10%)	17 (9%)	9 (5%)	2 (1%)
Low Need	1	Low (Lowest 25%)	37 (20%)	7 (4%)	1 (0%)	2 (1%)
			No Service	Low (Lowest 33%)	Medium (33-66%)	High (Highest 33%)
			1	2	3	4
			Low Transit Supply			High Transit Supply

The results of the transit supply and transit propensity density composite are shown geographically in **Figure 2-24** and described below.

- Overall, transit supply and transit propensity are well balanced in most places.
- Areas with elevated need and no supply include several neighborhoods just west of Route S1 along Gordon Road (**Location A**) and along Leavells Road (**Location B**). In Stafford, there is elevated transit propensity density along Interstate 95 (**Location C**). However, FXBGO! previously provided service in some of these areas with limited returns on ridership.

FIGURE 2-24: TRANSIT SUPPLY AND TRANSIT PROPENSITY

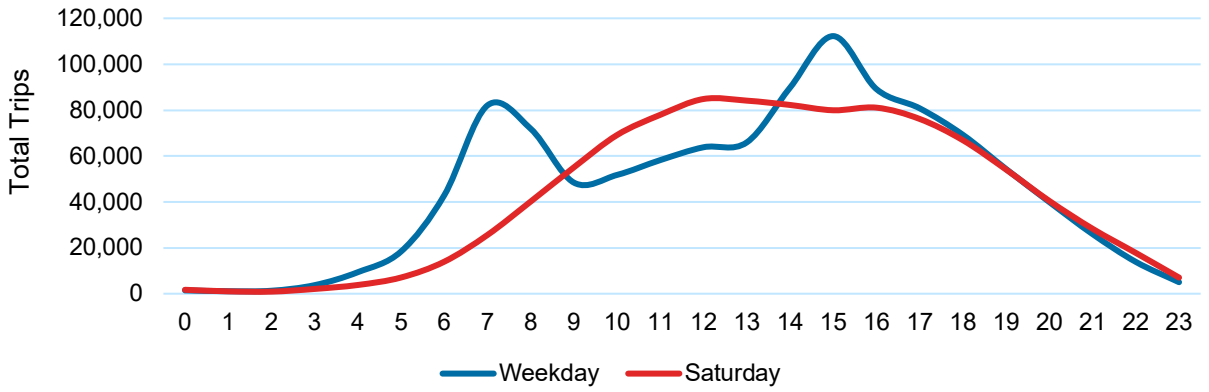


Source: 2020 American Community Survey (ACS) and 2022 General Transit Feed Specification (GTFS)

Temporal Demand

Travel demand of all modes changes by day of the week and time of day. Travel demand on weekdays is typically greatest during commute times in the morning from 6:00 a.m. to 9:00 a.m. and again the late afternoon from 3:00 p.m. to 6:00 p.m. Weekend travel demand typically begins later in the day and has a more gradual increase in trips until the mid-afternoon time period. **Figure 2-25** shows the travel demand throughout the course of a typical weekday and Saturday in Fredericksburg, Spotsylvania, and Stafford using Replica travel demand model data. The data reveals that travel demand is greatest on weekdays during the peak, but that midday travel demand is higher during Saturdays than on weekdays. Over the course of an entire day, the travel demand on Saturdays is approximately 91 percent (91%) of the travel demand on weekdays.

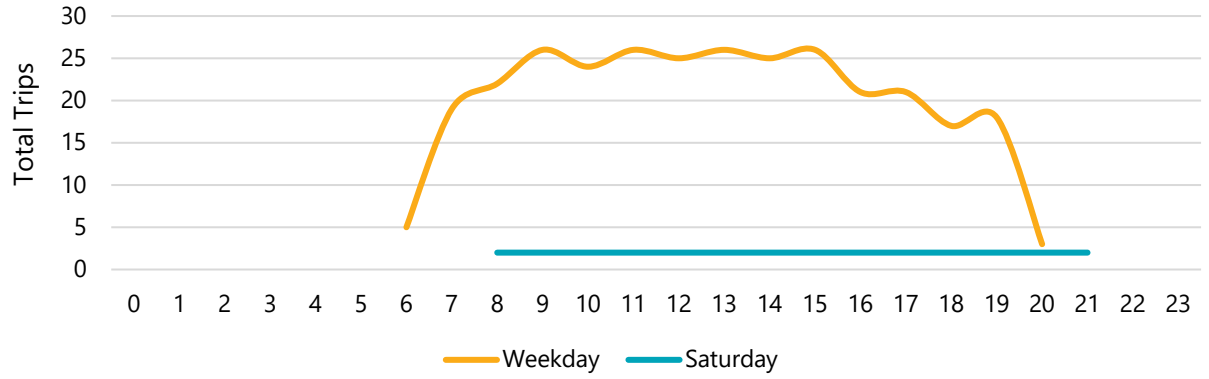
FIGURE 2-25: TRAVEL (ALL MODES) BY TIME OF DAY



Source: Fall 2021 Replica data

Figure 2-26 shows FXBGO! transit trips provided throughout the day for weekdays and Saturdays. FXBGO! operates every route except for Route EX during the day from Monday through Friday. On Saturdays, Route EX is the only route in service. Using number of trips to measure amount of service, Saturday service is only 9 percent (9%) of the service offered on weekdays. The distribution of service by day of week creates a large disparity in service and demand.

FIGURE 2-26: TRANSIT SERVICE BY DAY OF WEEK



Source: August 2022 RouteMatch data

2.2.2 TRANSIT DEMAND AND UNDERSERVED AREA OPPORTUNITIES FOR IMPROVEMENT

This section provides the "opportunities for improvement" based on the evaluation of transit demand and underserved areas in the previous sections.

Areas with high transit demand and underserved areas that would benefit from additional service are described below.

- Most of the City of Fredericksburg has densities high enough to support improved transit service beyond the low-frequency services currently provided. Improving frequencies in Fredericksburg may entice new riders to try the service or existing riders to use the service more often.
- Employment data shows that jobs are relatively well served by transit with some exceptions, such as Courthouse Road and Warrenton Road in Stafford County, and Plank Road in Spotsylvania. Serving these areas with transit would improve access to jobs and potentially increase ridership.
- Most of the areas that do not have access to transit today that may benefit from service are in Stafford and Spotsylvania. In Stafford, there is elevated transit propensity along Interstate 95 and along Garrisonville Road beyond the reach of Route D4. In Spotsylvania, there are higher transit propensity densities west of Route S1 along Gordon Road, and between Route S1 and Route S5 along Leavells Road. It should be noted, however, that when these areas were served in the past, the resulting ridership was low.
- The temporal analysis showed that demand for travel is nearly as high on Saturdays as it is on weekdays (Saturdays have 91 percent (91%) of the number of trips compared to weekdays). However, FXBGO! only operates one (1) route on Saturday (compared to 11 routes on weekdays).

Areas with low transit demand that have too much service are described below.

- FXBGO! transit service is primarily 60-minute service and therefore designed to fit the needs of a low demand area. There were no areas identified that have too much transit service.

Descriptions of specific solutions to gaps and service deficiencies for transit services are described below.

- One potential solution to service gaps in Fredericksburg is to improve headways on F Routes. The current 60-minute service could be improved to operate every 30-minutes to help with this service deficiency.
- Route alignments could be modified to reach areas of employment not currently served. Examples include:
    - Modifying Route D2 along Warrenton Road to serve Walmart
    - Modifying Route D4 to serve Publix on Sunflower Drive
    - Modifying Route S1 to serve more of Plank Road
    - Modifying Route F4 to serve Fredericksburg Nationals Ballpark
- Operating weekday service on Saturdays and Sundays would fill the gap in weekend service.

2.3 Performance Evaluation

This section assesses the existing performance of FXBGO!'s transit service using industry metrics and compares them to performance standards based on the strategic vision, goals, and objectives for the system. The performance evaluation assesses FXBGO! service at the system, route, and stop level, to understand where the system could improve. Opportunities for service improvements based on the performance evaluation are presented immediately following this section.

2.3.1 PERFORMANCE EVALUATION

The performance of FXBGO! service was evaluated on ridership, cost efficiency, safety, and system accessibility metrics. A peer comparison yields additional insight into how FXBGO! is performing relative to other agencies with similar composition. The results of this evaluation are discussed in the following sections.

System Evaluation

FXBGO! ridership, costs, and service data were collected from National Transit Database (NTD) for the five-year period from 2018 to 2022. **Table 2-13** summarizes the operating measures for all FXBGO! routes. The operating measures were then used to calculate system-wide performance measures, shown in **Table 2-14**.

TABLE 2-13: OPERATING MEASURES FIVE-YEAR TREND

Operational Measure	2018	2019	2020	2021	2022
Operating Expenses	$3,850,850	$5,152,302	$5,183,248	$3,805,624	$5,296,892
Fare Revenues	$333,462	$304,830	$240,991	$189,812	$169,831
Annual Unlinked Trips	324,780	296,632	230,263	142,038	179,874
Annual Vehicle Revenue Miles	824,087	863,514	639,434	610,785	598,250
Annual Vehicle Revenue Hours	51,342	53,033	44,153	40,798	40,706

Source: National Transit Database (NTD) 2018-2022

TABLE 2-14: PERFORMANCE MEASURES FIVE-YEAR TREND

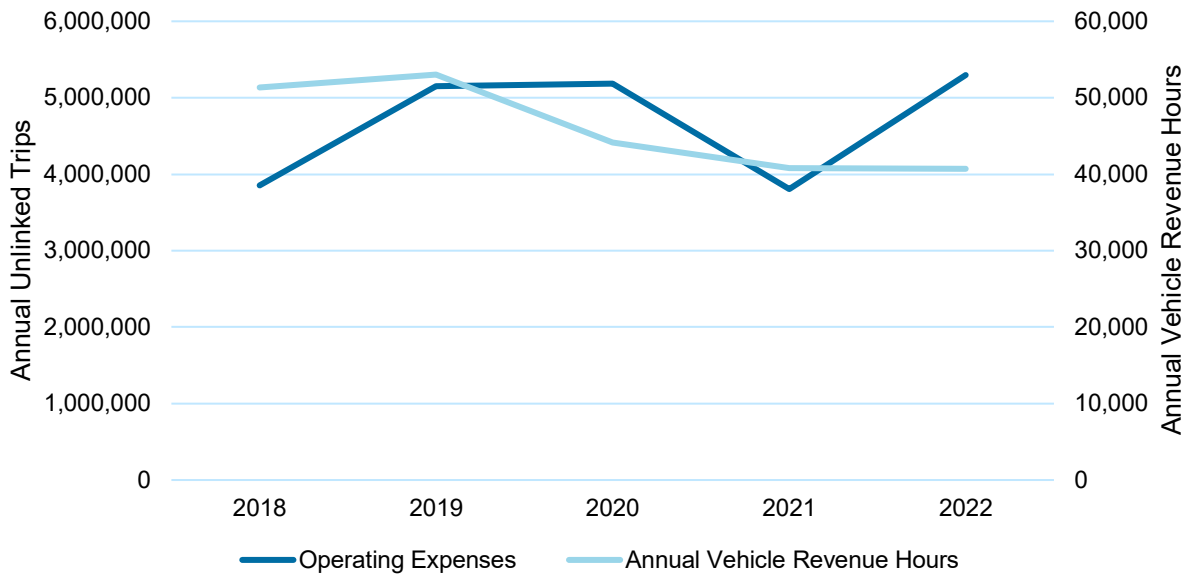
Performance Measure	2018	2019	2020	2021	2022
Operating Expenses per Passenger Trip	$11.86	$17.37	$22.51	$26.79	$29.45
Operating Expenses per Vehicle Revenue Mile	$4.67	$5.97	$8.11	$6.23	$8.85
Operating Expenses per Vehicle Revenue Hour	$75.00	$97.15	$117.39	$93.28	$130.13
Passenger Trips per Vehicle Revenue Mile	0.39	0.34	0.36	0.23	0.30
Passenger Trips per Vehicle Revenue Hour	6.33	5.59	5.22	3.48	4.42
Farebox Recovery Ratio	8.7%	5.9%	4.6%	5.0%	3.2%

Source: National Transit Database (NTD) 2018-2022

Figure 2-27 and **Figure 2-28** reveal how key metrics trend together over the course of the five-year period. Findings from the five-year retrospective are discussed below:

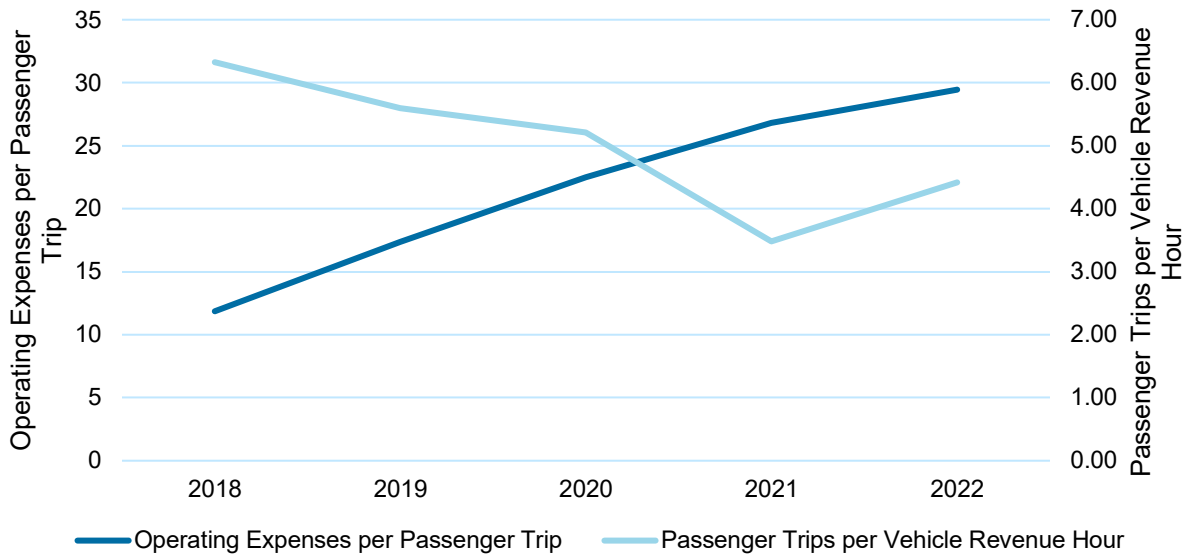
- FXBGO!'s operating expenses increased by 38 percent (38%), by $1,446,042 over the five-year period. A decrease in operating expenses occurred in 2021 during the COVID-19 pandemic, but has otherwise been stable since 2019.
- Ridership decreased every year except for 2022, which saw a rebound from COVID-19 impacts. Additional analysis on the impacts of the COVID-19 pandemic is shown in the Route Evaluation section, which shows monthly ridership trends.
- The decreases in ridership and increasing costs result in less efficient service from 2018 to 2022. Cost per passenger has increased by $17.59, while riders per revenue hour has decreased by 1.91.
- Revenue from fares decreased significantly over the five-year period, with a decrease of 49.1 percent (49.1%) from 2018 to 2022. Fares, however, have historically accounted for a relatively small proportion of operating expenses. The highest farebox recovery ratio was in 2018 at 8.7 percent (8.7%), and the lowest was in 2020 at 4.6 percent (4.6%). It should be noted that in late February 2022, FXBGO! began fare-free service.

FIGURE 2-27: PASSENGER TRIPS AND REVENUE HOURS FIVE-YEAR TREND



Source: National Transit Database (NTD) 2018-2022

FIGURE 2-28: OPERATING EXPENSES PER PASSENGER TRIP AND PASSENGER TRIPS PER VEHICLE REVENUE HOUR FIVE YEAR TREND



Source: National Transit Database (NTD) 2018-2022

Peer Comparison

A peer comparison was conducted to understand the efficiency and effectiveness of FXBGO! service with respect to similar agencies across the country. The peer comparison provides a quantitative comparison between similar agencies in an effort to highlight opportunities to improve FXBGO! service and identify challenges in the region. A selection process using National Transit Database data, as well as a review of local transit development plans was conducted to identify FXBGO! peers. Peers that were ultimately selected possessed several, but not always all, of the following selection criteria:

Similar city characteristics

- Urban area population is 50,000–150,000
- System serves a college with undergraduate enrollment between 3,000–5,000

Similar services provided

- Vehicle revenue miles between 500,000–750,000 (2019)
- Vehicle revenue hours between 35,000–55,000 (2019)
- Standard bus vehicles operated in maximum service is 10–30 (2019)
- Total revenue vehicles between 20–40 with more than ten (10) that are cutaways (2019)
- Provides fixed-route deviated service

Similar agency makeup

- Governed directly by a city council
- Total facilities and stations between two (2) and four (4)
- Mix of Virginia and out-of-state agencies

The results of the peer comparison are divided into service area (**Table 2-15**), and operation efficiency metrics (**Table 2-16**). Takeaways from the peer analysis are below:

- FXBGO! operates in a larger service area compared to most of its peers (154,880 acres compared to 85,888 acres). Only County Commissioners of Charles County had a larger service area than FXBGO!.
- FXBGO! has a higher cost per passenger than its peers. The $29.45 cost per passenger for FXBGO! is nearly two (2) times as much as the peer average.
- FXBGO! has slightly lower ridership per revenue mile and revenue hour compared to the peers, which is likely a result of operating through primarily low-density development.

TABLE 2-15: SERVICE AREA BASED PEER COMPARISON

Performance Measure	FXBGO	Peer Average	County Commissioners of Charles County (VanGO)	Central Shenandoah Planning District Commission (BRITE)	Pueblo Transit	Billings Metropolitan Transit System	Clarksville Transit
Service Area Acres	154,880	85,888	293,120	16,000	24,960	28,160	67,200
Passenger Trips per Acre	743	6,706	973	6,509	13,925	7,670	4,451
Vehicle Revenue Miles per Acre	2,472	16,486	3,851	28,407	18,337	17,008	14,828
Vehicle Revenue Hours per Acre	168	1,013	218	1,466	1,283	1,203	896
Operating Expenses per Acre	$21,887.98	$94,270.90	$17,160.42	$114,540.28	$130,834.41	$136,900.36	$71,919.03

Source: National Transit Database (NTD) 2022

TABLE 2-16: OPERATING EXPENSE AND PASSENGER BASED PEER COMPARISON

Performance Measure	FXBGO	Peer Average	County Commissioners of Charles County (VanGO)	Central Shenandoah Planning District Commission (BRITE)	Pueblo Transit	Billings Metropolitan Transit System	Clarksville Transit
Operating Expenses per Passenger Trip	$29.45	$15.72	$17.63	$17.60	$9.40	$17.85	$16.16
Operating Expenses per Vehicle Revenue Mile	$8.85	$5.70	$4.46	$4.03	$7.13	$8.05	$4.85
Operating Expenses per Vehicle Revenue Hour	$130.13	$90.56	$78.66	$78.15	$101.94	$113.83	$80.23
Passenger Trips per Vehicle Revenue Mile	0.30	0.40	0.25	0.23	0.76	0.45	0.30
Passenger Trips per Vehicle Revenue Hour	4.42	6.22	4.46	4.44	10.85	6.38	4.97

Source: National Transit Database (NTD) 2022

Route Evaluation

Route level performance was evaluated to understand productivity at a more detailed level. FXBGO! operating statistics and ridership data were reviewed, and performance metrics were calculated for every route in operation from July 2021 to June 2022. It should be noted here that two (2) factors have had an impact on ridership: COVID-19 pandemic and fare-free service. The impacts of both of these factors are discussed in greater detail in this section.

Operating statistics by route are shown in **Table 2-17**, highlighting the routes that require the most resources in terms of daily revenue hours and revenue miles. Deadhead ranking is also displayed, which is the amount of time each route operates before and after service.

TABLE 2-17: OPERATING STATISTICS BY ROUTE

Day of Week	Route	Daily Revenue Hours		Daily Revenue Miles		Deadhead	
		Total	Rank	Total	Rank	Percent	Rank
Weekday	D1	8.9	10	177.7	5	6.8%	6
	D2	12.3	4	210.2	1	5.0%	13
	D3	5.4	15	59.9	16	8.2%	4
	D4	7.6	12	104.1	14	15.8%	1
	D5	5.7	14	125.5	10	5.5%	12
	D5/D3	6.5	13	112.9	13	5.8%	10
	F1	10.5	7	118.7	12	2.0%	17
	F2	13.2	2	185.2	2	4.3%	15
	F3	13.3	1	181.7	4	4.1%	16
	F4A	13.1	3	164.3	6	4.6%	14
	F4B	10.1	8	129.8	9	11.7%	2
	F5	12.0	5	122.0	11	6.0%	8
	S1A	11.7	6	182.3	3	6.5%	7
	S1B	8.9	9	138.9	8	8.4%	3
	S4	3.5	17	68.3	15	5.6%	11
	S4/S5	8.8	11	158.3	7	7.1%	5
	S5	3.5	16	55.3	17	5.9%	9
Friday	EX A	5.8	-	72.1	-	10.2%	-
	EX B	6.0	-	78.6	-	7.7%	-
Saturday	EX A	13.6	-	170.1	-	5.1%	-
	EX B	13.7	-	166.5	-	4.9%	-
Sunday	EX A	8.8	-	111.6	-	5.3%	-
	EX B	8.9	-	111.4	-	7.2%	-

Source: FXBGO! operating statistics report 7/1/2021 – 6/30/2022.
Note: Data sample includes dates during COVID-19 pandemic.
Color Key: Blue indicates higher rank and red indicates lower rank.

Service productivity by route is shown in **Table 2-18**. Observations from the route performance data are as follows:

- Fredericksburg routes are the strongest performing routes in the transit network, with an average of 5.7 passengers per hour. The five (5) best performing routes in terms of total passengers, passengers per revenue hour, and passengers per revenue miles are in Fredericksburg (Routes F1, F3, F4A, F4B, and F5).
- Routes D2, F2, and S1A all have relatively strong performance as well, all with over three (3.0) passengers per revenue hour.
- The poorest performing routes in terms of service productivity are Route S4 and Route S5, although after combining these routes due to the impacts of COVID-19, performance has improved. Most routes in Stafford County except for Route D2 have relatively low performance.

TABLE 2-18: SERVICE PRODUCTIVITY BY ROUTE

Day of Week	Route	Daily Passengers		Riders/Rev Hr		Riders/Rev Mi	
		Total	Rank	Total	Rank	Total	Rank
Weekday	D1	25.1	10	2.82	13	0.14	15
	D2	57.2	6	4.63	6	0.27	6
	D3	15.7	14	2.92	12	0.26	7
	D4	22.9	12	3.01	11	0.22	9
	D5	10.4	15	1.80	17	0.08	17
	D5/D3	20.4	13	3.16	9	0.18	12
	F1	78.1	2	7.44	1	0.66	1
	F2	47.0	7	3.55	7	0.25	8
	F3	81.1	1	6.12	2	0.45	3
	F4A	69.7	4	5.32	5	0.42	5
	F4B	57.7	5	5.74	4	0.44	4
	F5	73.0	3	6.10	3	0.60	2
	S1A	35.7	8	3.06	10	0.20	10
	S1B	24.3	11	2.72	14	0.17	13
	S4	7.0	17	2.01	16	0.10	16
	S4/S5	29.9	9	3.38	8	0.19	11
	S5	8.6	16	2.46	15	0.16	14
Friday	EX A	4.7	-	0.81	-	0.06	-
	EX B	7.7	-	1.29	-	0.10	-
Saturday	EX A	28.7	-	2.10	-	0.17	-
	EX B	30.2	-	2.21	-	0.18	-
Sunday	EX A	22.2	-	2.51	-	0.20	-
	EX B	15.0	-	1.69	-	0.13	-

Source: FXBGO! operating statistics 7/1/2021 – 6/30/2022
Color Key: Blue indicates higher rank and red indicates lower rank.

Table 2-19 shows the financial performance for each route in terms of operating cost and cost per rider. Key findings are described below.

- Approximately half of the routes analyzed resulted in a cost per rider of over $30.00, suggesting that many of the routes in the system are performing poorly. According to the NTD analysis from the previous section, the FY 2021 system average for FXBGO! was $26.79. The peer average cost per passenger was $11.32.
- The least efficient routes in terms of cost per passenger are Route D5 ($54.72), Route S4 ($49.12) and Route S5 ($40.25). It should be noted that Route S4 and Route S5 have been combined due to the impact of the COVID-19 pandemic. Since Route S4 and Route S5 were combined, the cost per passenger improved to $29.66, from $49.12 (Route S4) and $40.25 (Route S5).

TABLE 2-19: FINANCIAL PERFORMANCE BY ROUTE

Day of Week	Route	Daily Operating Cost		Cost/Rider	
		Total	Rank	Total	Rank
Weekday	D1	$860	8	$35.56	12
	D2	$1,168	14	$21.22	6
	D3	$526	3	$34.77	11
	D4	$812	6	$36.78	13
	D5	$546	4	$54.72	17
	D5/D3	$617	5	$31.36	9
	F1	$962	10	$12.79	1
	F2	$1,242	16	$27.44	7
	F3	$1,242	17	$15.91	2
	F4A	$1,235	15	$18.39	4
	F4B	$1,023	11	$18.41	5
	F5	$1,145	13	$16.27	3
	S1A	$1,120	12	$32.54	10
	S1B	$878	9	$37.49	14
	S4	$333	1	$49.12	16
	S4/S5	$856	7	$29.66	8
	S5	$335	2	$40.25	15
Friday	EX A	$581	-	$124.22	-
	EX B	$580	-	$75.53	-
Saturday	EX A	$1,291	-	$45.04	-
	EX B	$1,294	-	$42.85	-
Sunday	EX A	$838	-	$37.75	-
	EX B	$862	-	$57.33	-

Source: FXBGO! operating statistics 7/1/2021 – 6/30/2022

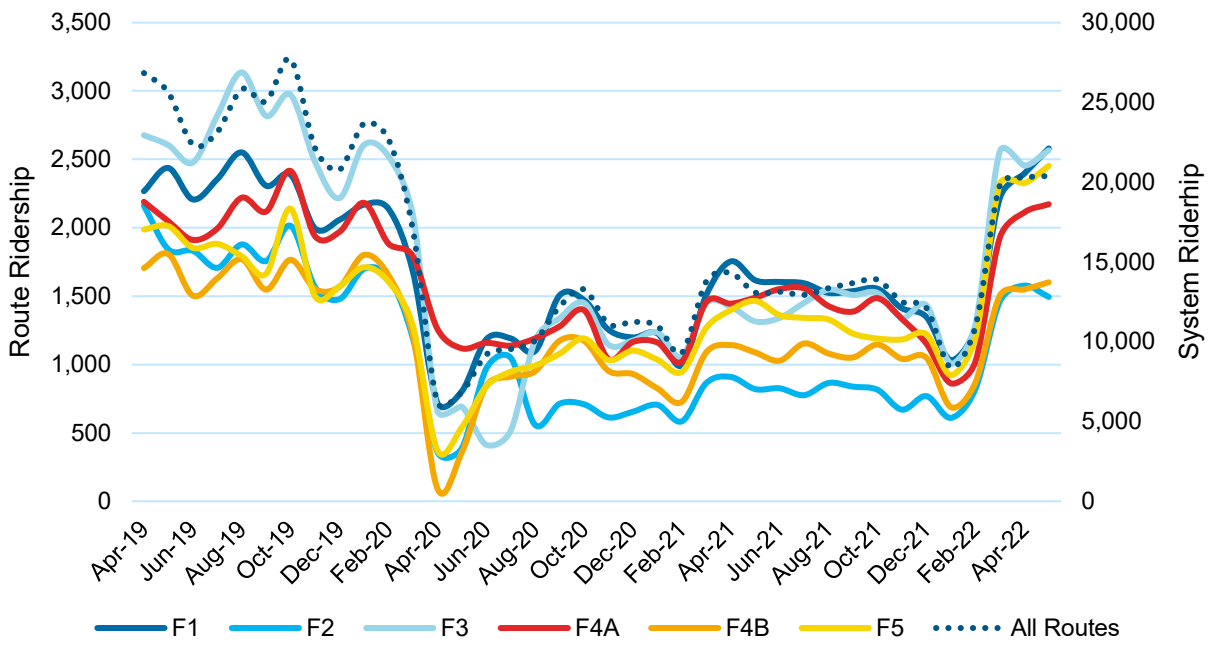
1. Note: Cost assumption of $93.28 per revenue hour was utilized for cost per rider metric (Source 2021 NTD).
2. Color Key: Blue indicates higher rank and red indicates lower rank.

FXBGO! maintains monthly ridership data records for every route in the system. To understand how each route has performed relative to the system over time, ridership data from April 2019 through May 2022 are displayed in **Figure 2-29** (City of Fredericksburg routes), **Figure 2-30** (Spotsylvania County routes), **Figure 2-31** (Stafford County routes), and **Figure 2-32** (Eagle Express EX Route).

The sample period captures pre-pandemic ridership levels and the fluctuations over the course of the pandemic and pandemic recovery. Key trends are identified below:

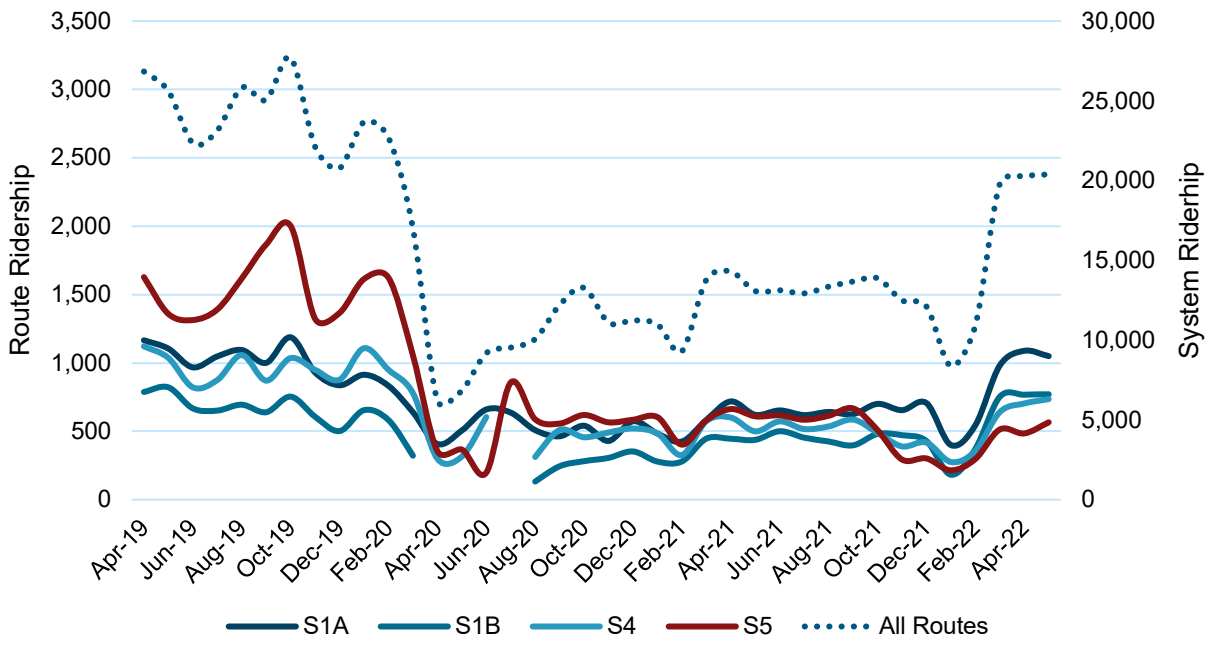
- Ridership decreased to its lowest point in April 2020, where it was only 22.4 percent (22.4%) of the ridership observed in November 2019. However, most months have seen an increase in ridership since. The largest increase in ridership occurred immediately after implementation of fare-free service, which occurred February 28, 2022—there was an 81 percent (81%) increase in ridership immediately following, from 10,935 individual trips (February 2022) to 19,802 (March 2022).
- Although ridership has seen significant rebounds, FXBGO! has not fully recovered to pre-pandemic levels. April 2022 ridership was 76 percent (76%) of April 2019 levels, and May 2022 ridership was 80 percent (80%) of May 2019. Service has been modified over the course of the pandemic, which has likely influenced ridership levels.
- While some routes have yet to recover to their pre-pandemic ridership levels, several routes have increased their ridership totals since before the pandemic. Routes with the greatest increases in ridership from July 2019 to May 2022 are Route D1 at 41.6 percent (41.6%), Route F5 at 30.3 percent (30.3%), and Route S1B at 18.3 percent (18.3%).
- Routes that have seen large ridership losses over the three-year study period are Route S5 with 59.3 percent (59.3%), Route D5 with 25.6 percent (25.6%), and Route S4 with 15.9 percent (15.9%). It should be noted the FXBGO! combined Route S4 and Route S5 in a response to the COVID-19 pandemic.

FIGURE 2-29: FREDERICKSBURG ROUTES MONTHLY RIDERSHIP



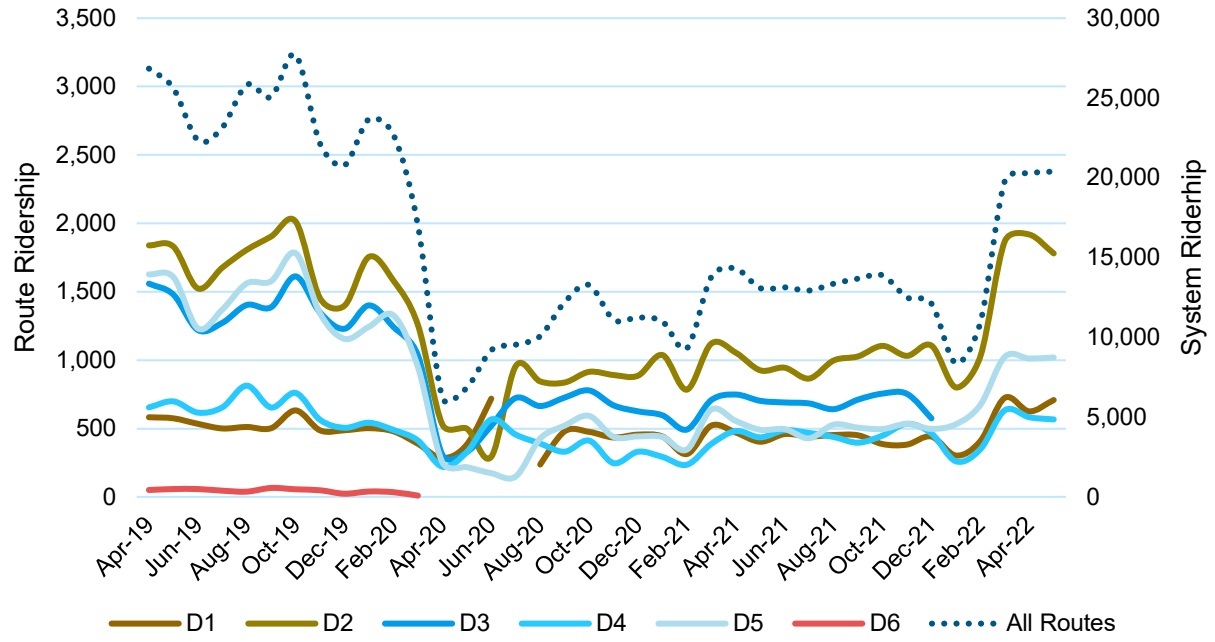
Source: FXBGO! Monthly Ridership Data

FIGURE 2-30: SPOTSYLVANIA ROUTES MONTHLY RIDERSHIP



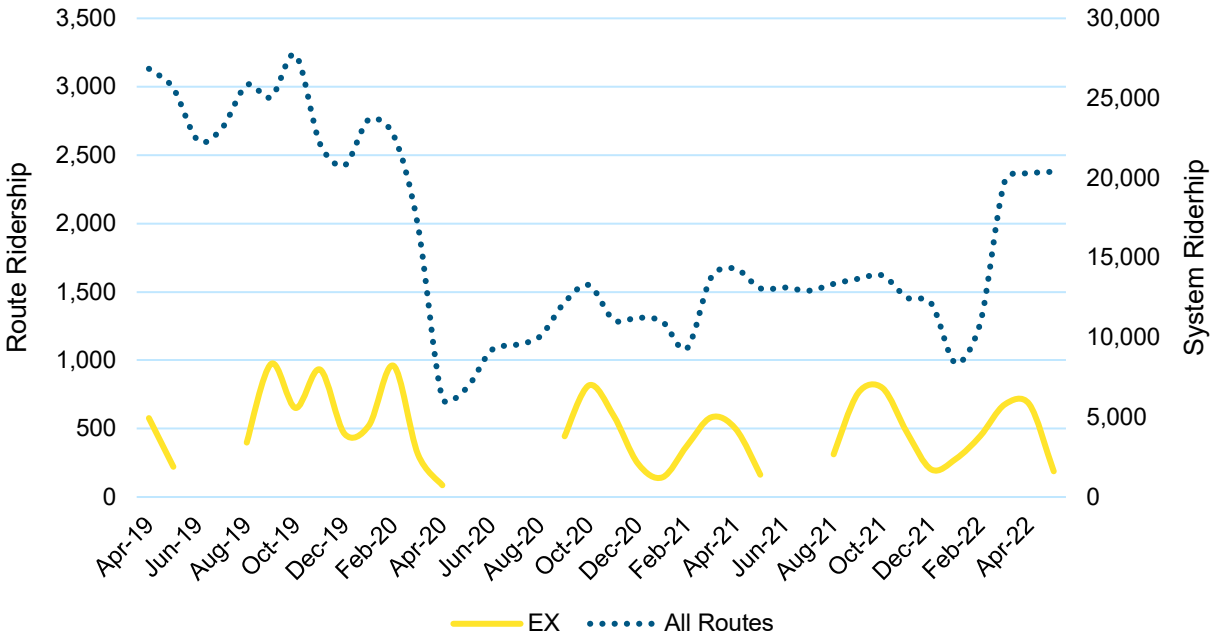
Source: FXBGO! Monthly Ridership Data

FIGURE 2-31: STAFFORD ROUTES MONTHLY RIDERSHIP



Source: FXBGO! Monthly Ridership Data

FIGURE 2-32: EX ROUTE MONTHLY RIDERSHIP



Source: FXBGO! Monthly Ridership Data

1. Note: Periods without data for Route EX reflect times at which University of Mary Washington is not in session.

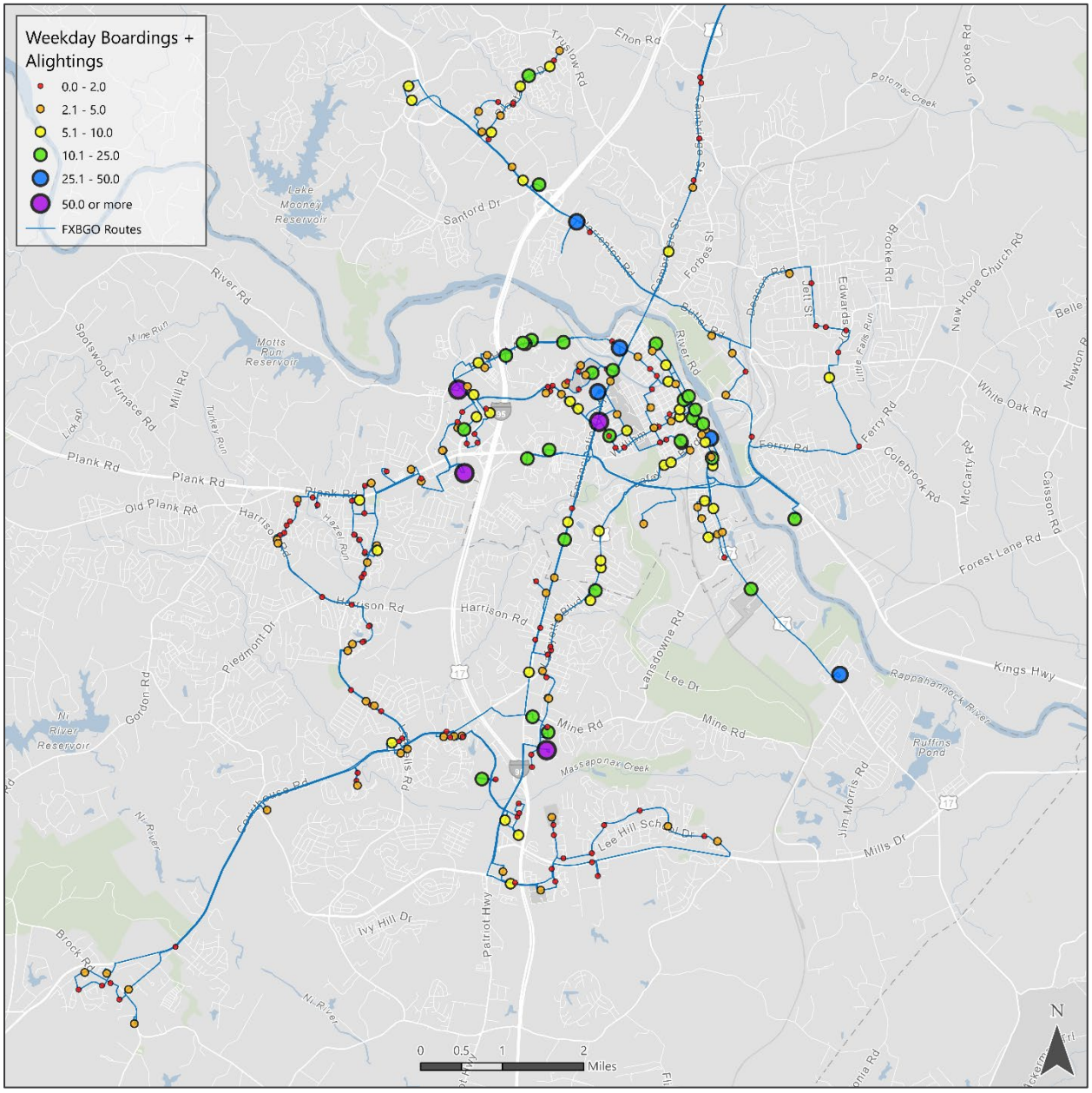
Bus Stop-Level Evaluation

RouteMatch data was used to visualize ridership levels by day of week across all FXBGO! routes. Ridership maps help pinpoint productive segments of systems to better understand where passengers are boarding and alighting vehicles. August 2022 ridership was used for this analysis because it was the most recent full month of data available. An important caveat to note with the ridership datasets is that they are manually entered by the FXBGO! operations team and not officially validated by the Federal Transit Administration (FTA).

Figure 2-33 shows weekday boardings and alightings in Fredericksburg, Spotsylvania, and the southern portion of Stafford. Observations include:

- Central has the highest activity, with 258 daily boardings, emphasizing the importance of transfers among routes.
- Major stop locations of high ridership activity include:
    - Lee's Hill area along Spotsylvania Avenue served by Routes F2, F3, S1, and S4/5 (83 daily boardings)
    - Spotsylvania Towne Centre served by Route F1 and Route S1 (34 daily boardings)
    - Central Park Walmart served by Route F1 and Route F4 (30 daily boardings)
- Additional areas with the highest cumulative ridership among a cluster of stops include:
    - Western portion of Route D2 along Warrenton Road and Plantation Drive (68 daily boardings)
    - Central Park Plaza retail development served by Route F1 and Route F4 (62 daily boardings, 30 of which are located at the Central Park Walmart)
    - Downtown Fredericksburg served by Route D1, Route F4, and Route F5 (98 daily boardings on Caroline and Princess Anne Street)
- The lowest ridership areas include:
    - The Spotsylvania Courthouse area on Route S4/S5 (nine (9) daily boardings)
    - Stafford County east of Cambridge Street served by Route D1 (22 daily boardings); however, nine (9) of those boardings are at a single location (the Washington Square Center Walmart stop at the southern end of the route)
    - The southern portion of Route S4/S5 on the eastern side of Interstate 95 (ten (10) daily boardings)

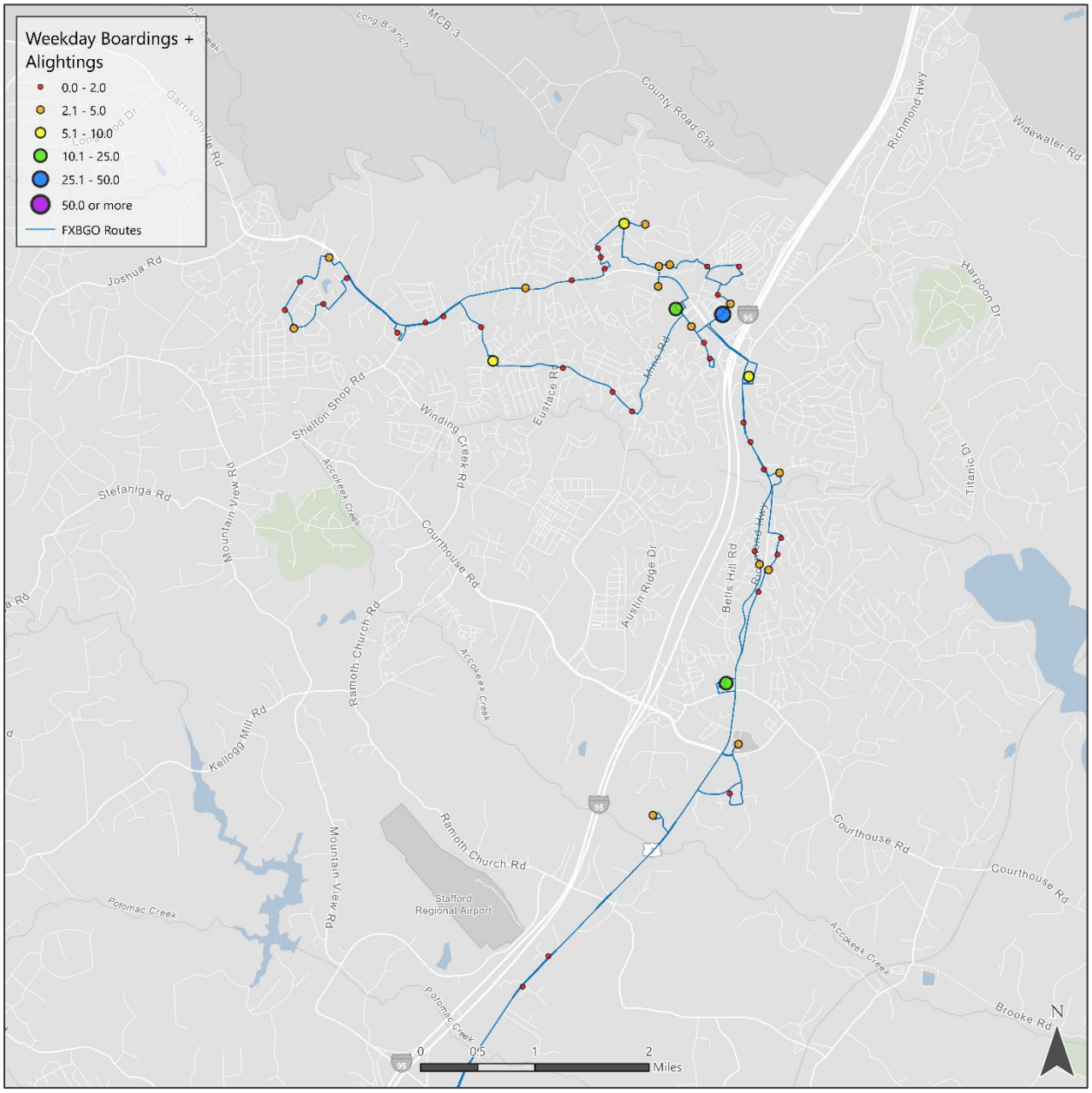
FIGURE 2-33: FREDERICKSBURG, SPOTYLVANIA, AND SOUTHERN STAFFORD AVERAGE WEEKDAY RIDERSHIP



Source: August 2022 Daily RouteMatch Ridership Data

Figure 2-34 shows weekday boardings and alightings in northern Stafford County. Garrisonville Road, west of Eustice Road served by Route D4 has 12 daily boardings.

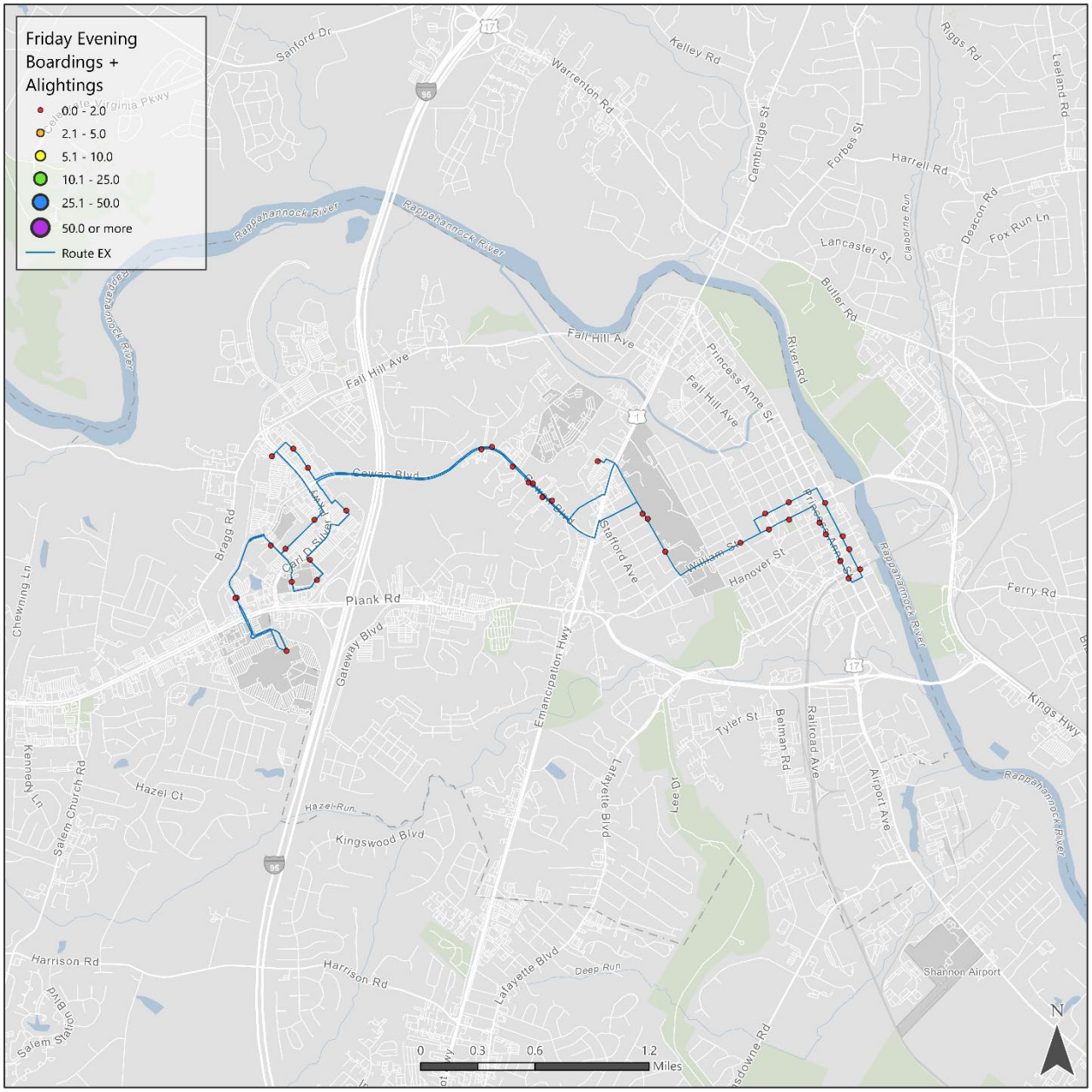
FIGURE 2-34: NORTHERN STAFFORD AVERAGE WEEKDAY RIDERSHIP



Source: August 2022 Daily RouteMatch Ridership Data

Figure 2-35 shows Friday evening service that is only available on the Route EX. Friday evening service averages three (3) daily boardings.

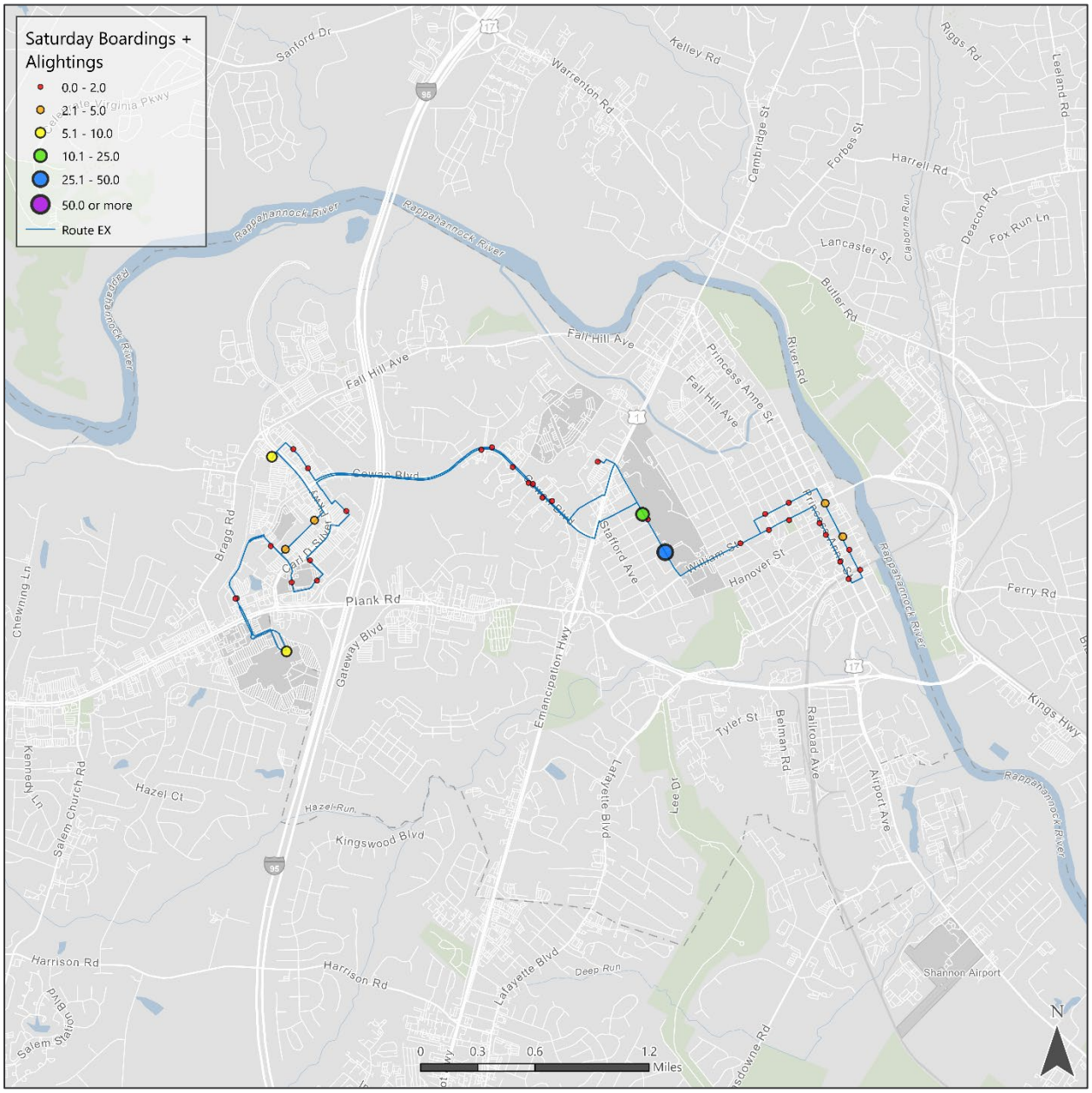
FIGURE 2-35: AVERAGE FRIDAY EVENING RIDERSHIP (ROUTE EX)



Source: August 2022 Daily RouteMatch Ridership Data

Figure 2-36 shows average Saturday ridership on Route EX, which is the only route that operates on Saturday. University of Mary Washington's Main Entrance stop has 16 daily boardings. There are an average of nine (9) boardings on College Avenue. A total of six (6) daily boardings occur in downtown Fredericksburg and 15 daily boardings in the retail area west of Interstate 95.

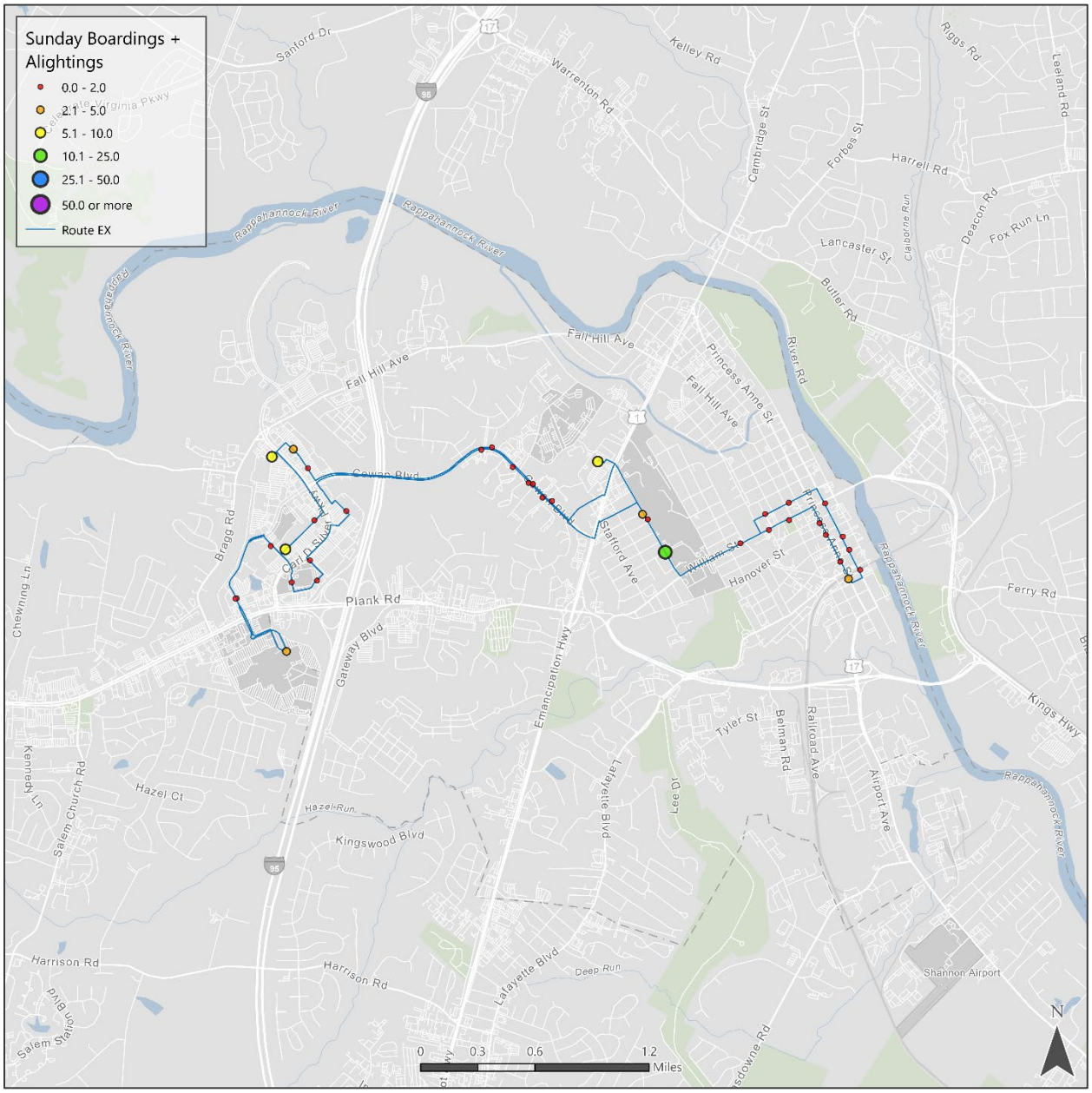
FIGURE 2-36: AVERAGE SATURDAY RIDERSHIP (ROUTE EX)



Source: August 2022 Daily RouteMatch Data

Figure 2-37 shows average daily Sunday ridership on Route EX. Sunday ridership on Route EX shows similar trends as Saturday ridership. The highest ridership locations are the University of Mary Washington area which has 13 daily boardings, downtown Fredericksburg (six (6) daily boardings), and the retail development east of Interstate 95 (15 daily boardings).

FIGURE 2-37: AVERAGE SUNDAY RIDERSHIP (ROUTE EX)



Source: August 2022 Daily RouteMatch Ridership Data

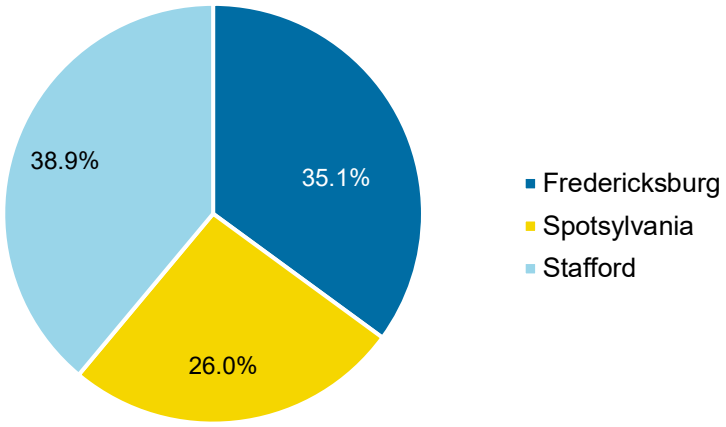
Route Deviation Evaluation

FXBGO! operates deviated fixed route service, which is the practice of deviating from the planned route alignment to pick up or drop off passengers. Deviations are scheduled in advance via a request form completed by passengers. FXBGO! requests that passengers request the service one (1) day in advance of the trip. Pick up and drop off locations cannot exceed 0.75 miles from the fixed-route service alignment and must be safe and accessible for the bus and passenger.

Route deviations are important to consider because of the potential delays in service experienced when deviation requests occur. With the deviation policy of up to 0.75 miles from the fixed-route service, bus routes may be required to travel 0.75 miles each way (or more depending on the road network geometry). For instance, a single 1.5-mile round trip could reasonably add six (6) additional minutes in travel time assuming a vehicle speed of 15 miles per hour (average scheduled speed of FXBGO! routes is 14.8 miles per hour), plus any additional time required for pickup or drop off.

Scheduled deviations from January 3, 2022 through July 7, 2022 were collected and analyzed to understand the distribution of route deviations. A total of 1,134 deviations occurred on 133 services days over the six-month sample period. The distribution of deviations between Fredericksburg, Spotsylvania, and Stafford is shown in **Figure 2-38**.

FIGURE 2-38: DISTRIBUTION OF ROUTE DEVIATIONS BY JURISDICTION

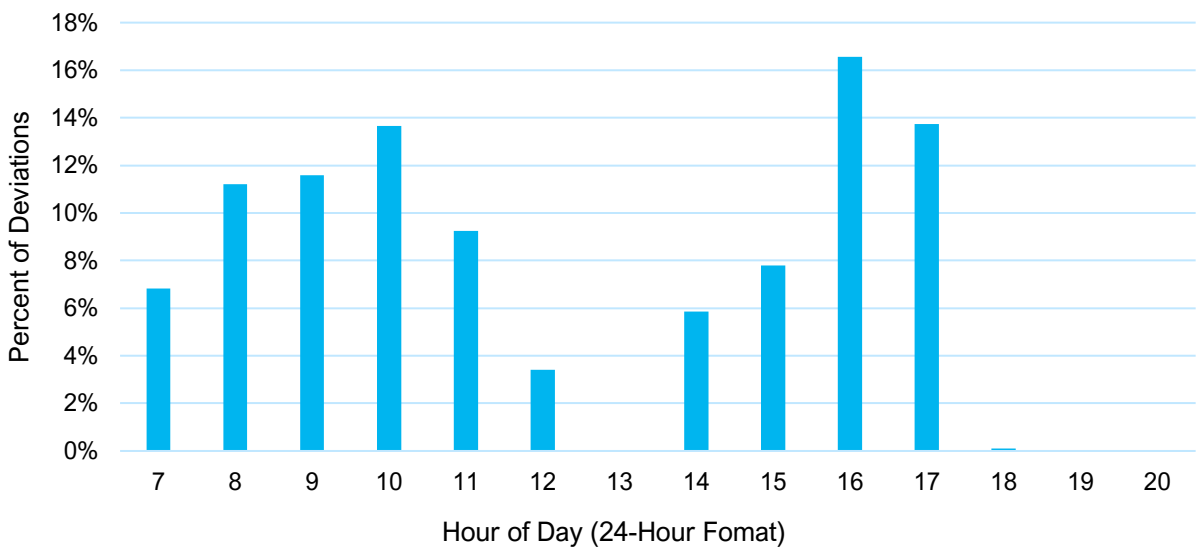


Source: FXBGO! Route Deviation Records (January 3, 2022 – July 7, 2022)

Figure 2-39 shows the distribution of trips throughout the day, with highlights from the analysis below:

- Deviations are the highest during the evening with the greatest number requests occurring from 4:00 p.m. to 5:00 p.m. (17 percent (17%) of daily total). A total of 30 percent (30%) of route deviations are scheduled for between 4:00 p.m. and 6:00 p.m. Route deviations are also often scheduled for the mid-morning, with 25 percent (25%) of total deviations occurring between 9:00 a.m. and 10:00 a.m.
- Very few route deviations occur from 12:00 p.m. and 2:00 p.m. (three percent (3%)) or from 6:00 p.m. to 8:00 p.m. (less than one percent (1%)).

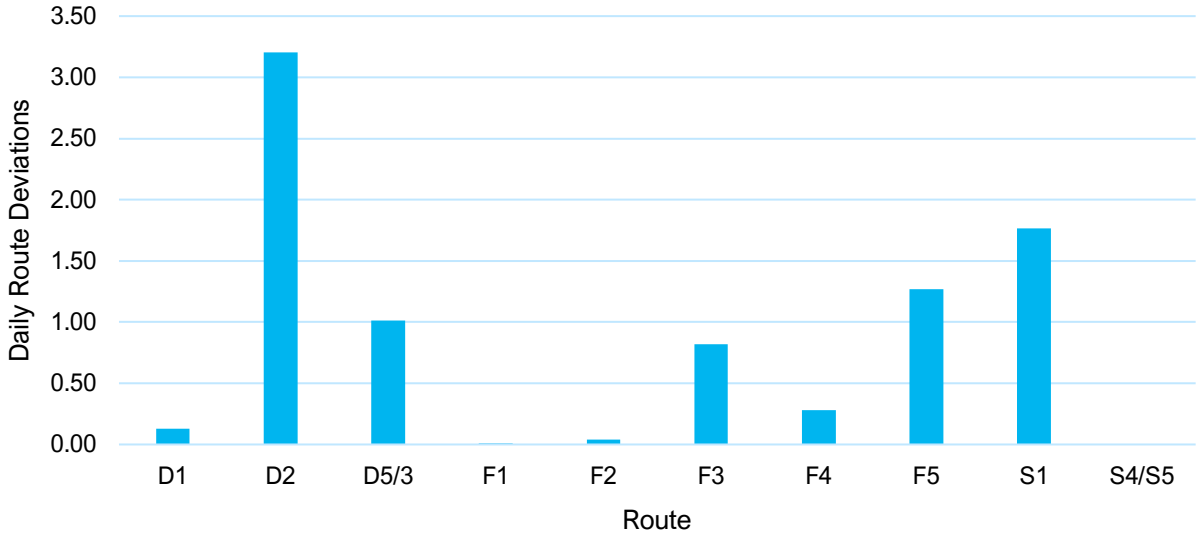
FIGURE 2-39: DISTRIBUTION OF ROUTE DEVIATIONS BY HOUR



Source: FXBGO! Route Deviation Records (January 3, 2022 – July 7, 2022)

Figure 2-40 shows the distribution of trips by route. Route D2 has the highest requests for route deviations (3.2 daily) despite being only the sixth highest ridership route. Route S1 had the second highest number of deviations (1.8 daily).

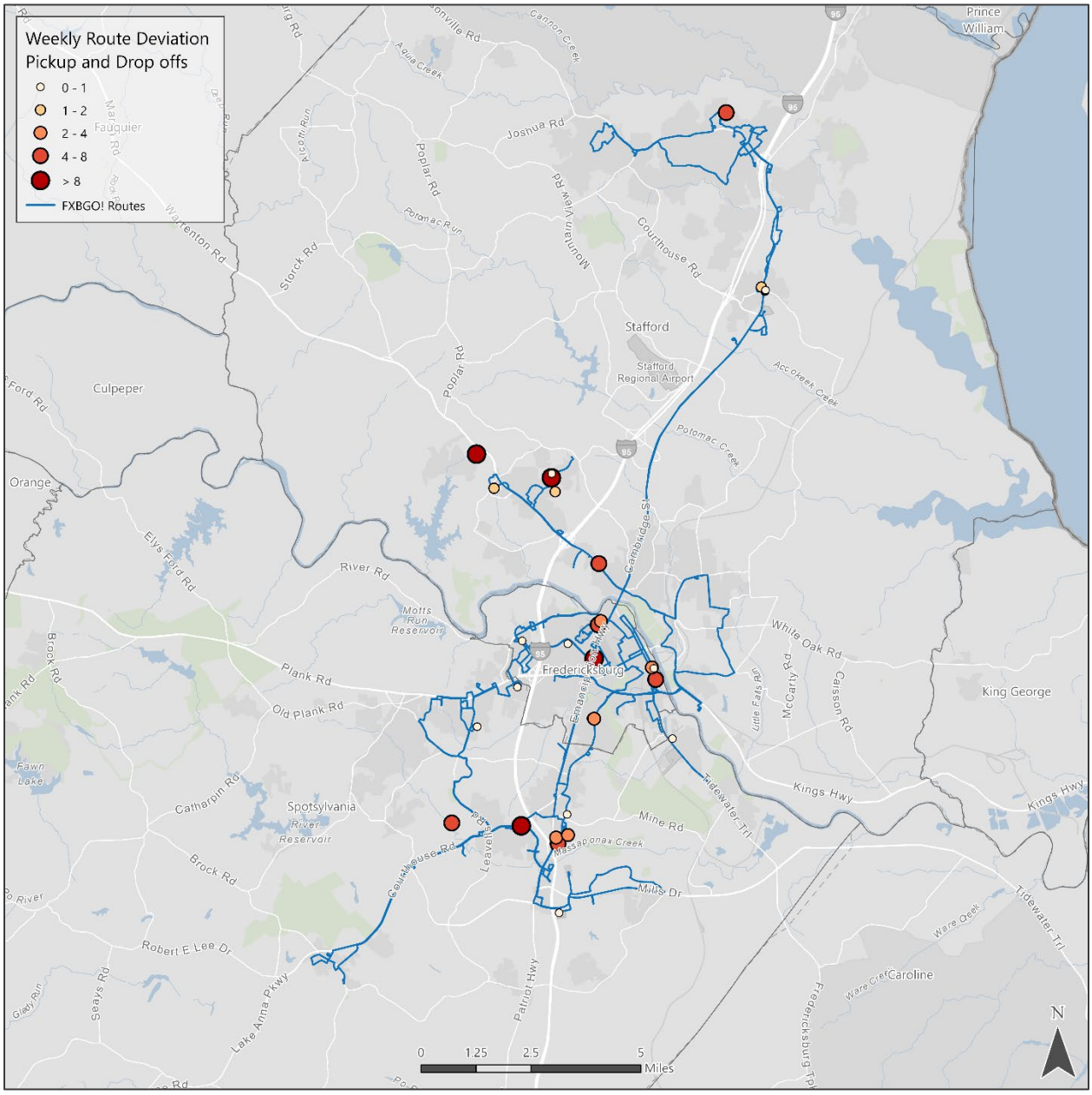
FIGURE 2-40: AVERAGE DAILY ROUTE DEVIATIONS BY ROUTE



Source: FXBGO! Route Deviation Records (January 3, 2022 – July 7, 2022)

Route deviations were geocoded and shown in **Figure 2-41**. Deviations on Route D2 can be seen at the Walmart at Warrenton Road and Village Parkway in Stafford County. Deviations on Route S1 can be seen off Leavells Road close to Courthouse Road in Spotsylvania County.

FIGURE 2-41: ROUTE DEVIATION PICKUP AND DROP OFF POINTS



Source: FXBGO! Route Deviation Records (January 3, 2022 – July 7, 2022)

System Accessibility

System accessibility was evaluated in terms of transit service reach to population, jobs, low-income populations, and minority populations. The accessibility analysis considered the area within 0.25 miles of transit stops, as measured by straight-line distance. A comparison of population and job accessibility is shown in **Table 2-20**. Key takeaways from the population and job accessibility are below.

- Routes F4, D4, D5/D3, and S1 reach the most people in terms of population, each with greater than 10,000 people total. However, as discussed in the previous section, population density is oftentimes an even better predictor of demand for transit. When considering density, (population per acre) Routes F5, D3, D4, and EX rank the highest. Out of the three (3) jurisdictions, Spotsylvania County routes have the lowest populations and population densities.
- Job density is greatest along routes that operate through Fredericksburg, with Route F1, Route F2, Route F3, Route F4, Route F5, and Route EX making up the top six (6) routes in this category.

TABLE 2-20: POPULATION AND JOB ACCESSIBILITY

Route	Population				Jobs			
	Total	Rank	Density (Acres)	Rank	Total	Rank	Density (Acres)	Rank
D1	5,380	11	3.02	11	2,125	15	1.19	14
D2	4,840	12	3.15	10	4,043	9	2.63	7
D3	8,102	6	5.45	2	2,412	12	1.62	8
D4	11,492	2	4.83	3	2,789	11	1.17	16
D5	3,336	16	2.20	16	2,000	16	1.32	12
D5/D3	11,001	3	3.82	8	4,341	7	1.51	10
F1	3,559	15	2.85	12	4,732	5	3.79	4
F2	5,899	10	3.57	9	4,690	6	2.84	6
F3	7,391	9	4.61	5	5,175	4	3.23	5
F4	11,674	1	4.32	6	12,153	1	4.49	3
F5	8,604	5	6.03	1	11,594	2	8.13	1
S1	10,435	4	3.97	7	4,238	8	1.61	9
S4	4,054	14	2.44	13	2,328	13	1.40	11
S4/S5	7,834	7	2.34	14	3,968	10	1.18	15
S5	4,122	13	2.27	15	2,180	14	1.20	13
EX	7,645	8	4.83	4	9,461	3	5.98	2
Transit Network	64,745	-	3.64	-	33,732	-	1.89	-

Source: 2020 American Community Survey (ACS)
Color Key: Blue indicates higher rank and red indicates lower rank.

Accessibility for minority population and low-income population are shown in **Table 2-21**. Definitions for minority and low-income are consistent with definitions used in Section 2.2.1 (minority population includes any race/ethnicity other than white/non-Hispanic and low-income population includes those living on less than 150 percent (150%) of the poverty line). Key findings include:

- Minority populations are highest along Stafford County routes, such as Route D3 and Route D4.
- Low-income populations are highest along Route D3 in Stafford County, with an estimated 1.1 people per acre. All remaining routes with accessibility to high levels of low-income populations are City of Fredericksburg routes.

TABLE 2-21: MINORITY AND LOW-INCOME POPULATION

Route	Minority Population				Low Income Population			
	Total	Rank	Density	Rank	Total	Rank	Density	Rank
D1	1,286	14	0.72	16	471	14	0.26	15
D2	2,230	9	1.45	8	662	11	0.43	10
D3	4,962	3	3.34	1	1,608	3	1.08	1
D4	6,029	1	2.53	2	1,478	4	0.62	7
D5	1,106	16	0.73	15	260	16	0.17	16
D5/D3	5,793	2	2.01	3	1,846	2	0.64	6
F1	1,258	15	1.01	12	414	15	0.33	14
F2	2,580	7	1.56	6	1,109	9	0.67	5
F3	2,438	8	1.52	7	1,382	6	0.86	3
F4	4,648	4	1.72	4	2,262	1	0.84	4
F5	1,719	11	1.21	10	1,238	7	0.87	2
S1	4,392	5	1.67	5	1,452	5	0.55	9
S4	1,693	12	1.02	11	605	13	0.36	11
S4/S5	3,302	6	0.99	13	1,161	8	0.35	12
S5	1,688	13	0.93	14	605	12	0.33	13
EX	1,970	10	1.24	9	883	10	0.56	8
Transit Network	28,073	-	1.58	-	9,520	-	0.53	-

Source: 2020 American Community Survey (ACS)
Color Key: Blue indicates higher rank and red indicates lower rank.

Safety

FXBGO! has safety performance targets as a benchmark for the safety performance of the transit system. The targets utilize data also collected and provided to the National Transit Database. Thresholds utilize totals as well as rates (total per 100,000 vehicle revenue miles). The February 16, 2022 Fredericksburg Regional Transit Safety Plan targets are shown in **Table 2-22**.

TABLE 2-22: SAFETY PERFORMANCE TARGETS

Safety Performance Target Variables	Safety Performance Target Value
Fatalities (total number of reportable fatalities per year)	0
Fatalities (rate per total vehicle revenue miles by mode)	0
Injuries (total number of reportable injuries per year)	4
Injuries (rate per total vehicle revenue miles by mode)	Less than 0.5 injuries per 100,000 vehicle revenue miles
Safety events (total number of safety events per year)	8
Safety events (rate per total vehicle revenue miles by mode)	Less than one (1) reportable event per 100,000 vehicle revenue miles
Distance between Major Failures	10,000 miles
Distance between Minor Failures	3,200 miles

The results of reportable events, fatalities, and injuries for the previous five (5) years are shown in **Table 2-23** (totals) and **Table 2-24** (rates results in which the performance targets are exceeded are shown in red.)

Results of the safety data include:

- Reportable events are within the performance targets for every year except for 2019.
- There have been no fatalities reported over the five-year sample period.
- The number of total injuries reached but did not exceed the performance target in 2019.

TABLE 2-23: SAFETY PERFORMANCE MEASURE TOTALS

Metric	2017	2018	2019	2020	2021
Reportable Events	0	8	**9**	0	5
Fatalities	0	0	0	0	0
Injuries	3	0	4	0	0

Source: 2021 National Transit Database (NTD)
Note: Red text indicates performance target exceeded.

TABLE 2-24: SAFETY PERFORMANCE MEASURE RATES

Metric	2017	2018	2019	2020	2021
Reportable Events	0.00	0.97	**1.04**	0.00	0.82
Fatalities	0.00	0.00	0.00	0.00	0.00
Injuries	0.36	0.00	0.46	0.00	0.00

Source: 2021 National Transit Database (NTD)
Note: Red text indicates performance target exceeded.

Specific Performance Measurements Identified by State Policy

DRPT allocates funding for transit agency operating assistance through an allocation process pursuant to the Code of Virginia and Commonwealth Transportation Board (CTB) policy. The DRPT MERIT Operating Assistance Performance-Based Allocation Formula for FY 2025[7] document describes the methodology for allocating state operating assistance. The performance-based operating allocation methodology is based on a combination of an agency's sizing and performance metrics. The metrics required for the sizing calculation are repeated here for clarity.

Sizing

- Operating cost
- Ridership
- Vehicle revenue hours
- Vehicle revenue miles

For each performance metric, three (3) years of historical data plus the most recent year of data is used to calculate performance trends of each agency and statewide. Performance metrics for performance adjustment calculations are repeated here for clarity.

Performance Adjustments

- Operating cost per passenger
- Operating cost per vehicle revenue hour
- Operating cost per vehicle revenue mile
- Passengers per vehicle revenue hour
- Passengers per vehicle revenue mile

2.3.2 PERFORMANCE BASED OPPORTUNITIES FOR IMPROVEMENT

As noted in Chapter 1, FXBGO! currently does not have officially adopted performance standards. However, FXBGO!'s system and route performance are evaluated through external comparisons to peer transit agencies and internal comparisons to FXBGO! system averages with regards to ridership and cost efficiency.

System Performance Evaluation

A methodology to identify improvements to the system was created and applied to the existing transit network. Performance thresholds are identified based on how FXBGO! compares to a group of peer agencies. The peers included in the analysis were County Commissioners of Charles County (VanGO), Central Shenandoah Planning District Commission (BRITE), Pueblo Transit, Billings Metropolitan Transit System, and Clarkesville Transit. The process of identifying thresholds and applying those thresholds are outlined below.

The first step is to conduct an overall system performance evaluation. If FXBGO! is less than 50 percent (50%) in riders per revenue hour or mile compared to the peer average, or more than 150 percent (150%) of the peer average, then the agency should conduct an Intensive Route Assessment. If not, they should conduct a Moderate Route Assessment. **Table 2-25** shows the resulting peer average thresholds. Using

[7] *Virginia DRPT. MERIT – Operating Assistance Performance-Based Allocation Formula FY25 Technical Guidance. (2023)*

2022 NTD data, FXBGO! meets the thresholds for two (2) of the three (3) performance measures (riders per revenue hour and riders per revenue mile) but does not meet the threshold for cost per rider.

TABLE 2-25: SYSTEM PERFORMANCE THRESHOLDS

Performance Measure	FXBGO!	Peer Average	Performance Measure Target	Threshold[1]
Riders / Revenue Hour	4.42	6.22	4.67	3.11
Riders / Revenue Mile	0.30	0.40	0.30	0.20
Cost / Rider	$29.45	$15.72	$19.65	$23.59

Source: 2022 National Transit Database (NTD)
1. Threshold value is 50% of the peer average.

Route by Route Assessment

Since FXBGO!'s system failed to meet all three (3) system performance thresholds, individual routes were evaluated using the "Intensive Route Thresholds". The "Intensive Route Thresholds" are based on FXBGO! system averages for ridership and cost efficiency to help identify which routes are candidates for improvements. Data for ridership and cost efficiency are from FXBGO! operating statistics reports from July 1, 2021 to June 30, 2022. Each route that fails to meet one (1) or more suggested performance measure represent an opportunity for performance improvement via service changes. **Table 2-26** shows thresholds for intensive and moderate route assessments.

TABLE 2-26: ROUTE PERFORMANCE THRESHOLDS FOR INTENSIVE AND MODERATE ROUTE ASSESSMENTS

Performance Measure	Intensive Route Threshold	Moderate Route Threshold
Riders / Revenue Hour	3.09	2.65
Riders / Revenue Mile	0.21	0.18
Cost / Rider	$38.29	$41.23

Source: 2022 NTD

Passengers per mile – Review route if the passengers per revenue mile is less than 70 percent (70%) of the FXBGO! system average.

- The system average passengers per revenue mile from July 1, 2021 to June 30, 2022 was 0.30, setting a threshold of 0.21 for passengers per revenue mile.
- Routes that did not meet the 0.21 passengers per revenue mile threshold were Routes D1, D5, D5/D3, S1A, S1B, S4, S4/S5, S5, and EX.

Passengers per hour – Review route if the passengers per revenue hour is less than 70 percent (70%) of the FXBGO! system average.

- The system average passengers per revenue hour from July 1, 2021 to June 30, 2022 was 4.42, setting a threshold of 3.09 for passengers per revenue hour.
- Routes that did not meet the 3.09 passengers per revenue hour threshold were Routes D1, D3, D4, D5, S1A, S1B, S4, S5, and EX.

Cost per Rider – Review route if the cost per passenger is more than twice the cost of the FXBGO! system average.

- The system average cost per passenger from July 1, 2021 to June 30, 2022 was $29.45, setting a threshold of $38.29 for cost per passenger.
- Routes that exceeded the cost per passenger threshold of $38.29 were Routes D5, S4, S5, and EX.

Overall – the following routes failed at least one (1) of the "Intensive Route Thresholds":

- D1, D3, D4, D5, D5/D3, S1, S4, S4/S5, S5, EX

2.4 Operating and Network Efficiency Evaluation

This section evaluates the operating efficiency of FXBGO!'s transit network based on frequency, span, speed, and reliability. RouteMatch location data were utilized to assess the effectiveness of the network throughout various times of the day and days of the week. This section ends by outlining opportunities for improvement.

2.4.1 EFFICIENCY EVALUATION

Network efficiency is a function of scheduling and run times of routes. Excessive time in schedules may result in trips with long dwell times and layovers. Conversely, insufficient time in schedules may result in late trips and missed connections. The efficiency evaluation delves into the frequency, span, speed, and reliability of service. It is important to note that FXBGO! operates deviated fixed-route service, which requires additional time in the schedule to account for deviations of up to 0.75 miles from the route.

Frequency

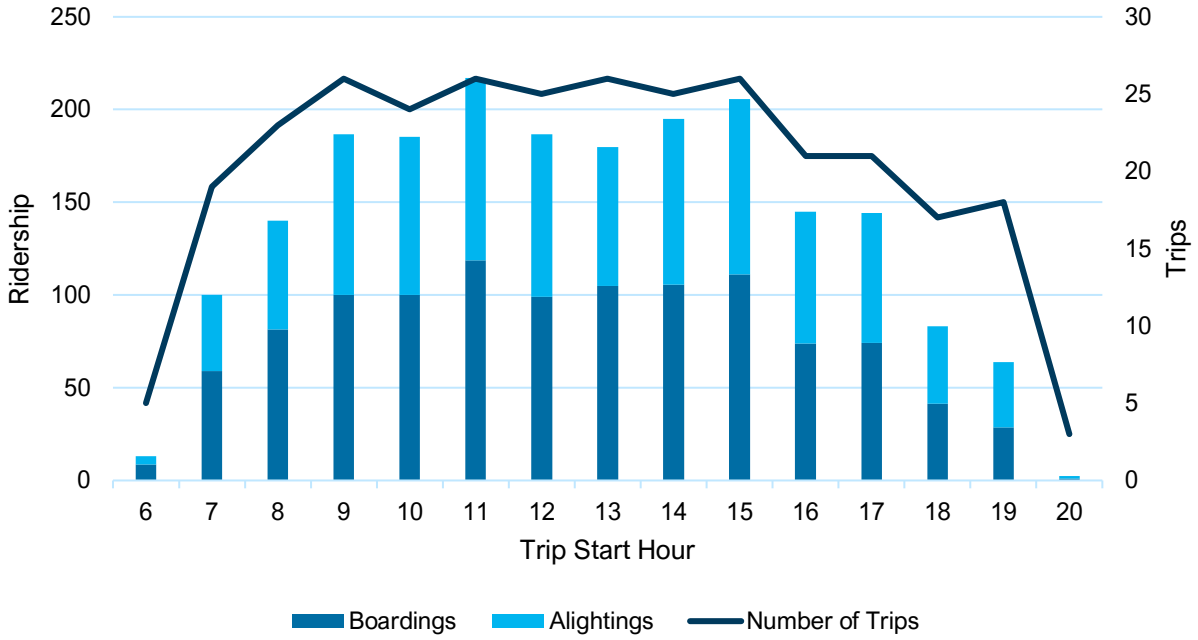
Most FXBGO! routes operate on 60-minute headways, except modified Route D5/D3 and modified Routes S4 and S5 which operated on 120-minute headways (at the time of analysis). The modified routes are average in terms of service productivity, suggesting that the passengers on these routes are transit dependent and will utilize the service despite the infrequent service. It should also be noted that the modified routes had previously been operating at 60-minute headways but were modified in response to the COVID-19 pandemic.

Central is served by Stafford County Routes D2, D3, and D5 and all five (5) City of Fredericksburg Routes F1, F2, F3, F4, and F5. The Fredericksburg routes all connect at Central hourly at 30 minutes past the hour, while the above listed Stafford County routes connect at Central at the top of the hour.

Span

FXBGO! regular weekday service begins at 6:30 a.m. and ends by 8:30 p.m. **Figure 2-42** shows how both ridership and transit trips are aligned over the span of service, by steadily increasing throughout the day and decreasing into the late afternoon and evening. Unlike some systems, FXBGO! does not have pronounced morning and afternoon peak periods.

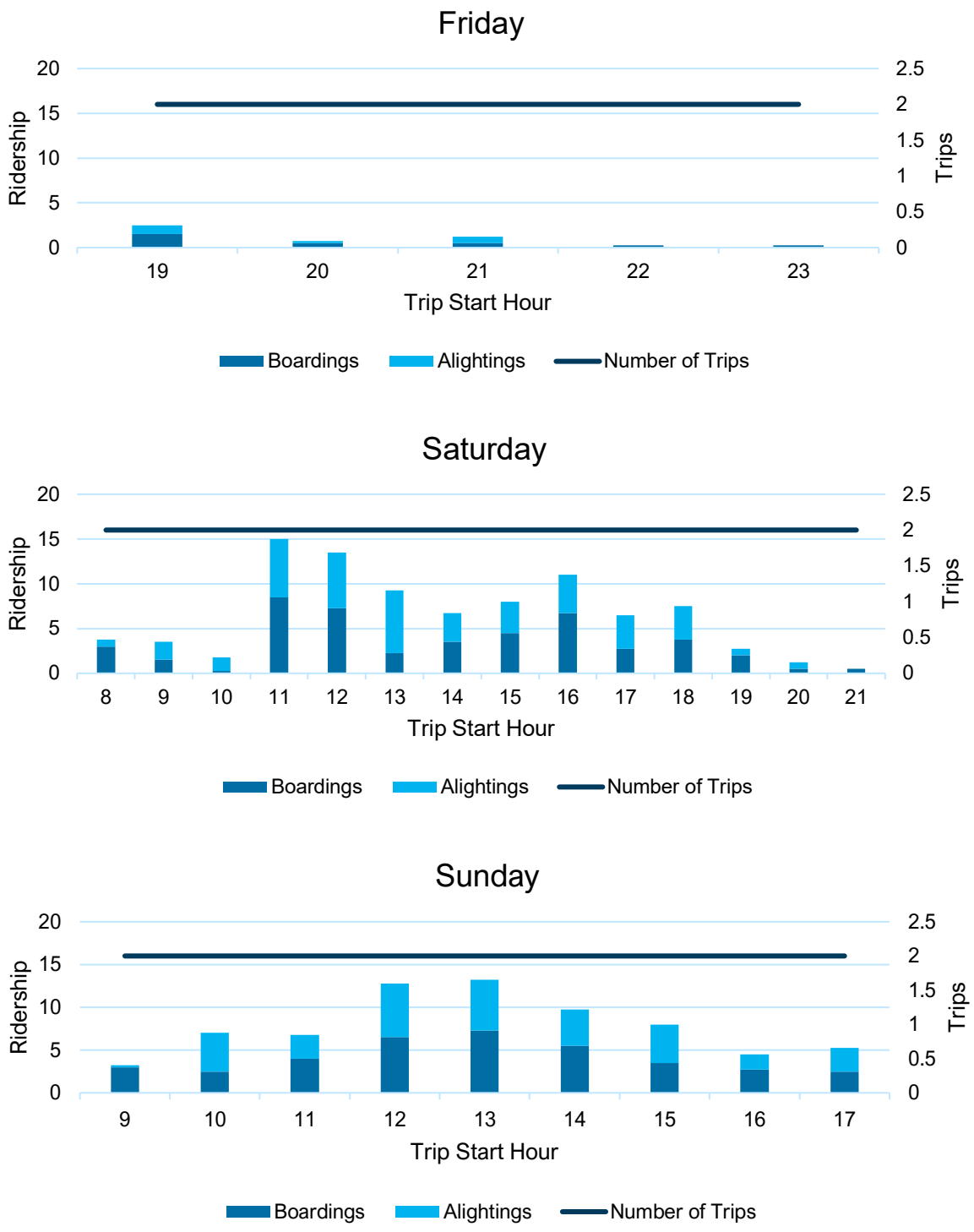
FIGURE 2-42: WEEKDAY RIDERSHIP AND TRANSIT TRIPS BY HOUR



Source: August 2022 RouteMatch Report

Figure 2-43 shows Route EX ridership for Friday evening, Saturday, and Sunday service. Route EX operates every 30 minutes during all three (3) service days for a consistent two (2) round trips an hour. Ridership patterns over the span of service peak during the 11:00 a.m. and 12:00 p.m. hours on Saturdays and 12:00 p.m. and 1:00 p.m. on Sundays.

FIGURE 2-43: ROUTE EX RIDERSHIP BY DAY OF WEEK BY HOUR



Source: August 2022 Daily RouteMatch Ridership Data

Speed

FXBGO! does not have readily accessible speed reports from the RouteMatch reporting system. In absence of the actual speeds of each route, this section analyzes the speed of routes by utilizing the Fall 2022 online route schedules and route distance measurements to calculate the scheduled speeds of each route.

Table 2-27 shows each FXBGO! route with associated trip lengths, distances, and resulting speed requirements. Below are several findings regarding the speed of routes:

- Deviated fixed-route service requires additional time in the schedule to accommodate deviations that add delay mid-route. This factor impacts planned trip lengths and distances routes can travel and still maintain on-time performance.
- City of Fredericksburg routes have lower speeds than Stafford County and Spotsylvania County routes primarily because of the land uses they travel through and the elevated ridership counts (and resulting additional stopping for passengers).
- The following locations were identified as potential areas that could cause delay for FXBGO! routes using World Traffic Service data (accessed November 2022):
    - Blue and Gray Parkway near Lafayette Boulevard served by Route F2
    - Mine Road in Stafford County served by Route D4
    - US Route 17 east of Interstate 95 served by Route S5
    - Segments of Emancipation Highway at certain intersections (Warrenton Road) and interchanges (Interstate 95)
    - Plank Road west of Interstate 95 served by Route S1
    - Warrenton Road west of Interstate 95 served by Route D2

TABLE 2-27: SCHEDULED SPEED BY ROUTE

Route	Trip Length (Minutes)	Distance (Miles)	Speed (MPH)
D1	60	20.6	20.6
D2	60	17.9	17.9
D5/D3	120	33.7	16.8
D4	60	13.4	13.4
F1	60	10.8	10.8
F2	60	12.1	12.1
F3	60	13.5	13.5
F4 (River Club)	60	12.1	12.1
F4 (Central Park)	60	12.4	12.4
F5	60	10.0	10.0
S1	120	30.8	15.4
S4	60	19.5	19.5
S5	60	15.8	15.8
System Total	**900**	**222.6**	**14.8**

Source: Fall 2022 Online FXBGO! Schedules

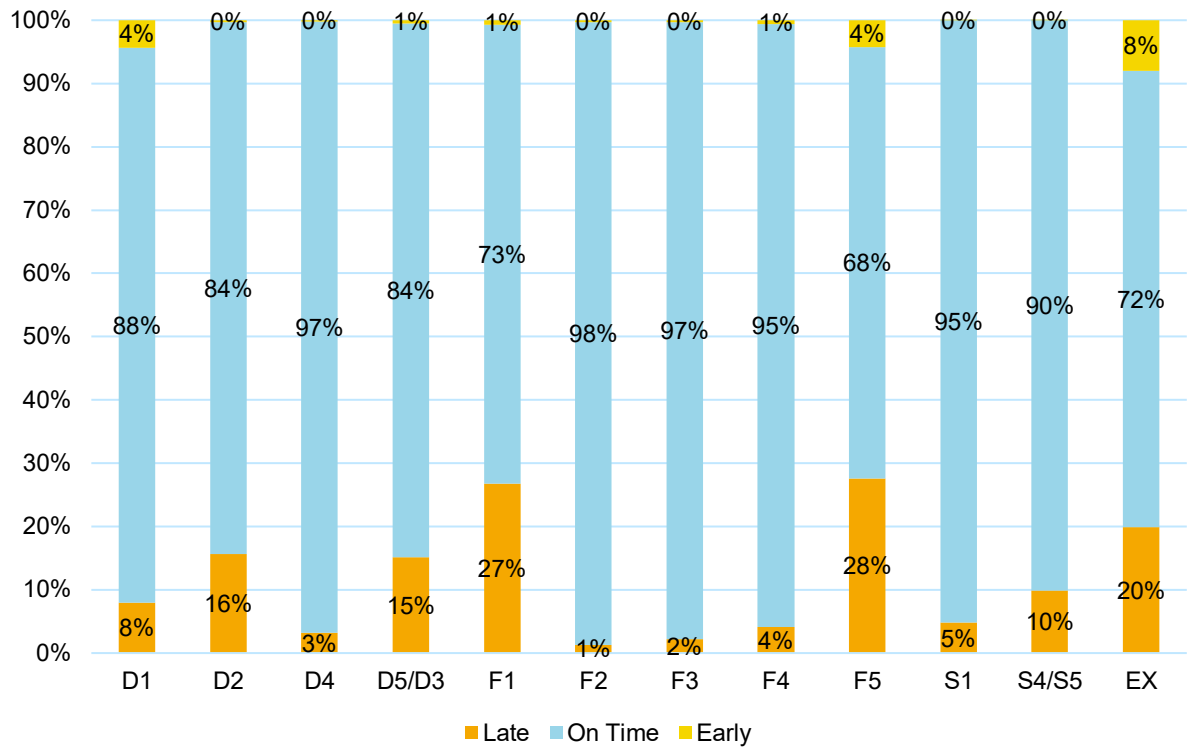
Reliability

Reliability, as measured by on-time performance (OTP), is a key indicator of service quality. At FXBGO!, a vehicle is considered “on-time” if it departs a timepoint no more than ten (10) minutes early or ten (10) minutes late. It should be noted that the window for on-time is significantly wider than that of traditional fixed-route service, which typically uses on-time thresholds of one (1) minute for early trips and five (5) minutes for late trips. The FXBGO! on-time thresholds of ten (10) minutes early and ten (10) minutes late equates to window of 20 minutes that is still considered on time. Passengers, therefore, need to plan on being up to ten (10) minutes early and may need to wait up to 20 minutes.

Figure 2-44 shows on-time performance by route from an August 2022 data sample.

- Routes F5 and F1 have the fewest on-time trips in the transit system, each of which has more than one (1) out of every four (4) trips arriving later than ten (10) minutes. Some of the late trips may be due to route deviations on Route F5, which averages a little over one (1) route deviation daily. However, Route F1 rarely experiences deviation requests and therefore late trips are likely caused by other factors.
- Route EX also has a significant number of trips that arrive more than ten (10) minutes later than scheduled, with approximately one (1) out of every five (5) trips arriving late. It should also be noted that the Route EX has the highest number of early trips, with eight percent (8%) of all trips arriving more than ten (10) minutes prior to the scheduled time.

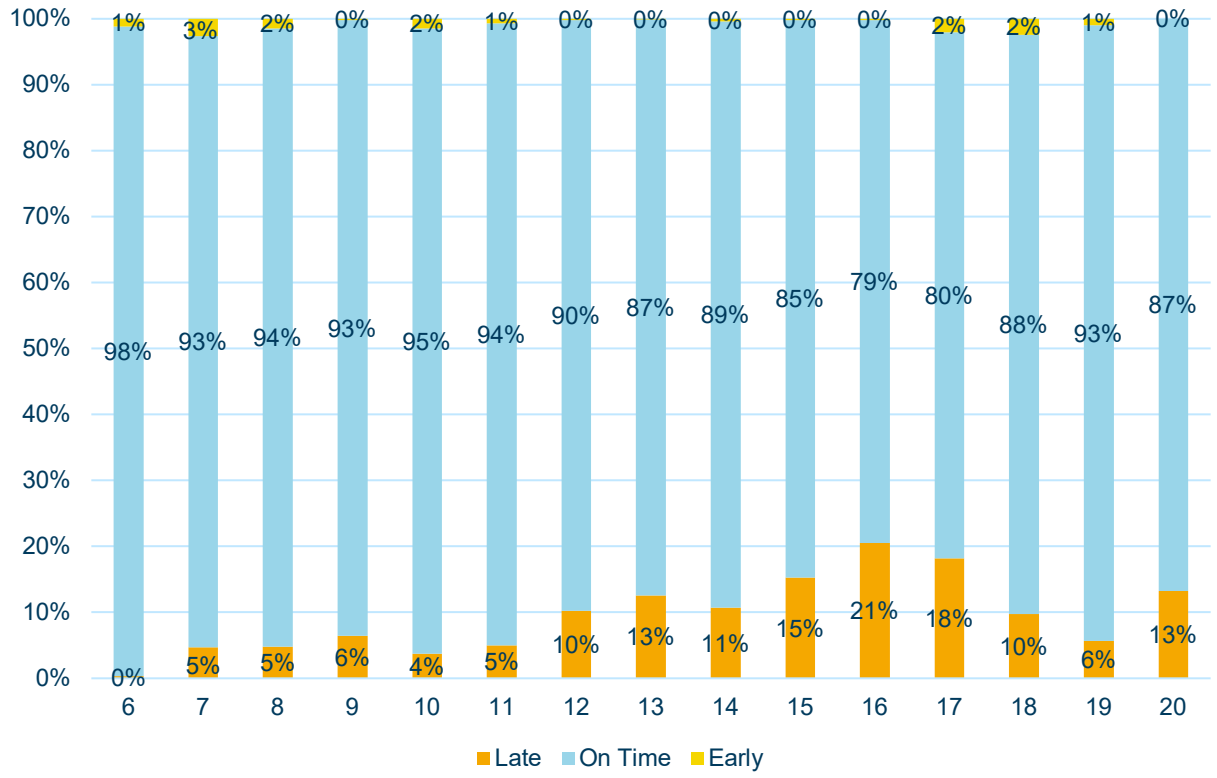
FIGURE 2-44: ON-TIME PERFORMANCE BY ROUTE



Source: August 2022 Daily RouteMatch Data

Figure 2-45 show the on-time performance by time of day for weekday service from an August 2022 data sample. The data show that late trips are more common as the day progresses, which may suggest that once a route experiences a delay it struggles to recover.

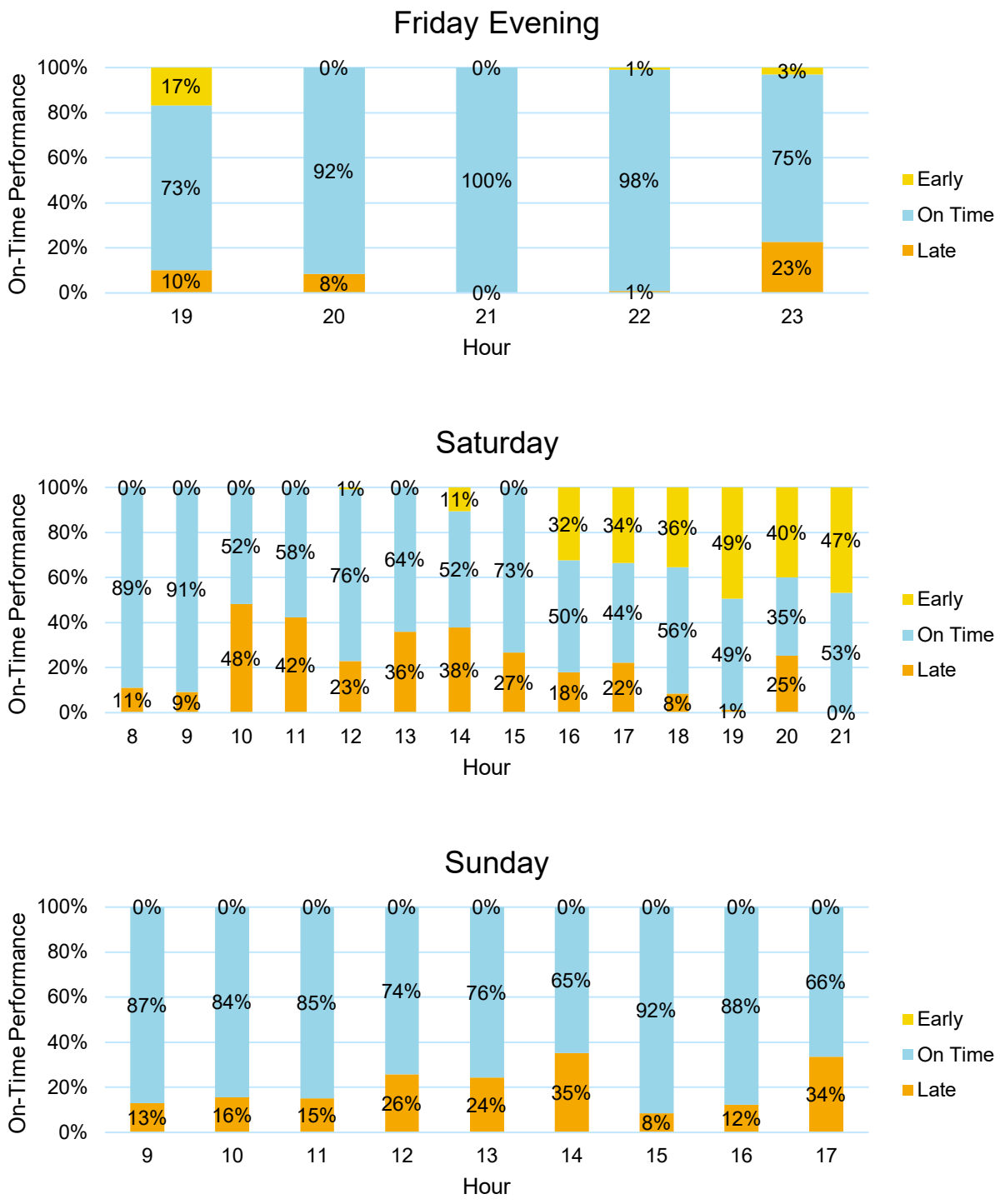
FIGURE 2-45: WEEKDAY ON-TIME PERFORMANCE BY HOUR OF DAY



Source: August 2022 Daily RouteMatch Data

Figure 2-46 shows Route EX on-time performance by day of week (Friday evening, Saturday, and Sunday). From 4:00 p.m. on Saturdays to the end of service, Route EX experiences a significant number of early trips (approximately one (1) out of every three (3)). Route EX also experiences a significant number of late trips throughout the rest of the day. These trends indicate that operator driving behavior may be impacting Route EX's on-time performance.

FIGURE 2-46: ROUTE EX ON-TIME PERFORMANCE BY DAY OF WEEK



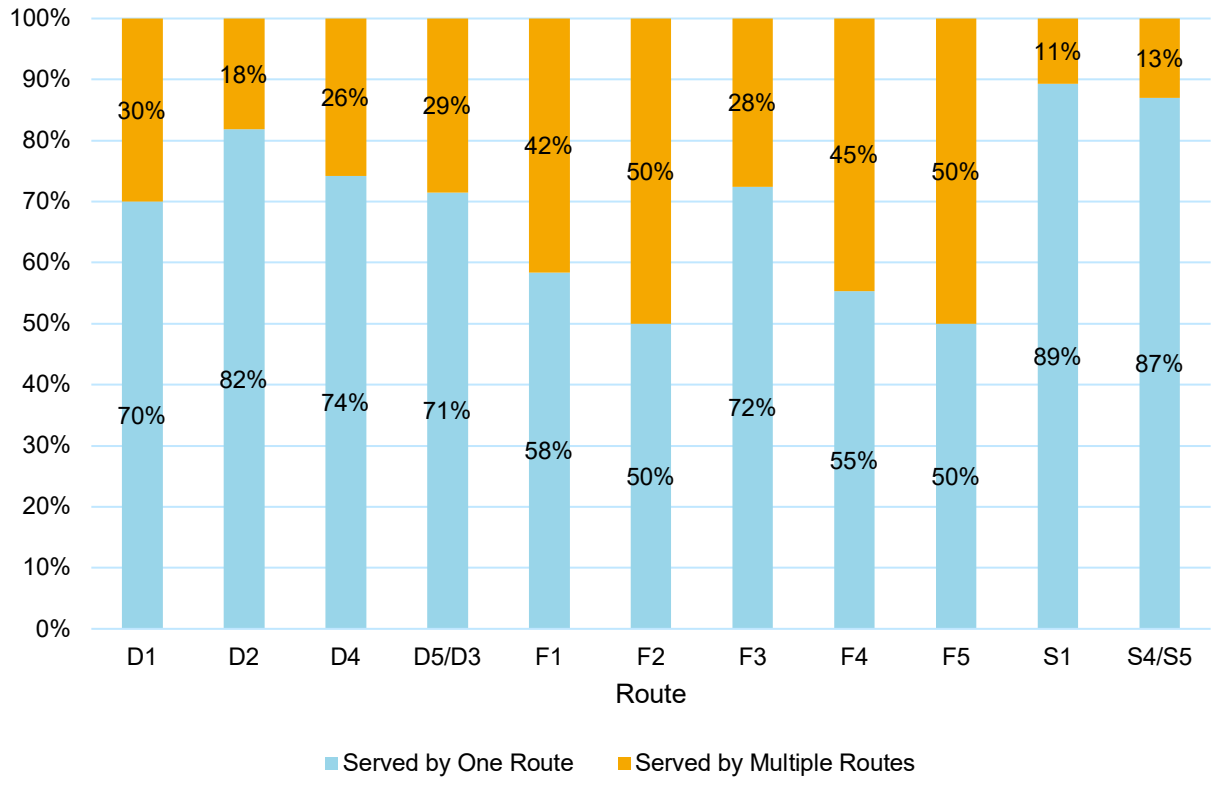
Source: August 2022 Daily RouteMatch Data

Service Overlap

Transit service is generally more efficient when transit routes are clearly defined and easy to understand. Overlapping routes are sometimes necessary to meet the needs of various travel patterns but should typically be kept to a minimum to avoid duplicative and potentially confusing service patterns. To understand overlaps in transit service and duplicative service, all 317 bus stops in the transit network were categorized as “Served by One (1) Route” or “Served by Multiple Routes”. **Figure 2-47** shows the composition of stops served by one (1) or multiple routes for every route in the FXBGO! system. Results are as follows:

- Of the 317 bus stops, 266 (84 percent (84%)) are served by only one (1) route, while 51 (16 percent (16%)) are served by two (2) or more routes.
- Routes that had the greatest amount of overlap are the
- City of Fredericksburg routes (Route F2, F5, F4, and F1), while the routes with the least amount of overlap are the D2, S4/S5, and S1. It may be possible to streamline some of the services in City of Fredericksburg routes to reduce the amount of overlap. However, this should be done with respect for the various travel patterns that are occurring within and through the Fredericksburg region to ensure that existing trips are not disrupted. It should also be noted that most of the routes with overlap are higher performers in terms of ridership and riders per revenue hour.

FIGURE 2-47: PERCENT OF STOPS SERVED BY OVERLAPPING ROUTES



Source: August 2022 Daily RouteMatch Data

2.4.2 EFFICIENCY BASED OPPORTUNITIES FOR IMPROVEMENT

The results of the efficiency analysis indicate that there are several potential opportunities to improve the transit network:

- Operating deviated fixed-route service presents challenges to maintaining on-time performance. Deviations can occur up to 0.75 miles from the route alignment, which can take several minutes to complete in each direction depending on distance and road network. Discontinuing deviated fixed route service would likely improve on-time performance and therefore positively impact reliability of the service.
- Deviations are not the only cause for FXBGO! late service. Route F1 had only one (1) deviation request in the first six (6) months of 2022, yet 27 percent (27%) of all trips arrived more than ten (10) minutes after the scheduled time. It would benefit FXBGO! to revise schedules to improve service OTP and reliability.
- In an August 2022 data sample, the Route EX OTP on Saturdays is very low, with high numbers of late trips in the mornings/evenings. At 10:00 a.m., 48 percent (48%) of trips arrive late and by 7:00 p.m., 49 percent (49%) of trips arrive early. The large shift in OTP suggests that driver training may be required to give drivers a better understanding of the schedules and how to maintain OTP.
- Certain times of the day and days of the week are more productive than others. Friday evening service on the Route EX as low passenger productivity.

2.5 Analysis of Opportunities to Collaborate with Other Transit Providers

Coordination among transit agencies and other transportation providers can yield greater efficiencies for both agencies and passengers without additional costs. It is in the best interests of all involved agencies when services are well coordinated and work together. This section identifies each of the operators in the area before discussing the opportunities to improve collaboration with the goal of improving mobility in the area.

2.5.1 COLLABORATION ANALYSIS

An inventory of other transit providers that operate within the FXBGO! service area was conducted to identify potential for collaboration.

Virginia Railway Express

VRE is the commuter rail service that connects the Fredericksburg and Manassas areas to Northern Virginia and Washington, D.C. VRE operates eight (8) northbound trips (to Washington, D.C.) in the morning from Fredericksburg VRE/Amtrak station and seven (7) southbound trips (from Washington, D.C.) in the afternoon. An additional southbound trip is made in the afternoon.

Prior to the COVID-19 pandemic, FXBGO! operated two (2) VRE Shuttle routes that provided service to Fredericksburg VRE/Amtrak station for commuters connecting to VRE. Route VF1 operated through Idlewild and Cowan Boulevard before connecting to Fredericksburg VRE/Amtrak station. Route VS1 operated from Gordon Road Park and Ride Lot to Fredericksburg VRE/Amtrak station. Both routes were temporarily suspended in response to the COVID-19 pandemic.

As of March 2023, Routes F4, F5, and D1 routes service Fredericksburg VRE/Amtrak station. Of the eight (8) morning trips that VRE operates in the northbound direction, only two (2) can be connected via an FXBGO! route: Route F4 that arrives at 7:08 a.m. and Route F5 that arrives at 7:40 a.m. **Table 2-28** lists currently scheduled VRE trains to and from Fredericksburg VRE/Amtrak station.

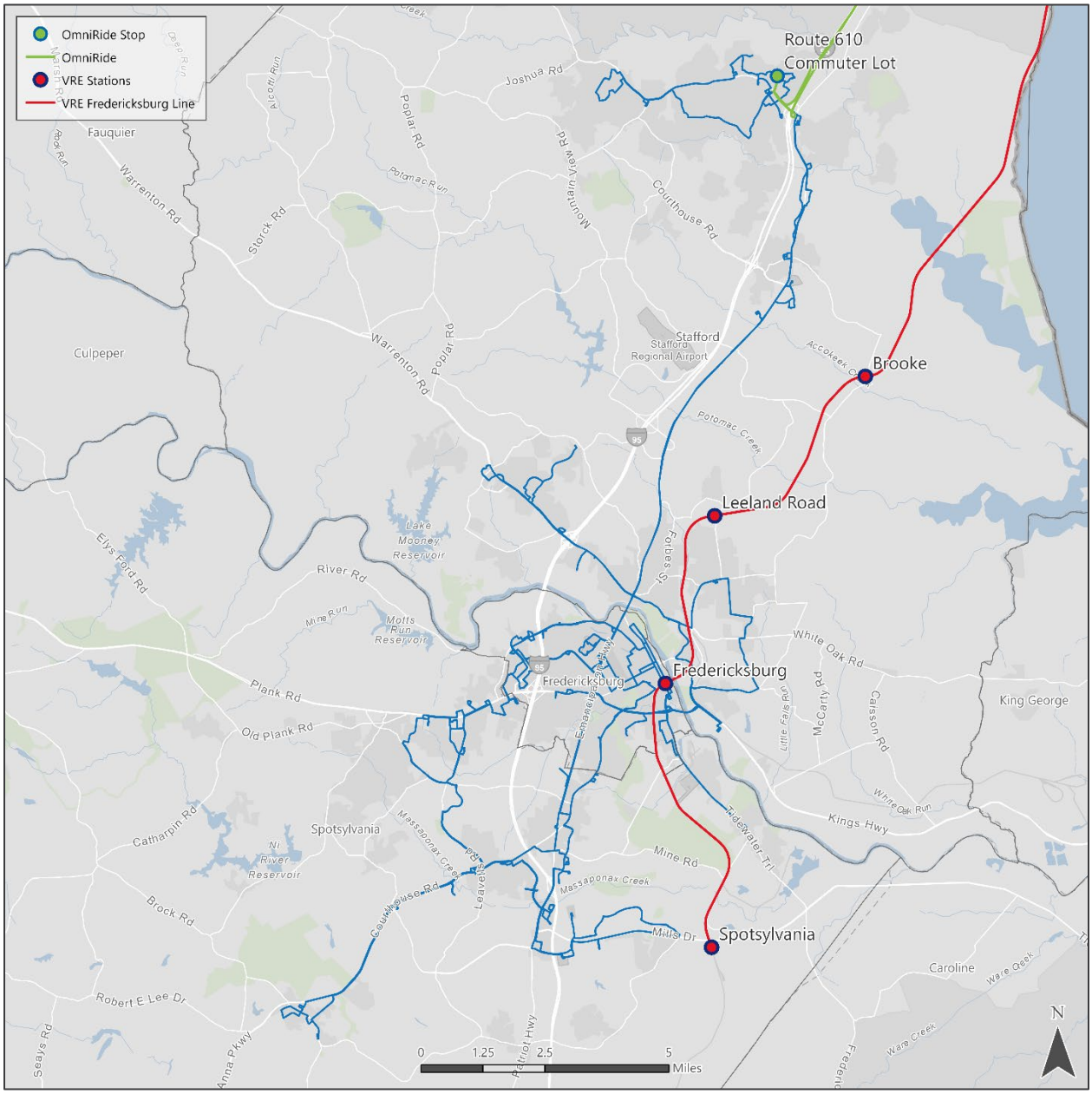
TABLE 2-28. VRE FREDERICKSBURG VRE/AMTRAK STATION SCHEDULE

Northbound Departure Times	Southbound Departure Times
5:03 a.m.	2:36 p.m.
5:17 a.m.	4:16 p.m.
5:32 a.m.	5:06 p.m.
5:52 a.m.	5:36 p.m.
6:12 a.m.	6:16 p.m.
6:37 a.m.	6:56 p.m.
7:17 a.m.	7:46 p.m.
7:57 a.m.	8:26 p.m.

Source: VRE Fall 2022 schedule

Figure 2-48 shows Fredericksburg area station locations on the VRE Fredericksburg Line. All four (4) VRE stations in the area (Brooke, Leeland Road, Fredericksburg, and Spotsylvania) have free parking available.

FIGURE 2-48: VRE FREDERICKSBURG LINE AND STATIONS



Source: FXBGO! and Virginia Railway Express

Amtrak

The Northeast Regional and Carolinian Amtrak lines also serve Fredericksburg station. **Table 2-29** lists currently scheduled Amtrak departure times from Fredericksburg station. FXBGO! Routes F4, F5, and D1 serve Fredericksburg VRE/Amtrak station for possible connections to Amtrak.

TABLE 2-29: AMTRAK FREDERICKSBURG STATION SCHEDULE

Direction	Departure Time
Northbound	7:02 a.m.
	8:25 a.m.
	9:25 a.m.
	12:09 p.m.
	7:27 p.m.
Southbound	8:26 a.m.
	3:51 p.m.
	5:07 p.m.
	7:02 p.m.
	8:22 p.m.

Source: Amtrak Schedules (November 2022)

OmniRide

OmniRide is the operating name for the mobility services offered by the Potomac and Rappahannock Transportation Commission (PRTC). OmniRide operates 16 routes serving Prince William County, Stafford County, Spotsylvania County and the cities of Manassas and Manassas Park. OmniRide Route 543 Stafford-Washington and Route 942 Stafford Pentagon serve the Staffordboro Commuter Lot located off Garrisonville Road adjacent to Lowe's Home Improvement. OmniRide Route 543 Stafford-Washington operates direct service to Washington D.C. and 942 Stafford-Pentagon operates direct service to the Pentagon.

Table 2-30 lists currently scheduled OmniRide departure times from the Staffordboro Commuter Lot. Although FXBGO! Routes D5/D3 and D4 also serve this location, the schedules do not enable transferring between the services because the last OmniRide trip departs before the first FXBGO! route arrives.

TABLE 2-30: OMNIRIDE EXPRESS ROUTE SCHEDULE FROM STAFFORDBORO COMMUTER LOT

Direction	OmniRide Express Route	Staffordboro Commuter Lot Departure Time
Northbound	Stafford-Washington	4:23 a.m.
		5:03 a.m.
		5:43 a.m.
		6:18 a.m.
		7:28 a.m.
	Stafford-Pentagon	4:28 a.m.
		5:23 a.m.
		6:03 a.m.
		6:23 a.m.
		6:43 a.m.
		7:03 a.m.
Southbound	Stafford-Washington	2:51 p.m.
		4:27 p.m.
		4:58 p.m.
		5:40 p.m.
		6:05 p.m.
		6:47 p.m.
	Stafford-Pentagon	2:00 p.m.
		3:02 p.m.
		4:17 p.m.
		5:09 p.m.
		6:33 p.m.
		7:02 p.m.

Source: OmniRide Fall 2022 schedule

Greyhound

Greyhound intercity bus service provides service to Fredericksburg at Central. Service as of March 2023 includes one (1) route that operates to Richmond to the south. To the North, Greyhound operates to multiple locations including Woodbridge, Springfield, Washington D.C.

GWRideConnect

GWRideConnect is a free ridesharing service in the Fredericksburg area that connects commuters to carpooling, vanpooling, and transit options. The service is sponsored by the George Washington Regional Commission (GWRC), and partners with Virginia Department of Public Transportation (DRPT) to provide the free ride matching and rewards program. **Table 2-31** shows the commuter lot locations for GWRideConnect.

TABLE 2-31: GWRIDECONNECT COMMUTER LOT LOCATIONS

County	Description	Address
Caroline	Carmel Church Park and Ride Lot	Telegraph Rd, Ruther Glen, VA 22546
Spotsylvania	Courthouse Road / Route 208	10800 Houser Dr, Fredericksburg, VA 22408
	Rt 3 West / Gordon Rd	12150 Gordon Rd, Fredericksburg, VA 22407
	Rt 3 Salem Church	4240 Plank Rd, Fredericksburg, VA 22407
	Commonwealth Drive / Rt 1	Patriot Hwy, Fredericksburg, VA 22407
King George	Visitors Center on Rt 301	38.359362, -77.018411
Stafford	Rt 17 Warrenton Rd	627 Warrenton Rd, Fredericksburg, VA 22406
	Courthouse Road / Route 630	1150 Courthouse Rd, Stafford, VA 22554
	Rt 610 Mine Rd / South Commuter Lot	1 Salisbury Dr, Stafford, VA 22554
	Rt 610 Staffordboro / North Commuter Lot	139 Staffordboro Blvd, Stafford, VA 22554

Source: GWRideConnect Fall 2022 locations

2.5.2 COLLABORATION BASED OPPORTUNITIES FOR IMPROVEMENT

There are several potential collaboration efforts that could serve to improve, expand, and enhance transit service and overall mobility in the Fredericksburg region. Opportunities for improvement include:

- FXBGO! currently connects to VRE at the Fredericksburg VRE/Amtrak station only. There are two (2) additional VRE stations in Stafford County (Leeland Road and Brooke) and one in Spotsylvania County (Spotsylvania) that may present additional opportunities for connections. Restoring the suspended VRE Shuttle service would also improve the connection to VRE service.
- FXBGO! Routes D1, F4, and F5 serve Fredericksburg VRE/Amtrak station on Caroline Street. Transfers to Fredericksburg VRE/Amtrak station are not timed and typically take 17 or more minutes for the train connection. Transfers could be better coordinated but competing priorities—such as connections at Central—may prove more important given the low number of transfers from FXBGO! to VRE and/or Amtrak.
- OmniRide operates two (2) routes to the Staffordboro Commuter Lot, but FXBGO! does not operate early enough to provide any transfer opportunities to OmniRide. FXBGO! would need to either operate earlier weekday trips or request that OmniRide operate an additional trip later in the morning to make this connection possible. FXBGO! should investigate to see if passengers would use this connection if service was modified though through a survey or outreach event.

FXBGO!

Fredericksburg Regional Transit

Transit Strategic Plan

Chapter 3: Planned Improvements and Modifications

FINAL: June 2024

FXBGO!
Fredericksburg Regional Transit

Table of Contents

3 Planned Improvements and Modifications

This chapter contains a prioritized list of improvements and modifications to existing services that Fredericksburg Regional Transit (FXBGO!) is considering making over the next ten (10) years. These enhancements address the opportunities for improvement discussed in sections of Chapter 2: System Performance and Operations Analysis, as well as other known needs that address the agency goals and regulatory requirements. Planned improvements are financially constrained and therefore funding is expected to be available within the ten-year (10-year) planning horizon. Improvements that are not likely to occur over the next ten (10) years within the confines of future funding expectations are clearly labeled as "unconstrained".

This chapter begins with Section 3.1, which includes potential service improvements created to address the transit needs of the community. It is important to note that service improvements are subject to change as circumstances, finances, and regional priorities grow. Section 3.2 assigns a timeframe for the implementation of projects that can reasonably be expected over the next ten (10) years. Section 3.3 describes the levels of service planned in terms of service hours and miles over the next ten (10) years.

3.1 Planned Service Improvements

This section provides a description of transit service modifications and improvements FXBGO! Is considering making over the next ten (10) years. Each service improvement provides the following components:

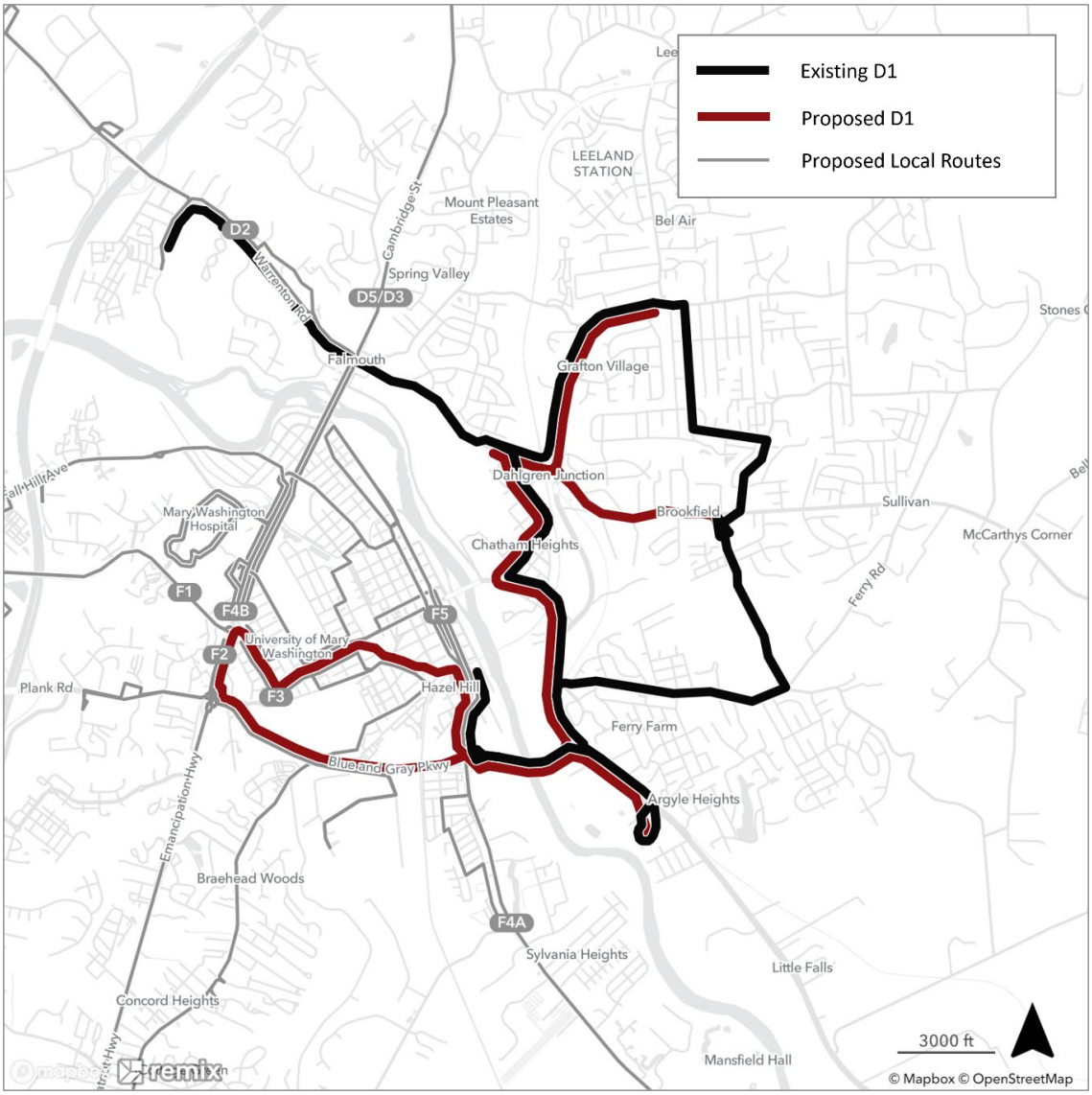
- **Service Change Description** – This section describes how service is changed from the existing service to the proposed service changes.
- **Operating Impacts** – This section describes the impacts of the service changes to operations including the following: peak vehicles, revenue hours, revenue miles, and operating costs are shown in table format. An operating cost of $126.03 per revenue hour is used to estimate operating costs.
- **Justification and Support of Transit Needs** – This section gives a description of why the service change is recommended and how it supports transit needs. Each service improvement states which goal(s) from Chapter 1 the improvement addresses. Projects are also inspired by the opportunities for improvement that were identified in Chapter 2. Specifically, the results from Section 2.3.1 Performance Evaluation were used to create minimum performance thresholds (shown in **Appendix B**). Routes that do not meet the minimum performance thresholds are identified. State and Federal legal and regulatory requirements are referenced where applicable.
- **Future Ridership Estimate** – The anticipated impacts to ridership are discussed in this section. Methodology for estimating ridership varies by project.

3.1.1 ROUTE D1 ALIGNMENT MODIFICATION

Service Change Description

The proposed alignment changes for Route D1 are shown in **Figure 3-1**. The service change realigns Route D1 to serve the Fredericksburg Regional Transit's Transit Central Station (Central). From Central, the route travels to the Fredericksburg VRE/Amtrak Station, then continues to the Walmart on Kings Highway in Stafford County. Route D1 then operates to the Rappahannock Area YMCA before serving the Giant on White Oak Road and Woodlawn Shopping Center on Deacon Road. Coverage would be eliminated along the residential areas of Culpeper Street, Little Whim Road, Town and Country Drive, and Ferry Road. Service along Warrenton Road is also eliminated from Route D1 but is planned for continued coverage with Route D2. A total of 6.67 miles of the existing 20.82 miles of the route would be eliminated (32% percent of route), which would trigger the need for a Title VI analysis. It should be noted that FXBGO! may make minor adjustments to the existing D1 prior to implementing this recommendation.

FIGURE 3-1: EXISTING AND PROPOSED ROUTE D1



Operating Impacts

Table 3-1 shows the impacts to the annual operating requirements of the Route D1 realignment service change. Impacts to revenue hours, miles, and operating costs are anticipated to be minimal, and there will be no impact on peak vehicle requirement. Annual revenue miles are expected to decrease by 4,473 miles.

TABLE 3-1: ANNUAL STATISTICS FOR EXISTING AND PROPOSED ROUTE D1

	Peak Vehicles	Revenue Hours	Revenue Miles	Operating Cost
Existing Route D1	1	2,761	57,484	$347,969
Proposed Route D1	1	2,761	53,011	$347,969
Change Over Existing	0	0	-4,473	$0

Justification and Support of Transit Needs

- This project meets the transit needs by supporting Goal 2: Leverage available funding to maximize service access, efficiency, and affordability—and adjusting service based on performance standards.
- The existing Route D1 is low performing. The passengers per revenue hour (2.82) and passengers per revenue mile (0.14) do not meet the performance assessment thresholds of 3.09 and 0.21, respectively. Stakeholder input showed that although Route D1 was low performing, there is a desire to retain the service in the area to connect Stafford County neighborhoods to the City of Fredericksburg and seek opportunities to modify the route instead of eliminating it.
- The eliminated sections of Culpeper Street, Little Whim Road, Towne and Country Drive, and Ferry Road have low ridership (2.5 riders daily). The eliminated portion of the route on Warrenton Road was duplicative of Route D2.
- The proposed route has improved connectivity to other routes by operating to Central.
- A future modification of the route could include service to Leeland Road VRE Park and Ride Lot when commuter ridership has increased, and the parking lot is nearing capacity. Service would operate to The Leeland Road Park and Ride Lot for specific trips to make connections to VRE service.

Future Ridership Estimate

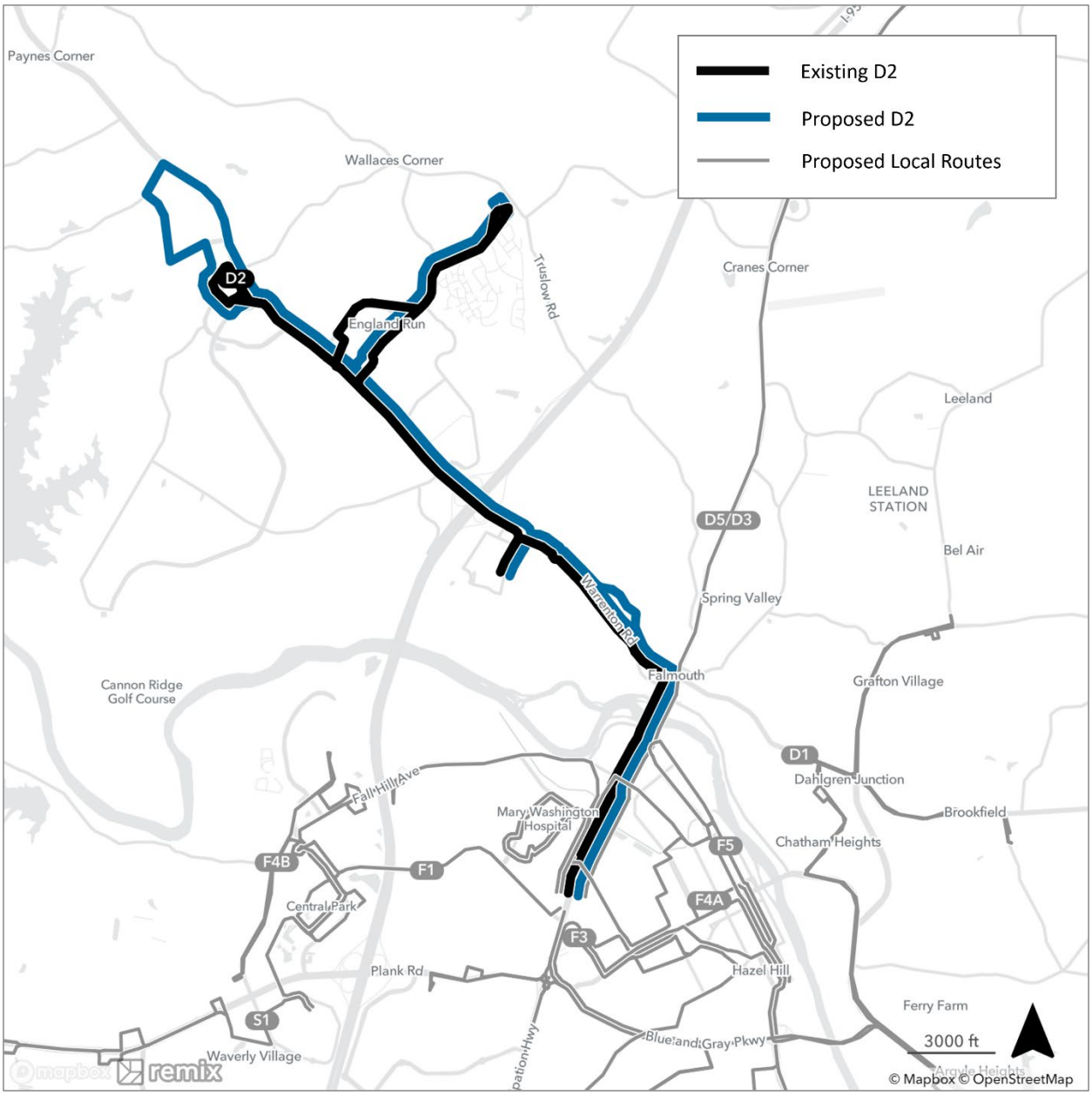
The stops being removed in this recommendation currently make up 13.4 percent (13.4%) of the Route D1 ridership. However, these riders are either within 0.75 miles of the proposed alignment or served by another route. In addition, connecting Route D1 to Central is likely to increase ridership. For the routes that serve Central, an average of 29.1 percent (29.1%) of ridership is at Central. If future Route D1 ridership at Central is also 29.1 percent (29.1%) of total ridership, ridership could increase to 35.4 daily passengers.

3.1.2 ROUTE D2 ALIGNMENT MODIFICATION

Service Change Description

The proposed service change for Route D2 includes several alignment modifications, shown in **Figure 3-2**. An extension to the northwestern end of the route on Warrenton Road provides new service to Walmart on Village Parkway. The proposed service changes also include modifying the route alignment to serve Plantation Drive in both directions instead of operating on Lichfield Boulevard. The alignment is also modified to operate on Melchers Drive to serve Arby's. A Title VI analysis would not be needed because only 0.56 miles is being eliminated (three percent (3%) of the total route alignment).

FIGURE 3-2: EXISTING AND PROPOSED ROUTE D2



Operating Impacts

The impacts to the annual operating requirements of the D2 realignment service change are shown in **Table 3-2**. Impacts to revenue hours, miles, and operating costs are anticipated to be minimal. There will be no impact on peak vehicle requirement. An increase in revenue miles of 5,319 annually is expected with the extension of service to Walmart.

TABLE 3-2: ANNUAL STATISTICS FOR EXISTING AND PROPOSED ROUTE D2

	Peak Vehicles	Revenue Hours	Revenue Miles	Operating Cost
Existing Route D2	1	3,263	57,918	$411,236
Proposed Route D2	1	3,263	63,237	$411,236
Change Over Existing	0	0	5,319	$0

Justification and Support of Transit Needs

- This project meets the transit needs by supporting Goal 3: Ensure a reliable, high-quality customer experience.
- Route D2 meets the performance assessment thresholds with 4.63 riders per revenue hour and 0.27 riders per revenue mile and $22.22 per passenger. Thresholds are a minimum of 3.09 riders per revenue hour, 0.21 riders per revenue mile, and a maximum of $38.29 per passenger.
- FXBGO! seeks to serve major commercial, medical and education centers. Adding service to Walmart creates regular, scheduled service without increasing operating costs. This Walmart currently has the highest number of deviations in the system, with 10.2 rides per week.
- The modified alignment in England Run removes stops on Lichfield Boulevard, but the impact to riders is relatively low (1.1 passengers per day).
- There is a desire to serve England Run in both inbound and outbound directions; however, there is not enough time in the current schedule to accommodate this.

Future Ridership Estimate

Ridership is anticipated to increase because of the new service to Walmart. The Walmart at Warrenton Road and Village Parkway generated 10.2 rides per week (approximately two (2) passengers per day). It is likely that ridership will increase by more than two (2) riders per day because more ridership will become aware of the opportunity to reach the Walmart. If ridership increases at the same rate as revenue miles, ridership on Route D2 would increase 9.2 percent (9.2%) (increase from 57.1 riders to 62.4 riders daily).

3.1.3 ELIMINATE ROUTE D1 AND IMPROVE ROUTE D2 HEADWAY

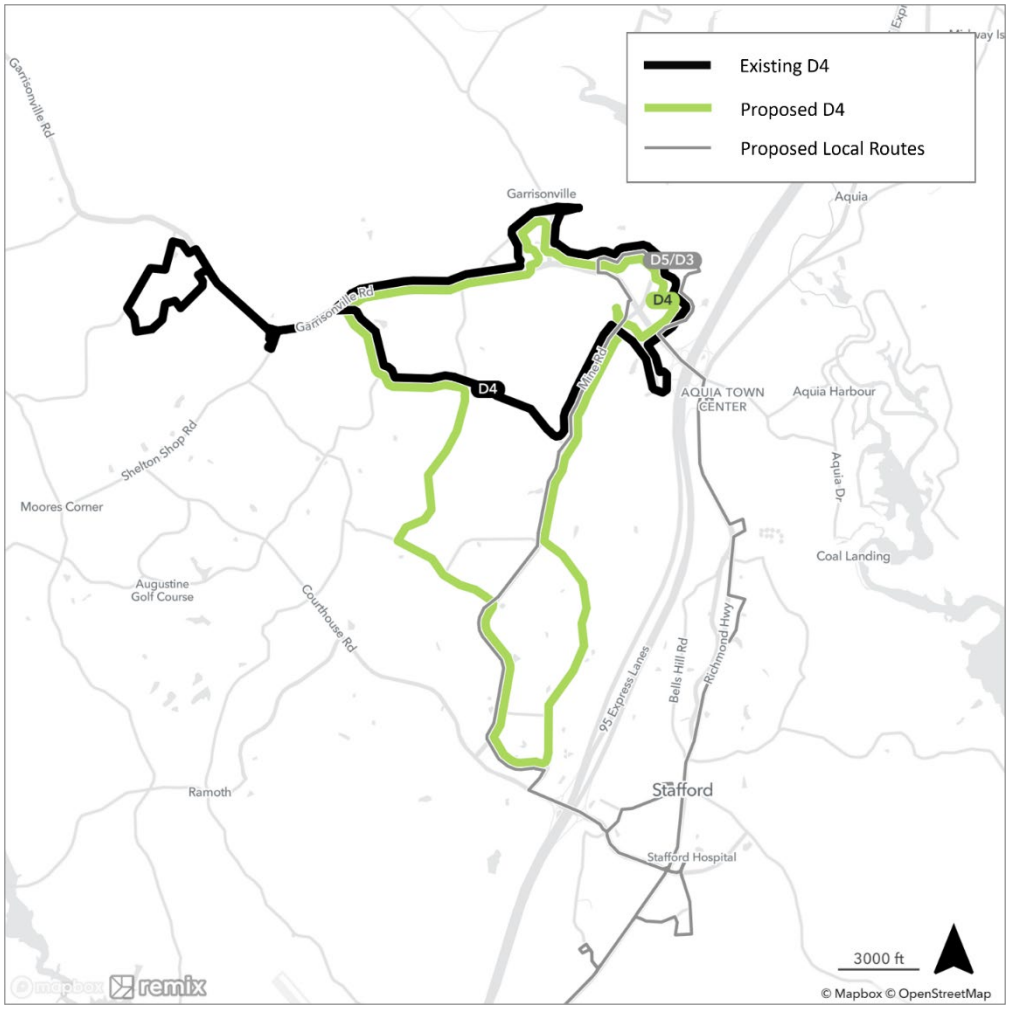
This project was determined to not be included in the constrained plan. The information about the specific project is included in the Appendix.

3.1.4 ROUTE D4 ALIGNMENT MODIFICATION

Service Change Description

This service change calls for an alignment change to Route D4. The proposed alignment operates along the existing Route D4 alignment throughout Stafford Market Place, along Garrisonville Road, to Parkway Boulevard. The alignment differs from the existing alignment by turning south on Eustace Road to Embrey Mill Road. The proposed Route D4 then turns onto Mine Road and serves the Publix off Sunflower Drive before turning onto Austin Ridge Drive. The proposed Route D4 continues along the existing Route D4 alignment traveling north on Mine Road to complete a large, one-way, counterclockwise loop configuration. Approximately 5.5 miles (40 percent (40%) of the route) are removed in this recommendation, triggering the need for a Title VI analysis.

FIGURE 3-3: EXISTING AND PROPOSED ROUTE D4



Operating Impacts

The impacts to the annual operating requirements of the Route D4 realignment service change are shown in **Table 3-3**. Impacts to revenue hours, miles, and operating costs are anticipated to be minimal. There will be no impact on peak vehicle requirement.

TABLE 3-3: ANNUAL STATISTICS FOR EXISTING AND PROPOSED ROUTE D4

	Peak Vehicles	Revenue Hours	Revenue Miles	Operating Cost
Existing Route D4	1	1,933	26,807	$243,578
Proposed Route D4	1	1,933	27,502	$243,578
Change Over Existing	0	0	696	$0

Justification and Support of Transit Needs

- This project meets the transit needs by supporting Goal 2: Leverage available funding to maximize service access, efficiency, and affordability and adjusting service based on performance standards.
- Route D4 averages 3.01 riders per revenue hour and therefore does not meet the minimum performance threshold for riders per revenue hour of 3.09.
- Stakeholder input supported eliminating service west of the library because of low ridership (6.6 daily riders) to shift service to higher demand areas.
- Although the proposed Route D4 alignment operates in a large, one-way loop, portions of the route along Mine Road overlap with the proposed Route D5/D3 alignment, creating bi-directional service on the shared segments.

Future Ridership Estimate

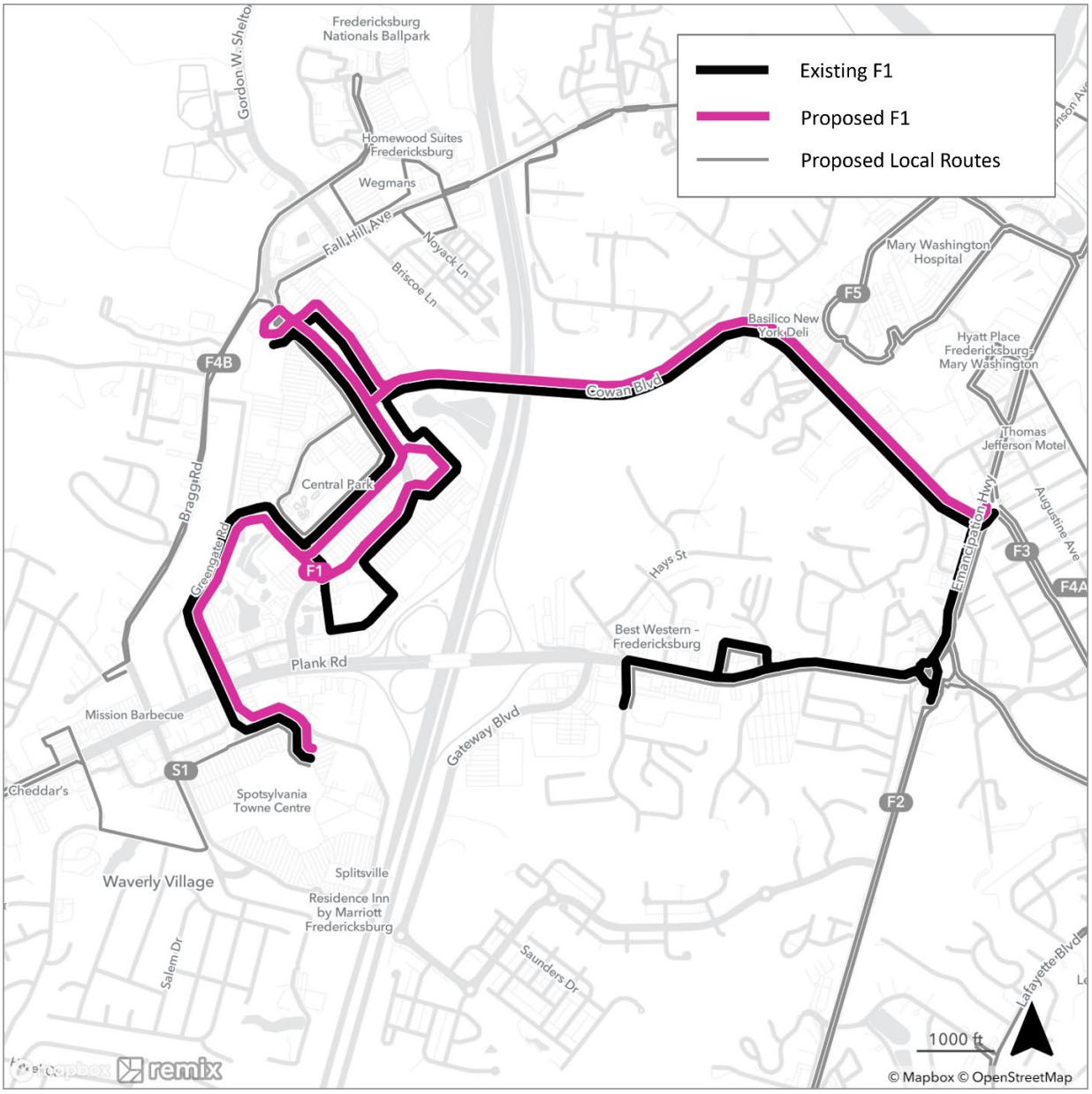
Existing ridership on Route D4 is 22.9 daily riders. Ridership on the proposed Route D4 is likely to be similar to the existing Route D4 because the service area is primarily the same. The eliminated stops along the westernmost end of the route total 6.6 daily boardings. However, the service changes are likely to increase the total ridership because of the new service along Mine Road to the Publix on Sunflower Drive. The increase in revenue miles of 2.6 percent (2.6%) may also suggest a ridership increase of 2.6 percent (2.6%), from 22.9 daily riders to 23.5 daily riders.

3.1.5 ROUTE F1 ALIGNMENT MODIFICATION

Service Change Description

This project involves modifying the alignment of Route F1, shown in **Figure 3-4**. The proposed Route F1 terminates at Central on the eastern end of the route instead of continuing along US Route 1, William Street, Plank Road, and Altoona Drive. Route F2 would operate along William Street, Plank Road, and Altoona Drive, resulting in no loss of service in this area. An additional alignment change occurs mid-route, with service through the Outback Steakhouse and Joe's Crab Shack parking lots being eliminated. A total of 3.08 miles of the 11.06 miles is proposed to be eliminated, surpassing the threshold of 25 percent (25%) and therefore triggering the need for a Title VI analysis.

FIGURE 3-4: EXISTING AND PROPOSED ROUTE F1



Operating Impacts

The impacts to the annual operating requirements of the Route F1 realignment service change are shown in **Table 3-4.** Impacts to revenue hours and operating costs are anticipated to be minimal. Revenue Miles will be reduced by 8,918 annually because of the shorter alignment, representing a 29.2 percent (29.2%) reduction in service miles. There will be no impact on peak vehicle requirement.

TABLE 3-4: ANNUAL STATISTICS FOR EXISTING AND PROPOSED ROUTE F1

	Peak Vehicles	Revenue Hours	Revenue Miles	Operating Cost
Existing Route F1	1	2,761	30,537	$347,969
Proposed Route F1	1	2,761	21,619	$347,969
Change Over Existing	0	0	-8,918	$0

Justification and Support of Transit Needs

- This project meets the transit needs by supporting Goal 3: Ensure a reliable, high-quality customer experience.
- Modifying the eastern end of Route F1 to end at Central would improve connections with other routes that also end at Central. These routes include F2, F3, F5, F4A, F4B, D1 (proposed only), and D2.
- The On Time Performance (OTP) will improve because of the reduction in route length.
- Stakeholder input revealed there is desire to continue to serve Carl D. Silver Parkway because of plans for increased density in the form of commercial development.
- Route F1 meets all of the thresholds in the performance assessment. Specific thresholds are shown in **Table 3-40.**

Future Ridership Estimate

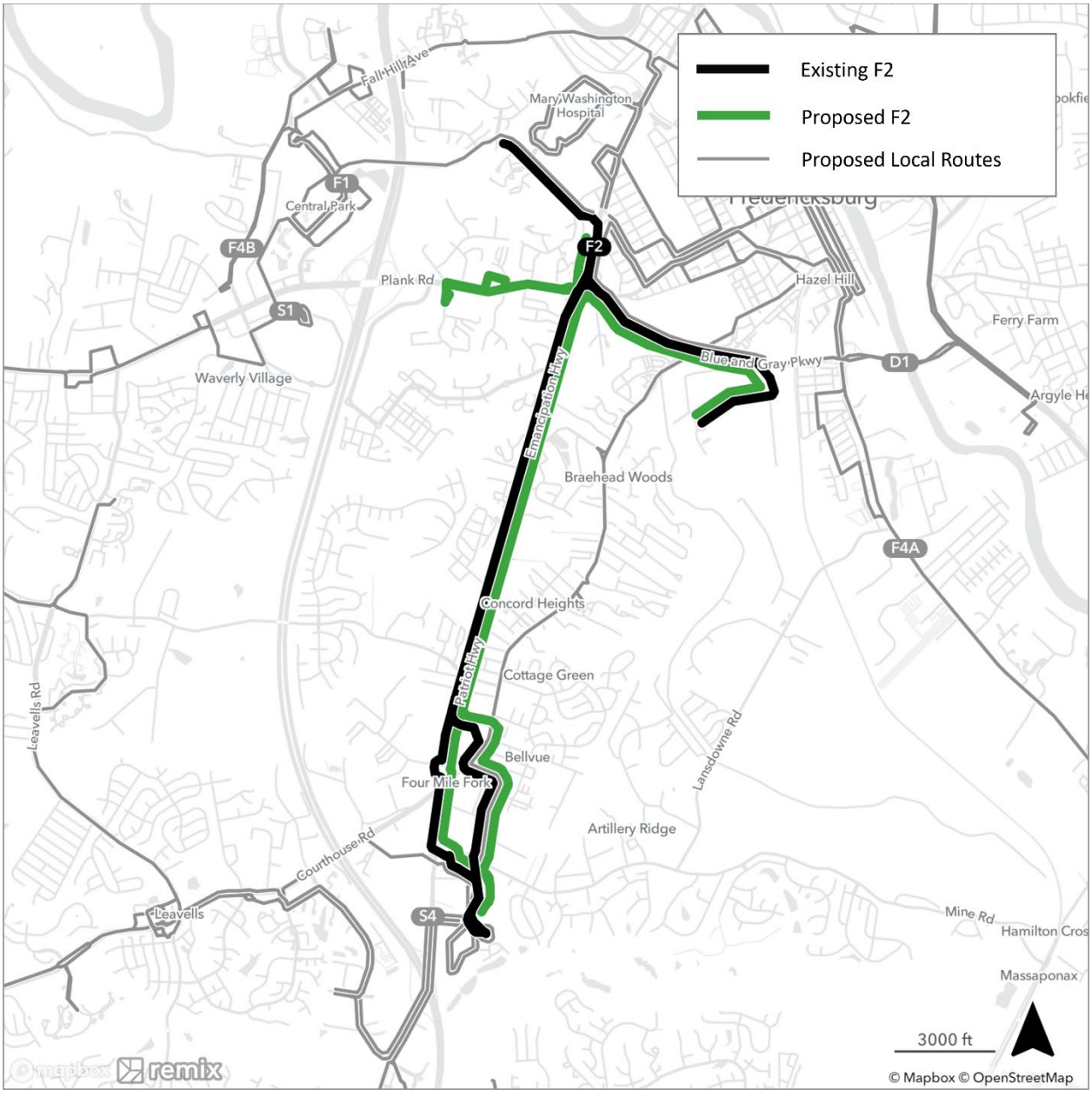
Ridership is anticipated to remain similar to the existing ridership total of approximately 78.1 riders daily. A stop level ridership sample showed 15.5 daily boardings occurring along the portion of Plank Road that is proposed to be shifted to Route F2. Ridership on Cowan Boulevard currently using Route F2 (average of 9.4 daily) is likely to shift to Route F1. The improved connection to Central is likely to improve ridership modestly. Therefore, the net change in ridership is expected to be neutral or modestly positive.

3.1.6 ROUTE F2 ALIGNMENT MODIFICATION

Service Change Description

This project calls for modifying the Route F2 alignment, shown below in **Figure 3-5**. The proposed route terminates at FXBGO! Central at the northern end and would therefore no longer serve Cowan Boulevard. In addition, the proposed Route F2 would operate along Plank Road to Altoona Drive where the Route F1 currently operates. Approximately 5 percent (5%) of the existing route alignment is eliminated (0.88 miles), and therefore a Title VI analysis is not required.

FIGURE 3-5: EXISTING AND PROPOSED ROUTE F2



Operating Impacts

The impacts to the annual operating requirements of the Route F2 realignment service change are shown in **Table 3-5**. Impacts to revenue hours, miles, and operating costs are anticipated to be minimal with revenue miles decreasing by 3,760 miles annually. There will be no impact to the peak vehicle requirement.

TABLE 3-5: ANNUAL STATISTICS FOR EXISTING AND PROPOSED ROUTE F2

	Peak Vehicles	Revenue Hours	Revenue Miles	Operating Cost
Existing Route F2	1	3,514	59,141	$442,869
Proposed Route F2	1	3,514	55,381	$442,869
Change Over Existing	0	0	-3,760	$0

Justification and Support of Transit Needs

- This project meets the transit needs by supporting Goal 3: Ensure a reliable, high-quality customer experience.
- The proposed Route F2 alignment terminates at Central instead of forcing passengers to travel past Central to Cowan Boulevard before ending the route. Terminating the route at Central without passing it first creates a more intuitive connection with other routes that serve FXBGO! Central. Routes that end at Central include: D1 (proposed only), D2, D5/D3, F1, F3, F4A, F4B, and F5.
- Route F2 meets all of the thresholds in the performance assessment. Specific thresholds are shown in **Table 3-40.**

Future Ridership Estimate

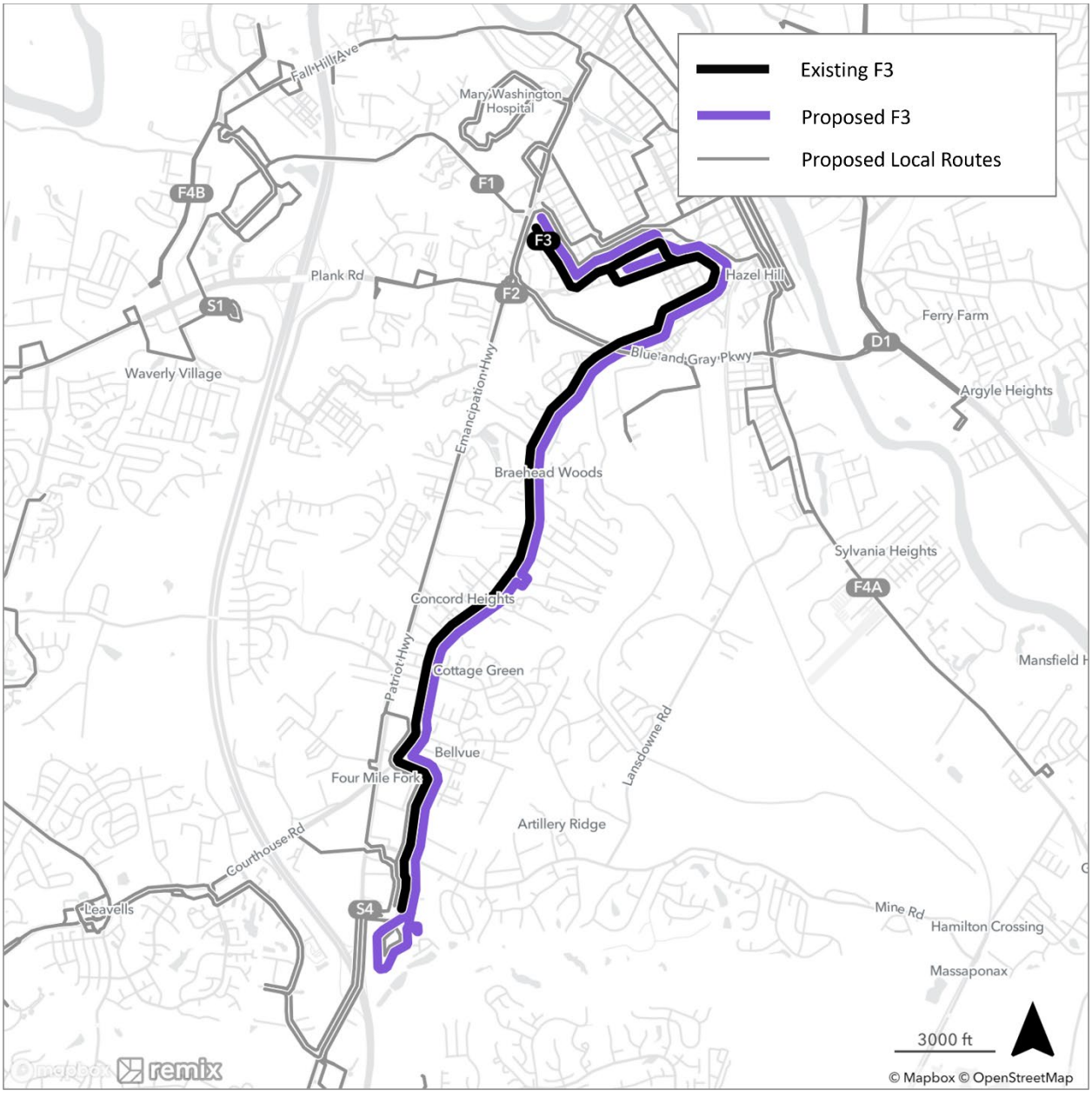
Ridership on Route F1 along Plank Road (15.6 average daily riders) will be shifted to Route F2. Conversely, ridership along Cowan Boulevard currently on Route F2 (9.4 average daily riders) will shift to Route F1. Modifying the end-of-line at Central may provide modest ridership increases. The net change in ridership is likely to be minimal.

3.1.7 ROUTE F3 ALIGNMENT MODIFICATION

Service Change Description

The proposed service change for Route F3 is for an end-of-line alignment adjustment, shown in **Figure 3-6**. The proposed Route F3 would serve the Fredericksburg Veterans Affairs Clinic (VA Clinic) before ending at Lee's Hill Center/Market Street (RGI) on the southern end, instead of operating directly from Spotsylvania Avenue to Lee's Hill Center/Market Street (RGI) on Market Street. The proposed alignment does not eliminate existing service and therefore would not require a Title VI analysis.

FIGURE 3-6: EXISTING AND PROPOSED ROUTE F3



Operating Impacts

The impacts to the annual operating requirements of the Route F3 realignment service change are shown in **Table 3-6.** Impacts to revenue hours, miles, and operating costs are anticipated to be minimal. A small increase of 1,476 annual revenue miles is anticipated due to the extension to the VA Clinic. There will be no impact on peak vehicle requirement.

TABLE 3-6: ANNUAL STATISTICS FOR EXISTING AND PROPOSED ROUTE F3

	Peak Vehicles	Revenue Hours	Revenue Miles	Operating Cost
Existing Route F3	1	3,514	48,107	$442,869
Proposed Route F3	1	3,514	49,583	$442,869
Change Over Existing	0	0	1,476	$0

Justification and Support of Transit Needs

- This project meets the transit needs by supporting Goal 1: Provide equitable transit service that increases access to goods and services, recreation, education, and employment opportunities.
- Serving the new VA Clinic will increase access to healthcare and jobs for passengers.
- Route F3 meets all the thresholds in the performance assessment. Specific thresholds are shown in **Table 3-36.**

Future Ridership Estimate

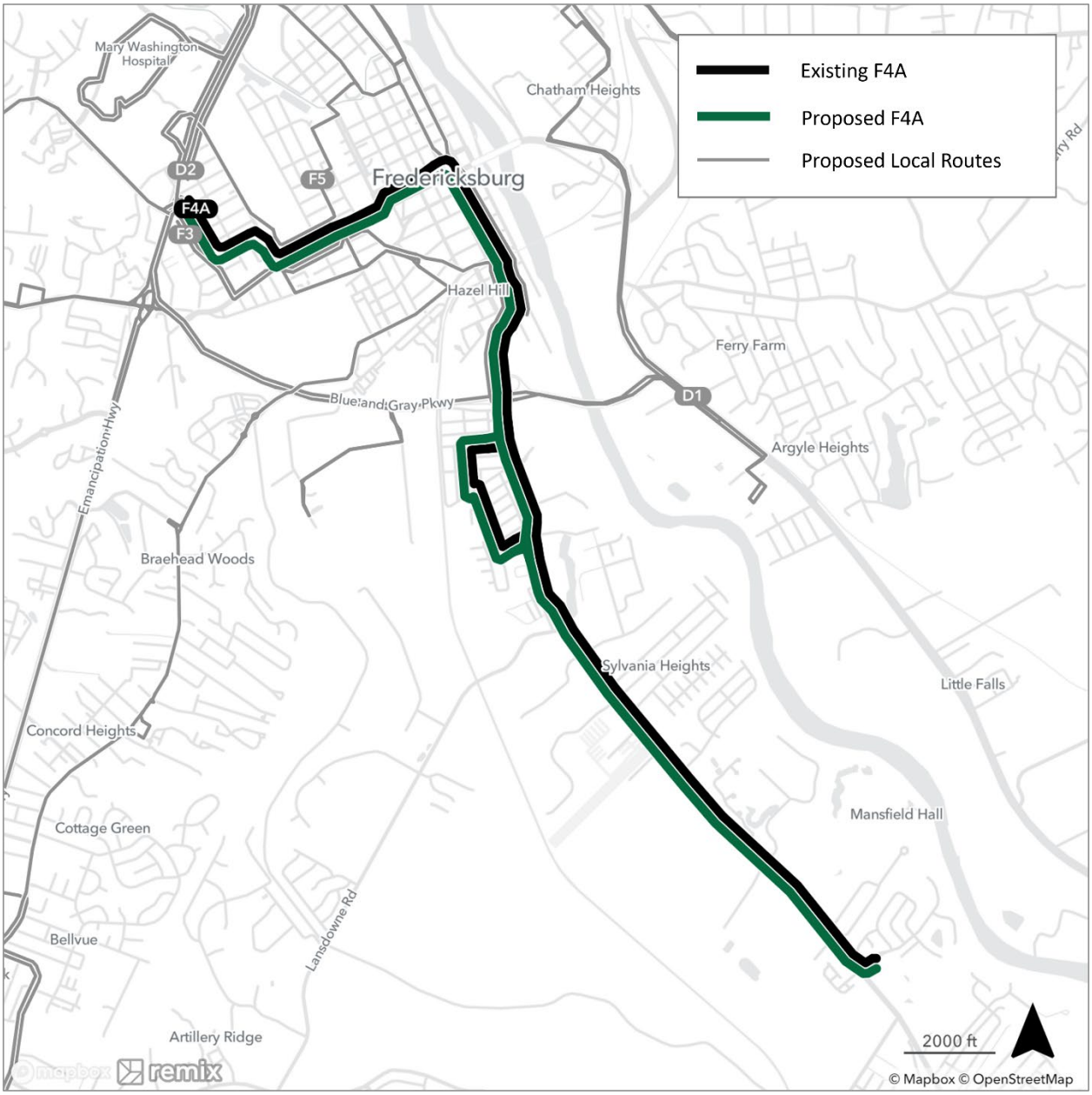
Existing ridership for Route F3 is 81.1 daily passengers. Ridership is likely to remain similar to existing levels, with potential modest increases due to service to the VA Clinic. With the assumption that increased coverage leads to a proportional increase in ridership, a 3.1 percent (3.1%) increase in revenue miles may suggest that an increase of 3.1 percent (3.1%) in ridership. This would increase ridership from 81.1 daily passengers to 85.6.

3.1.8 ROUTE F4A ALIGNMENT MODIFICATION

Service Change Description

The Proposed Route F4A will operate the same alignment as the Existing Route F4A, with a minor adjustment in alignment to no longer operate to the Hazel Hill neighborhood located off Princess Anne Street. A total of 0.25 miles (5 percent (5%) of the route) of the 12.33 miles are planned to be eliminated which would not require a Title VI analysis.

FIGURE 3-7: EXISTING AND PROPOSED ROUTE F4A



Operating Impacts

The impacts to the annual operating requirements of the Route F4A realignment service change are shown in **Table 3-7**. Impacts to revenue hours, miles, and operating costs are anticipated to be minimal with revenue mileage decreasing by 1,406 miles annually. There will be no impact on peak vehicle requirement.

TABLE 3-7: ANNUAL STATISTICS FOR EXISTING AND PROPOSED ROUTE F4A

	Peak Vehicles	Revenue Hours	Revenue Miles	Operating Cost
Existing Route F4A	1	3,514	43,328	$442,869
Proposed Route F4A	1	3,514	41,922	$442,869
Change Over Existing	0	0	-1,406	$0

Justification and Support of Transit Needs

- This project meets the transit needs by supporting Goal 2: Leverage available funding to maximize service access, efficiency, and affordability and adjusting service based on performance standards.
- Removal of unproductive portions of the route in the schedule will improve operating speeds and passenger experience. The scheduled direct service into Hazel Hill produces relatively low ridership, with an average of 2.9 daily passengers.
- Transit improvements such as additional buses and operating frequency are included in committed SMART SCALE projects that may support implementation of this planned improvement.
- Route F4A meets all of the thresholds in the performance assessment. Specific thresholds are shown in **Table 3-36.**

Future Ridership Estimate

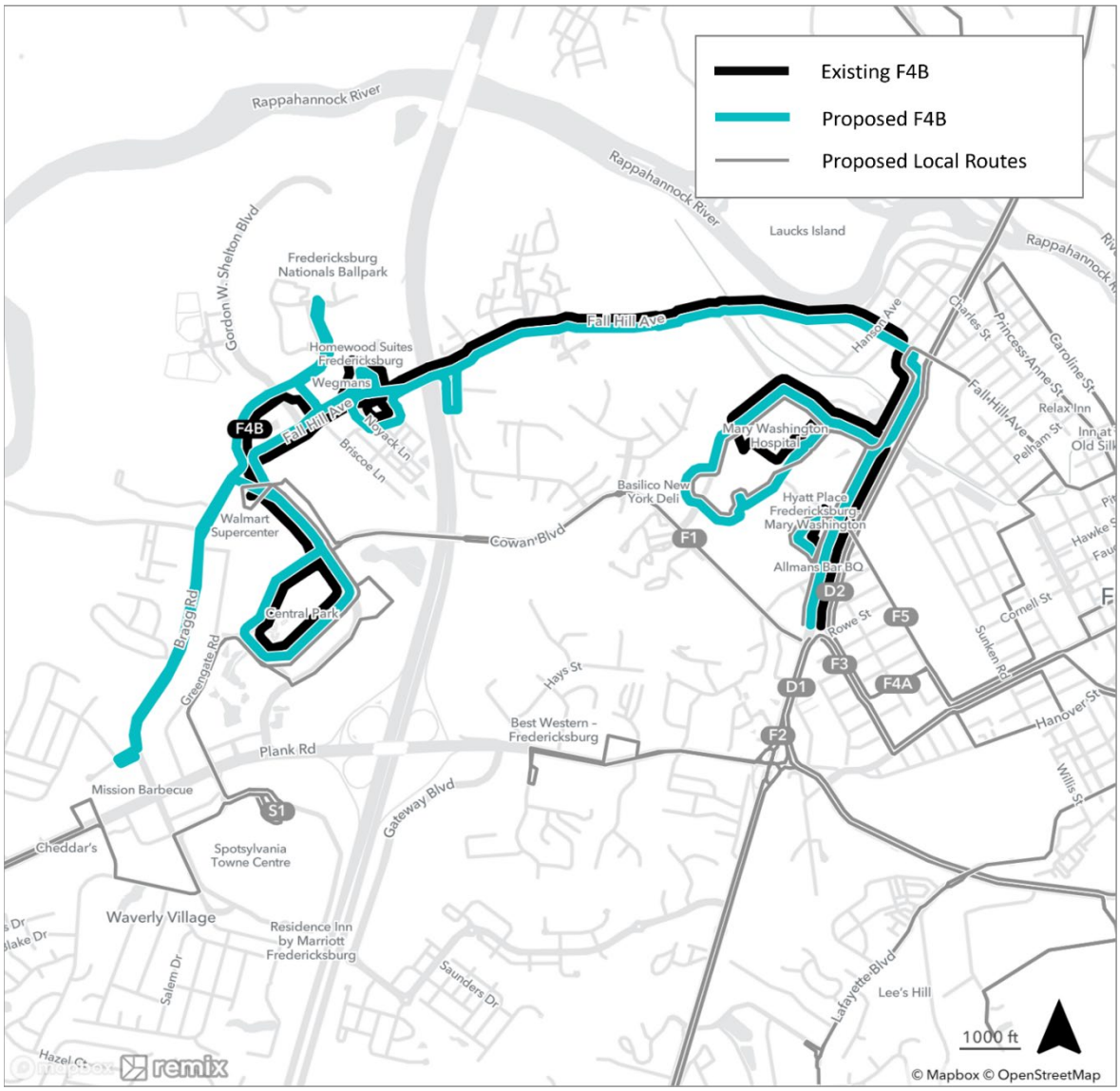
Existing ridership on the Route F4A is 69.7 daily passengers. Removing the scheduled deviation into the Hazel Hill complex is not likely to have an impact on ridership because riders can still request a route deviation through FXBGO! staff when service is needed.

3.1.9 ROUTE F4B ALIGNMENT MODIFICATION

Service Change Description

The proposed changes to the Route F4B include alignment changes in several locations which are shown below in **Figure 3-8**. The Proposed Route F4B includes a larger loop of service around Mary Washington Hospital to serve Care Way and the additional segments of Sam Perry Boulevard in the outbound direction. Another extension would occur along Carl D. Silver Parkway to serve the Fredericksburg Conference Center and Fredericksburg Nationals Baseball Stadium. Service would continue along Fall Hill Avenue to Bragg Road with a new stop added at the Spotsylvania Crossing Shopping Center. The inbound portion of the route would no longer serve Mary Washington Hospital, with the Proposed Route F5 proving service to Mary Washington Hospital instead. Approximately 1.34 miles (10.6 percent (10.6%)) of the existing route is removed and therefore would not require a Title VI analysis.

FIGURE 3-8: EXISTING AND PROPOSED ROUTE F4B



Operating Impacts

The impacts to the annual operating requirements of the Proposed Route F4B realignment service change are shown in **Table 3-8**. Impacts to revenue hours and operating costs are anticipated to be minimal. Revenue miles will increase by approximately 7,081 because of the alignment extensions described above. There will be no impact on peak vehicle requirement.

TABLE 3-8: ANNUAL STATISTICS FOR EXISTING AND PROPOSED ROUTE F4B

	Peak Vehicles	Revenue Hours	Revenue Miles	Operating Cost
Existing Route F4B	1	3,263	40,983	$411,236
Proposed Route F4B	1	3,263	48,064	$411,236
Change Over Existing	0	0	7,081	$0

Justification and Support of Transit Needs

- This project meets the transit needs by supporting Goal 1: Provide equitable transit service that increases access goods and services, recreation, education, and employment opportunities.
- The Route F4B alignment changes increase service coverage with areas with demand, such as Fredericksburg Nationals Baseball Stadium and adjacent residential development.
- Serving the Fredericksburg Nationals Baseball Stadium was a priority identified in stakeholder meetings.
- Route F4B meets all the thresholds in the performance assessment. Specific thresholds are shown in **Table 3-36.**

Future Ridership Estimate

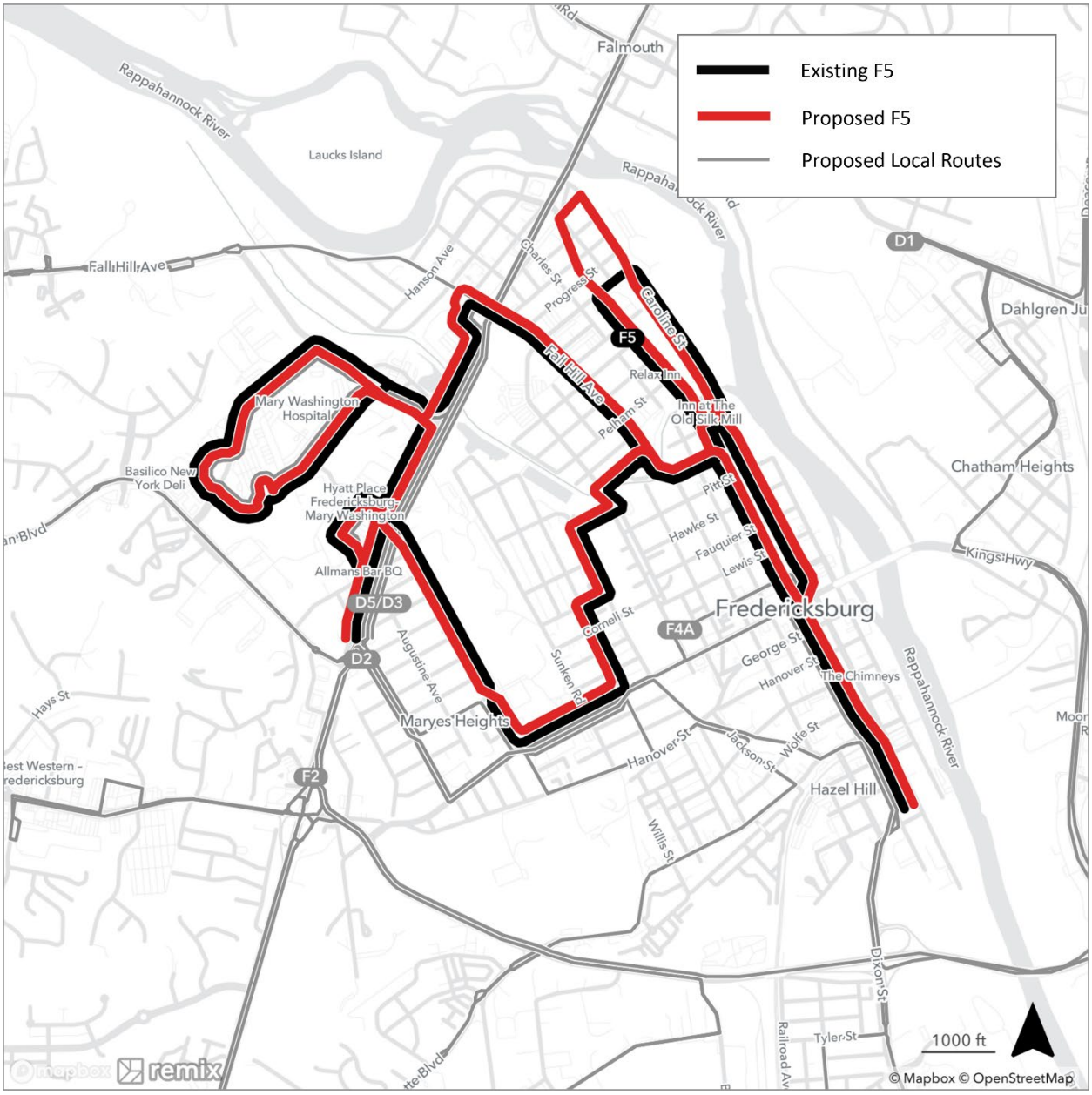
Ridership is anticipated to improve with the additional stops along Bragg Road and service to Fredericksburg National Ballpark and surrounding residential. Ridership levels on the existing Route F4B are 57.7 daily passengers. The recommendation calls for an increase of 17.3 percent (17.3%) in revenue miles. Should ridership increase at the same rate as revenue miles, daily passengers would increase from 57.7 to 67.7.

3.1.10 ROUTE F5 ALIGNMENT MODIFICATION

Service Change Description

This project involves a minor alignment extension to the Route F5, shown in **Figure 3-9.** The modified alignment would operate farther north on Princess Anne Street and turn onto Amaret Street instead of Germania Street. The remainder of the route alignment remains the same. A Title VI analysis would not be required because no service is being eliminated.

FIGURE 3-9: EXISTING AND PROPOSED ROUTE F5



Operating Impacts

The impacts to the annual operating requirements of Route F5 realignment service change are shown in **Table 3-9**. Impacts to revenue hours and operating costs are anticipated to be minimal. Annual revenue miles will increase by approximately 2,513 due to the Amaret Street extension. There will be no impact on peak vehicle requirement.

TABLE 3-9: ANNUAL STATISTICS FOR EXISTING AND PROPOSED ROUTE F5

	Peak Vehicles	Revenue Hours	Revenue Miles	Operating Cost
Existing Route F5	1	3,263	33,119	$411,236
Proposed Route F5	1	3,263	35,632	$411,236
Change Over Existing	0	0	2,513	$0

Justification and Support of Transit Needs

- This project meets the transit needs by supporting Goal 1: Provide equitable transit service that increases access goods and services, recreation, education, and employment opportunities.
- The Route F5 alignment change extends service closer to commercial development along Princess Anne Street, such as Fredericksburg Food Co-Op and Captain D's Seafood. The extension also adds coverage to residential development along Princess Anne Street.
- Route F5 meets all of the thresholds in the performance assessment. Specific thresholds are shown in **Table 36.**

Future Ridership Estimate

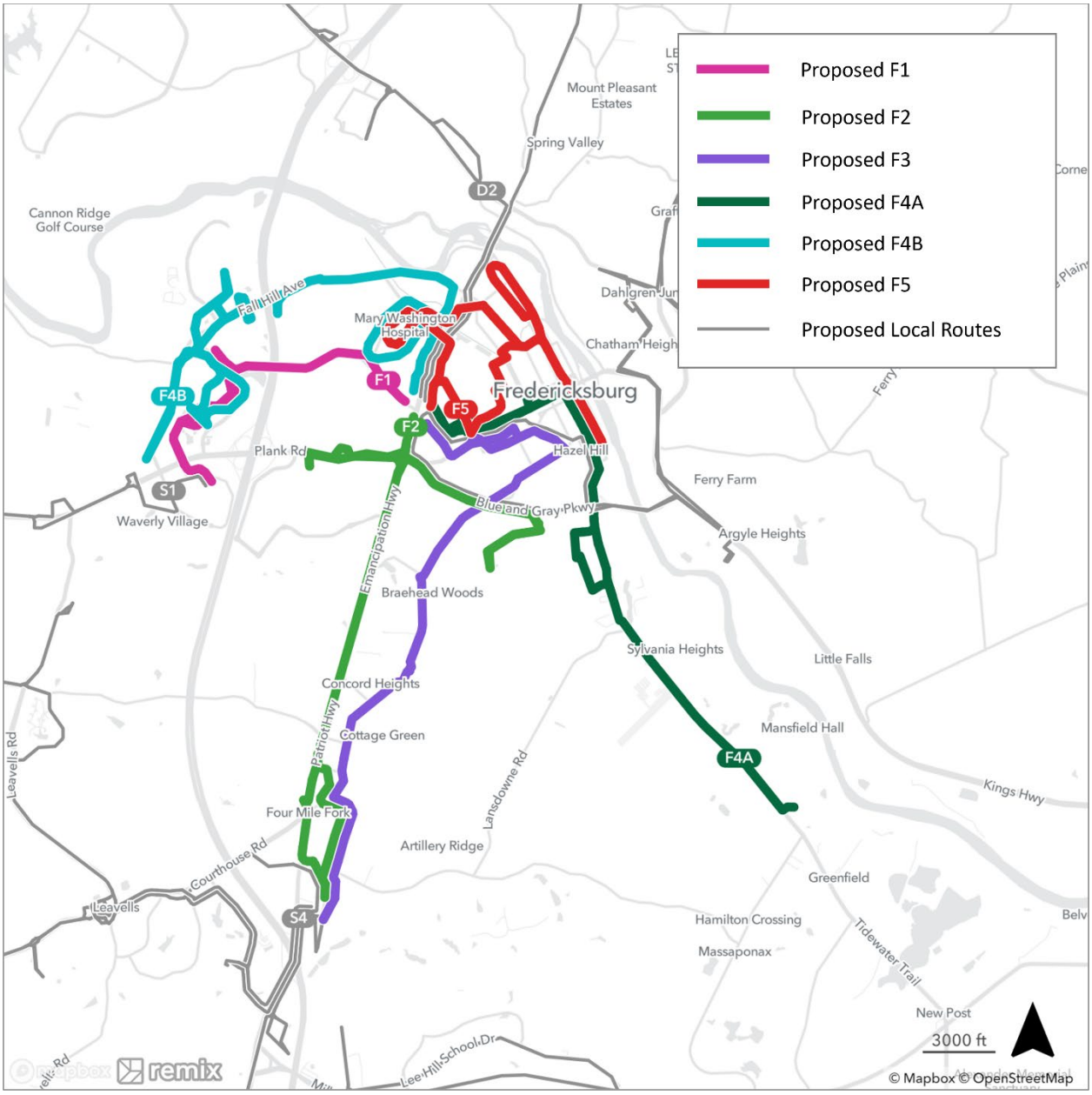
Changes in ridership resulting from the alignment modification are anticipated to be minor. However, the increase in coverage may increase ridership. The existing average daily ridership for Route F5 is 73.0 passengers, which equates to a 0.60 riders per revenue hour. The additional revenue miles would translate to an additional 6.0 daily riders (to 79.0), assuming that ridership increases at the same rate as revenue miles.

3.1.11 IMPROVE HEADWAYS ON F ROUTES

Service Change Description

As shown in Chapter 2: System Performance and Operations Analysis, six (6) of the top seven (7) routes in terms of performance are F routes (F1, F2, F3, F4A, F4B, and F5). This project involves improving all six (6) F routes from 60-minute headways to 30-minute headways. F routes are shown in **Figure 3-10** below. A Title VI analysis would not be required before implementation because improving headways is not considered a service change in the FXBGO! Title VI Plan FY 2022 – 2024.

FIGURE 3-10: PROPOSED F ROUTES



Operating Impacts

The impacts to the annual operating requirements of the proposed F route service changes are shown in **Table 3-10**. Revenue hours, miles, operating costs, and peak vehicles are expected to increase by 100 percent (100%) for the proposed F Routes. This project would produce an increase of approximately $2,500,000 in operating costs annually. This project would also require capital funding in the form of additional vehicles because it would require an increase of six (6) peak vehicles.

TABLE 3-10: ANNUAL STATISTICS FOR EXISTING AND PROPOSED F ROUTES

	Peak Vehicles	Revenue Hours	Revenue Miles	Operating Cost
Existing F Routes	6	19,829	255,214	$2,499,049
Proposed F Routes	12	39,658	504,400	$4,998,098
Change Over Existing	6	19,829	249,185	$2,499,049

Justification and Support of Transit Needs

- This project meets the transit needs by supporting Goal 3: Ensure a reliable, high-quality customer experience.
- The F routes make up six (6) of the top seven (7) FXBGO! routes in terms of passengers per hour. Adding service to these routes, as opposed to other routes in the network, would likely have the most positive impact on ridership. All six (6) F routes meet all the thresholds in the performance assessment. Specific thresholds are shown in **Table 3-36.**
- Improving frequency was the number one (1) requested improvement in the TSP public survey in Fall 2022 (see Section 2.1.3).
- Additional service on existing Route F4A is part of a funded Virginia SMART SCALE grant.
- This project assumes consistent headways throughout the day (as opposed to peak service only) because ridership data shown in Chapter 2 does not suggest travel patterns are higher at peak times. In fact, the highest peak travel hour on weekdays is from 11 a.m. – 12 p.m.
- Stakeholder representatives said that service is too infrequent, and routes with 60-minute frequencies can be inconvenient to use. Stakeholders indicated a strong desire to improve service frequency to every 30-minutes or better.

Future Ridership Estimate

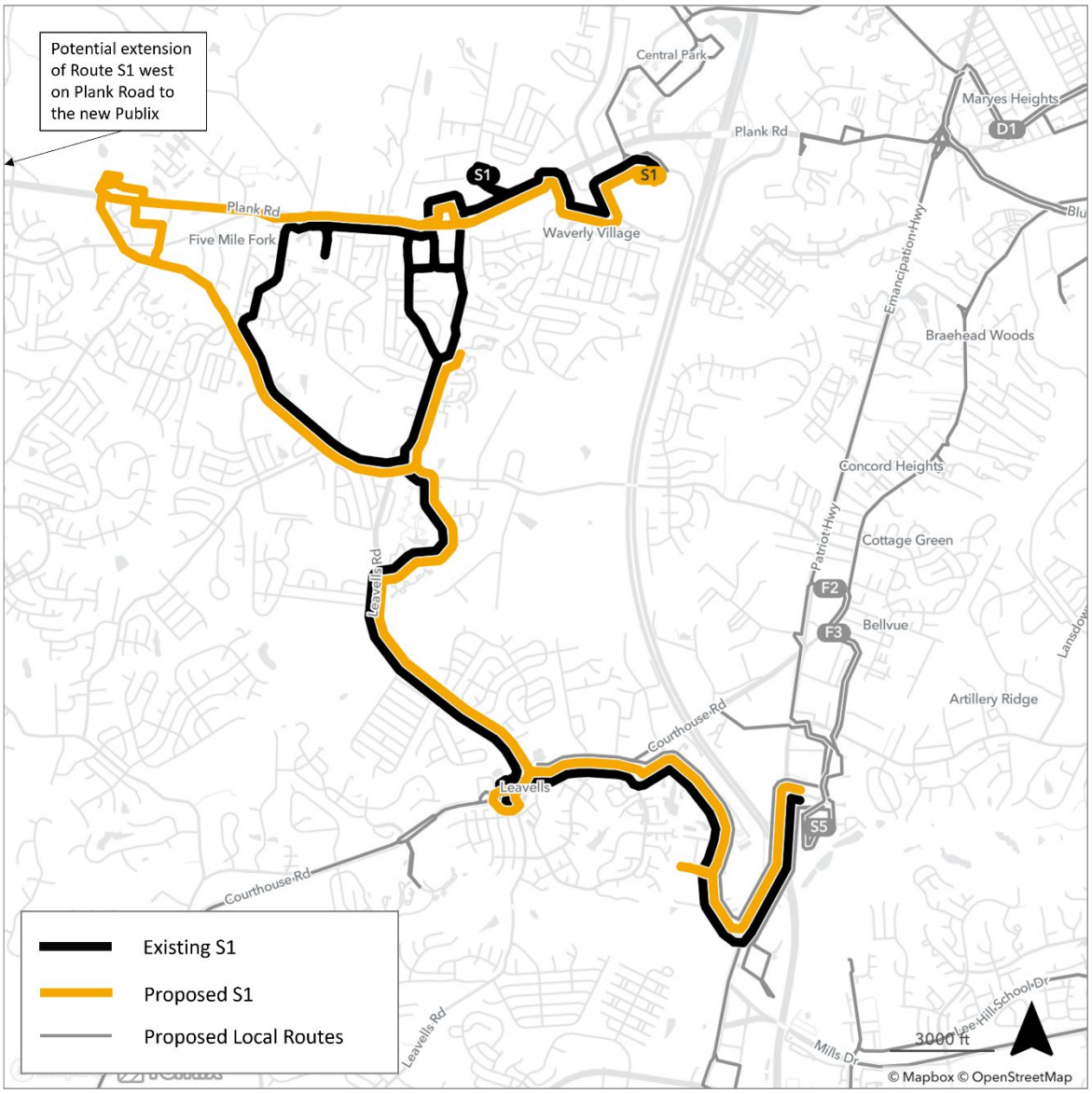
The existing F Routes account for an average of 406.5 daily riders. Assuming the F route improvements and associated ridership assumptions from the previous project descriptions, the proposed F routes would result in an additional 14.5 daily riders for a total of 421.0 riders. Improving the headways from 60-minutes to 30-minutes on all F routes would increase ridership at half of this rate, resulting in an additional 210.5 riders for a total of 631.5 daily riders.

3.1.12 ROUTE S1 ALIGNMENT MODIFICATION

Service Change Description

This project proposes alignment changes to the Route S1, shown in **Figure 3-11** below. The modified alignment maintains a simplified, bi-directional alignment along the entire route. Service from Spotsylvania Towne Centre extends farther west along Plank Road to reach Harrison Crossing, which includes grocery and retail shopping. Several stops along Kilarney Drive are removed, although all stops are within 0.75 miles of the proposed alignment and therefore would be accessible via route deviation request. Similarly, several stops along Kennedy Lane are removed but would still be accessible via route deviation request. Service on Leavells Road and south of Leavells Road remains the same. This project results in the removal of 3.6 miles (11.6 percent (11.6%) of route), which is less than 25 percent (25%) of the total route miles and therefore would not require a Title VI analysis.

FIGURE 3-11: EXISTING AND PROPOSED ROUTE S1



Operating Impacts

The impacts to the annual operating requirements of the proposed Route S1 realignment service change is shown in **Table 3-11**. Impacts to annual revenue hours, miles, and operating costs are anticipated to be minor with only revenue mileage decreasing by 1,378 miles. There will be no impact on peak vehicle requirement.

TABLE 3-11: ANNUAL STATISTICS FOR EXISTING ROUTE S1 AND PROPOSED ROUTE S1 AND S7

	Peak Vehicles	Revenue Hours	Revenue Miles	Operating Cost
Existing Route S1	2	4,518	70,277	$569,404
Proposed Route S1	2	4,518	68,900	$569,404
Change Over Existing	0	0	-1,378	$0

Justification and Support of Transit Needs

- This project meets the transit needs by supporting Goal 2: Leverage available funding to maximize service access, efficiency, and affordability and adjusting service based on performance standards.
- Route S1 requires two vehicles to operate 60-minute headways. Each vehicle on the route is analyzed individually as Route S1A and Route S1B. Neither Route S1A nor Route S1B meet the minimum thresholds in the performance assessment for riders per revenue hour (3.06 and 2.72) or riders per revenue mile (0.2 and 0.17). The minimum thresholds are 3.09 riders per revenue hour and 0.21 riders per revenue mile.
- The proposed Realigned Route S1 has a simpler alignment than the Existing Route S1, making it easier for passengers to understand which direction the vehicles are going.
- Route S1 has a relatively low productivity, with only 2.9 riders per revenue hour. Stakeholders noted the low productivity and responded by voicing support for modifying the alignment to serve more of the development along Plank Road.
- The modified alignment expands coverage to Harrison's Crossing Shopping Center, giving passengers additional shopping and employment opportunities. Stakeholder input showed a desire to serve the new Publix grocery store when it opens on Plank Road (shown above in **Figure 3-13**).

Future Ridership Estimate

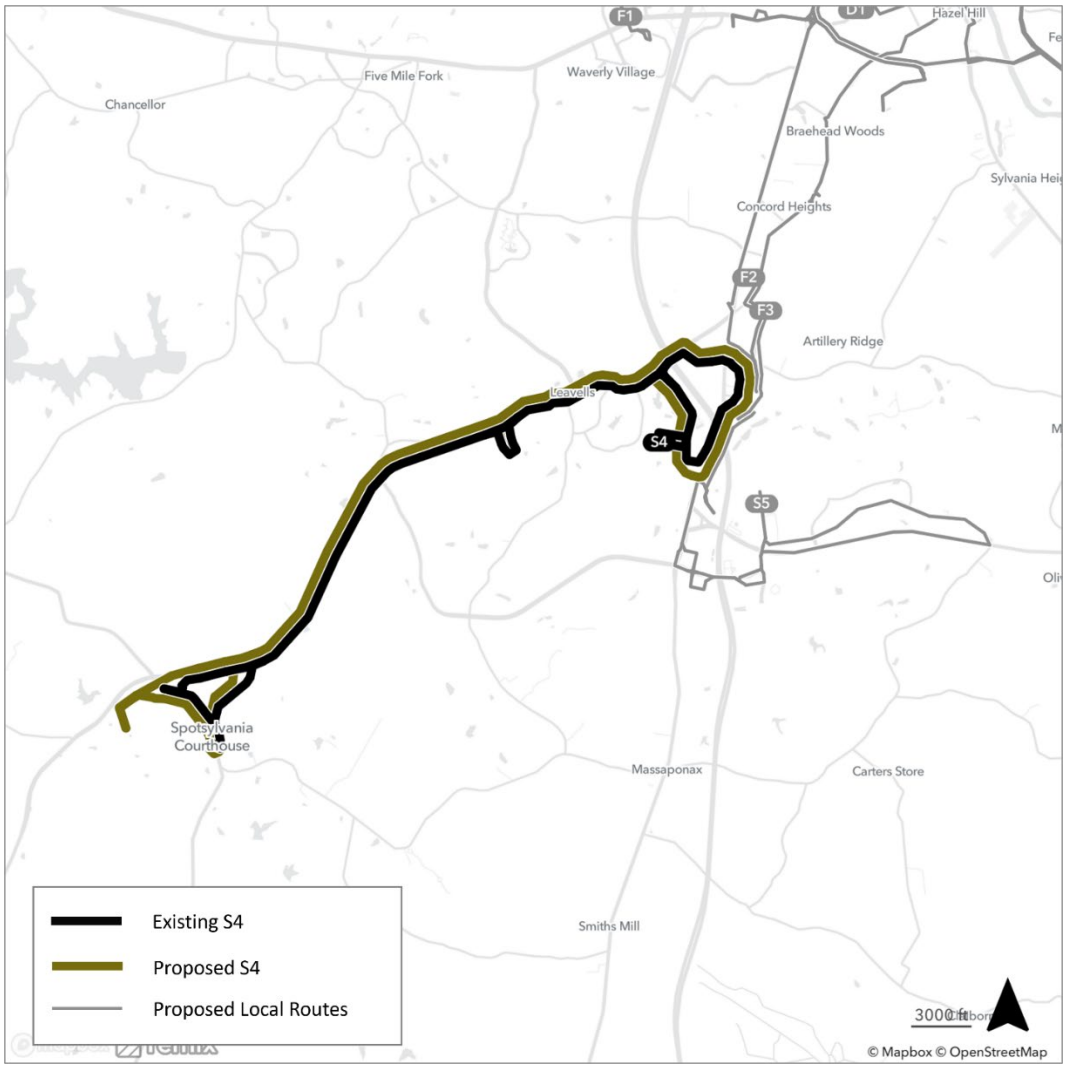
Overall, ridership is likely to remain constant or increase slightly with the new alignment. The stops that are eliminated from scheduled service total 5.8 percent (5.8%) of daily ridership. However, these stops are within the 0.75-mile deviation limit, giving passengers the opportunity to continue accessing these locations through a route deviation request. However, new transit service to shopping and retail west on Plank Road will likely provide a minor increase in ridership. Future ridership is therefore estimated to remain at existing levels of approximately 60 passengers per day.

3.1.13 ROUTE S4 ALIGNMENT MODIFICATION

Service Change Description

This project calls for minor alignment changes to the southwestern end of Route S4, shown in **Figure 3-12** below. Proposed routing remains the same as the existing route until Brock Road, where the proposed alignment will serve Old Robert E. Lee Drive followed by Keswick Drive to serve multiple apartment complexes (Pines Apartments, Keswick Apartments, and Keswick Senior Apartments). The route will then return to Brock Road and continues along the existing alignment to serve the Snow Branch of the Central Rappahannock Regional Library before continuing north to Courthouse Road for the return trip. On the northern end of the route, an additional stop at the Route 208 Park and Ride Lot will be added if a transit center is constructed. The proposed Route S4 does not eliminate service and would therefore not require a Title VI analysis.

FIGURE 3-12: EXISTING AND PROPOSED ROUTE S4



Operating Impacts

The impacts to the annual operating requirements of the proposed S4 alignment change are shown in **Table 3-12**. Impacts to revenue hours, miles, and operating costs are anticipated to be minimal. Only Route S4's revenue mileage would change with annual revenue miles increasing by 1,729 miles. There will be no impact on peak vehicle requirement.

TABLE 3-12: ANNUAL STATISTICS FOR EXISTING AND PROPOSED ROUTE S4

	Peak Vehicles	Revenue Hours	Revenue Miles	Operating Cost
Existing Route S4	1	3,263	63,890	$411,236
Proposed Route S4	1	3,263	65,619	$411,236
Change Over Existing	0	0	1,729	$0

Justification and Support of Transit Needs

- This project meets the transit needs by supporting Goal 2: Leverage available funding to maximize service access, efficiency, and affordability and adjusting service based on performance standards.
- Route S4 averages 2.01 riders per revenue hour, 0.1 riders per revenue mile, and $49.12 per passenger, and therefore fails to meet all three thresholds of the performance assessment. The thresholds are 3.09 riders per revenue hour, 0.21 riders per revenue mile, and $38.29 per passenger.
- This project expands transit service to residential areas along Keswick Drive, creating additional coverage.
- Route S4 can be modified to serve the Route 208 Park and Ride Lot. There is a SMART SCALE Project for the Route 208 Park and Ride that includes additional buses, operating funding, and amenities such as a transit shelter, bicycle lockers, and bicycle parking.

Future Ridership Estimate

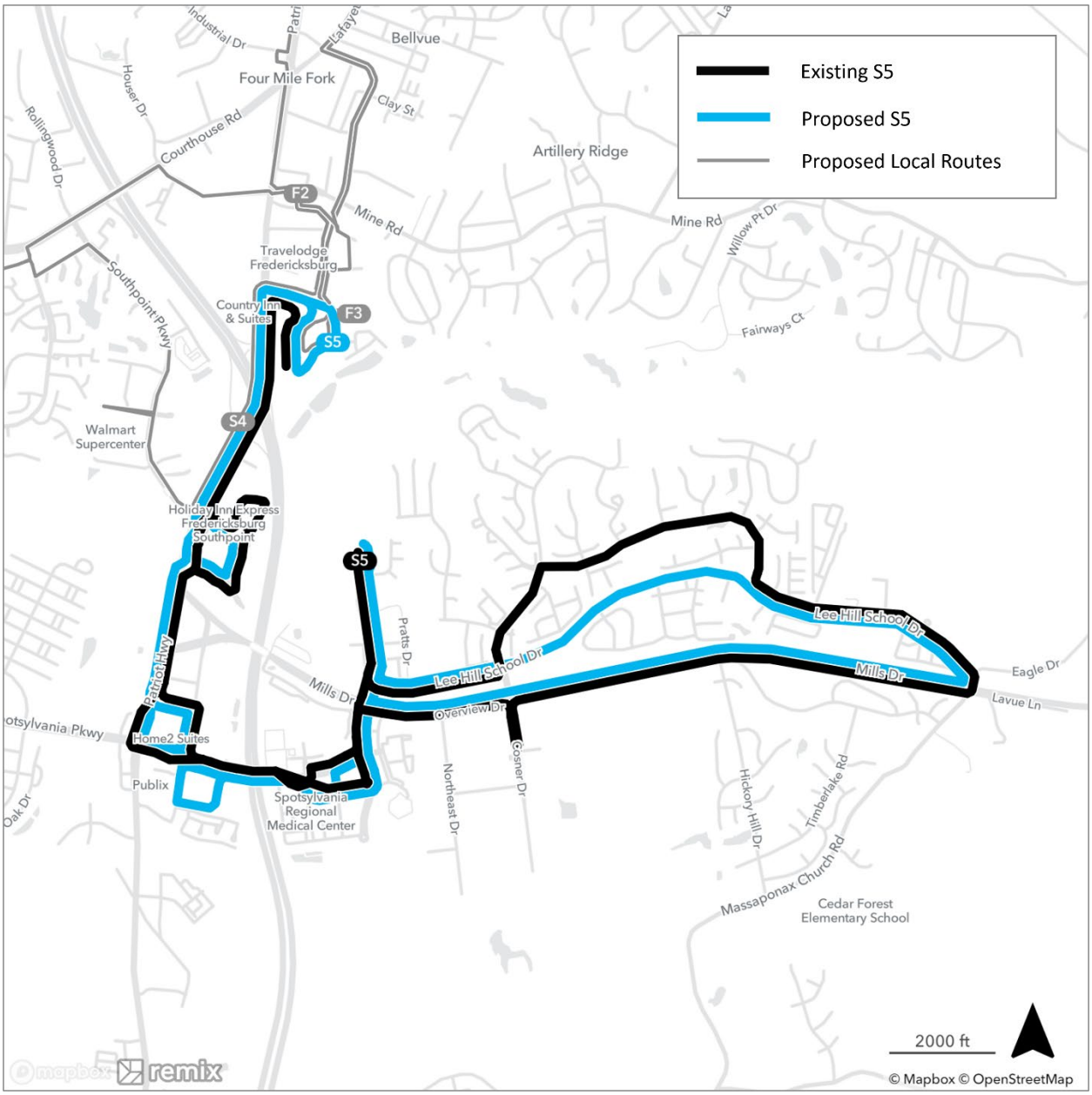
Average ridership on Route S4 is seven (7) passengers per day. The proposed changes may induce a small increase in ridership because of the extension to Keswick Drive.

3.1.14 ROUTE S5 ALIGNMENT MODIFICATION

Service Change Description

This project recommends modifying the Route S5 alignment, shown in **Figure 3-13.** At the northern end, the proposed Route S5 is extended to serve the VA Clinic. The proposed service eliminates part of the circulation along Southpoint Parkway but adds circulation on Monroe Pass Road to Publix and Kohl's. The proposed alignment also removes scheduled deviations onto Cosner Drive, Old Dominion Parkway, and Monticello Street. Approximately two (2) miles (14 percent (14%)) of the existing alignment is planned for elimination and therefore a Title VI analysis would not be required.

FIGURE 3-13: EXISTING AND PROPOSED ROUTE S5



Operating Impacts

The impacts to the annual operating requirements of the proposed S5 realignment service change are shown in **Table 3-13**. Impacts to revenue hours, revenue miles, and operating costs are anticipated to be minimal. Only Route S5's revenue miles will experience an impact with annual revenue mileage decreasing by 5,351 miles. There will be no impact on peak vehicle requirement.

TABLE 3-13: ANNUAL STATISTICS FOR EXISTING AND PROPOSED ROUTE S5

	Peak Vehicles	Revenue Hours	Revenue Miles	Operating Cost
Existing Route S5	1	3,263	53,676	$411,236
Proposed Route S5	1	3,263	48,325	$411,236
Change Over Existing	0	0	-5,351	$0

Justification and Support of Transit Needs

- This project meets the transit needs by supporting Goal 2: Leverage available funding to maximize service access, efficiency, and affordability and adjusting service based on performance standards.
- Route S5 averages 2.46 riders per revenue hour, 0.16 riders per revenue mile, and $40.25 per passenger, and therefore fails to meet thresholds in the performance assessment. The thresholds are 3.09 riders per revenue hour, 0.21 riders per revenue mile, and $38.29 per passenger.
- The proposed alignment would eliminate five (5) stops that have an average of only 1.8 daily riders. In addition, eliminated stops are all within 0.75 miles of the proposed alignment, and would therefore still be accessible via route deviation request.
- The proposed alignment expands service to additional destinations, such as the VA Clinic at the northern end of the route as well as Publix and Kohl's shopping center on the southern end. Adding coverage to these destinations increases access to shopping and employment opportunities.

Future Ridership Estimate

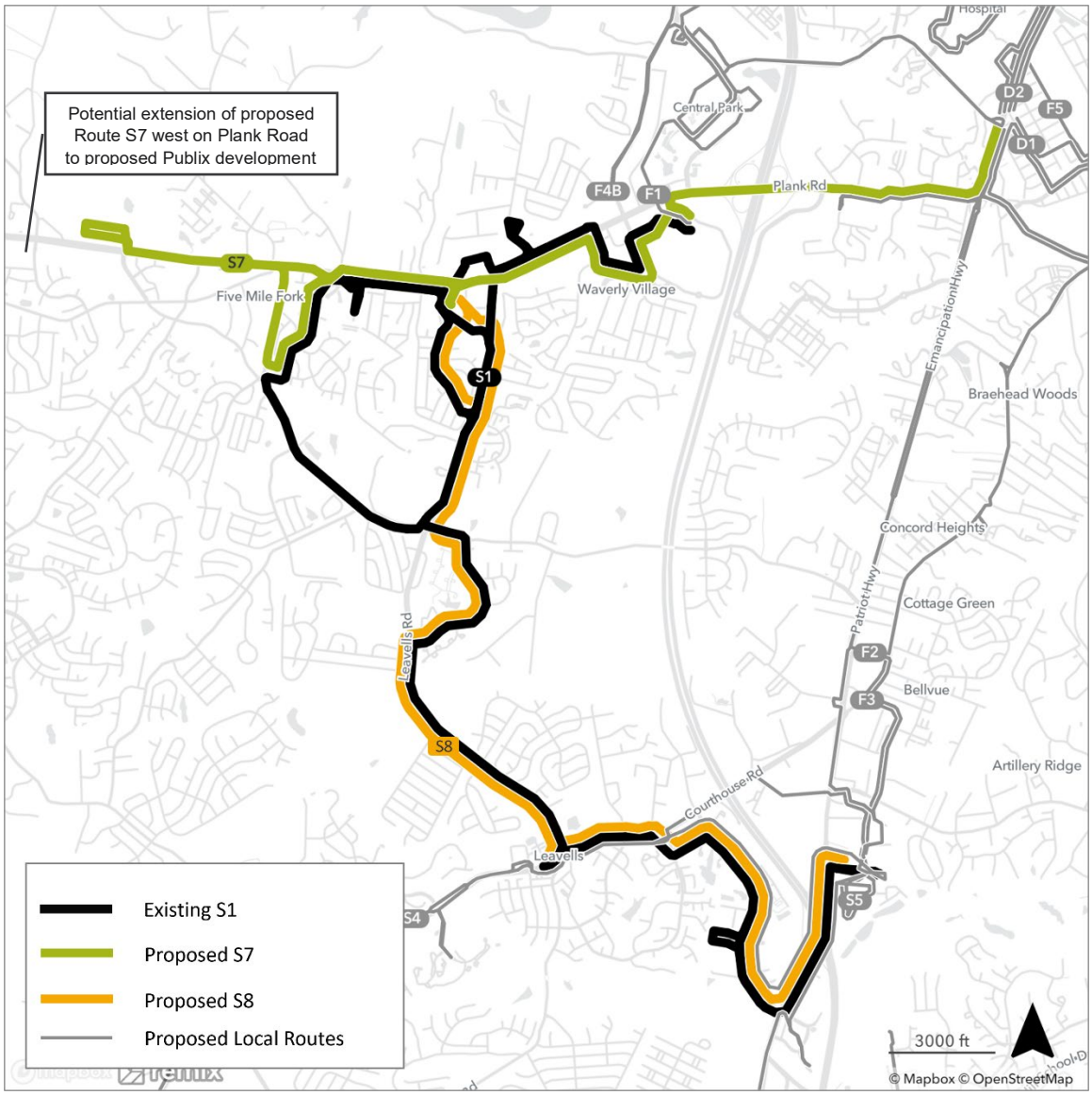
Stops that are being eliminated in this project are relatively low ridership (1.8 total daily riders) and will still be accessible via route deviation request. A modest increase in ridership could be seen in the future because of the additional destinations being served (VA Clinic, Publix, Kohl's). Future ridership will likely remain close to existing ridership of 8.6 riders per day.

3.1.15 ELIMINATE ROUTE S1 AND IMPLEMENT ROUTE S7 AND S8

Service Change Description

This project proposes the elimination of Route S1 and implementation of two new routes (Route S7 and Route S8), shown in **Figure 3-14** below. Currently, Route S1 requires two vehicles to operate 60-minute service. The proposed service operates one vehicle on each route at 60-minute service. The proposed Route S7 would operate from Central along Plank Road to Spotsylvania Towne Centre, before continuing along Plank Road to Harrison's Crossing shopping center. The proposed Route S8 would operate a significant portion of the existing Route S1, serving Courthouse Road and Leavells Road, before terminating at Salem Church Road Park and Ride Lot to connect with the proposed Route S7. The elimination of Route S1 would trigger the need for a Title VI analysis.

FIGURE 3-14: EXISTING S1 AND PROPOSED S7 AND S8



Operating Impacts

The impacts to the annual operating requirements for this project are shown in **Table 3-14**. Because of the significant resources required to operate Route S1, there is very little impact by creating two separate routes. The necessary revenue hours, revenue miles, and operating costs to implement the proposed Route S7 and Route S8 are similar to the Existing Route S1. The proposed Routes S7 and S8 will only increase annual service mileage by 1,536 miles. There will be no impact on peak vehicle requirement.

TABLE 3-14: ANNUAL STATISTICS FOR EXISTING ROUTE S1 AND PROPOSED ROUTE S7 AND S8

	Peak Vehicles	Revenue Hours	Revenue Miles	Operating Cost
Existing Route S1	2	4,518	70,277	$569,404
Proposed Route S7	1	2,259	33,637	$284,702
Proposed Route S8	1	2,259	38,177	$284,702
Change Over Existing	0	0	1,536	$0

Justification and Support of Transit Needs

- This project meets the transit needs by supporting Goal 2: Leverage available funding to maximize service access, efficiency, and affordability and adjusting service based on performance standards.
- Route S1 requires two vehicles to operate 60-minute headways. Each vehicle on the route is analyzed individually as Route S1A and Route S1B. Neither the Route S1A nor Route S1B meet the thresholds in the performance assessment for riders per revenue hour (3.06 and 2.72) or riders per revenue mile (0.2 and 0.17). The thresholds are 3.09 riders per revenue hour and 0.21 riders per revenue mile.
- Stakeholders noted the low performance of the existing Route S1 and were in favor of a realignment option to see if performance could be improved by serving more of Plank Road.
- Realigning Route S1 into two (2) separate routes that are more direct makes the transit service easier for riders to understand.
- Chapter 2 Transit Demand and Underserved Area Evaluation showed that there is an unmet demand along Plank Road. The proposed route alignments expand coverage to new shopping and employment opportunities along Plank Road, such as Harrison's Crossing Shopping Center.
- Currently, Route S1 does not connect to Central, which has the highest ridership in the transit network. Connecting the proposed Route S7 to Central would provide connections from the proposed Route S7 to Routes F1, F2, F3, F4A, F4B, F5, D1 (proposed only), and D2.
- Stakeholder input showed a desire to serve the new Publix grocery store when it opens. Proposed Route S7 is well positioned to serve the new Publix.

Future Ridership Estimate

Ridership is likely to increase slightly due to expanded coverage along Plank Road. In addition, connecting to Central is likely to increase ridership. Assuming ridership on the proposed Routes S7 and S8 is similar to the total ridership of Route S1 (60 riders), and the proposed Route S7 sees a similar proportion of ridership at Central, total ridership would amount to 72.3 daily riders (30 on Route S8 and 42.3 on Route S7).

3.1.16 ELIMINATE ROUTE S4 AND S5 AND IMPLEMENT ROUTE S1 AT 30 MINUTE HEADWAYS

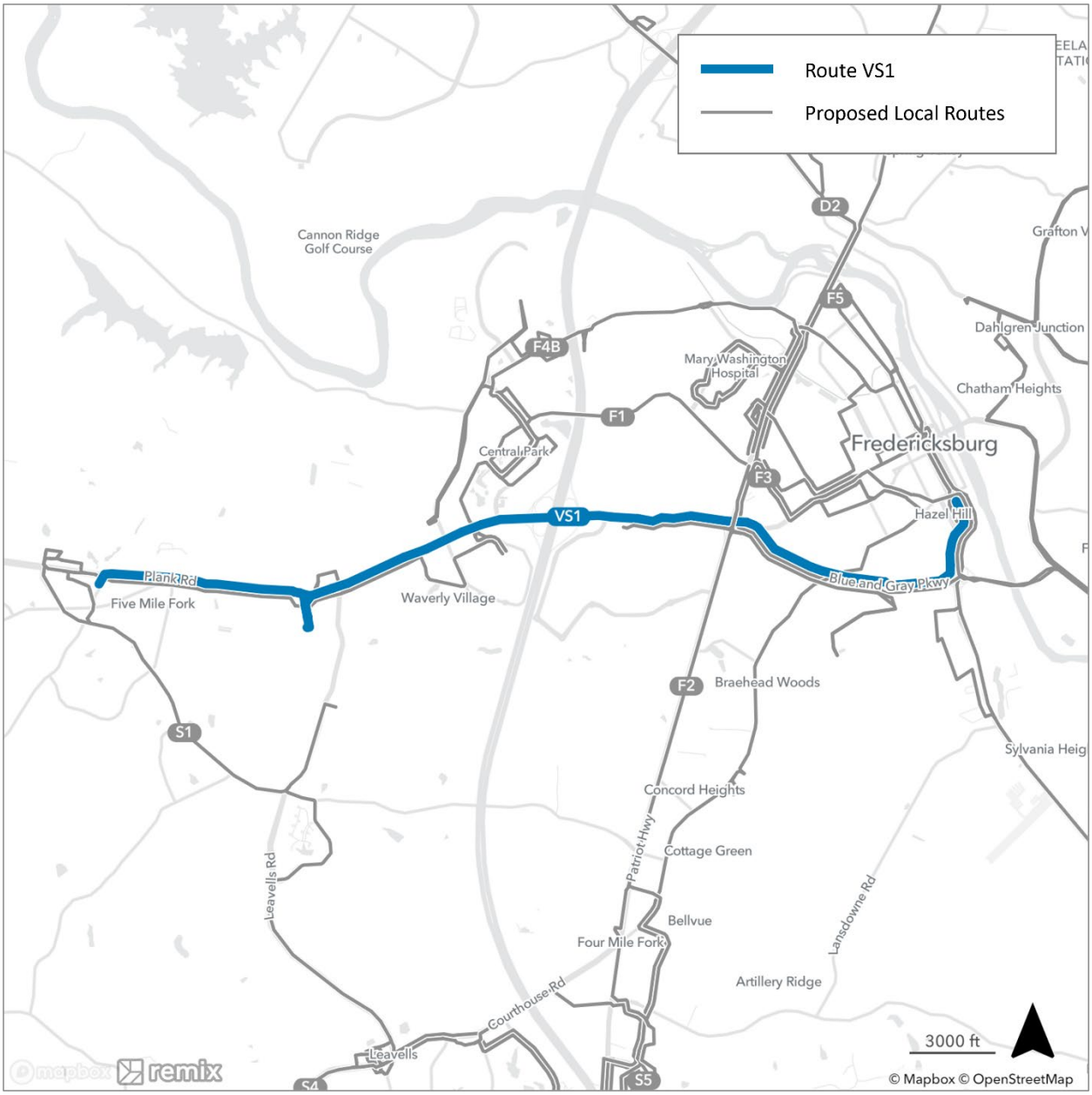
This project was determined to not be included in the constrained plan. The information about the specific project is included in the Appendix.

3.1.17 REINSTATE ROUTE VS1

Service Change Description

This project reinstates Route VS1, which was temporarily suspended in early 2020 due to driver shortages related to the COVID-19 pandemic. The route will serve the same alignment as when it was previously in operation, with service from Gordon Road Park and Ride Lot and Salem Road Park and Ride Lot to Fredericksburg VRE/Amtrak Station, shown in **Figure 3-15**. The route will connect to VRE at scheduled arrival/departure times for timed transfers. Route VS1 would operate seven (7) morning trips and four (4) afternoon trips every weekday. Reinstating a temporarily suspended route would not require a Title VI analysis.

FIGURE 3-15: ROUTE VS1



Operating Impacts

The annual operating requirements for operating the Route VS1 are shown in **Table 3-15**. A total of two (2) peak vehicles are required with an annual operating cost of approximately $580,000.

TABLE 3-15: ANNUAL STATISTICS FOR ROUTE VS1

	Peak Vehicles	Revenue Hours	Revenue Miles	Operating Cost
Route VS1	2	4,602	41,691	$579,948

Justification and Support of Transit Needs

- This project meets the transit needs by supporting Goal 1: Provide equitable transit service that increases access goods and services, recreation, education, and employment opportunities.
- Route VS1 had approximately 25.3 daily riders in 2019 but was discontinued in 2020 due to driver shortages during the COVID-19 pandemic. FXBGO! plans to reinstate the service when additional operators are hired.

Future Ridership Estimate

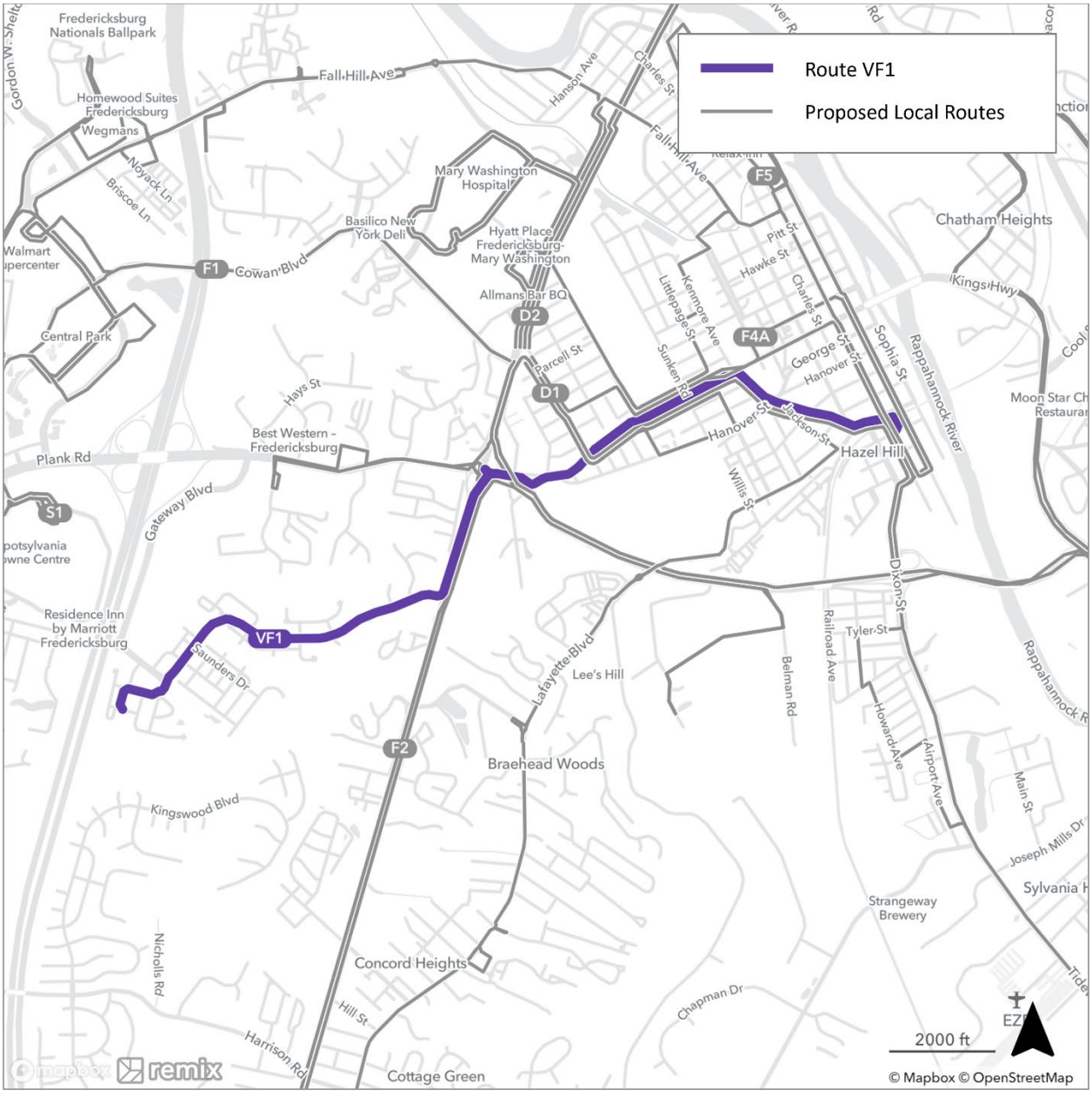
Future ridership is currently uncertain however, Route VS1 could produce similar ridership as to when it operated before the pandemic, with approximately 25.3 daily riders (average daily 2019 ridership).

3.1.18 REINSTATE ROUTE VF1

Service Change Description

This project reinstates Route VF1, which was temporarily suspended in early 2020 due to driver shortages. The route will serve the same alignment as when it was in operation, with service from Idlewild Boulevard to Fredericksburg VRE/Amtrak Station, shown in **Figure 3-16**. Route VF1 will connect to VRE service at scheduled arrival/departure times for timed transfers. Route VF1 would operate five (5) morning trips and six (6) afternoon trips every weekday. Reinstating Route VF1 would not require a Title VI analysis.

FIGURE 3-16: ROUTE VF1



Operating Impacts

The annual operating requirements to operate Route VF1 are shown in **Table 3-16**. A total of two (2) peak vehicles will be needed to operate the route. Operating Costs are approximately $348,000 annually.

TABLE 3-16: ANNUAL STATISTICS FOR ROUTE VF1

	Peak Vehicles	Revenue Hours	Revenue Miles	Operating Cost
Route VF1	2	2,761	41,691	$347,969

Justification and Support of Transit Needs

- This project meets the transit needs by supporting Goal 1: Provide equitable transit service that increases access goods and services, recreation, education, and employment opportunities.
- Route VF1 had approximately 16.6 daily riders in 2019 but was discontinued in 2020 due to driver shortages during the COVID-19 pandemic. FXBGO! plans to reinstate the service when additional operators are hired.

Future Ridership Estimate

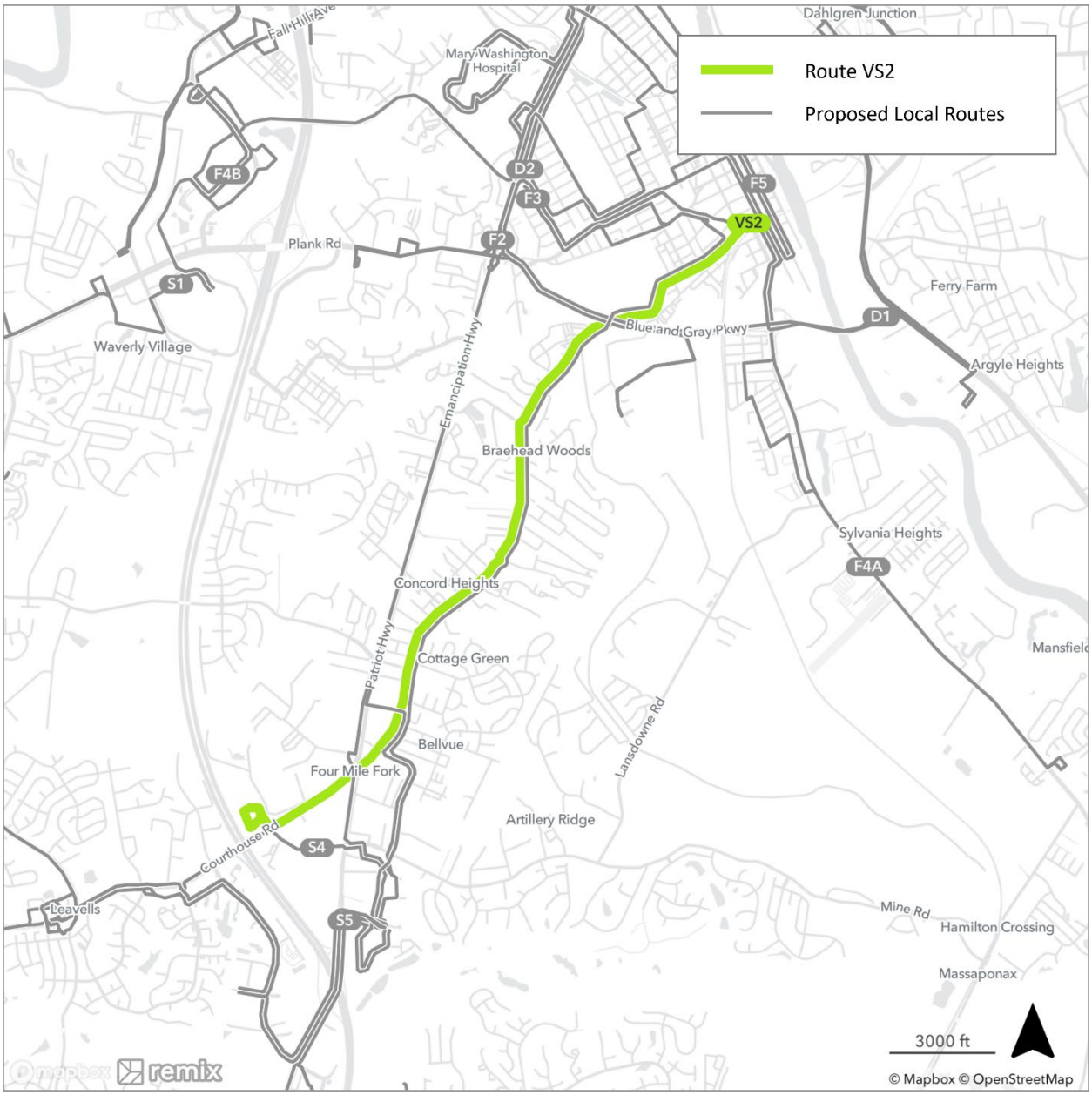
Future ridership is uncertain. However, Route VF1 could produce similar ridership as to when it operated before the pandemic, with approximately 16.6 daily riders (average daily 2019 ridership).

3.1.19 IMPLEMENT NEW ROUTE VS2

Service Change Description

This project implements a new VRE Feeder Route from the Route 208 Park and Ride Lot to Fredericksburg VRE/Amtrak Station via Lafayette Boulevard. The proposed route will operate on schedules created to connect to VRE at arrival/departure times for timed transfers. Route VS2 would operate five (5) a.m. trips and five (5) p.m. trips every weekday. The proposed route alignment is shown in **Figure 3-17.** Implementing a new route would necessitate a Title VI analysis. This project is funded by the NVTC Commuter Choice Program.

FIGURE 3-17: PROPOSED ROUTE VS2



Operating Impacts

Operating requirements for implementing the Route VS2 are shown in **Table 3-17**. Two (2) peak vehicles are required. Annual operating costs will be approximately $528,000.

TABLE 3-17: ANNUAL STATISTICS FOR PROPOSED ROUTE VS2

	Peak Vehicles	Revenue Hours	Revenue Miles	Operating Cost
Route VS2	2	4,183	25,376	$527,226

Justification and Support of Transit Needs

- This project meets the transit needs by supporting Goal 1: Provide equitable transit service that increases access goods and services, recreation, education, and employment opportunities.
- This project expands service to new markets, connecting residents from Spotsylvania County to VRE service at the Fredericksburg VRE/Amtrak Station.
- The Route 208 Park and Ride Lot is planned for improvements in a SMART SCALE project. There is a SMART SCALE Project for the Route 208 Park and Ride that includes additional buses, operating funding, and amenities such as a transit shelter, bicycle lockers, and bicycle parking.
- There is an NVTC (Northern Virginia Transportation Commission) grant for the purchase of two small buses, bus stop amenities, bicycle parking, and operating costs for the new route.

Future Ridership Estimate

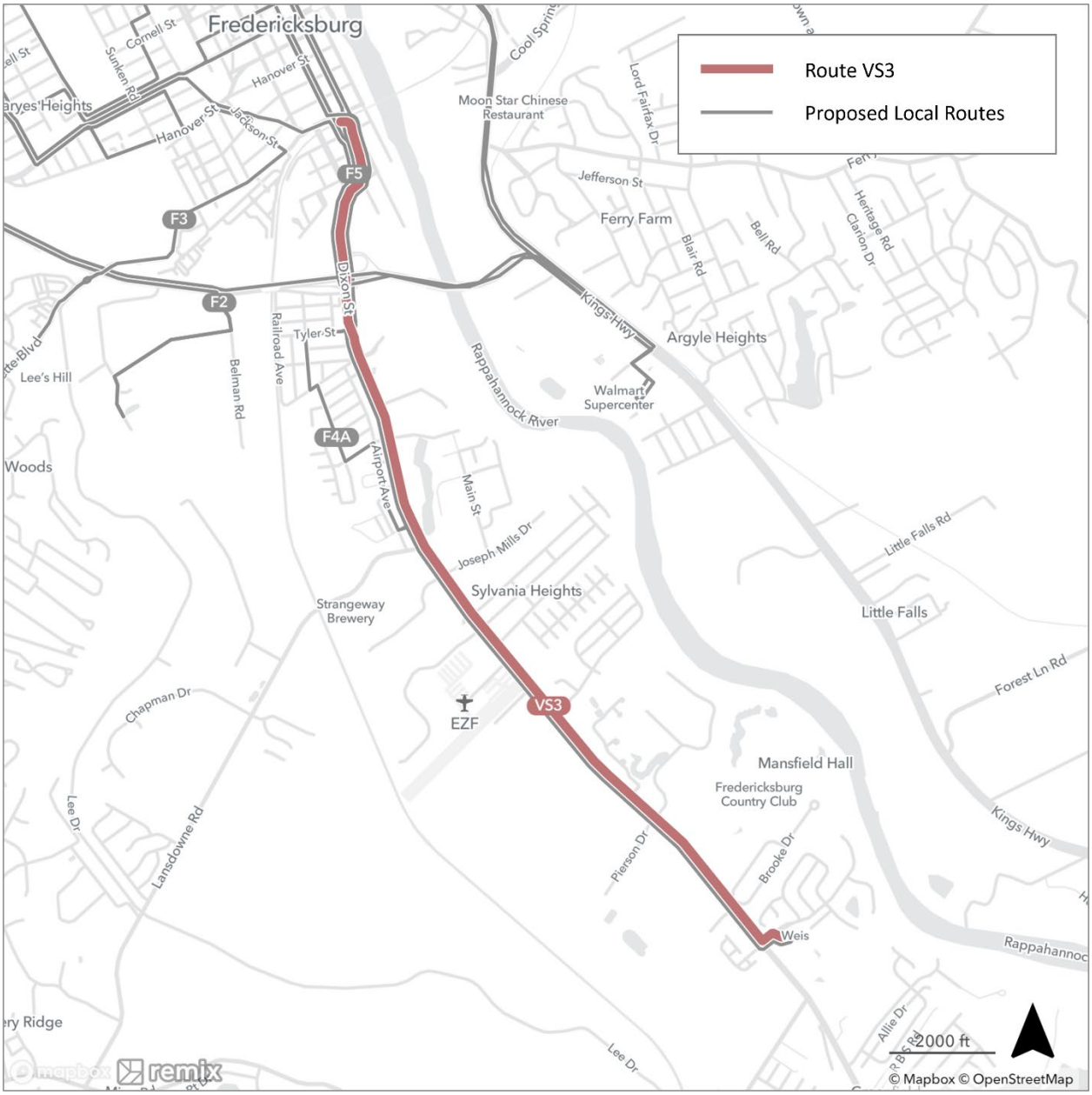
Previous grant application information noted that the person throughput is estimated to be 62 passengers during the a.m. peak period. Assuming all morning peak period trips have a corresponding afternoon peak period return trip, a total daily ridership estimate would be 124.

3.1.20 IMPLEMENT NEW ROUTE VS3

Service Change Description

This project involves implementing a new VRE Feeder Route from River Club Shopping Center to Fredericksburg VRE/Amtrak, shown in **Figure 3-18**. Route VS3 will connect to VRE at scheduled arrival/departure times for timed transfers. Route VS3 would operate five (5) a.m. trips and five (5) p.m. trips every weekday. Implementing a new route would necessitate a Title VI analysis.

FIGURE 3-18: PROPSED ROUTE VS3



Operating Impacts

Annual operating requirements for Route VS3 are shown in **Table 3-18**. The VS3 will require one (1) vehicle and have an operating cost of approximately $264,000 annually.

TABLE 3-18: ANNUAL STATISTICS FOR AND PROPOSED ROUTE VS3

	Peak Vehicles	Revenue Hours	Revenue Miles	Operating Cost
Route VF3	1	2,092	18,674	$263,613

Justification and Support of Transit Needs

- This project meets the transit needs by supporting Goal 1: Provide equitable transit service that increases access goods and services, recreation, education, and employment opportunities.
- Route VS3 will expand commuter service to eastern Spotsylvania County. Route VS3 would become the closest route connecting to VRE service for King George County and Caroline County.
- Route VS3 is part of a Virginia SMART SCALE project (UPCs 119110 & 120797) that implements VRE feeder service from River Club Shopping Center to Fredericksburg VRE/Amtrak Station.

Future Ridership Estimate

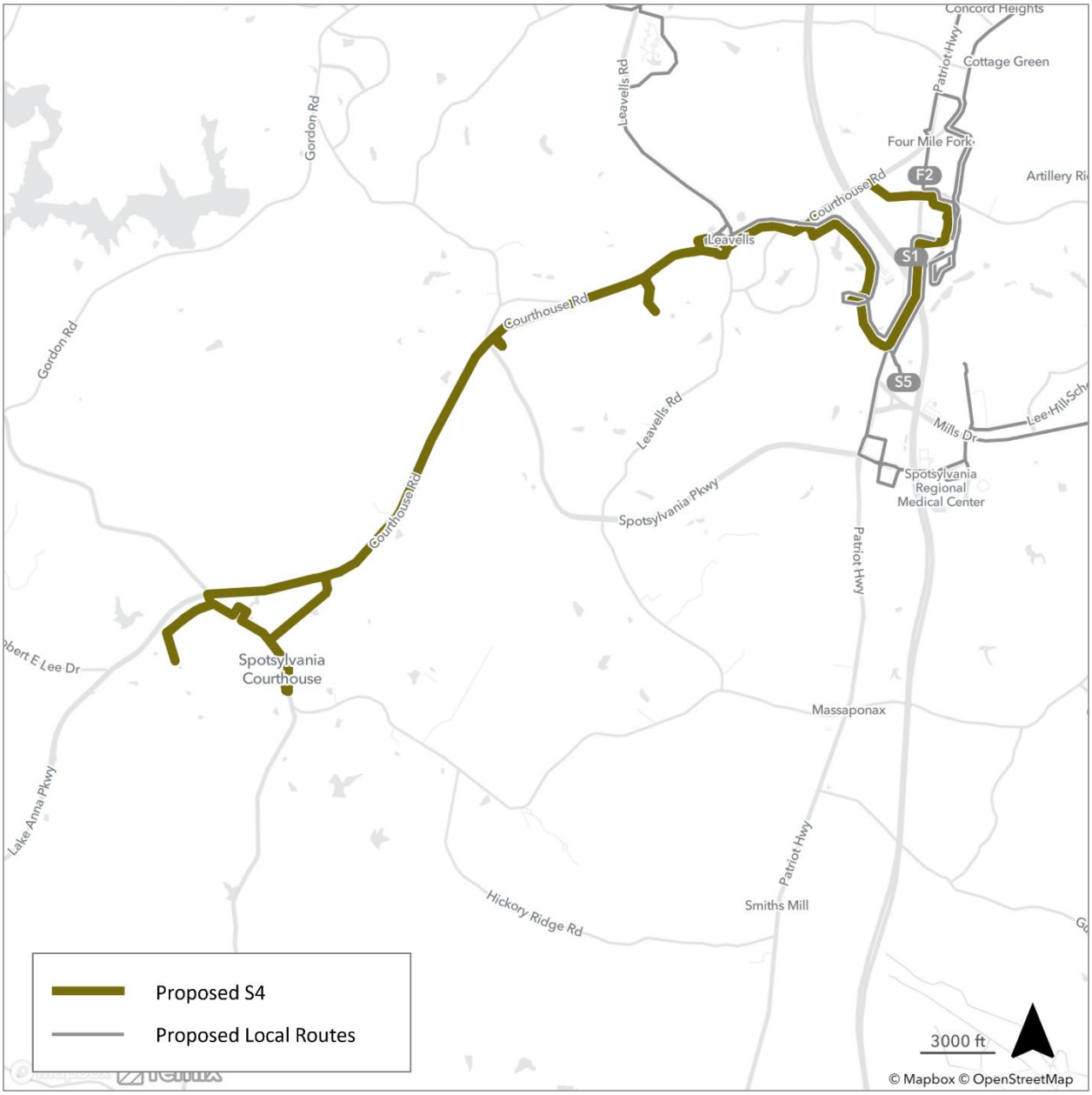
Limited information is available to forecast future ridership on this route and would be dependent on VRE usage at the time of implementation. Previous VRE feeder service had a range of 15 to 25 riders per day. More detailed study would be needed closer to implementation to refine this ridership estimate.

3.1.21 IMPROVE HEADWAY ON ROUTE S4

Service Change Description

This project calls for improving Route S4 from 60-minute headways to 30-minute headways. The proposed Route S4 is shown below in **Figure 3-19.** See section 3.1.14 for details on proposed Route S4 alignment. Improving Route S4 headways would not require a Title VI analysis before implementation.

FIGURE 3-19: PROPOSED ROUTE S4



Operating Impacts

Annual operating requirements for improving headways on Route S4 are shown in **Table 3-19**. Revenue hours, miles, operating costs, and peak vehicles are anticipated to double.

TABLE 3-19: ANNUAL STATISTICS FOR EXISTING AND PROPOSED ROUTE S4

	Peak Vehicles	Revenue Hours	Revenue Miles	Operating Cost
Existing Route S4	1	3,263	63,890	$411,236
Proposed Route S4	2	6,526	131,238	$822,472
Change Over Existing	1	3,263	67,348	$411,236

Justification and Support of Transit Needs

- This project meets the transit needs by supporting Goal 3: Ensure a reliable, high-quality, customer experience.
- Improving headway from 60 minutes to 30 minutes provides additional opportunities for passengers to access the transit network, thereby creating flexibility for passengers to choose trips that better fit passengers' schedules.
- Improving frequency was the number one requested improvement in the Fall 2022 public survey.
- Additional funding to increase frequency on Route S4 to is part of a SMART SCALE project: VA Area/Rte. 208 Commuter Lot to Spotsylvania Courthouse Village (UPC 119108 Round 4).

Future Ridership Estimate

Ridership is anticipated to increase at a rate of 50 percent (50%) for existing Route S4 riders per revenue hour. The existing ridership on Route S4 is seven (7) passengers per day. Increasing ridership at a rate of 50 percent (50%) of existing riders per revenue hour would bring an additional 3.5 daily riders, for a total of 10.5 average daily riders.

3.1.22 IMPLEMENT ADA PARATRANSIT SERVICE

This project was determined to not be included in the constrained plan. The information about the specific project is included in the appendix.

3.1.23 IMPLEMENT NEW EXPRESS ROUTE E1 TO RICHMOND

This project was determined to not be included in the constrained plan. The information about the specific project is included in the appendix.

3.1.24 IMPLEMENT NEW EXPRESS ROUTE E2 TO DAHLGREN

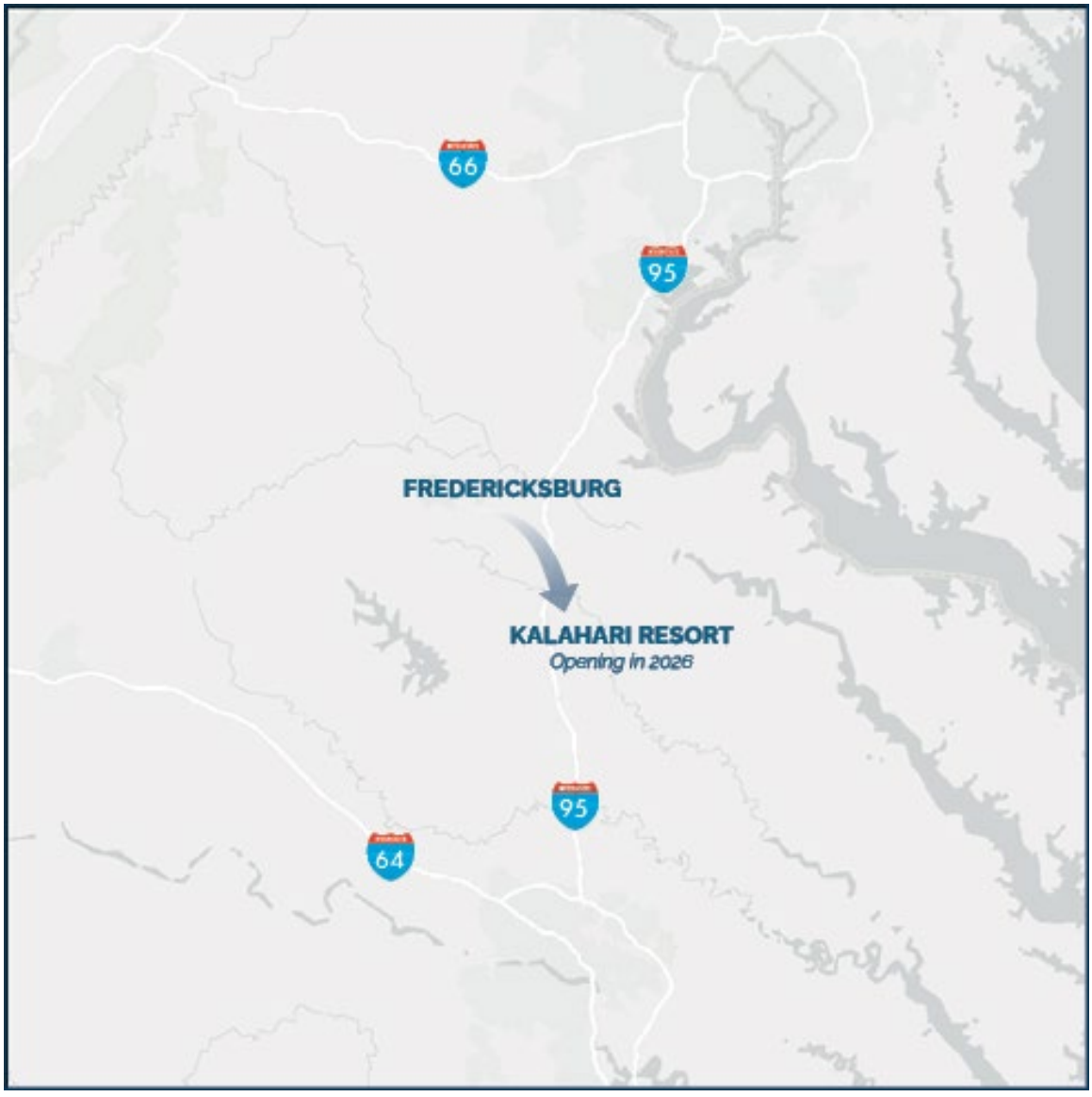
This project was determined to not be included in the constrained plan. The information about the specific project is included in the appendix.

3.1.25 IMPLEMENT NEW EXPRESS ROUTE E3 TO KALAHARI

Service Change Description

This project creates transit service from Spotsylvania to the new Kalahari Resort development in Thornburg. Exact stop locations and route alignment are to be determined. Adding a new route would require a Title VI analysis before implementation.

FIGURE 3-20: PROPOSED ROUTE E3



Operating Impacts

Annual operating requirements for the proposed Route E3 are shown in **Table 3-20**. The service is likely to require two (2) peak vehicles and $253,000 in annual operating costs.

TABLE 3-20: ANNUAL STATISTICS FOR PROPOSED ROUTE E3

	Peak Vehicles	Revenue Hours	Revenue Miles	Operating Cost
Route E3	2	2,008	20,713	$253,068

Justification and Support of Transit Needs

- This project meets the transit needs by supporting Goal 1: Provide equitable transit service that increases access goods and services, recreation, education, and employment opportunities and Goal 4: Strengthen community partnerships through transit.
- This project connects residents in Spotsylvania and Fredericksburg to a new destination, a large commercial development. The proposal for the Kalahari development calls for approximately 1.38 million square feet of commercial space. The proposal includes a 900-room hotel, a 156,278 square foot convention center, a 267,429-square foot indoor waterpark & family entertainment center, multiple restaurant and retail facilities, and a 10-acre outdoor resort pool/waterpark. The project is estimated to create more than 1,000 jobs.
- There has been regional Congestion Mitigation & Air Quality (CMAQ) funding identified for this service between FY 2025 and FY 2030 and should be incorporated into funding allocation in the future.

Future Ridership Estimate

Ridership is likely to be generated by employees at the Kalahari Resort after the park opens. Spotsylvania County estimates that the park will generate around 2,200 jobs per year and about 3,700 jobs during construction. In order to determine ridership and potential mode split for this service, more information would need to be known about origins of employees and vehicle ownership.

3.1.26 INCREASE WEEKDAY SPAN OF SERVICE

Service Change Description

The existing weekday span of service varies by route (between 6:30 a.m. and 8:50 a.m. for start of service and between 4:30 p.m. and 8:30 p.m. for end of service). This service improvement project calls for an increase in the span of service of one (1) or two (2) hours for each route. This project would not require a Title VI analysis.

Operating Impacts

Annual operating requirements for increasing weekday span of service by one (1) hour on each route is shown in **Table 3-21**. The peak vehicle requirement is not impacted, with a total of 15 vehicles for both existing and proposed routes. Revenue hours, revenue miles, and operating costs would increase by 8.4 percent (8.4%).

TABLE 3-21: ANNUAL STATISTICS FOR EXISTING AND PROPOSED WEEKDAY SERVICE (ONE-HOUR SPAN INCREASE)

	Peak Vehicles	Revenue Hours	Revenue Miles	Operating Cost
Existing Weekday Routes	15	44,854	689,214	$5,652,912
Proposed Weekday Routes (1-Hour Span Increase)	15	48,619	746,986	$6,127,415
Change Over Existing	0	3,765	57,773	$474,503

Annual operating requirements for increasing weekday span of service by two (2) hours is shown in **Table 3-22**. Again, peak vehicle count is not impacted by expanding the span of service. Revenue hours, revenue miles, and operating cost would increase by 16.8 percent (16.8%) over the existing service.

TABLE 3-22: ANNUAL STATISTICS FOR EXISTING AND PROPOSED WEEKDAY SERVICE (TWO-HOUR SPAN INCREASE)

	Peak Vehicles	Revenue Hours	Revenue Miles	Operating Cost
Existing Weekday Routes	15	44,854	689,214	$5,652,912
Proposed Weekday Routes (2-Hour Span Increase	15	52,384	804,759	$6,601,918
Change Over Existing	0	7,530	115,545	$949,006

Justification and Support of Transit Needs

- This project meets the transit needs by supporting Goal 1: Provide transit service that increases access goods and services, recreation, education, and employment opportunities.
- Stakeholder representatives expressed that the lack of early morning and late-night service leaves many people unable to use FXBGO! service as they travel during non-service hours, including certain service workers.
- Chapter 2 Section 2.2.1 showed that all mode travel decreases at a lower rate than transit trips, suggesting the there is demand for travel earlier and later than FXBGO! service hours.
- Increasing span of service is an opportunity to increase service levels without increasing capital costs.
- Increasing span of service will likely increase ridership. Expanding each route by one (1) hour in the morning appears to be more productive than one (1) hour into the evening. More detail on ridership is included below.

Future Ridership Estimate

Ridership data from August 2022 Ridership Report shows that an average of 5.6 percent (5.6%) of daily weekday ridership occurred on the first hour of service for each route and 3.2 percent (3.2%) occurred on the last hour of service. If the span of service increased one (1) hour in the morning and generated the same level of ridership as the existing first hour of service, ridership would increase from 622.1 by 34.8 to a total of 656.9. Similarly, if span of service increased one (1) hour later in the day and generated the same level of ridership as the existing last hour of service, ridership would increase by from 622.1 by 19.9 to a total of 641.0. Increasing the span of service one (1) hour earlier and one (1) hour later would increase daily ridership by 54.7 to 676.8.

3.1.27 INCREASE SATURDAY SERVICE

Service Change Description

FXBGO! currently operates local service five (5) days a week (Monday through Friday), with the Eagle Express operating on Friday evenings, Saturdays, and Sundays. This project proposes extending weekday routes to six (6) days a week, operating Monday through Saturday. The Eagle Express Route would operate evening service on Saturdays over the existing 40 service days a year (Eagle Express service is coordinated with the University of Mary Washington academic calendar and therefore does not operate during summer and winter breaks). This project would require a Title VI analysis.

Operating Impacts

Annual operating requirements for running all local FXBGO! routes on Saturdays are shown in **Table 3-23**. Routes are assumed to operate on Saturday service 40 days a year. Peak vehicle requirement would increase from two (2) vehicles to 15 vehicles. Operating costs would increase by approximately $810,000 annually.

TABLE 3-23: ANNUAL STATISTICS FOR EXISTING AND PROPOSED SATURDAY SERVICE

	Peak Vehicles	Revenue Hours	Revenue Miles	Operating Cost
Route EX (Saturday only)	2	1,120	13,675	$141,154
Proposed Saturday Service	15	7,548	114,719	$951,274
Change Over Existing	13	6,428	101,044	$810,121

Justification and Support of Transit Needs

- This project meets the transit needs by supporting Goal 1: Provide transit service that increases access goods and services, recreation, education, and employment opportunities.
- Operating all routes on Saturday would enable riders across the transit service area to travel six (6) days a week, providing a greater opportunity and flexibility for riders.
- Stakeholder representatives expressed that the lack of weekend service leaves many people unable to use FXBGO! service, including certain service workers.
- Expanding weekend service was the third highest requested improvement in the Fall 2022 public survey.
- Chapter 2 Section 2.2.1 showed the number of trips taken on Saturday is only slightly lower than the number of total weekday trips taken. However, current Saturday service is limited. The Eagle Express route primarily serves University of Mary Washington and only operates 40 Saturdays a year (no service during summer or winter breaks).

Future Ridership Estimate

The Replica travel movement data analyzed in Chapter 2 showed that the number of trips taken on Saturdays equals 91 percent (91%) of the number of all weekday trips. Future ridership estimates for Saturday transit service are assumed to be approximately 90 percent (90%) of existing weekday ridership (including Friday evening service on the Eagle Express). If there are 634.4 average riders on Fridays, an estimated 571.0 riders would utilize Saturday service.

3.1.28 IMPLEMENT SUNDAY SERVICE

Service Change Description

FXBGO! currently operates local service five (5) days a week. The only service operating on Saturday and Sunday is the Eagle Express, which primarily serves University of Mary Washington Campus. On Sundays, The Eagle Express operates from 9:00 a.m. to 6:30 p.m. This project proposes extending weekday routes to operate on Sundays. Sunday service is assumed to operate the same hours as the weekday service (span of service varies by route). The Eagle Express would then not operate on Sundays. This project would require a Title VI analysis.

Operating Impacts

Annual operating requirements for running all local FXBGO! routes on Sundays is shown in **Table 3-24**. There will be 40 days of Sunday service. Operating the additional service on Sundays yields an increase of 13 peak vehicles and an additional $810,000 annually.

TABLE 3-24: ANNUAL STATISTICS FOR PROPOSED SUNDAY SERVICE

	Peak Vehicles	Revenue Hours	Revenue Miles	Operating Cost
Route EX (Sunday only)	2	720	8,791	$90,742
Proposed Sunday Service	15	7,148	109,835	$900,862
Change Over Existing	13	6,428	101,044	$810,121

Justification and Support of Transit Needs

- This project meets the transit needs by supporting Goal 1: Provide transit service that increases access goods and services, recreation, education, and employment opportunities.
- Stakeholder representatives expressed that the lack of weekend service leaves many people unable to use FXBGO! Service, including certain service workers.
- Expanding weekend service was the third highest requested improvement in the Fall 2022 public survey.

Future Ridership Estimate

Sunday service is typically less productive than service on weekdays or Saturdays. Sunday ridership is estimated to be 50 percent (50%) as productive as weekday ridership. Given an existing average daily ridership of 622.1, Sunday ridership would yield an average of 311.0 per day.

3.2 Prioritization of Planned Service Improvements

This section provides a desired timeframe for implementation of each project and an estimate of the required capital and operational costs. Projects are assigned over the ten-year (10-year) TSP horizon to help prepare for the additional operating expenses with each project. The capital expenses associated with service improvements, as well as facility and capital projects that improve operations, are also in this section. Timeframes are organized into categories: short-term transit improvements (one (1) to three (3) years), mid-term transit improvements (three (3) to seven (7) years), and long-term transit improvements (seven (7) to ten (10) years). Operating costs are estimated using the additional revenue hours estimated for each project and an annual cost per revenue hour estimated provided by FXBGO! ($126.03 per revenue hour). Additional capital costs associated with service improvements are estimated using vehicle acquisition cost estimates provided by FXBGO! ($250,000 per vehicle). Descriptions of individual service improvements are included in Section 3.1. It should be noted that some operating costs in this section differ from Section 3.1 when service improvements are combined. For example, implementing additional weekday span of service after improving headways will produce a larger service requirement increase compared to implementing additional weekday span of service to routes that do not have improved headways. The annual summary of short-, mid-, and long-term service improvements, including additional operating and capital costs associated with projects, is shown in **Table 3-30**. It should be noted that planned service improvements represent a future planned scenario and are subject to change as funding, workforce availability, and jurisdictional priorities evolve.

3.2.1 SHORT-TERM SERVICE IMPROVEMENTS

The short-term timeframe (one (1) to three (3) years) is made up of FY (fiscal year) 2025, FY 2026, and FY 2027. The first planning year of the TSP (FY 2025) includes a series of route alignment modifications; including, adjustments to Routes D1, D2, D4, F1, F2, F3, F4A, F4B, F5, S1, S4, and S5. Operating expenses are not expected to increase with these changes because there are no associated increases in service hours. In addition, no major capital costs are expected as a result of the alignment modifications because no additional vehicles are required. Route VS2—a VRE Feeder route—is also planned to be added, funded by NVTC Commuter Choice Program. As stated in service improvement 3.1.20, Route VS2 will benefit from the SMART SCALE project for improvements to the Route 208 Park and Ride Lot.

In FY 2026, the VRE Feeder routes VS1 and VF1 are planned for reinstatement. The reintroduction of this service results in an increase in $927,917 in annual operating costs. No additional capital costs are anticipated because no additional vehicles will be needed.

The final year of the short-term timeframe (FY 2027) includes realigning and combining Route D5 and Route D3, which will be cost neutral.

3.2.2 MID-TERM SERVICE IMPROVEMENTS

The mid-term timeframe (three (3) to seven (7) years) is made up of FY 2028, FY 2029, FY 2030, and FY 2031. The mid-term timeframe begins with the implementation of the fourth and final VRE Feeder route (VS3) planned in the TSP horizon. Route VS3 requires an additional $263,613 in operating costs and $250,000 in capital costs for the purchase of an additional vehicle to operate the service. Also in FY 2028, Monday – Friday service is expanded to operate Monday-Saturday, for an increase of $810,121 in operating costs, but no additional capital costs.

Several service improvements are planned for FY 2029, including improving headways from 60 minutes to 30 minutes on all F routes ($2,499,049 in annual operating costs and $1,500,000 in capital costs), improving headways from 60 minutes to 30 minutes on Route S4 ($411,236 in annual operating costs and $250,000 in capital costs), and eliminating Route S1 and replacing service with Routes S7 and S8 ($0 in operating and capital costs). FY 2029 has the largest single year increase in operating costs, with an increase of $2,910,285 from FY 2028.

In FY 2030, new express service to Kalahari is implemented (Route E3), requiring $253,068 in operating costs and $250,000 in capital costs. The mid-term timeframe concludes in FY 2031 with an increase of weekday span of service for all local routes by one (1) hour earlier in the day. Increasing weekday span of service by one (1) hour increases annual operating costs by $695,938 but does not require additional vehicles.

3.2.3 LONG-TERM SERVICE IMPROVEMENTS

The long-term timeframe (seven (7) to ten (10)) includes FY 2032, FY 2033, and FY 2034. The only service improvement planned in this timeframe occurs in 2034, with the implementation of additional Sunday service. The Eagle Express would be removed from operation on Sundays and weekday service would operate seven (7) days a week (VRE Feeder routes would still only operate Monday through Friday). Implementing Sunday service would increase annual operating costs by $810,121 but would not require additional vehicles or capital costs.

TABLE 3-25: PRIORITIZATION OF PLANNED SERVICE IMPROVEMENTS

Time Frame	Fiscal Year	Project Code	Project Description	Additional Annual Operating Costs	Additional Capital Costs	Potential Funding Source
Short-Term (1 to 3 Years)	2025	3.1.1	Route D1 Alignment Modification	$0	$0	N/A
		3.1.2	Route D2 Alignment Modification	$0	$0	N/A
		3.1.4	Route D4 Alignment Modification	$0	$0	N/A
		3.1.5	Route F1 Alignment Modification	$0	$0	N/A
		3.1.6	Route F2 Alignment Modification	$0	$0	N/A
		3.1.7	Route F3 Alignment Modification	$0	$0	N/A
		3.1.8	Route F4A Alignment Modification	$0	$0	N/A; SMART SCALE
		3.1.9	Route F4B Alignment Modification	$0	$0	N/A
		3.1.10	Route F5 Alignment Modification	$0	$0	N/A
		3.1.12	Route S1 Alignment Modification	$0	$0	N/A
		3.1.13	Route S4 Alignment Modification	$0	$0	N/A; SMART SCALE
		3.1.14	Route S5 Alignment Modification	$0	$0	N/A
		3.1.19	Implement New Route VS2	$527,226	$0	NVTC Commuter Choice; SMART SCALE
	2026	3.1.17	Reinstate Route VS1	$579,948	$0	DRPT Operating; Local
		3.1.18	Reinstate Route VF1	$347,969	$0	TRIP: Regional Connectivity;
	2027	-	Combine Routes D5 and D3	$0	$0	N/A
Mid-Term (3 to 7 Years)	2028	3.1.20	Implement New Route VS3	$263,613	$250,000	SMART SCALE; DRPT Operating; Local
		3.1.27	Increase Saturday Service	$810,121	$0	DRPT Operating; Local
	2029	3.1.11	Improve Headways on F Routes	$2,499,049	$1,500,000	SMART SCALE (F4A only); DRPT Operating; Local
		3.1.15	Eliminate Route S1 And Implement Route S7 and S8	$0	$0	N/A
		3.1.21	Improve Headway on Route S4	$411,236	$250,000	SMART SCALE; DRPT Operating; Local
	2030	3.1.25	Implement New Express Route E3 to Kalahari	$253,068	$250,000	TRIP: Regional Connectivity; Demonstration Grant; SMART SCALE
	2031	3.1.26	Increase Weekday Span of Service (one hour)	$253,068	$0	DRPT Operating; Local
Long-Term (7 to 10 Years)	2032	-	-	-	-	
	2033	-	-	-	-	
	2034	3.1.28	Implement Sunday Service	$810,121	$0	DRPT Operating; Local

1. All costs in FY 2024 dollars
2. Reinstating routes does not require additional capital costs because vehicles are currently available

3.3 Service Development

This section summarizes the levels of service planned over the ten-year (10-year) TSP time horizon. Similar to Section 3.2, this section is organized into three timeframes: short-term transit improvements (one (1) to three (3) years), mid-term transit improvements (three (3) to seven (7) years), and long-term transit improvements (seven (7) to ten (10) years). Changes in planned service levels are described in terms of revenue hours and revenue miles. Increases to the peak vehicle count are included as well. Descriptions of revenue hours, miles, and peak vehicles for individual service improvements are included in Section 3.1. It should be noted that some operating requirements in this section differ from Section 3.1 when service improvements are combined. For example, implementing additional weekday span of service after improving headways will produce a larger service requirement increase compared to implementing additional weekday span of service to routes that do not have improved headways.

Table 3-31 identifies service expansion and/or reduction by year of planned deployment and/or elimination. More detailed project schedules will be developed closer to each project's implementation. As in the previous section, the service development over the ten-year (10-year) TSP represents a future planned scenario and is subject to change due to policy, planning, funding, and/or operational needs. Certain service improvements are dependent on funding from partner jurisdictions Spotsylvania County and Stafford County. Specifically, "S" and "VS" routes are funded by Spotsylvania County and "D" routes are funded by Stafford County, which are therefore dependent on each respective jurisdiction for funding. Fare policy can also impact service implementation because of the impact of fares on funding. Fares directly generate revenue, which can help fund service, but can also impact performance-based state and federal funding if fares decrease ridership. Workforce availability has impacted the provision of service in the form of suspended VRE Feeder routes due to an operator shortage. Future service is also dependent on the availability of operators and other staff such as mechanics and planning staff. Changes in fleet vehicle type can affect the ability to provision service as well because of uncertainty of fuel costs.

Over the ten-year (10-year) period, FXBGO! does not plan for significant reductions in service levels and therefore should not have Title VI impacts. However, several service modifications fit the description of "Service Changes" per the Fredericksburg Regional Transit Title VI Program and will require a Title VI analysis. None of the service changes are in response to an FTA Triennial Review.

3.3.1 SHORT-TERM SERVICE DEVELOPMENT

The short-term timeframe (one (1) to three (3) years) begins in FY 2025, where FXBGO! plans to modify the alignment of 12 routes. The route alignment changes do not increase service hours and decrease annual revenue miles by 6,473. During this year, FXBGO! also plans to implement Route VS2, increasing revenue hours by 4,183 revenue hours and revenue miles by 25,376. The impact to Title VI populations will need to be analyzed for three (3) of the 12 routes per the FXBGO! Title VI policy. In FY 2026, the projects to reinstate VRE Feeder Route VS1 and Route VF1 creates an increase of 7,363 revenue hours and 62,426 revenue miles. Implementing a new route will require a Title VI analysis. In FY 2027, Routes D5 and D3 will be modified and combined, increasing revenue miles by 6,717 annually.

3.3.2 MID-TERM SERVICE DEVELOPMENT

The mid-term timeframe (three (3) to seven (7) years) begins in FY 2028 by adding the VRE Feeder route VS3 (an increase of 2,092 revenue hours and 18,674 revenue miles) and increasing Saturday service (an increase of 6,428 revenue hours and 101,044 revenue miles). Implementing a new route requires a Title VI analysis. In FY 2029, the largest increase in service occurs with improving headways from 60 minutes to 30 minutes on all F routes (an increase of 19,829 revenue hours and 252,200 revenue miles) as well as Route S4 (an increase of 3,263 revenue hours and 65,619 revenue miles). FXBGO! also plans to eliminate Route S1 and implement Routes S7 and S8 (no increase in revenue hours and 3,379 increase in revenue miles). Eliminating a route triggers the need for a Title VI analysis. However, Route S7 and S8 combine to provide transit access to the impacted populations. FY 2030 plans for new express service that would operate to Kalahari Resort, which would require an additional 2,008 revenue hours and 20,713 revenue miles. The final year of the mid-term timeframe plans for an increase of weekday span of service by one (1) hour, equating to a service requirement of 5,522 additional revenue hours and 82,039 additional revenue miles.

3.3.3 LONG-TERM SERVICE DEVELOPMENT

The long-term plan (seven (7) to ten (10) years) includes FY 2032, FY 2033, and FY 2034. However, FY 2032 and FY 2033 do not plan for service changes. FY 2034 plans for increasing local service from six (6) days to seven (7) days a week, which would require an additional 6,428 revenue hours and 101,508 revenue miles, and a Title VI analysis.

3.3.4 UNCONSTRAINED PROJECTS

Three (3) projects identified in Section 3.1 were not recommended to be included in the constrained list of projects. This includes elimination of Route D1, the elimination of Routes S4 and S5, express routes to Richmond and Dahlgren, and the implementation of paratransit service. While not included in the list of projects in Section 3.1, interest in exploring potential commuter service to Orange County was identified. These projects are not included due to requiring more detailed study or ridership projections that were too low to justify inclusion. These projects are listed in the appendix.

TABLE 3-26: SERVICE DEVELOPMENT

Time Frame	Fiscal Year	Project Code	Project Description	Annual Service Hours Change	Annual Service Miles Change	Additional Peak Vehicles	Title VI Analysis
Short-Term (1 to 3 Years)	2025	3.1.1	Route D1 Alignment Modification	0	-4,473	0	Required
		3.1.2	Route D2 Alignment Modification	0	5,319	0	-
		3.1.5	Route D4 Alignment Modification	0	696	0	Required
		3.1.6	Route F1 Alignment Modification	0	-8,918	0	Required
		3.1.7	Route F2 Alignment Modification	0	-3,760	0	-
		3.1.8	Route F3 Alignment Modification	0	1,476	0	-
		3.1.9	Route F4A Alignment Modification	0	-1,406	0	-
		3.1.10	Route F4B Alignment Modification	0	7,081	0	-
		3.1.11	Route F5 Alignment Modification	0	2,513	0	-
		3.1.13	Route S1 Alignment Modification	0	-1,378	0	-
		3.1.14	Route S4 Alignment Modification	0	1,729	0	-
		3.1.15	Route S5 Alignment Modification	0	-5,351	0	-
		3.1.20	Implement New Route VS2	4,183	25,376	0	Required
	2026	3.1.18	Reinstate Route VS1	4,602	41,691	1	-
		3.1.19	Reinstate Route VF1	2,761	20,735	1	-
	2027	3.1.4	Combine Routes D5 and D3	0	6,717	0	-
Mid-Term (3 to 7 Years)	2028	3.1.21	Implement New Route VS3	2,092	18,674	1	Required
		3.1.28	Increase Saturday Service	6,428	101,044	0	-
	2029	3.1.12	Improve Headways on F Routes	19,829	252,200	6	-
		3.1.16	Eliminate Route S1 And Implement Route S7 and S8	0	3,379	0	Required
		3.1.22	Improve Headway on Route S4	3,263	65,619	1	-
	2030	3.1.26	Implement New Express Route E3 to Kalahari	2,008	20,713	1	-
	2031	3.1.27	Increase Weekday Span of Service (one hour)	5,522	82,039	0	-
Long-Term (7 to 10 Years)	2032	-	-	-	-	-	-
	2033	-	-	-	-	-	-
	2034	3.1.29	Implement Sunday Service	6,428	101,508	0	-

3.4 Additional Recommendations

This section includes additional, non-service recommendations for future consideration and assessment. Each non-service recommendation includes a description of the recommendation and justification for inclusion. These include recommendations related to organizational practices, external coordination, potential studies, and future improvements to technology, sustainability, and innovation. Potential costs (such as funding for a technical assistance grant) for these additional recommendations will be accounted for in Chapter 5.

3.4.1 BUS STOP ACCESSIBILITY

Project Description

FXBGO! has conducted an assessment to determine the accessibility of bus stops throughout its service area in the City of Fredericksburg, Stafford County, and Spotsylvania County. This study inventoried bus stops and infrastructure present. The proposed next step of the assessment will need to identify and prioritize bus stops for improvements based on usage and need for mobility and pedestrian improvements around the stop. As a next step, FXBGO! will collaborate with local partners to plan, engineer, and implement improvements at and around these prioritized bus stops. This effort will increase the safety and usability of FXBGO!'s service and facilities, especially for riders with reduced or limited mobility.

Justification and Support of Transit Needs

- The Transit Strategic Plan includes the goal to "Provide equitable transit service that increases access goods and services, recreation, education, and employment opportunities." FXBGO!'s service has bus stops in locations that are difficult to access as a pedestrian, especially if a rider has reduced or limited mobility. Improving the physical conditions around selected bus stops will increase the number of nearby locations that riders can access.
- The Transit Strategic Plan includes the goal to "Prioritize safety and security of riders, personnel, and facilities." A number of bus stops within FXBGO!'s service area are located along roads with high-traffic levels, and improving the physical conditions around selected transit stops will increase the safety of riders walking to and from their bus stops.
- Stakeholders and FXBGO! riders expressed that the lack of pedestrian infrastructure around certain bus stops makes accessing and using FXBGO!'s service difficult.

Associated Costs

- Costs to design and engineer potential bus stop accessibility improvements
- Costs for additional shelters, benches, signs, sidewalks, and pedestrian crossings
- Increased maintenance costs due to higher-quality facilities

3.4.2 IMPROVING THE OPERATOR WORK ENVIRONMENT

Project Description

FXBGO! will assess the working conditions and job satisfaction of FXBGO! Transit Operators and other employees. The changes implemented via this assessment will help FXBGO! to retain existing employees and recruit new ones. Potential strategies could include better access to restrooms while Transit Operators are on route, longer break times, customer intervention training, additional safety measures on buses, and other suggestions that the potential future study might yield.

Justification and Support of Transit Needs

- The Transit Strategic Plan includes the goal to "Prioritize safety and security of riders, personnel, and facilities." Ensuring better working conditions for Transit Operators and other operations employees will help to improve performance, attract and retain qualified personnel, and overall increase the safety of both employees and riders.

Associated Costs

- Costs to commission a study of operator working conditions and job satisfaction
- Operational costs associated with greater break/stopover times and improved on-board amenities associated with safety and/or comfort
- Increased wages and/or benefits

3.4.3 OPERATIONAL DATA IMPROVEMENTS

Project Description

FXBGO! will update their operations data collection equipment throughout the ten-year (10-year) Transit Strategic Plan timeframe. Specific projects include researching and identifying potential replacements for the RouteMatch software and installing automated passenger counters (APCs) on FXBGO! buses, as well as the continual maintenance costs of the associated equipment. Installing new equipment and software and keeping current operation data equipment and software up to date will allow FXBGO! to record higher-quality and more precise information. This information will provide a strong foundation to make informed decisions to improve transit service and meet the needs of FXBGO!'s riders.

Justification and Support of Transit Needs

- The Transit Strategic Plan includes the goal to "Leverage available funding to maximize service access, efficiency, and affordability." Updating FXBGO!'s operational data collection equipment will help FXBGO! more accurately monitor and assess service and make informed decisions regarding the cost, effectiveness, and/or efficiency.

Associated Costs

- Procurement costs of updated/new/improved data collection and display equipment
- Operations and maintenance costs of the data collection/display equipment

3.4.4 EXTERNAL PARTERNSHIPS FOR ON-DEMAND AND MICROTRANSIT ASSESSMENT

Project Description

FXBGO! will also assess feasibility and effectiveness of deploying a microtransit service. This study will evaluate the scalability of a microtransit service to serve more individuals and broader geographies for FXBGO!'s network. This study will also assess previous microtransit pilots in Virginia—including Lynchburg, OmniRide, Charlottesville, Winchester, and Bay Transit—as it considers the viability and sustainability of bringing microtransit to the Fredericksburg region. The focus of the microtransit service would be to cover

lower demand areas not currently served by FXBGO! and/or replace existing fixed routes that have low efficiency. There may be an opportunity to partner with other organizations to launch a microtransit service.

FXBGO! will examine partnerships to help implement and operate traditional on-demand or technology-enabled microtransit services in the greater Fredericksburg area. This process may include coordinating with existing community partners to conduct a study to explore additional funding that would support FXBGO!'s needs for additional service in areas not currently served by FXBGO!. Other partners may also be interested in collaborating with FXBGO! for delivering potential future on-demand or microtransit services, which could provide more service without the need to expand FXBGO!'s fleet or coverage areas.

The study's final report should include an assessment of potential funding sources, potential routes and/or zones, partner roles and responsibilities, paratransit comingling, and the prioritization of geographic service areas.

Justification and Support of Transit Needs

- The Transit Strategic Plan includes the goal to "Strengthen community partnerships through transit." Forming relationships with external partners provides opportunities to attract new riders, provide new and improved services, and expand FXBGO!'s network.
- Stakeholder representatives expressed that many individuals with financial and/or mobility issues are reliant on FXBGO! for their mobility and can only live where there is currently a nearby FXBGO! bus stop. Expanding the FXBGO!'s network through microtransit could allow these individuals to expand the number of businesses and services they can access and the number of neighborhoods they could live in.
- Many of FXBGO!'s routes have a relatively low ridership. Six (6) of FXBGO!'s 17 routes have less than three (3) riders per revenue hour, and 11 of the 17 routes have less than four (4) riders per revenue hour. Microtransit could provide a potentially lower-cost way to provide the service that these lower ridership areas require.

Associated Costs

- Costs to commission a study of on-demand service feasibility
- Contractual agreement(s) with community partners for providing on-demand service
- Additional costs that could be relevant depending on the outcome of the study include:
    - Capital costs to procure a software/app platform contractor
    - Capital costs with procuring additional fleet vehicles and their associated operations and maintenance infrastructure
    - Labor costs of operating the microtransit service and the maintenance of the vehicles

3.4.5 FLEET AND FACILITY DETERMINATION

Project Description

FXBGO! Will conduct a study to assess and determine the future fleet makeup in terms of the size and fuel type(s) of vehicles. FXBGO!'s future fleet will be determined from the results of a sustainability and innovation plan, the on-demand service assessment, the maturation of alternative fuel technology, and FXBGO!'s future financial projects. Throughout the plan, implications of the potential fleet's size and fuel type on facilities, operations, and staffing should be considered. This determination of future fleet makeup will be made before adding additional vehicles to the fleet.

Justification and Support of Transit Needs

- The Transit Strategic Plan includes the goal to "Provide equitable transit service that increases access goods and services, recreation, education, and employment opportunities." Adapting FXBGO!'s fleet to meet future needs is required to provide effective service to riders.
- The FTA outlined the federal climate change mitigation goals in their planning emphasis areas, including a 50 to 52 percent (50-52%) reduction of GHG emissions by 2030 and reaching net-zero emissions by 2050. Transitioning FXBGO!'s fleet to alternative fuel vehicles is necessary to reach this goal.
- The combustion of diesel fuel produces byproducts which are harmful to human health and the health of the local community. Transitioning FXBGO!'s fleet to alternative fuels has the potential to lessen or even eliminate local pollution from FXBGO!'s operations, improving the health of the greater Fredericksburg area.

Associated Cost

- Cost to commission a study of potential transition/fleet assessment
- Additional costs that could be relevant depending on the outcome of the study include:
    - Capital costs of additional and alternative fuel vehicles (based on results of the study)
    - The operational and maintenance costs of a potentially larger and alternatively fueled fleet
    - Capital costs of procuring and installing the necessary infrastructure for a larger and alternatively fueled fleet
    - Labor costs for additional staff and costs for training staff on new vehicle technology

3.4.6 DEMAND-RESPONSIVE MICROTRANSIT ASSESSMENT

Project Description

FXBGO! Will assess the feasibility and effectiveness of deploying a microtransit service. This study will evaluate the scalability of a microtransit service to serve more individuals and broader geographies for FXBGO!'s network. This study will also assess previous microtransit pilots in Virginia—including Lynchburg, OmniRide, Charlottesville, Winchester, and Bay Transit—as it considers the viability and sustainability of bringing microtransit to the Fredericksburg region. The focus of the microtransit service would be to cover lower demand areas not currently served by FXBGO! and/or replace existing fixed routes that have low efficiency. There may be an opportunity to partner with other organizations to launch a microtransit service. The study's final report should include an assessment of potential funding sources, potential routes and/or zones, paratransit comingling, and the prioritization of geographic service areas.

Justification and Support of Transit Needs

- The Transit Strategic Plan includes the goal to "Strengthen community partnerships through transit."
- Stakeholder representatives expressed that many individuals with financial and/or mobility issues are reliant on FXBGO! For their mobility and can only live where there is currently a nearby FXBGO! Bus stop. Expanding the FXBGO!'s network through microtransit could allow these individuals to expand the number of businesses and services they can access and the number of neighborhoods they could live in.

- Many of FXBGO!'s routes have a relatively low ridership. Six (6) of FXBGO!'s 17 routes have less than three (3) riders per revenue hour, and 11 of the 17 routes have less than four (4) riders per revenue hour. Microtransit could provide a potentially lower-cost way to provide the service that these lower ridership areas require.

Associated Costs

- Costs to commission a microtransit feasibility study
- Additional costs that could be relevant depending on the outcome of the study include:
    - Capital costs to procure a software/app platform contractor
    - Capital costs with procuring additional fleet vehicles and their associated operations and maintenance infrastructure
    - Labor costs of operating the microtransit service and the maintenance of the vehicles

3.4.7 RENAMING ROUTES

Project Description

FXBGO! Will update route names per the June 2022 Marketing Plan. The updated naming system is intended to simplify system legibility for riders and prepare for future changes. The new route naming convention prioritizes:

- **Simplicity** – Easily understood by the general public, including those of varying backgrounds and language proficiency.
- **Scalability** – Names/numbers need to be able to incorporate new routes as the system expands.
- **Ease of operations** – Route identifiers should be able to be easily transmitted over radio system and for dispatching purposes.

The recommended route names are shown in **Table 3-27**. Renaming routes would not require a Title VI analysis.

TABLE 3-27: RECOMMENDED ROUTE NAMES

Current Route Number	Current Route Description	Proposed Route Number
Express / Commuter Routes		1-9
EX	Eagle Express, University of Mary Washington - Central Park - Spotsylvania Towne Centre	1
VF1	Fredericksburg VRE Shuttle, Idlewild - Cowan Blvd - Fredericksburg Train Station	2
VS1	Spotsylvania County VRE Shuttle, Gordon Road Commuter Lot - Fredericksburg Train Station	3
Fredericksburg Routes		10-19
F1	Central / Central Park / Spotsylvania Towne Centre	11
F2	Central / Cowan Blvd. / Emancipation Hwy. / Lee's Hill Center	12
F3	Central / Lafayette Boulevard / Lee's Hill Center	13
F4	Central / Train Station / River Club Shopping Center	14
F5	Central / Celebrate Virginia (South) / Central Park	15
Stafford County Routes		20-29
D1	Train Station / Chatham Heights / Olde Forge Dr.	21
D2	Central / Olde Forge Dr./ England Run Shopping Center/ GEICO	22
D3	Stafford County Courthouse / Stafford Market Place	23
D4	Stafford Market Place / Vista Woods / Northampton Blvd	24
D5	Central / Stafford Courthouse / Shopping Loop	25
D6	North Commuter Lot - South Commuter Lot (Not active)	26
Spotsylvania County Routes		30-39
S1	Lee's Hill Center / Hilltop Plaza / Spotsylvania Towne Center	31
S4	Lee's Hill Center / Hilltop Plaza / Spotsylvania Courthouse	32
S5	Lee's Hill Center / Germanna College / Spotsylvania Regional Center	33
Caroline and King George County Routes		
C1, C2	Caroline County routes (reserved for future service)	40-49
K1	King George County routes (reserved for future service)	50-59

Justification and Support of Transit Needs

- The Transit Strategic Plan includes the goal to "Ensure a reliable, high-quality customer experience." Simplifying the route naming convention improves the rider experience through more effective communication of important information.

Associated Costs

- Capital costs for replacing existing signage and informational content
- Labor costs of updating informational materials

3.4.8 COORDINATION WITH VRE

Project Description

FXBGO! will work with Virginia Railway Express (VRE) to explore potential service efficiencies through enhanced coordination between the two (2) transit services. This coordination may include a study of the effectiveness and feasibility of adding or realigning FXBGO! routes and VRE shuttles, as well as the potential matching of service spans, to accommodate VRE's evolving and expanding services. The cost-benefit of coordinating service and the implications on the operations of FXBGO!'s current service will also be analyzed. VRE has expressed specific interest in connecting to the VA Hospital, establishing more connections to the Fredericksburg, Stafford and Spotsylvania stations, connecting bus service to locations further south, and schedule/span coordination. New VRE-connecting transit services could be added from additional park and ride lots within Spotsylvania County and Stafford County. As the frequency of FXBGO! network increases, and in cases where VRE station parking is not amply available, the need for new and improved connections between FXBGO! service and VRE is likely to increase.

Justification and Support of Transit Needs

- The Transit Strategic Plan includes the goal to "Strengthen community partnerships through transit." Coordinating service with VRE could provide riders of both transit systems with a better-coordinated, higher-quality regional transit network.

Associated Costs

- Costs to commission a study to assess potential services and coordination efforts between FXBGO! and VRE (if coordination is not done in-house)
- Additional costs that could be relevant depending on the outcome of the study include:
    - Operational costs of adding or rerouting service to better coordinate with VRE service

3.4.9 SUSTAINABILITY AND INNOVATION STUDY

Project Description

Many of the initiatives described in the non-service recommendations represent ways to potentially increase the sustainability and innovation of FXBGO!, such as fleet transition and assessing technology-enabled demand responsive service. As transit technology advances and an emphasis on environmental sustainability becomes more prominent, FXBGO! can conduct a study to further assess what could be done to further advance the agency in the areas of sustainability and innovation. Some potential areas to explore that other transit agencies are pursuing or studying include streamlining or automating data reporting, embracing artificial intelligence for analysis or initial customer support, integrating bicycle or micromobility devices into the service network, sustainability practices at staff facilities, innovations to better serve persons with disabilities, and using alternative energy sources like solar to power facilities. As part of this study, the potential costs and benefits of these strategies—as well as potential risk—will be identified.

Justification and Support of Transit Needs

- The Transit Strategic Plan includes the goal to "Ensure a reliable high-quality customer experience". Many of the potential innovations or sustainability initiatives are targeted on improving the transit customer and Transit Operator experience.

Associated Costs

- Costs to commission a study
- Additional costs that could be relevant depending on the outcome of the study include:
  - Capital costs of new technology or other purchases recommended as part of the study

3.4.10 FUTURE STUDIES

Additional studies that are recommended for FXBGO! to conduct are provided in this section. These studies are assumed to take place during FY 2029 or later and thus would require more detailed coordination closer to the time of implementation to determine specific scope and desired outcomes. The studies could be done by internal staff or outside consultants depending on resources available and staff workload at the time. The studies are discussed in general below:

- **Route Service Adjustment Assessment** (Assumed FY 2029) – Includes assessing service performance based on the short-term recommendations and revisiting mid- and long-term recommendations in coordination with the TSP major update.
- **Service Equity Study** (Assumed FY 2031) – Review FXBGO! services to determine the extent to which service is provided equitably in terms of geography, demographics, and time of day and week
- **Community Survey: Transit Needs Study** (Assumed FY 2032) – Conduct a statistically-significant comprehensive survey of riders and non-riders to identify regional and local needs that can be served by transit and develop recommendations for how those needs can be met by FXBGO!
- **FXBGO! Transitioning to a Large Urbanized Area (UZA) Study** (Assumed FY 2033) – Assuming that demographic changes may result in a change in Census designation of the Fredericksburg region, this study will assess the operational and administrative implications of such a change for the system.
- **Transit Strategic Plan 2034 – 2043** (Assumed FY 2034) – Conducting a full update to the Transit Strategic Plan based on the applicable guidelines at the time.

Chapter 3 Appendix A: Changes Considered But Not Recommended

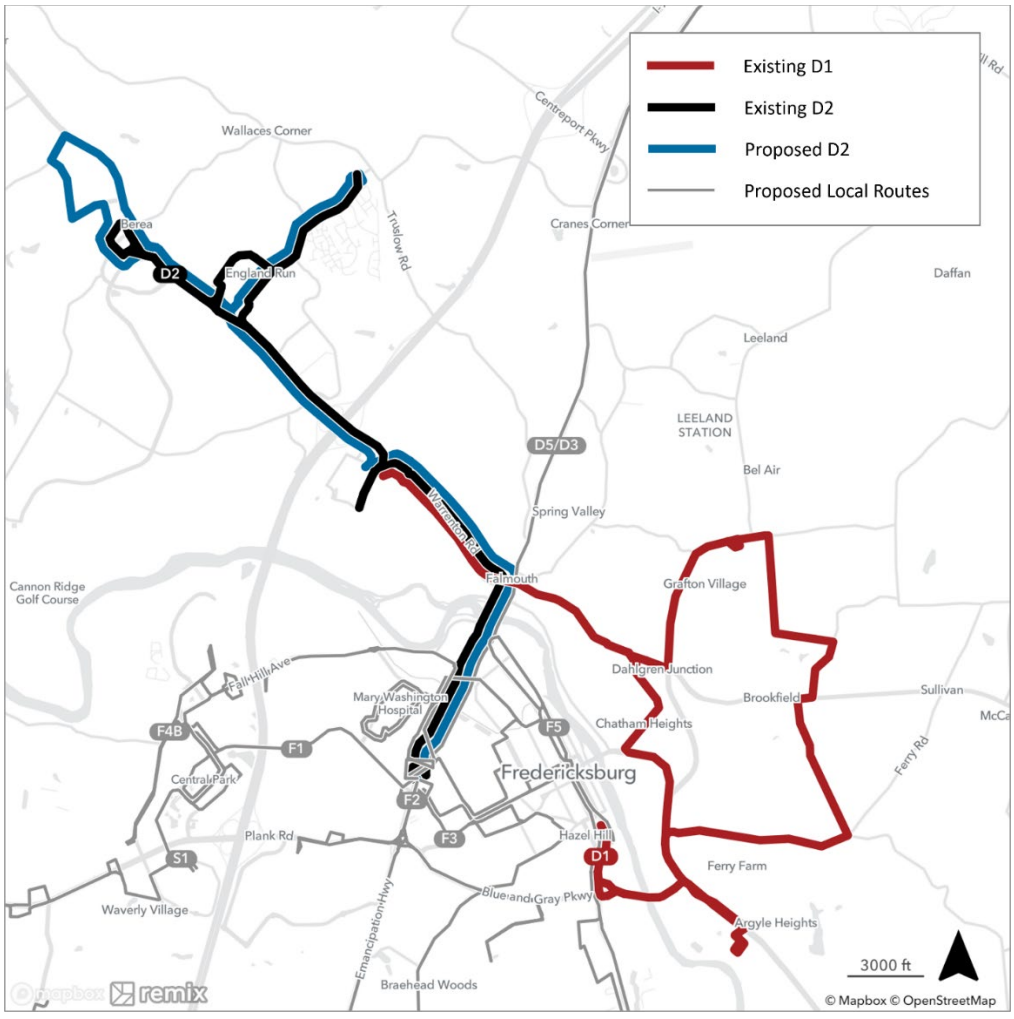
This appendix presents the potential projects that were considered during the study but not recommended for the constrained plan. They are included for documentation in case there is a future desire to revisit priorities or service changes.

Eliminate Route D1 and Improve Route D2 Headway

Service Change Description

The proposed service change calls for eliminating Route D1, modifying the Route D2 alignment, and improving headways on Route D2 from 60 minutes to 30 minutes. The existing Route D1, existing Route D2, and proposed Route D2 are shown in **Figure 3-21.** Refer to Section 3.1.2 for details on the proposed Route D2 alignment. Elimination of a route is classified as a significant reduction in transit service and would therefore trigger the need for solicitation and consideration of public comment as outlined in the Title VI Program.

FIGURE 3-21: EXISTING AND PROPOSED ROUTE D2



Operating Impacts

The impacts to the annual operating requirements of the service change are shown in **Table 3-28**. Revenue hours and miles are expected to increase by 8.3 percent (8.3%) and 9.6 percent (9.6%), respectively. The increase in operating resources occurs because Route D2 operates longer hours than Route D1. There will be no impact on peak vehicle requirement.

TABLE 3-28: ANNUAL STATISTICS FOR EXISTING ROUTE D1, EXISTING ROUTE D2, AND PROPOSED ROUTE D2

	Peak Vehicles	Revenue Hours	Revenue Miles	Operating Cost
Existing Route D1	1	2,761	57,484	$347,969
Existing Route D2	1	3,263	57,918	$411,236
Proposed Route D2	2	6,526	126,474	$822,472
Change Over Existing	0	502	11,072	$63,267

Justification and Support of Transit Needs

- This project meets the transit needs by supporting Goal 2: Leverage available funding to maximize service access, efficiency, and affordability and adjusting service based on performance standards.
- Route D2 is more productive than Route D1. Route D1 does not meet the performance thresholds where Route D2 does. Shifting resources from less productive routes to more productive routes could improve overall productivity (see ridership estimates below).
- Improving frequency was the number one requested improvement in the TSP public survey in Fall 2022 (see Section 2.1.3)
- Stakeholder representatives expressed that service is too infrequent, and routes with 60-minute frequencies can be inconvenient to use. Stakeholders indicated a strong desire to improve service frequency to every 30 minutes or better.

Future Ridership Estimate

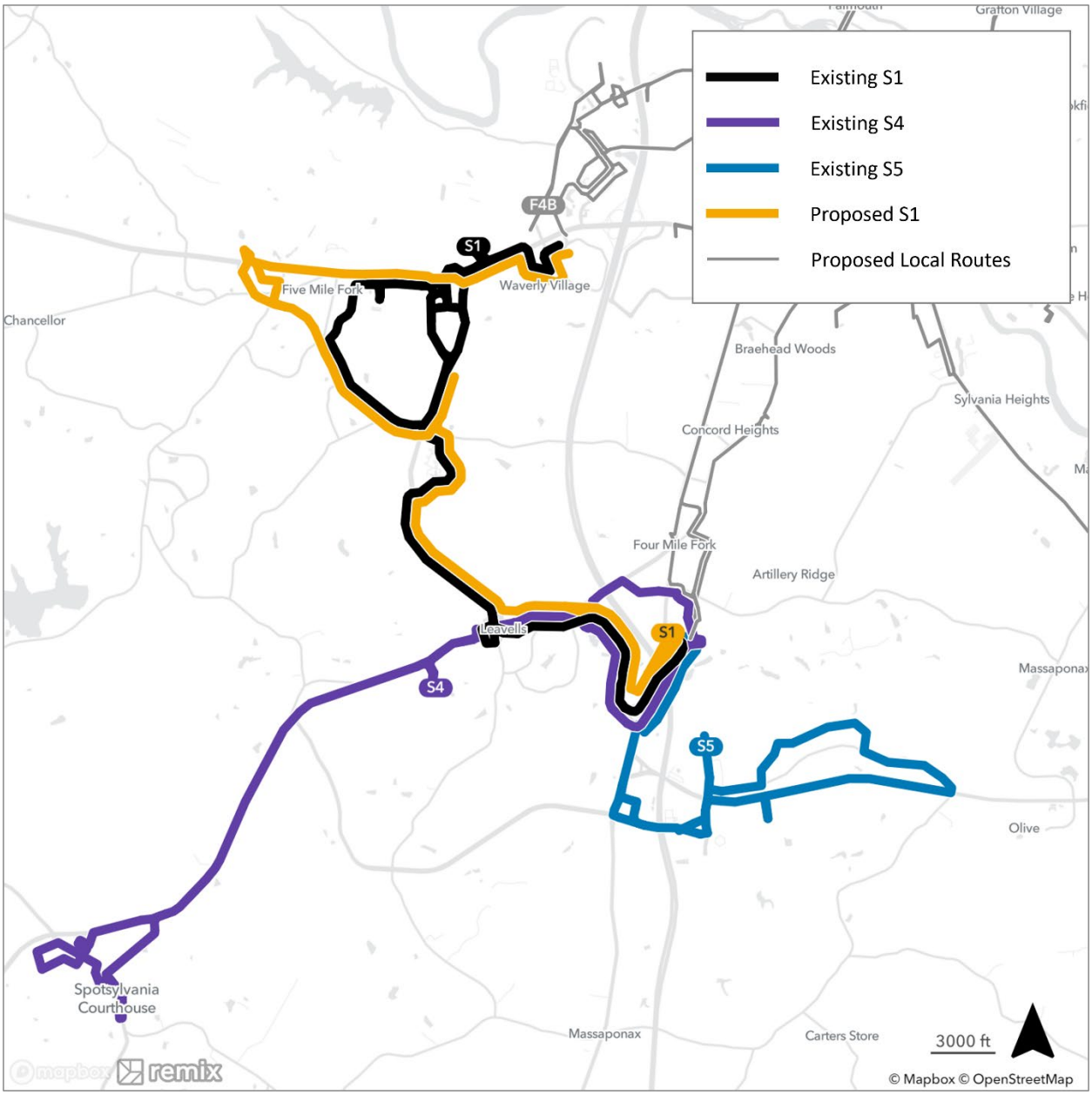
Average daily ridership is 57.2 for Route D2 and 25.1 for Route D1. The previous project showed that the proposed Route D2 would increase ridership by 9.2 percent (9.2%) (increase from 57.2 riders to 62.4 riders daily). Improving headways on Route D2 from 60 minutes to 30 minutes is estimated to increase ridership at a rate of 50 percent (50%) per additional revenue hour. Total daily ridership for the routes involved is estimated to increase from 82.6 to 93.6.

Eliminate Route S4 and S5 and Implement Route S1 at 30 Minute Headways

Service Change Description

This project calls for eliminating Route S4 and Route S5 and reallocating those resources to implement the proposed Route S1 at 30-minute headways. For information on the proposed Route S1 alignment, see section 3.1.13. Routes involved are shown in **Figure 3-22**. Removing Routes S4 and S5 would require a Title VI analysis.

FIGURE 3-21: EXISTING AND PROPOSED ROUTE S5



Operating Impacts

The impacts to the annual operating requirements for this service change are shown in **Table 3-29.** Peak vehicles are expected to remain at four (4). Revenue hours and operating costs are expected to remain the same as well. A net decrease of 19,422 revenue miles annually is anticipated.

TABLE 3-29: ANNUAL STATISTICS FOR EXISTING AND PROPOSED ROUTE S5

	Peak Vehicles	Revenue Hours	Revenue Miles	Operating Cost
Existing Route S1	2	4,518	70,277	$569,404
Existing Route S4	1	3,263	63,890	$411,236
Existing Route S5	1	3,263	53,676	$411,236
Proposed Route S1	4	11,044	168,421	$1,391,875
Change Over Existing	0	0	-19,422	$0

Justification and Support of Transit Needs

- This project meets the transit needs by supporting Goal 2: Leverage available funding to maximize service access, efficiency, and affordability and adjusting service based on performance standards.
- Route S4 averages 2.01 riders per revenue hour, 0.1 riders per revenue mile, and $49.12 per passenger, and therefore fails to meet all three thresholds of the performance assessment. Route S5 averages 2.46 riders per revenue hour, 0.16 riders per revenue mile, and $40.25 per passenger, and therefore also fails to meet thresholds in the performance assessment. The thresholds are 3.09 riders per revenue hour, 0.21 riders per revenue mile, and $38.29 per passenger. Shifting the resources from low productivity to higher productivity routes, such as Route S1 (existing riders per revenue hour is 2.9) could improve overall productivity.
- Improving frequency was the number one requested improvement in the Fall 2022 public survey.
- Stakeholder representatives said that service is too infrequent, and routes with 60-minute frequencies can be inconvenient to use. Stakeholders indicated a strong desire to improve service frequency to every 30 minutes or better.

Future Ridership Estimate

The existing Routes S1, S4, and S5 have 60, 7, and 8.6 daily riders, respectively. Ridership on Route S1 is likely to be retained. Improving the headways from 60 minutes to 30 minutes may have a lower return of 30 riders daily. The total ridership estimate would be 90 riders daily under these assumptions, which is an improvement of 14.4 over the existing 75.6 daily riders.

Implement ADA Paratransit Service

Service Change Description

This project would transition the existing deviated fixed route service to traditional fixed route and ADA paratransit service. This would involve discontinuing service deviation requests for the existing deviated fixed routes and operating traditional fixed route service in its place. The fixed routes would operate along scheduled alignment only. The ADA paratransit service would operate independently of the fixed route service and would be open to those who qualify with ADA eligibility requirements. The ADA paratransit service would operate as a demand-response service requiring passengers to request service in advance. The process of transitioning from a deviated fixed route service to traditional fixed route and ADA paratransit service is complex, requires several steps, and takes years of planning before implementation could take place. The process of converting deviated fixed-route service to a fixed-route and paratransit service would be as follows:

1. Create an ADA eligibility process. Guidance on this particular step is available in FTA Circular 4710.1 Americans with Disabilities Act Guidance.
2. Implement ADA paratransit service using the existing deviated fixed route service. The deviated fixed route service would deviate for paratransit trips only instead of for any request as in the existing FXBGO! deviated fixed-route service. FXBGO! would track ADA paratransit trip requests for analysis in the next step.
3. Plan and estimate costs for the launch of the dedicated paratransit service. Ridership data from the previous step will provide the necessary inputs for estimating costs. At this point in the process, FXBGO! would have a better understanding of the number of trips to be expected from the paratransit service and could have a better estimate cost to determine if and how to move forward with a paratransit service. FXBGO! could decide not to move forward with Step 4 should this step reveal that the service would be cost prohibitive.
4. Compare cost estimates of operating the paratransit service in-house to contracting the service out to a private operator. A decision must be made whether FXBGO! would operate the paratransit service, or a third party would operate the paratransit service.
    a. FXBGO! could decide that contracting service to a private operator is more favorable, FXBGO! would then need to go through the process of obtaining a procurement contract to have service with a third-party contractor.
    b. FXBGO! could decide that operating the service in-house is more favorable, FXBGO! would then need to acquire a dedicated fleet, hire operators, and train staff on specific paratransit service passenger needs.
5. Launch the ADA paratransit service alongside the fixed route service and closely track the passenger activity for both of the services.
6. Optimize the fixed route network. The changes from deviated fixed route service to fixed route service would possibly create inefficiencies in the schedule as well as other alignments. A comprehensive operational analysis (COA) would be recommended to optimize the fixed route network and make the best use of limited resources.

Operating Impacts

Transitioning from a deviated fixed route service to a traditional fixed route and ADA paratransit service would have significant impacts on operating costs at FXBGO! revenue miles, revenue hours, peak vehicles, and operating costs for the fixed route service would be similar to the existing deviated fixed route service. Operating requirements for the dedicated ADA paratransit service will be better understood after transitioning deviations in the deviated fixed route network to ADA eligible paratransit trips only.

Justification and Support of Transit Needs

- This project meets the transit needs by supporting Goal 3: Ensure a reliable, high-quality customer experience.
- There are many benefits of providing fixed-route transit and ADA paratransit instead of deviated fixed route service. Advantages of transitioning are listed below.
    - Operating fixed route service will improve on-time performance. It is difficult for operators to maintain schedules when deviations occur because operators must deviate from the alignment for passenger pick-up before resuming the route alignment.
    - Passengers will experience faster service and shorter travel times with fixed route service when compared to deviated fixed route service. Deviations along routes add travel time for passengers that are already onboard the vehicle. Passengers waiting for the bus further along the route must wait longer for the vehicle to arrive because of the additional time taken to make deviations.
    - Transitioning to fixed route service would enable FXBGO! operations to fine tune the schedule to advantage of excess time. Excess time in the schedule could be utilized to modify route alignments to reach additional destinations.
- There are also disadvantages to transitioning to fixed routes and ADA paratransit service. Disadvantages are listed below.
    - Significant time and staffing are needed to transition to fixed route and ADA paratransit service. Transitioning will take years of planning and resources.
    - Transitioning to fixed route and ADA paratransit will be more expensive. For instance, Petersburg Area Transit spent $188,000 on demand response service in FY 2021. The cost of service could consume the resources typically spent on an entire route (or possibly more). If implementing ADA paratransit needs to be cost neutral, then existing services would need to be eliminated.
    - Transitioning would be disruptive to the existing FXBGO! customer base. Some passengers that currently request route deviations who are not ADA eligible would lose service.

Future Ridership Estimate

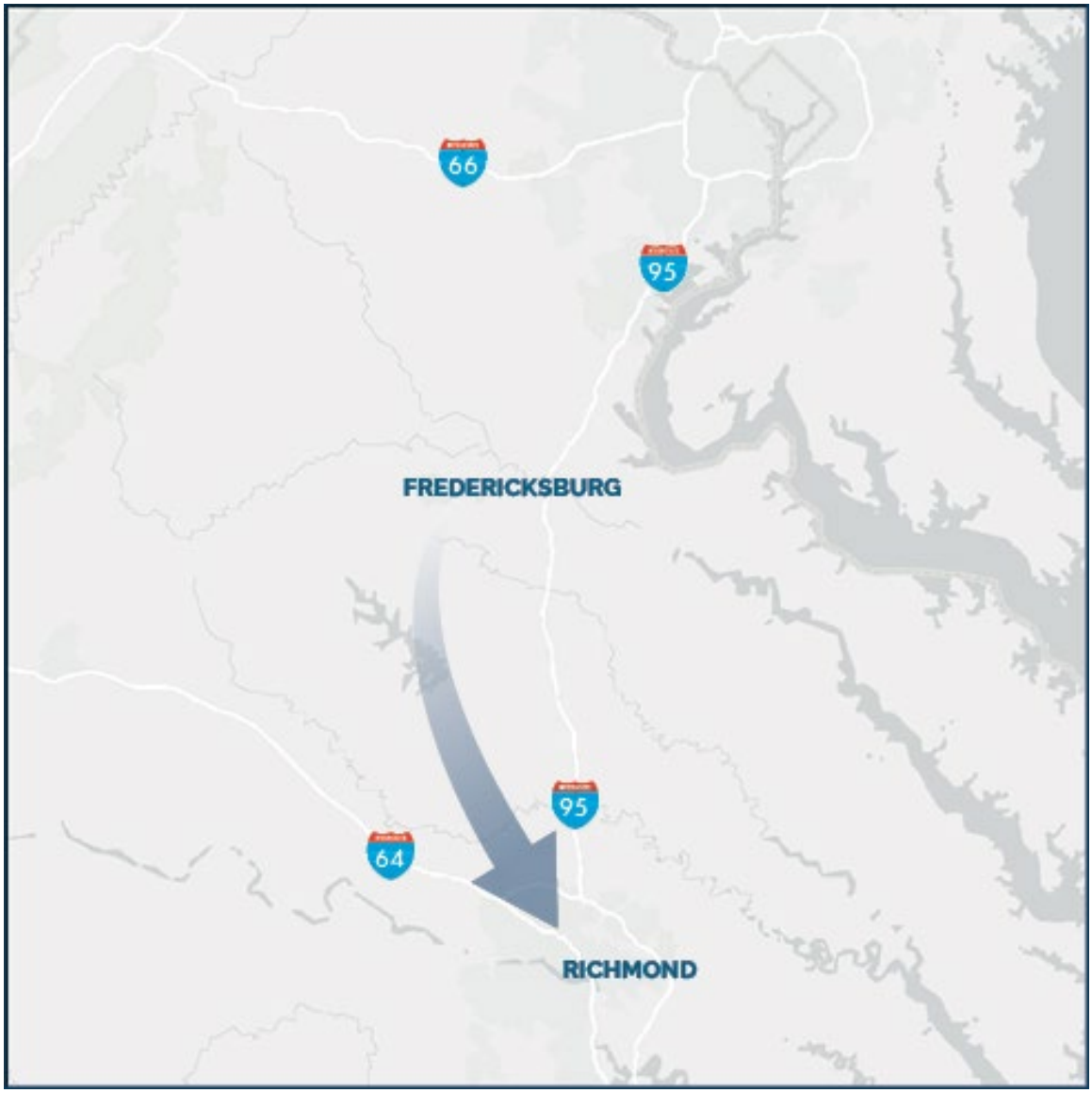
Ridership impacts are uncertain. Ridership can be estimated after FXBGO! transitions to a policy restricting deviations to ADA trips only.

Implement New Express Route to Richmond

Service Change Modification

This project includes a new express service from Fredericksburg to Richmond, called Route E1. The express service would operate weekdays with two (2) trips in the a.m. and two (2) in the p.m. Exact stop locations and route alignment are to be determined. Introducing a new route would necessitate a Title VI analysis to be completed before implementation.

FIGURE 3-23: PROPOSED ROUTE E1



Operating Impacts

Annual operating requirements for the proposed Route E1 are shown in **Table 3-30.** Implementing express service to Richmond would require two vehicles to operate two (2) round trips in the a.m. and two (2) round trips in the p.m. Route E1 would cost approximately $380,000 annually in operating requirements. This project would also require the procurement of at least two vehicles.

TABLE 3-30: ANNUAL STATISTICS FOR PROPOSED ROUTE E1

	Peak Vehicles	Revenue Hours	Revenue Miles	Operating Cost
Route E1	2	3,012	127,177	$379,602

Justification and Support of Transit Needs

- This project meets the transit needs by supporting Goal 1: Provide equitable transit service that increases access goods and services, recreation, education, and employment opportunities and Goal 4: Strengthen community partnerships through transit.
- This project improves regional connectivity between Fredericksburg and Richmond, increasing transportation options for those without access to personal vehicles.
- The apparent low demand for this service may create challenges to implement this service (see below section on Future Ridership Estimate).

Future Ridership Estimate

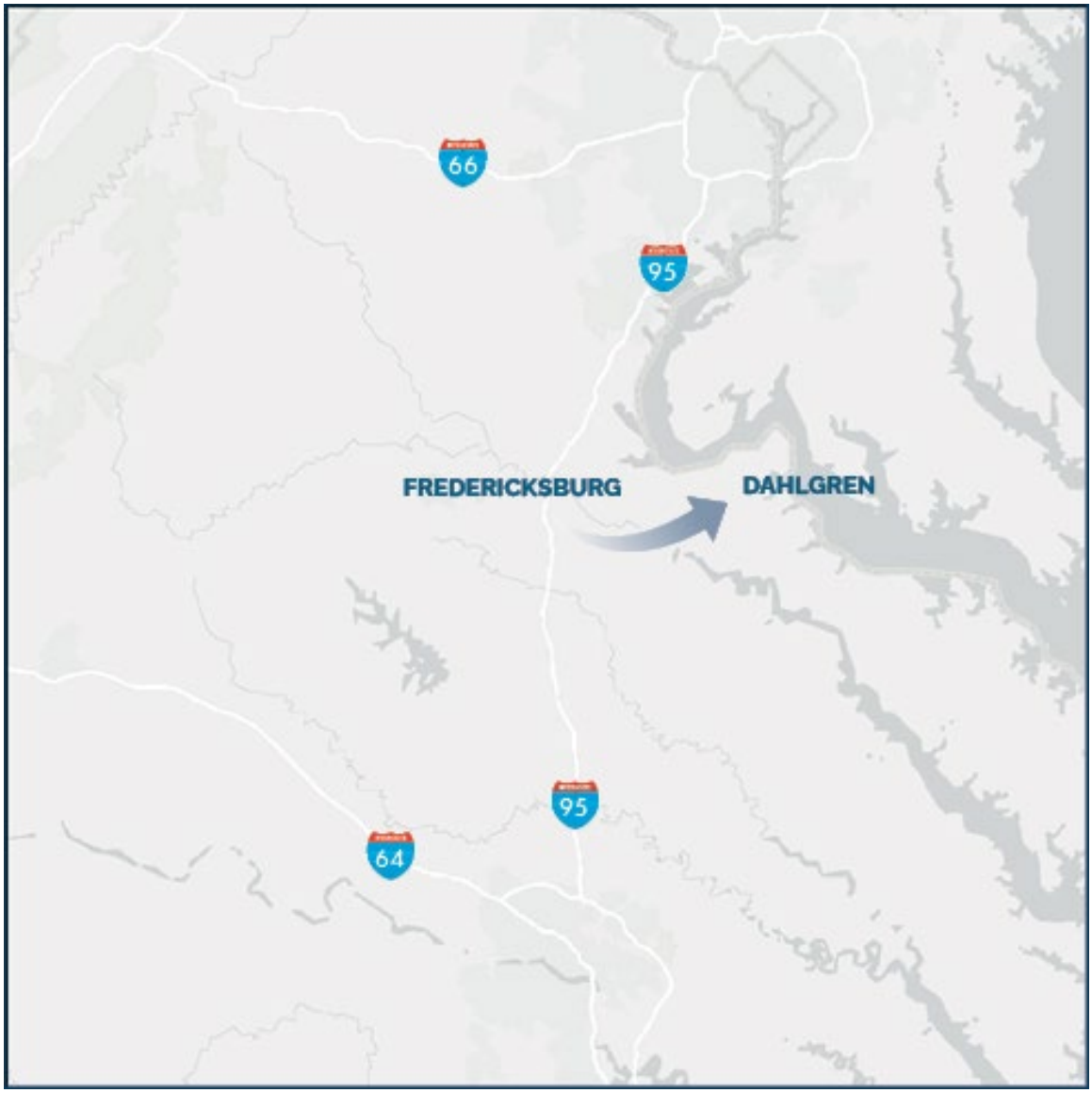
Future ridership is uncertain. However, the use of Replica travel demand model was used to give guidance for ridership estimates. There are an estimated 38 trips from Fredericksburg from 6:00 a.m. to 8:00 a.m. and 42 trips from 4:00 p.m. to 6:00 p.m. using Replica datasets. For travel from Richmond to Fredericksburg, an estimated 24 trips occur from 6:00 a.m. to 8:00 a.m. and 51 trips from 4:00 p.m. to 6:00 p.m. Using a transit mode share of two percent (2%), this service would yield little to no ridership.

Implement New Express Service Route to Dahlgren

Service Change Description

This project calls for express service, Route E2, from Fredericksburg to Naval Facilities in Dahlgren and shown below in **Figure 3-24.** The service would operate two (2) round trips in the a.m. and two (2) round trips in the p.m. Stops in King George have been identified (SMART SCALE application) and are in the approximate locations are Dahlgren Road and NSF Dahlgren (outbound only), Dahlgren Road and NSH Dahlgren (inbound only), and James Madison Pkwy and University Drive (inbound only). Introducing a new route would necessitate a Title VI analysis to be completed before implementation.

FIGURE 3-22: PROPSED ROUTE E2



Operating Impacts

Annual operating requirements for the proposed Route E1 are shown in **Table 3-31.** Estimated cycle time is two (2) hours, creating the need for two (2) vehicles to operate the service. An annual cost estimate of $253,000 would be required to operate the service.

TABLE 3-31: ANNUAL STATISTICS FOR PROPOSED ROUTE E2

	Peak Vehicles	Revenue Hours	Revenue Miles	Operating Cost
Route E2	2	2,008	73,844	$253,068

Justification and Support of Transit Needs

- This project meets the transit needs by supporting Goal 1: Provide equitable transit service that increases access goods and services, recreation, education, and employment opportunities and Goal 4: Strengthen community partnerships through transit.
- This project improves regional connectivity between King George County and Fredericksburg, increasing transportation options for those without access to personal vehicles.
- This service was previously described in the 2017 TDP and has been included in a SMART SCALE 2024 application. It should be noted that the SMART SCALE application made it into the initial list of applications but was not awarded funding.

Future Ridership Estimate

The SMART SCALE application showed that this project would carry a total of 22.4 riders in the peak period. Assuming ridership occurs evenly in each direction, an estimated total of 44.8 riders would use the service.

Chapter 3 Appendix B: Performance Assessment Methodology

A methodology to identify low performing routes was created and applied on the existing transit network. Performance thresholds are identified based on how FXBGO! compares to a group of peer agencies. The peers included in the analysis were County Commissioners of Charles County, Central Shenandoah Planning District Commission, Pueblo Transit, Billings Metropolitan Transit System, and Clarkesville Transit. The process of identifying thresholds and applying those thresholds is outlined below.

- Service assessment
    - If FXBGO! is less than 50 percent (50%) in riders per revenue hour or mile compared to the peer average, then conduct an Intensive Route Assessment. If not, then conduct a Moderate Route Assessment.
    - If FXBGO! is more than 50 percent (50%) in cost per rider compared to the peer average, then conduct an Intensive Route Assessment. If not, then conduct a Moderate Route Assessment.
    - **Table 3-32** shows the resulting peer average threshold.
- Route by route assessment
    - Intensive Route Assessment
        - Review (stop, frequency, span) if route is:
            - Less than 70 percent (70%) of system average passengers per revenue mile
            - Less than 70 percent (70%) of system average passengers per revenue hour
            - More than 30 percent (30%) of system average cost per passenger
    - Moderate Route Assessment
        - Review (stop, frequency, span) if route is:
            - Less than 60 percent (60%) of system average passengers per revenue mile
            - Less than 60 percent (60%) of system average passengers per revenue hour
            - More than 40 percent (40%) of system average cost per passenger
    - **Table 3-33** shows the resulting thresholds for the Intensive and Moderate route assessments.

TABLE 3-32: SYSTEM PERFORMANCE THRESHOLDS
FOR INTENSIVE AND MODERATE ROUTE ASSESSMENTS

Performance Measure	FXBGO!	Peer Average	Threshold[1]
Riders / Revenue Hour	4.42	6.22	3.11
Riders / Revenue Mile	0.30	0.40	0.20
Cost / Rider	$29.45	$15.72	$23.59

Source: 2022 NTD

1. Threshold value is 50% of the peer average.

TABLE 3-33: ROUTE PERFORMANCE THRESHOLDS
FOR INTENSIVE AND MODERATE ROUTE ASSESSMENTS

Performance Measure	Intensive Route Threshold	Moderate Route Threshold
Riders / Revenue Hour	3.09	2.65
Riders / Revenue Mile	0.21	0.18
Cost / Rider	$38.29	$41.23

Source: 2022 NTD

Using 2022 NTD data, FXBGO! meets the thresholds for two (2) of the three (3) performance measures (riders per revenue hour and riders per revenue mile) but does not meet the threshold for cost per rider. Therefore, individual routes would be evaluated using the "Intensive Route Thresholds". Using recent (7/1/2021 – 6/30/2022) performance data reports, the following routes would fail to reach the route thresholds and would therefore require a review of stop, frequency, and span to see if any remediation measures could be taken to improve performance.

Routes that fail to meet minimum performance thresholds:

- Intensive Route Thresholds: D1, D3, D4, D5, D5/D3, S1, S4, S4/S5, S5, EX
- Moderate Route Thresholds: D1, D5, D5/D3, S1, S4, S5, EX

TABLE 3-34: INTENSIVE ROUTE PERFORMANCE ASSESSMENT RESULTS

Day of Week	Route	Daily Passengers	Riders / Rev Hr.	Riders / Rev Mi	Cost / Rider
Weekday	D1	25.1	2.82	0.14	35.56
	D2	57.2	4.63	0.27	21.22
	D3	15.7	2.92	0.26	34.77
	D4	22.9	3.01	0.22	36.78
	D5	10.4	1.8	0.08	54.72
	D5/D3	20.4	3.16	0.18	31.36
	F1	78.1	7.44	0.66	12.79
	F2	47	3.55	0.25	27.44
	F3	81.1	6.12	0.45	15.91
	F4A	69.7	5.32	0.42	18.39
	F4B	57.7	5.74	0.44	18.41
	F5	73	6.1	0.6	16.27
	S1A	35.7	3.06	0.2	32.54
	S1B	24.3	2.72	0.17	37.49
	S4	7	2.01	0.1	49.12
	S4/S5	29.9	3.38	0.19	29.66
	S5	8.6	2.46	0.16	40.25
Friday	EX A	4.7	0.81	0.06	124.22
	EX B	7.7	1.29	0.1	75.53
Saturday	EX A	28.7	2.1	0.17	45.04
	EX B	30.2	2.21	0.18	42.85
Sunday	EX A	15	1.69	0.13	57.33
	EX B	22.2	2.51	0.2	37.75

Source: 2022 NTD

1. Highlighted routes fail to meet the performance assessment threshold

TABLE 3-35: MODERATE ROUTE PERFORMANCE ASSESSMENT RESULTS

Day of Week	Route	Daily Passengers	Riders / Rev Hr.	Riders / Rev Mi	Cost / Rider
Weekday	D1	25.1	2.82	0.14	35.56
	D2	57.2	4.63	0.27	21.22
	D3	15.7	2.92	0.26	34.77
	D4	22.9	3.01	0.22	36.78
	D5	10.4	1.8	0.08	54.72
	D5/D3	20.4	3.16	0.18	31.36
	F1	78.1	7.44	0.66	12.79
	F2	47	3.55	0.25	27.44
	F3	81.1	6.12	0.45	15.91
	F4A	69.7	5.32	0.42	18.39
	F4B	57.7	5.74	0.44	18.41
	F5	73	6.1	0.6	16.27
	S1A	35.7	3.06	0.2	32.54
	S1B	24.3	2.72	0.17	37.49
	S4	7	2.01	0.1	49.12
	S4/S5	29.9	3.38	0.19	29.66
	S5	8.6	2.46	0.16	40.25
Friday	EX A	4.7	0.81	0.06	124.22
	EX B	7.7	1.29	0.1	75.53
Saturday	EX A	28.7	2.1	0.17	45.04
	EX B	30.2	2.21	0.18	42.85
Sunday	EX A	15	1.69	0.13	57.33
	EX B	22.2	2.51	0.2	37.75

Source: 2022 NTD

1. Highlighted routes fail to meet the performance assessment threshold

FXBGO!

Fredericksburg Regional Transit

Transit Strategic Plan

Chapter 4: Implementation Plan

FINAL: June 2024

FXBGO!
Fredericksburg Regional Transit

Table of Contents

4 Implementation Plan

Chapter 4 of the Transit Strategic Plan (TSP), the Implementation Plan, details the necessary steps and capital investments required to carry out the recommended operations and service improvements detailed in Chapter 3. This chapter documents planned projects to maintain a state of good repair for FXBGO!'s existing assets as well as identifies the additional capital needs for planned expansion or modifications to service. Each of the steps in this Implementation Plan will revolve around a planned service improvement/expansion discussed in Chapter 3 or a previously identified project in the TSP.

4.1 Asset Management

Transit agencies that receive federal funding from the Federal Transit Administration (FTA) are required to create and maintain a Transit Asset Management (TAM) plan in order to provide safe, cost-effective, and reliable public transportation. The TAM plan is used as a strategic and systematic practice for inspecting, maintaining, and replacing transit capital assets. This deliberate planning helps to manage asset performance, risks, and costs throughout asset life cycles. The requirements of the TAM plan vary based on the classification of the agency as either Tier I or Tier II, which is determined by the presence of rail and the size of the agency's fleet. The Virginia Department of Rail and Public Transportation (DRPT) develops and maintains the Tier II plans for all Tier II-eligible agencies, whereas the Tier I agencies are responsible for creating their own TAM plans. FXBGO! is classified as a Tier II agency and participates in the DRPT-developed group TAM plan. The Tier II TAM plan requires the inventory of assets, a condition assessment of inventoried assets, decision support tools, and the investment prioritization with the goal of minimizing costs, managing risk, and maximizing performance.

FXBGO! has developed specific policies for their service, fleet, and facilities. As needed, FXBGO! defers to the overarching asset management procedures and practices defined by DRPT's biannual Virginia Group Tier II Transit Asset Management Plan[1]. The following policies reflect and satisfy the standards established in this group TAM plan for FY 2022 – FY 2025.

4.1.1 VEHICLE FLEET REPLACEMENT AND RETIREMENT POLICIES

Table 4-1 below exhibits the FTA's guidelines for the Useful Life (UL) standards for each class of vehicle in FXBGO!'s existing and future fleet. Transit agencies which receive federal funding from the FTA for vehicle purchases must have their fleet vehicles achieve either the useful age limit or the mileage requirements before it can be decommissioned or face financial penalties. As a result, these benchmarks are used as a baseline for replacing existing vehicles.

TABLE 4-1: USEFUL LIFE FOR FXBGO!'S CURRENT AND FUTURE FLEET CLASSES

Vehicle Category	Useful Life	
	Years	Miles
Large heavy-duty transit buses 35'-40'	12	500,000
Medium-size, medium-duty (referred to as medium-duty) transit buses 25'-35'	7	200,000
Medium-size, light-duty (referred to as light-duty) transit buses 25'-35', BOC vehicles, Expansion vans	5	150,000
Automobile (non-revenue)	4	100,000

Source: DRPT Minimum Asset Useful Life Standards for FTA Grants

1. https://drpt.virginia.gov/wp-content/uploads/2023/07/useful-life-chart.pdf

[1] *https://drpt.virginia.gov/wp-content/uploads/2023/07/tam-plan-2022.pdf*

FXBGO!'s fleet turnover is also determined by the condition of its vehicles, measured via DRPT's Useful Life Benchmarks (ULB). ULBs reflect expected lifecycle/maximum age for each vehicle type in its operating environment; assets which exceed their ULB are not considered to be in a state of good repair.

Table 4-2 shows the performance targets set by DRPT, which adheres to the FTA's default targets, for each asset class represented in FXBGO!'s current and future fleet. The rightmost column, titled "FXBGO! Target", reflects the maximum number of vehicles per asset class that can exceed the ULB while still meeting DRPT's asset condition targets, based upon the number of vehicles per asset class in FXBGO!'s fleet in FY 2024.

TABLE 4-2: USEFUL LIFE BENCHMARK AND TARGETS FOR FXBGO!'S FLEET CLASSIFICATIONS

Asset Class	ULB (Years)	Target %	# in FXBGO! Fleet	FXBGO! Target
Bus	14	15%	4	0
Cutaway	10	10%	30	3
Automobile	8	30%	8	2

Source: DRPT Virginia Group Tier II Transit Asset Management Plan (FY 2022 – FY 2025)

1. As of April 2024, FXBGO! does not currently have any heavy-duty buses in their fleet, but four will be added over the course of the TSP.

4.1.2 FACILITIES MAINTENANCE

The DRPT TAM plan establishes a performance target of fewer than 10 percent (10%) of administrative and maintenance facilities rating below 3.0 on the FTA Transit Economic Requirements Model (TERM) Scale. **Table 4-3** describes the TERM scale in greater detail.

TABLE 4-3: FTA'S TERM CLASSIFICATIONS

Term Rating	Condition	Description
Excellent	4.8 – 5.0	No visible defects; new or near new condition; may still be under warranty if applicable
Good	4.0 – 4.7	Good condition, but no longer new; may be slightly defective or deteriorated, but is overall functional
Adequate	3.0 – 3.9	Moderately deteriorated or defective, but has not exceeded useful life
Marginal	2.0 – 2.9	Defective or deteriorated; in need of replacement; exceeded useful life
Poor	1.0 – 1.9	Critically damaged or in need of immediate repair; well past useful life

Source: FTA TAM Facility Performance Measure Reporting Guidebook (2018)

FXBGO! owns four (4) facilities, two (2) dedicated administrative offices, one (1) maintenance facility, and one (1) parking facility. No facility can fall below a 3.0 on the TERM scale for FXBGO! to satisfy DRPT's TAM performance target. As of the publishing of DRPT's TAM plan, all four (4) of FXBGO!'s facilities have a TERM rating of 3.0 or above. FXBGO!'s four facilities are listed in **Table 4-4.**

TABLE 4-4: FXBGO!'S FACILITIES IN DRPT'S TAM PLAN

Facility Name	Type	Address
Lawrence A. Davies Transit Center (Central)	Administration	1400 Emancipation Highway, Fredericksburg, VA 22404
Operations Administrative Building	Administration	11710 Main Street, Fredericksburg, VA 22408
Maintenance Building	Maintenance	11716 Main Street, Fredericksburg, VA 22408
Operations and Maintenance Parking Lot	Parking	11716 Main Street, Fredericksburg, VA 22408

Source: DRPT 2022 TAM Plan

The responsibility for the maintenance of FXBGO! facilities is shared between two (2) staff members. The Operations Manager is responsible for ensuring the maintenance and repair of Central, the operations center, maintenance facility and the parking facility, while the Maintenance Manager is responsible for the overall maintenance of the fleet.

4.1.3 PASSENGER FACILITIES AND OTHER AMENITIES

The TAM plan also employs the Transit Economics Requirements Model (TERM) scale to establish a performance target of fewer than 15 percent (15%) of passenger facilities, and 10 percent (10%) of parking facilities rating below 3.0. Smaller passenger amenities, such as bus shelters and benches, do not require condition assessments.

4.1.4 TECHNOLOGY AND INTELLIGENT TRANSPORTATION SYSTEMS (ITS)

FXBGO! is anticipating two (2) technology-related investments in FY 2025. The agency has applied to purchase a driving simulator and plans to replace their Intelligent Transportation System (ITS) provider (TripSpark, Inc.). Additionally, FXBGO! maintains general communication equipment and Electronic Data Processing (EDP) equipment, including tablets used by transit operators for ridership counts. FXBGO!'s ITS inventory will expand in the coming years with the agency adopting additional technologies, such as automated passenger counters.

4.2 Capital Implementation

The following capital implementation plan reflects asset investments required by the TAM plan as well as projects introduced in Chapter 3 of this document. The proposed expenditures are organized into two (2) investment types: rolling stock and capital needs.

4.2.1 ROLLING STOCK

Over the ten-year TSP timeframe, FXBGO! will need to maintain its fleet in a state of good repair, and procure the necessary expansion vehicles to implement the service goals outlined in Chapter 3 of the TSP. A state of good repair will be kept by replacing vehicles that have met their useful life. The following section will detail the capital costs associated with the upkeep and expansion of FXBGO!'s fleet.

As of March 2024, FXBGO! maintains a 38-vehicle fleet, 30 revenue vehicles and eight (8) support vehicles. The revenue vehicles are entirely composed of Chevrolet and Ford, cutaway buses. The revenue fleet is also made up of light-duty cutaways and medium-duty cutaways with a useful life of five-years and seven-years, respectively. FXBGO! is transitioning its revenue fleet away from the light-duty cutaways towards the larger, medium-duty cutaways.

FXBGO! is also planning on adding four (4) heavy-duty buses to their revenue fleet. The first two (2) buses will arrive in FY 2026 replacing two (2) light-duty cutaways, and the last two (2) buses are anticipated for FY 2028 as expansion vehicles, as part of improving frequencies on the Fredericksburg routes. These buses have ULs of 12 years and thus are assumed to not be replaced during the ten-year TSP timeframe.

FXBGO!'s support fleet is divided between larger service vehicles and smaller pool vehicles; both classes of vehicles have a useful life of four (4) years. FXBGO! Plans to expand its support fleet by adding one (1) pool vehicle in FY 2025.

Table 4-5 shows the useful life and vehicle costs for the assumed replacement and expansion vehicles. The FY 2025 to FY 2034 vehicle replacement costs include a 7.5 percent (7.5%) annual escalation rate to account for inflation.

TABLE 4-5: USEFUL LIFE AND ASSUMED COSTS OF FXBGO!'S VEHICLES

Vehicle Type	Useful Life	Assumed Cost (FY 2025)
Heavy-Duty Bus	12	$550,000
Cutaway Medium Duty	7	$250,000
Pool Vehicle	4	$50,000
Service Vehicle	4	$50,000

Source: FXBGO! Maintenance Department

Proposed Improvements and Expansion

Table 4-6 shows the planned service improvements and expansions outlined in Chapter 3 which require additional revenue vehicles. Multiple FXBGO! routes were suspended or pared back due to the COVID pandemic and limited operator availability. The first three (3) years of the TSP timeframe focus on restoring pre-COVID service levels; this includes the reintroduction of the VRE feeder routes, Route VS1 and Route VF1. These routes require additional peak vehicles but are not included in **Table 4-6** as the temporary nature of their suspension meant that FXBGO!'s fleet was never downsized. As such, it is assumed that service improvements within the first three (3) years of the TSP do not require expanding FXBGO!'s fleet, and additional vehicles will not have to be procured for the reinstatement of Route VS1 and Route VF1. Additionally, the schedule expansion vehicles for the new Route VS2 were procured before the start of the TSP timeframe, thus the two (2) expansion vehicles were not included in **Table 4-6**.

FXBGO! does not plan on purchasing additional spare vehicles as their current fleet can maintain the spare vehicle ratio even with the planned vehicle expansion.

TABLE 4-6: PROPOSED SERVICE EXPANSIONS BY YEAR

Implementation Year (FY)	Purchase Year	Project #	Project Name	Peak Vehicles	Vehicle Cost	Funding Strategy
2028	2027	3.1.21	Implement New Route VS3	1	$289,000	Merit Capital Assistance: MIN
2029	2028	3.1.12	Improve Headways on F Routes	6	$2,919,000	Merit Capital Assistance: Major Expansion (MAJ)
2029	2028	3.1.22	Improve Headways on Route S4	1		Merit Capital Assistance: MIN
2030	2029	3.1.26	Implement New Express Route E3 to Kalahari	1	$359,000	Merit Capital Assistance: MIN

Source: FXBGO! Transit Strategic Plan Chapter 3 Planned Improvements
1. Costs are stated in year of expenditure dollars, with the assumed annual escalation rate of 7.5%

Vehicle Plan and Replacement Summary

Table 4-7 shows the replacement schedule for FXBGO!'s revenue and support vehicles as well as the total cost associated with their replacements. Due to the shorter useful life of cutaway vehicles, the vehicles being replaced include both existing vehicles in FXBGO!'s fleet, and vehicles that are being purchased for replacement and expansion. Unless stated otherwise, the vehicles' listed replacement years are one (1) year before the conclusion of their UL. This allows for adequate time for the procurement and delivery of the vehicle before its deployment. FXBGO! will purchase 80 vehicles between FY 2025 and FY 2034 to maintain their fleet in a state of good repair and to meet the proposed expansions of service outlined in Chapter 3. The purchase year is assumed to be the year that the bus is delivered.

As of FY 2024, there were ten (10) light-duty cutaways acquired between FY 2017 and FY 2019 in which their scheduled replacement year is before the start of the TSP's ten-year timeframe in FY 2025; half of these ten (10) vehicles had a planned replacement date of FY 2023 while the other half were planned to be replaced in FY 2024. These cutaways are in the process of being replaced with larger, medium-duty cutaways with seven-year ULs, however, the replacement cutaways have not yet been delivered. To best model the timing of the replacement of these vehicles, the replacement for the ten (10) cutaways were assumed to have already been purchased before the TSP timeframe. The vehicles would be replaced over two (2) fiscal years, FY 2025 and FY 2026. Five (5) cutaways would be delivered in FY 2025 and the other five (5) cutaways would be delivered in FY 2026. These vehicles replacements are in addition to regularly scheduled replacements of FXBGO!'s other 20 vehicles. As these vehicles have already been purchased, the cost of replacing these vehicles is not included in **Table 4-7.**

TABLE 4-7: REPLACEMENT VEHICLE PURCHASES BY YEAR AND TYPE

Type of Vehicle	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
Revenue Vehicles										
Cutaway Medium-Duty	8	1	0	0	0	11	5	13	3	1
Bus Heavy-Duty	0	2	0	0	0	0	0	0	0	0
Support Vehicles										
Pool Vehicles	0	4	2	0	0	4	2	0	4	2
Service Vehicles	0	1	1	0	1	1	1	0	2	1
Total Vehicles	**8**	**8**	**3**	**0**	**1**	**16**	**8**	**13**	**9**	**4**
Revenue Vehicles Cost	$2,000	$1,451	$0	$0	$0	$3,948	$1,929	$5,392	$1,338	$479
Support Vehicles Cost	$0	$269	$173	$0	$67	$359	$232	$0	$535	$288
Total Costs	**$2,000**	**$1,720**	**$173**	**$0**	**$67**	**$4,307**	**$2,161**	**$5,392**	**$1,873**	**$767**

Source: FXBGO! Maintenance Department
1. Costs are stated in year of expenditure dollars, with the assumed annual escalation rate of 7.5%
2. All costs are in $1,000s

Table 4-8 shows the expansion vehicles needed to implement the service expansions outlined in Chapter 3 and shown above in **Table 4-5.**

TABLE 4-8: EXPANSION VEHICLE PURCHASES BY YEAR AND TYPE

Type of Vehicle	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
Revenue Vehicles										
Cutaway Medium-Duty	0	0	1	5	1	0	0	0	0	0
Bus Heavy-Duty	0	0	0	2	0	0	0	0	0	0
Support Vehicles										
Pool Vehicles	1	0	0	0	0	0	0	0	0	0
Total Vehicle	**1**	**0**	**1**	**7**	**1**	**0**	**0**	**0**	**0**	**0**
Revenue Vehicles Cost	$0	$0	$289	$2,919	$334	$0	$0	$0	$0	$0
Support Vehicles Cost	$50	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Costs	**$50**	**$0**	**$289**	**$2,919**	**$334**	**$0**	**$0**	**$0**	**$0**	**$0**

Source: FXBGO! Maintenance Department
1. Costs are stated in year of expenditure dollars, with the assumed annual escalation rate of 7.5%.
2. All costs are in $1,000s

Table 4-9 summarizes the total vehicle capital needs over the ten-year TSP timeframe. These purchases include all vehicles outlined in both planned improvements and expansion vehicles in **Table 4-8** and replacement vehicles outlined in **Table 4-7**.

TABLE 4-9: TOTAL VEHICLE PURCHASES BY YEAR AND TYPE

Type of Vehicle	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
Revenue Vehicles										
Cutaway Medium-Duty	8	1	1	5	1	11	5	13	3	1
Bus Heavy-Duty	0	2	0	2	0	0	0	0	0	0
Support Vehicles										
Pool Vehicles	0	4	2	0	0	4	2	0	4	2
Service Vehicles	1	1	1	0	1	1	1	0	2	1
Total Vehicles	**9**	**8**	**4**	**7**	**2**	**16**	**8**	**13**	**9**	**4**
Revenue Vehicles Cost	$2,000	$1,451	$289	$2,919	$334	$3,948	$1,929	$5,392	$1,338	$479
Support Vehicles Cost	$50	$269	$173	$0	$67	$359	$232	$0	$535	$288
Total Costs	**$2,050**	**$1,720**	**$462**	**$2,919**	**$401**	**$4,307**	**$2,161**	**$5,392**	**$1,873**	**$767**

Source: FXBGO! Maintenance Department
1. Costs are stated in year of expenditure dollars, with the assumed annual escalation rate of 7.5%
2. All costs are in $1,000s

Alternative Fuel Vehicles

The FTA and Federal Highway Administration (FHWA) outlined two (2) federal greenhouse gas reduction goals in their Planning Emphasis Areas[2]: reduce greenhouse gases 50–52 percent (50%–52%) below 2005 levels by 2030 and achieve net-zero emissions by 2050. FXBGO! is committed to working towards achieving these targets and plans to allow for the transition to alternative fueled vehicles. A Fleet and Facility Determination Study and a Sustainability and Future Innovation Study are recommended in Chapter 3 Section 3.4.5 and Section 3.4.9, respectively, to evaluate a transition to alternative fuel vehicles and methods to increase the environmental sustainability of FXBGO!'s service. Should the studies recommend, and FXBGO! adopt, a fleet transition plan, the TDP would require an update to reflect the vehicle changes.

Alternative fuel vehicles and their infrastructure, as of Spring 2024, are more expensive than traditional gasoline and diesel fueled buses. FXBGO! will need capital funding above the amounts listed in this chapter to successfully transition to lower emission buses. As a point of reference, **Table 4-10** shows the average FY 2025 price for an alternative fueled cutaway.

TABLE 4-10: AVERAGE PRICE OF ALTERNATIVE FUEL CUTAWAYS (FY 2025)

Fuel Type	Average Purchase Price
Diesel (Base)	$180,000
Compressed Natural Gas	$195,000
Battery Electric Bus	$265,000
Hydrogen Fuel Cell Electric Bus[1]	$405,000

Source: AFLEET, Argonne National Laboratory

1. As of 2024, hydrogen fuel cell (FCEB) cutaways are not commonplace thus a reliable estimate could not be found. Full-sized FCEBs (40') are, on average, 1.25x more expensive than their battery electric counterparts. This ratio was used to produce a cost estimate for a hydrogen cutaway.

4.2.2 CAPITAL NEEDS

Facilities Operations and Maintenance

FXBGO! is planning multiple capital projects to maintain a state of good repair and enhance its operation and maintenance facilities. FXBGO! plans to resurface the pavement and construct a new bus canopy at the Bowman Center, its operations and maintenance facility. Additionally, FXBGO! will conduct major repairs at Central, replacing its HVAC system and the roof as both have met their useful life. All four (4) projects are scheduled to begin construction in FY 2025 and three (3) will be completed in FY 2026; the Central roof replacement project will complete construction in FY 2025.

Central has reached capacity for administrative office space and parking spots to accommodate FXBGO!'s current operations. If available, FXBGO! will seek to expand administrative parking capacity through purchasing the Kingdom Baptist Church property across Stafford Avenue from Central. The church and its land are assumed to be purchased at their tax assessment value of $1,367,000 (FY 2024). A total project price of $1.75 million is assumed to account for the purchase of the property in addition to inflation, 20 percent (20%) contingency, and minor improvements to the site to be determined by further study. FXBGO! alone will be responsible for the capital for the project, and the project is planned for FY 2026.

As of May 2024, there are ongoing discussions of potentially purchasing an alternative property at 1616 Stafford Street in FY 2025. FXBGO! is currently in discussions with the property owner which may result in the need for updates for future purchases.

[2] https://www.transit.dot.gov/sites/fta.dot.gov/files/2022-01/Planning-Emphasis-Areas-12-30-2021.pdf

All listed dates are tentative and are dependent on the availability of funds. Should the fleet replacement study recommend, and FXBGO! adopt, a fleet transition plan, then the operations and maintenance facilities would require updates to accommodate the new fleet. **Table 4-11** details the capital costs associated with the currently anticipated maintenance of FXBGO!'s facilities.

TABLE 4-11: FACILITIES OPERATIONS AND MAINTENANCE

Type of Capital Purchase	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
Shop Equipment/Parts	$0	$40	$41	$42	$43	$45	$47	$49	$51	$53
Fleet Diagnostic Equipment	$10	-	-	-	-	-	-	-	-	-
Bowman Center Pavement Resurfacing	$240	-	-	-	-	-	-	-	-	-
Central HVAC Replacement	$200	-	-	-	-	-	-	-	-	-
Central Roof Replacement	$75	-	-	-	-	-	-	-	-	-
Bowman Center Bus Canopy	$160	-	-	-	-	-	-	-	-	-
Church Property Purchase	-	$1,750	-	-	-	-	-	-	-	-
Total Cost of Purchase	**$685**	**$1,790**	**$41**	**$42**	**$43**	**$45**	**$47**	**$49**	**$51**	**$53**

Source FXBGO!
1. Costs are stated in year of expenditure dollars, with the assumed annual escalation rate of 3.5%
2. All costs are in $1,000s
3. As of May 2024, there are ongoing discussions about a potential alternative to the Church property purchase that may require an update in future versions of the TSP.

Passenger Facilities and Amenities

FXBGO! will pursue their goal of providing a high-quality customer experience through continuous maintenance and upkeep of their passenger facilities. This effort will include installing shelters and benches at FXBGO!'s bus stops and the purchase of furniture for passengers and staff use. **Table 4-12** details the purchases scheduled over the ten-year TSP timeframe to maintain and expand FXBGO!'s passenger facilities and amenities.

TABLE 4-12: PASSENGER FACILITIES AND AMENITIES CAPITALS NEEDS

Type of Purchase	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
Shelters and Benches	$30	$31	$32	$33	$34	$35	$36	$37	$38	$39
Furniture and Fixtures	$0	$26	$0	$28	$0	$30	$0	$32	$0	$34
Total Cost of Purchase	**$30**	**$57**	**$32**	**$61**	**$34**	**$65**	**$36**	**$69**	**$38**	**$73**

Source: FXBGO!
1. Costs are stated in year of expenditure dollars, with the assumed annual escalation rate of 3.5%
2. All costs are in $1,000s

Technology and ITS

In FY 2025 as FXBGO! plans to solicit proposals and/or replace their intelligent transportation system provider, RouteMatch. Additionally, FXBGO! plans to purchase a driving simulator in FY 2025 to improve training and skill development for their bus operators. **Table 4-13** outlines the technological and ITS capital needs over the ten-year TSP timeframe. FXBGO! will continue to create new innovative strategies and plans to continually update the technology and ITS needs based on results of future studies or updates.

TABLE 4-13: TECHNOLOGY AND ITS CAPITAL NEEDS

Type of Purchase	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
Communication and EDP Equipment	$0	$25	$26	$27	$28	$29	$30	$31	$32	$33
Driving Simulator	$215	-	-	-	-	-	-	-	-	-
RouteMatch Software Replacement	$2,200	-	-	-	-	-	-	-	-	-
Total Cost of Purchase	**$2,445**	**$25**	**$26**	**$27**	**$28**	**$29**	**$30**	**$31**	**$32**	**$33**

1. Costs are stated in year of expenditure dollars, with the assumed annual escalation rate of 3.5%
2. All costs are in $1,000s

4.2.3 CAPITAL OVERVIEW

Table 4-14 shows a detailed year-by-year implementation plan for FY 2025 to FY 2034. This includes previously planned projects and new needs as a result of Chapter 3 improvements. They are grouped into timeframes of short- (FY 2025 – FY 2027), mid- (FY 2028 – FY 2031), and long-term (FY 2032 – FY 2034) for consistency with Chapter 3. Anticipated state and federal funding sources are included and will be discussed further in Chapter 5. Depreciation of Capital Assets is not shown in this table but will also be discussed in Chapter 5.

TABLE 4-14: CAPITAL IMPLEMENTATION PLAN ($1,000S, YEAR OF EXPENDITURE (YOE)$)

Time Frame	Fiscal Year	Project Code	Project Description	Project Cost	Annual Capital Cost	Funding Source
Short-Term (0 to 3 Years)	2025		Bowman Center Pavement Resurfacing	$240	$5,180	MERIT Capital Assistance – Minor Enhancement; FTA 5307
			Central HVAC Replacement	$200		MERIT Capital Assistance – Minor Enhancement; FTA 5307
			Central Roof Replacement	$75		MERIT Capital Assistance – Minor Enhancement; FTA 5307
			Driving Simulator	$215		MERIT Capital Assistance – Minor Enhancement; FTA 5307
			Bowman Center Bus Canopy	$160		MERIT Capital Assistance – Minor Enhancement; FTA 5339
			ITS (RouteMatch) Replacement	$2,200		MERIT Capital Assistance – Minor Enhancement; FTA Vanpool
			Replacement Revenue Vehicles	$2,000		MERIT Capital Assistance – State of Good Repair; FTA 5339; FTA Vanpool
			Expansion Support Vehicle	$50		MERIT Capital Assistance – Minor Enhancement; FTA 5339
			Fleet Diagnostic Equipment	$10		
			Shelters and Benches	$30		
	2026		Replacement Revenue Vehicles	$1,451	$3,592	MERIT Capital Assistance – State of Good Repair; FTA 5339
			Replacement Support Vehicles	$269		MERIT Capital Assistance – State of Good Repair; FTA 5339
			Church Property Purchase	$1,750		MERIT Capital Assistance – Minor Enhancement
			Shop Equipment and Parts	$40		
			Furniture and Fixture	$26		
			Shelters and Benches	$31		
			Communication Equipment	$25		
	2027	3.1.21	Implement New Route VS3	$289	$561	MERIT Capital Assistance – Minor Enhancement; FTA 5339
			Replacement Support Vehicle	$173		MERIT Capital Assistance – State of Good Repair; FTA 5339
			Shop Equipment and Parts	$41		
			Shelters and Benches	$32		
			Communication Equipment	$26		

Time Frame	Fiscal Year	Project Code	Project Description	Project Cost	Annual Capital Cost	Funding Source
Mid-Term (3 to 7 Years)	2028	3.1.12	Improve Headways on F Routes	$2,608	$3,049	MERIT Capital Assistance – Major Enhancement; FTA 5339
		3.1.22	Improve Headway on Route S4	$311		MERIT Capital Assistance – Minor Enhancement; FTA 5339
			Shop Equipment and Parts	$42		
			Furniture and Fixture	$28		
			Shelters and Benches	$33		
			Communication Equipment	$27		
	2029	3.1.26	Expansion Vehicles for Express Route E3 to Kalahari	$334	$506	MERIT Capital Assistance – Minor Enhancement; FTA 5339
			Replacement Support Vehicles	$67		
			Shop Equipment and Parts	$43		
			Shelters and Benches	$34		
			Communication Equipment	$28		
	2030		Replacement Revenue Vehicles	$3,948	$4,447	MERIT Capital Assistance – State of Good Repair; FTA 5339
			Replacement Support Vehicles	$359		MERIT Capital Assistance – State of Good Repair; FTA 5339
			Shop Equipment and Parts	$45		
			Furniture and Fixture	$30		
			Shelters and Benches	$36		
			Communication Equipment	$29		
	2031		Replacement Revenue Vehicles	$1,929	$2,274	MERIT Capital Assistance – State of Good Repair; FTA 5339
			Replacement Support Vehicles	$232		MERIT Capital Assistance – State of Good Repair; FTA 5339
			Shop Equipment and Parts	$47		
			Shelters and Benches	$36		
			Communication and EDP Equipment	$30		
Long-Term (7 to 10 Years)	2032		Replacement Revenue Vehicles	$5,392	$5,541	MERIT Capital Assistance – State of Good Repair; FTA 5339
			Shop Equipment and Parts	$49		
			Furniture and Fixture	$32		
			Shelters and Benches	$37		
			Communication and EDP Equipment	$31		
	2033		Replacement Revenue Vehicles	$1,338	$1,994	MERIT Capital Assistance – State of Good Repair; FTA 5339

Time Frame	Fiscal Year	Project Code	Project Description	Project Cost	Annual Capital Cost	Funding Source
			Replacement Support Vehicles	$535		MERIT Capital Assistance – State of Good Repair; FTA 5339
			Shop Equipment and Parts	$51		
			Shelters and Benches	$38		
			Communication Equipment	$32		
	2034		Replacement Revenue Vehicles	$479	$926	MERIT Capital Assistance – State of Good Repair; FTA 5339
			Replacement Support Vehicles	$288		MERIT Capital Assistance – State of Good Repair; FTA 5339
			Shop Equipment and Parts	$53		
			Furniture and Fixture	$34		
			Shelters and Benches	$39		
			Communication and EDP Equipment	$33		

1. All costs are in $1,000s

FXBGO!

Fredericksburg Regional Transit

Transit Strategic Plan

Chapter 5: Financial Plan

FINAL: June 2024

FXBGO!
Fredericksburg Regional Transit

Table of Contents

5 Financial Plan

This chapter presents the forecasted ten-year financial plan with projections and anticipated expenditures and revenues. The financial plan is divided into sections that focus on 1) operating and maintenance (O&M) expenses and funding sources and 2) capital purchase costs and funding sources. The projections represent estimates based on the best available information and are subject to change and future updates. All costs presented in this chapter are in year of expenditure dollars (YOE$). For additional perspective, a three-year retrospective of operating and capital expenses is provided in Appendix A.

5.1 Operating and Maintenance Expenses and Funding Sources

This section shows the projected expenses and corresponding levels of funding required to create a balanced operating and maintenance budget from Fiscal Year (FY) 2025 to FY 2034. The first section, Expense and Revenue Assumptions, discusses the assumptions used to create anticipated costs and funding amounts by category. The second section, Ten (10) Year Financial Plan Scenarios, discusses two (2) future scenarios: the baseline scenario and the service changes scenario. The baseline scenario assumes that no service changes take place over the ten (10) year Transit Strategic Plan (TSP) period except for the planned implementation of Project VS2 (VRE feeder service) in FY 2025. The service changes scenario assumes that the Chapter 3 service changes are implemented. The FY 2025 budget aligns with the proposed budget for Fredericksburg Regional Transit (FXBGO!) as of April 2024.

5.1.1 EXPENSE AND REVENUE ASSUMPTIONS

This section is made up of O&M expenses and revenues. Expenses and revenues are subdivided into categories, with assumptions for each described below.

Expenses

FXBGO! O&M expenses are the costs incurred during day-to-day operations of the transit service. O&M expenses are organized into two (2) categories: O&M expenses and cost allocation.

O&M Expenses

FY 2025 O&M expenses are from the FY 2025 FXBGO! proposed budget. For the baseline scenario, service levels are held constant, and costs are escalated four percent (4%) annually to account for inflation. For the service changes scenario, O&M expenses are estimated based on a combination of the estimated baseline cost of service and the revenue hours required to operate the additional service. Unit costs for additional service use the FY 2024 cost of $126.03 per revenue hour escalated four percent (4%) annually to account for inflation.

Cost Allocation

Under the Section 5307 Program, the City of Fredericksburg is eligible to recover central service costs it provides to FXBGO! in a Cost Allocation Plan (CAP). The central service costs that the CAP includes are Independent Auditor, Insurance, Personnel, City Manager, Legal Services, Treasurer, Finance, Information Technology, Shop and Garage, and Membership Dues. The central service costs included in the CAP are shown as cost allocation in the TSP. The FY 2025 cost allocation value is from the FY 2025 FXBGO! proposed budget. Cost allocation is consistent between the baseline and service changes scenarios, at 9.1

percent (9.1%) of the O&M expenses. As new cost allocation analyses are performed, cost allocation may change in future years.

Revenues

Revenues are organized into four (4) categories: farebox revenue, federal funding, state funding, and local and regional funding. Assumptions for revenues are discussed below. FXBGO! does not budget for operating reserves.

Farebox Revenue

FXBGO! began fare-free service in February 2022, which was made possible in part through a Department of Rail and Public Transportation (DRPT) Transit Ridership Incentive Program Zero and Reduced Fare (TRIP) Grant. The last month of the DRPT TRIP Grant is February 2026, after which FXBGO! is anticipated to resume fares. FY 2026 will therefore collect fares for only four (4) months of the fiscal year. FY 2027 will be the first full year with fare collection. Fare revenues are estimated using a farebox recovery ratio of three percent (3%) for both baseline and service changes scenarios. Should fare-free service continue beyond FY 2025, additional revenues would be required to be made up using local or other sources.

Federal Funding

FXBGO!'s federal funding is typically made up of Federal Transit Administration (FTA) 5307 operating revenues, FTA 5307 Indirect Cost, and FTA Capital Preventive Maintenance funding. Baseline and service change scenarios use consistent assumptions. FTA operating funding in FY 2025 is consistent with the FY 2025 FXBGO! proposed budget for both the baseline and service changes scenarios. In FY 2026 – FY 2034, FTA 5307 operating revenues are assumed to be 50 percent (50%) of total O&M expenses for both the baseline and service change scenarios. FTA Coronavirus Aid, Relief, and Economic Security (CARES) Act funding for FY 2025 is from the FXBGO! FY 2025 proposed budget but is expected to run out and not be available for future years. FTA Indirect Cost is assumed to account for the 50 percent (50%) of Cost Allocation expense (9.1 percent (9.1%) of O&M expenses) from FY 2025 – FY 2034. FY 2025 FTA Capital Preventive Maintenance is from the FY 2025 FXBGO! proposed budget. Future years of Capital Preventive Maintenance (FY 2026 – FY 2034) are expected to increase at a rate of four percent (4%) annually. Congestion Mitigation & Air Quality (CMAQ) funding may also be leveraged through DRPT for the statewide allotment or through regional apportionment. Proposed Route E3 (express service to Kalahari) may be eligible for regionally-apportioned CMAQ funding.

State Funding

State funding is primarily made up of DRPT Operating Assistance funding. The FY 2025 DRPT operating funding is from the FY 2025 FXBGO! proposed budget. The FY 2026 – FY 2034 DRPT Operating Assistance funding is based on the change of the total Operating Assistance funding estimated in the DRPT FY 2024 Six-Year Improvement Plan (SYIP) shown in **Table 5-1**. For the baseline scenario, FY 2026 – FY 2029 DRPT Operating Assistance funding is anticipated to change at the same rate of total state funding. The DRPT SYIP projections are available to FY 2029. For FY 2030 – FY 2034, the TSP is estimating DRPT Operating Assistance increases consistent with FY 2026 – FY 2029 four (4) year average of 1.9 percent (1.9%) to capture escalating costs over time.

TABLE 5-1: ANNUAL DRPT OPERATING FUNDING ESTIMATES

Year	Percent Change from Previous Year
FY 2505 to FY 2026	2.0%
FY 2026 to FY 2027	2.1%
FY 2027 to FY 2028	1.9%
FY 2028 to FY 2029	1.6%

1. Percent change is calculated from DRPT FY 2024 SYIP

For the service change scenarios, DRPT Operating Assistance funding is anticipated to make up the same proportion of total operating expenses as in the baseline scenario. For instance, the baseline scenario assumes DRPT Operating Assistance funding to account for 9.8 percent (9.8%) of total operating expenses in FY 2026. Therefore, the service changes scenario also assumes DRPT Operating Assistance funding to account for 9.8 percent (9.8%) of total operating expenses.

State funding also includes state grants such as DRPT TRIP Grant revenue. FXBGO! currently has a DRPT TRIP Grant that expires in FY 2026 and therefore is included in the baseline and service change scenario. In the service change scenario, the express service to Kalahari assumes a step-down approach in DRPT grant revenue, with 80 percent (80%) funding in the first year, 60 percent (60%) funding in the second year, thirty percent (30%) funding the third year, 20 percent (20%) funding the fourth year, and ten percent (10%) funding in the fifth year. This is based on DRPT's funding guidance[1]. Local funding accounts for the difference in state funding percentages.

In the Fredericksburg region, Virginia SMART SCALE funding has been identified to support capital and operating expenses for transit improvements that are associated with other infrastructure projects. This funding may be able to be applied to relevant projects for service on Routes S4, F4A, VS2, and VS3 which could offset needs for local funding. Specific amounts and appropriate fiscal years for which the funding applies will need to be coordinated closer to implementation with the SMART SCALE project sponsors and Virginia.

Regional Funding

Regional funding includes funding from the Northern Virginia Transportation Commission (NVTC) Commuter Choice Program that reinvests Express Lanes toll revenues in public transit and other transportation improvements along the I-66 and I-395/95 corridor in Northern Virginia. FXBGO! will receive $1,218,800 in funding over three (3) years, including $743,800 in operating funding. FXBGO! anticipates $85,000 in FY 2025, and the remainder of the Commuter Choice funding split in FY 2026 and FY 2027 ($329,400 in each year). FXBGO! anticipates continuation of the Commuter Choice funding in future years (FY 2028- FY 2034) and assumes revenues to account for the full operating costs of the VS2. Regional funding is consistent between the baseline and service change scenario.

Other Funding

Other funding includes a variety of revenue sources, such as local colleges/universities, businesses, local partnerships, and advertising and vending sales. The Other funding amount for FY 2025 was calculated using the FY 2025 FXBGO! proposed budget, totaling $108,000. **Table 5-2** shows all funding that falls into

[1] *https://drpt.virginia.gov/wp-content/uploads/2023/10/FY25-Transit-and-Commuter-Assistance-Grant-Application-Manual-Blue-Book.pdf*

the Other Funding category, which is expected to remain consistent in future years for the baseline and service change scenario.

TABLE 5-2: FY 2025 OTHER FUNDING

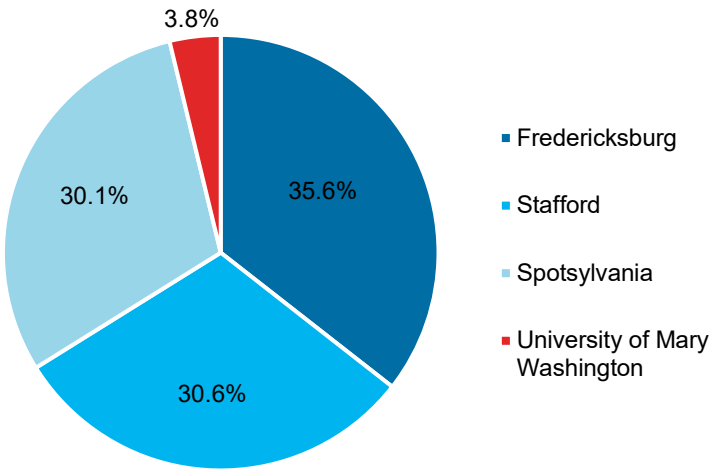
Source	Amount
Mary Washington Healthcare Community Benefit Fund Grant	$40,000
University of Mary Washington Partnership	$25,000
Germanna Community College – Partnership	$25,000
Idlewild Village (City) – Sponsorship/Partnership	$10,000
Ads & Vending Sales	$3,500
GEICO Sponsorship/Partnership	$3,000
Evergreens (City) – Sponsorship/Partnership	$1,500

1. All Sources and amounts are from FY 2025 FXBGO! proposed budget.
2. University of Mary Washington contributes $25,000 as part of a partnership but also contributes 3.8% of remaining local funding required, described below.

Local Funding

Remaining funding comes from the local partners: City of Fredericksburg, Stafford County, Spotsylvania County, and University of Mary Washington. Local funding changes annually based on the need of the transit system and is proportional to the service distribution within each respective municipality. The baseline and service changes scenario both assume that local funding accounts for the remaining portion of revenues required to balance the total operating expenses, which amounts to approximately $523,000 for FY 2025. For FY 2025, the split of funding is 35.6 percent (35.6%) City of Fredericksburg, 30.6 percent (30.6%) Stafford County, 30.1 percent (30.1%) Spotsylvania County, and 3.8 percent (3.8%) University of Mary Washington, but is subject to change each year based on a calculation of service hours distribution. **Figure 5-1** shows the FY 2025 local funding split graphically.

FIGURE 5-1: FY 2025 LOCAL REVENUE FUNDING SPLIT



5.1.2 TEN-YEAR FINANCIAL PLAN SCENARIOS

This section presents two (2) ten-year scenarios: a baseline scenario and a service changes scenario. The baseline scenario assumes no service changes are implemented except for Route VS2. The Route VS2 is assumed to be implemented because it is included in the FY 2025 FXBGO! proposed budget which was used to create all baseline values. Revenue hours, therefore, are consistent over the ten-year TSP timeframe from FY 2025 – FY 2034 for the baseline scenario. The service changes scenario assumes the service changes discussed in Chapter 3 are implemented.

Baseline Scenario

The baseline scenario assumes that existing service remains constant except for implementation of Route VS2. Baseline costs and revenues are shown in **Table 5-3**. Over the ten-year TSP timeframe, total operating and maintenance expenses are projected to increase by approximately $3,239,000 based on inflation alone, representing an increase of 42.3 percent (42.3%). This increase is projected to be covered with an increase in various revenues (federal, state, and local sources):

- Farebox revenue is currently $0 in FY 2025 but is projected to grow to approximately $299,000 annually by FY 2034.
- Federal revenues decrease initially from FY 2025 to FY 2026 as the remaining FTA CARES Act revenue of approximately $3,242,000 million is expected to be depleted.
- FTA funding is expected to increase from a low of $5,346,000 in FY 2026 to $7,317,000 in FY 2035.
- State funding initially decreases from FY 2025 to FY 2026 due to the expiration of the DRPT TRIP Grant but increases to approximately $829,000 by FY 2034.
- Regional NVTC funding is projected to increase from $85,000 in FY 2025 to $780,000 in FY 2034.
- Local funding is expected to increase from a total of approximately $523,000 in FY 2025 to $1,344,000 in FY 2026 primarily due to the depletion of FTA CARES Act funding.
- Other funding is projected to remain flat at $108,000 from FY 2025 to FY 2034.

TABLE 5-3: BASELINE SCENARIO PROJECTED OPERATING AND MAINTENANCE EXPENSES AND REVENUES (YOE$)

	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034
Anticipated Expenses										
Revenue Hours	51,277	51,277	51,277	51,277	51,277	51,277	51,277	51,277	51,277	51,277
O&M Expenses	$7,012,969	$7,293,488	$7,585,227	$7,888,637	$8,204,182	$8,532,349	$8,873,643	$9,228,589	$9,597,733	$9,981,642
Cost Allocation	$638,180	$663,707	$690,256	$717,866	$746,581	$776,444	$807,502	$839,802	$873,394	$908,329
Total Expenses	$7,651,149	$7,957,195	$8,275,483	$8,606,503	$8,950,763	$9,308,793	$9,681,145	$10,068,391	$10,471,126	$10,889,971
Anticipated Revenue Sources										
Farebox	$0	$72,935	$227,557	$236,659	$246,125	$255,970	$266,209	$276,858	$287,932	$299,449
FTA 5307 Operating	$1,307,558	$3,646,744	$3,792,614	$3,944,318	$4,102,091	$4,266,175	$4,436,822	$4,614,295	$4,798,866	$4,990,821
FTA CARES Act	$3,241,669	$0	$0	$0	$0	$0	$0	$0	$0	$0
FTA 5307 Indirect Cost	$638,180	$663,707	$690,256	$717,866	$746,581	$776,444	$807,502	$839,802	$873,394	$908,329
FTA Capital Preventive Maintenance	$996,184	$1,036,031	$1,077,473	$1,120,572	$1,165,394	$1,212,010	$1,260,491	$1,310,910	$1,363,347	$1,417,880
DRPT Operating	$700,000	$713,861	$728,524	$742,431	$754,608	$768,914	$783,491	$798,345	$813,480	$828,902
DRPT TRIP Grant	$52,000	$0	$0	$0	$0	$0	$0	$0	$0	$0
Regional NVTC	$85,000	$371,900	$371,900	$616,779	$641,450	$667,108	$693,793	$721,545	$750,406	$780,423
Local	$522,558	$1,344,016	$1,279,161	$1,119,878	$1,186,513	$1,254,172	$1,324,838	$1,398,637	$1,475,702	$1,556,167
Other	$108,000	$108,000	$108,000	$108,000	$108,000	$108,000	$108,000	$108,000	$108,000	$108,000
Total Revenues	$7,651,149	$7,957,195	$8,275,483	$8,606,503	$8,950,763	$9,308,793	$9,681,145	$10,068,391	$10,471,126	$10,889,971

1. Revenue Hours – FY 2025 is calculated using existing service and Route VS2 service revenue hour estimates. Future years assume no change.
2. O&M Expenses – FY 2025 is from FY 2025 FXBGO! proposed budget. Future years assume 4% escalation annually.
3. Cost Allocation – FY 2025 is from FY 2025 FXBGO! proposed budget. Cost Allocation is 9.1% of O&M costs. Future years assume 9.1% of O&M costs.
4. Total Expenses – FY 2025 is from FY 2025 FXBGO! proposed budget. Future years assume 4% escalation annually.
5. Farebox – FY 2025 assumes no fares. Fares resume in FY 2026 with a conservative 3% farebox recovery ratio but are assumed to only be in place for 4 months of the fiscal year. FY 2027 and later assume a full 12 months at 3% farebox recovery ratio.
6. FTA 5307 Operating – FY 2025 is from FY 2025 FXBGO! proposed budget. Future years assume 50% of total expenses.
7. FTA CARES Act – FY 2025 is from FY 2025 FXBGO! proposed budget. Future years assume no revenue.
8. FTA Indirect Cost – FY 2025 is from FY 2025 FXBGO! proposed budget. Future years assume 4% escalation annually.
9. FTA Capital Preventive Maintenance – FY 2025 is from FY 2025 FXBGO! proposed budget. Future years assume 4% escalation annually.
10. DRPT Operating – FY 2025 is from FXBGO! FY 2025 FXBGO! proposed budget. FY 2026-FY 2029 assumed to increase at the same rate of DRPT operating assistance for the entire state shown in the FY 2024 SYIP. FY 2030-FY 2034 assumed to increase at the average of FY 2026-FY 2029 of 1.9%.
11. DRPT TRIP Grant - FY 2025 is DRPT TRIP Zero and Reduced Fare Grant from FY 2025 FXBGO! proposed budget. Future years assume no revenue.
12. Regional NVTC – FY 2025 is from FY 2025 FXBGO! proposed budget. FY 2026 and FY 2027 expend the remaining Commuter Choice funding. FY 2028-FY 2034 assume 100% funding of Route VS2 operating costs.
13. Local – Funding for all years covers remaining amount of revenue required to balance total operating expenses.
14. Other – FY 2025 is from FY 2025 FXBGO! proposed budget. Future years assume no change.
15. Total Revenues - Total revenues include all anticipated operating and maintenance revenues required to balance total expenses.

Service Changes Scenario

The service changes scenario represents the results of implementing the service changes described in Chapter 3. A summary of expenses and revenues of the service changes scenario is shown in **Table 5-4**. Additional operating expenses are incurred with the implementation of service improvements. Annual revenue hours are projected to increase by nearly 53,000, representing an increase of approximately 103 percent (103%) from FY 2025 to FY 2034. The largest increases occur in FY 2028 with improved Saturday service (6,428 revenue hours costing $947,727), FY 2029 with improvements to F route headways (19,829 revenue hours costing $3,040,475), and FY 2034 with improved Sunday service (6,428 revenue hours costing $1,199,177).

Projected expenses increase by $13,114,000 over the TSP timeframe, from $7,651,000 in FY 2025 to $20,765,000 in FY 2034. Revenues from all sources will need to increase from FY 2025 levels to meet the increased expenses:

- Farebox revenues are projected to increase from $0 in FY 2025 to $596,000 in FY 2034.
- Federal funding is expected to increase from a total of $6,184,000 in FY 2025 to $12,067,000 in FY34.
- CMAQ (Congestion Mitigation and Air Quality) funding is projected to account for $434,000 of operating funding beginning in FY 2030.
- State funding is projected to increase from $752,000 in FY 2025 to $1,686,000 in FY 2035.
- Regional NVTC funding is projected to increase from $85,000 in FY 2025 to $780,000 in FY 2034.
- Local funding is projected to account for a large portion of the increases in total operating expenses, increasing from approximately $523,000 in FY 2025 to $5,093,000 in FY 2034.
- Other funding is projected to remain flat at $108,000 from FY 2025 to FY 2034.

TABLE 5-4: SERVICE CHANGES SCENARIO PROJECTED OPERATING AND MAINTENANCE EXPENSES AND REVENUES (YOE$)

	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034
Anticipated Expenses										
Revenue Hours	51,277	58,640	58,640	67,160	90,252	92,260	97,782	97,782	97,782	104,210
O&M Expenses	$7,012,969	$8,297,123	$8,629,008	$10,230,285	$14,180,302	$15,067,726	$16,586,242	$17,249,692	$17,939,679	$19,856,443
Cost Allocation	$638,180	$663,707	$690,256	$717,866	$746,581	$776,444	$807,502	$839,802	$873,394	$908,329
Total Expenses	$7,651,149	$8,960,830	$9,319,263	$10,948,150	$14,926,883	$15,844,170	$17,393,744	$18,089,493	$18,813,073	$20,764,773
Anticipated Revenue Sources										
Farebox	$0	$82,971	$258,870	$306,909	$425,409	$452,032	$497,587	$517,491	$538,190	$595,693
FTA 5307 Operating	$1,307,558	$4,148,561	$4,314,504	$5,115,142	$7,090,151	$7,373,757	$8,126,611	$8,451,675	$8,789,742	$9,740,920
FTA CARES Act	$3,241,669	$0	$0	$0	$0	$0	$0	$0	$0	$0
FTA 5307 Indirect Cost	$638,180	$663,707	$690,256	$717,866	$746,581	$776,444	$807,502	$839,802	$873,394	$908,329
FTA Capital Preventive Maintenance	$996,184	$1,036,031	$1,077,473	$1,120,572	$1,165,394	$1,212,010	$1,260,491	$1,310,910	$1,363,347	$1,417,880
CMAQ	$0	$0	$0	$0	$0	$433,742	$433,742	$433,742	$433,742	$433,742
DRPT Operating	$700,000	$812,094	$828,773	$962,812	$1,304,282	$1,357,866	$1,464,469	$1,492,233	$1,520,522	$1,648,932
DRPT TRIP Grant	$52,000	$0	$0	$0	$0	$256,170	$199,812	$103,902	$72,039	$37,460
Regional NVTC	$85,000	$329,400	$329,400	$616,779	$641,450	$667,108	$693,793	$721,545	$750,406	$780,423
Local	$522,558	$1,737,565	$1,669,488	$2,000,071	$3,445,615	$3,207,041	$3,801,737	$4,110,194	$4,363,690	$5,093,393
Other	$108,000	$108,000	$108,000	$108,000	$108,000	$108,000	$108,000	$108,000	$108,000	$108,000
Total Revenues	$7,651,149	$8,918,330	$9,276,763	$10,948,150	$14,926,883	$15,844,170	$17,393,744	$18,089,493	$18,813,073	$20,764,773

1. Revenue Hours – FY 2025 is calculated using existing service and Route VS2 service revenue hour estimates. Future years assume Chapter 3 service changes take place.
2. O&M Expenses – FY 2025 is from FY 2025 FXBGO! proposed budget. Future years assume Chapter 3 service changes are implemented with 4% escalation annually. Service changes calculated based on an FY 2024 $126.03 cost per revenue hour with 4% escalation annually.
3. Cost Allocation – FY 2025 is from FY 2025 FXBGO! proposed budget. Cost Allocation is 9.1% of O&M costs. Future years assume 9.1% of O&M costs.
4. Total Expenses – FY 2025 is from FY 2025 FXBGO! proposed budget. Future years assume Chapter 3 service changes are implemented with 4% escalation annually.
5. Farebox – FY 2025 assumes no fares. Fares resume in FY 2026 (March, 2026) with a conservative 3% farebox recovery ratio, but are assumed to only be in place for 4 months of the fiscal year. FY 2027 and later assume a full 12 months at 3% farebox recovery ratio.
6. FTA 5307 Operating – FY 2025 is from FY 2025 FXBGO! proposed budget. Future years assume 50% of total operating and maintenance expenses.
7. FTA CARES Act – FY 2025 is from FY 2025 FXBGO! proposed budget. Future years assume no revenue.
8. FTA Indirect Cost – FY 2025 is from FY 2025 FXBGO! proposed budget. Future years assume 4% escalation annually.
9. FTA Capital Preventive Maintenance – FY 2025 is from FY 2025 FXBGO! proposed budget. Future years assume 4% escalation annually.
10. CMAQ (Congestion Mitigation & Air Quality) Improvement Program – FY 2030 assumes $433,742 in CMAQ funding for Route 208 corridor service expansion and service to Kalahari.
11. DRPT Operating – FY 2025 is from FY 2025 FXBGO! proposed budget. FY 2026-FY 2034 assumed to make up the same proportion of O&M expenses at the baseline scenario (9.8% in FY 2026, 9.6% in FY 2027, 9.4% in FY 2028, 9.2% in FY 2029, 9.0% in FY 2030, 8.8% in FY 2031, 8.7% in FY 2032, 8.5% in FY 2033, and 8.3% in FY 2034).

12. DRPT TRIP Grant – FY 2025 is DRPT TRIP Zero and Reduced Fare Grant from FY 2025 FXBGO! proposed budget. FY 2026-FY 2029 assume no revenue. A Regional Connectivity Grant with a step-down match for Route E3 to Kalahari is assumed with 80% in FY 2030, 60% in FY 2031, 30% in FY 2032, 20% in FY 2033, and 10% and FY 2034.
13. Regional NVTC – FY 2025 is from FY 2025 FXBGO! proposed budget. FY 2026 and FY 2027 expend the remaining Commuter Choice funding. FY 2028-FY 2034 assume 100% funding of Route VS2 operating costs.
14. Local – Funding for all years covers remaining amount of revenue required to balance total operating expenses.
15. Other – FY 2025 is from FY 2025 FXBGO! proposed budget. Future years assume no change.
16. Total Revenues – Total revenues include all anticipated operating and maintenance revenues required to balance total expenses.

Studies

Chapter 3 presented additional recommendations beyond service improvements; recommendations related to organizational practices, external coordination, potential studies, and future improvements to technology, sustainability, and innovation are also included. Some recommendations would require funding to complete, including studies that would likely require consultant assistance. **Table 5-5** details cost and funding sources for potential studies over the TSP timeframe that do require funding. Funding split is anticipated to be 50 percent (50%) state and 50 percent (50%) local based on DRPT's Technical Assistance funding program.

TABLE 5-5: STUDIES COSTS AND REVENUES (YOE$)

	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034
Study Expenses										
Improving the Operator Work Environment		$75,000								
Sustainability and Innovation Study		$150,000								
External Partnerships for On-Demand /Microtransit Assessment			$275,000							
Fleet and Facility Determination				$150,000						
Route and Service Adjustment Assessment					$300,000					
Service Equity Study							$150,000			
Community Survey: Transit Needs Study								$150,000		
FXBGO! Transitioning to a Large UZA Study									$150,000	
Transit Strategic Plan: 2034-2043										$400,000
Total Costs	**$0**	**$225,000**	**$275,000**	**$150,000**	**$300,000**	**$0**	**$150,000**	**$150,000**	**$150,000**	**$400,000**
Anticipated Funding Sources										
Federal	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
State	$0	$112,500	$137,500	$75,000	$75,000	$0	$75,000	$75,000	$75,000	$200,000
Local	$0	$112,500	$137,500	$75,000	$75,000	$0	$75,000	$75,000	$75,000	$200,000

1. Studies assume 50% state funding and 50% local funding.

5.2 Capital Purchase Costs and Funding Sources

The anticipated capital costs presented in this section are organized into vehicle purchase costs and funding sources and facility improvement and other capital costs and funding sources. Costs are driven by the implementation plan presented in Chapter 4, which has additional information regarding the planning of these capital costs.

5.2.1 VEHICLE PURCHASE COSTS AND FUNDING SOURCES

The projected vehicle purchases from replacement and expansion is shown in **Table 5-6**. Vehicle needs range from a low of two (2) vehicles in FY 2029 to a high of sixteen (16) in FY 2030, when eleven (11) Cutaway Medium-Duty vehicles are planned for replacement. The greatest vehicle purchase need from expansion occurs in FY 2028, with five (5) vehicles required for improving headways on the F routes in FY 2029 and one (1) vehicle required for improving headways on Route S4. Funding sources for vehicles is expected to come from a split of federal, state, and local sources. FY 2025 funding levels are from the FY 2025 FXBGO! proposed budget. FY 2026 – FY 2034 anticipate FTA 5339 grants for Buses and Bus Facilities Program, giving a 28 percent (28%) federal, 68 percent (68%) state, and four percent (4%) local funding distribution. Overall, FXBGO! projects an annual average of $2,196,000 in vehicles per year over the TSP timeframe. The local responsibility for this amount averages to $88,000 annually assuming the local share is four percent (4%) of total costs.

TABLE 5-6: PROJECTED VEHICLE PURCHASES ($1000S. YOE$)

	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034
Vehicle Count										
Revenue Vehicle (Cutaway Medium Duty)	8	1	1	5	1	11	5	13	3	1
Revenue Vehicle (Heavy-Duty Bus)		2		2						
Support Vehicle (Pool Vehicles)	1	4	2			4	2		4	2
Support Vehicle (Service Vehicles)		1	1		1	1	1		2	1
Total Vehicles	**9**	**8**	**4**	**7**	**2**	**16**	**8**	**13**	**9**	**4**
Vehicle Costs										
Revenue Vehicles Cost	$2,000	$1,451	$289	$2,919	$334	$3,948	$1,929	$5,392	$1,338	$479
Support Vehicles Cost	$50	$269	$173	$0	$67	$359	$232	$0	$535	$288
Total Cost	**$2,050**	**$1,720**	**$462**	**$2,919**	**$401**	**$4,307**	**$2,161**	**$5,392**	**$1,873**	**$767**
Anticipated Funding Sources										
Federal	$469	$482	$129	$817	$112	$1,206	$605	$1,510	$524	$215
Van Pool Alliance	$375	$0	$0	$0	$0	$0	$0	$0	$0	$0
State	$1,139	$1,170	$314	$1,985	$273	$2,929	$1,469	$3,666	$1,273	$521
Local Total	$67	$69	$18	$117	$16	$172	$86	$216	$75	$31
Total Revenue	**$2,050**	**$1,720**	**$462**	**$2,919**	**$401**	**$4,307**	**$2,161**	**$5,392**	**$1,873**	**$767**

1. Vehicle costs identified in Chapter 4 of TSP.
2. FY 2025 is from FXBGO! FY 2025 Proposed Budget.
3. FY 2026-FY 2034 assume 28% funding from FTA (Section 5339), 68% funding from state, and 4% from local sources.
4. Vehicle costs assume a 7.5% annual inflation factor.

5.2.2 FACILITY IMPROVEMENT AND OTHER CAPITAL COSTS AND FUNDING SOURCES

In addition to vehicle purchase costs, there are various facility, passenger amenity, sustainability, innovation and technology costs required over the TSP timeframe. **Table 5-7** shows the total capital costs from Chapter 4 balanced with the anticipated funding sources. FY 2025 funding sources and levels are from the FY 2025 FXBGO! proposed budget. FY 2026 – FY 2034 assume FTA 5339 grants for Buses and Bus Facilities Program, giving a 28 percent (28%) federal, 68 percent (68%) state, and four percent (4%) local funding distribution. Facility and other capital costs are expected to highest during the early years of the TSP, with FY 2025 at $3,130,000 (primarily due to the intelligent transportation system) and FY 2026 at $1,872,000 (primarily from the church purchase). FY 2027 – FY 2034 fluctuate based on furniture and fixture purchases but average $127,000 annually.

TABLE 5-7: FACILITY IMPROVEMENTS AND OTHER CAPITAL COSTS ($1000S. YOE$)

	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034
Capital Costs										
Facility Costs										
Maintenance Facility Bus Canopy	$160									
Operations and Maintenance Facilities Pavement Resurfacing	$240									
Church Property Purchase		$1,750								
FXBGO! Central HVAC Replacement	$200									
FXBGO! Central Roof Replacement	$75									
Shop Equipment and Parts		$40	$41	$42	$43	$45	$47	$49	$51	$53
Vehicle Equipment	$10									
Passenger Amenity Costs										
Furniture and Fixture		$26		$28		$30		$32		$34
Shelters and Benches	$30	$31	$32	$33	$34	$36	$36	$37	$38	$39
Technology Costs										
Communication and EDP Equipment		$25	$26	$27	$28	$29	$30	$31	$32	$33
Driving Simulator	$215									
Intelligent Transportation System	$2,200									
Total Capital Costs	**$3,130**	**$1,872**	**$99**	**$130**	**$105**	**$140**	**$113**	**$149**	**$121**	**$159**
Anticipated Funding Sources										
Federal	$260	$524	$28	$36	$29	$39	$32	$42	$34	$45
Vanpool Alliance	$2,200	$0	$0	$0	$0	$0	$0	$0	$0	$0
State	$632	$1,273	$67	$88	$71	$95	$77	$101	$82	$108
Local Total	$37	$75	$4	$5	$4	$6	$5	$6	$5	$6
Revenue Total	$3,130	$1,872	$99	$130	$105	$140	$113	$149	$121	$159

1. Facility improvement costs identified in Chapter 4
2. Intelligent transportation system assumes 100% Van Pool Alliance funding, with a third-party in-kind or “soft” match.
3. All other capital costs assume 28% federal funding (Section 5339), 68% state, and 4% local.
4. All costs in $1,000s.

FXBGO!

Fredericksburg Regional Transit

Transit Strategic Plan

Appendix A: Agency Profile and System Overview

FINAL: June 2024

FXBGO!
Fredericksburg Regional Transit

Table of Contents

A Appendix A

A.1 History

FXBGO! was formed in 1996 to provide public transit service to the City of Fredericksburg. The original system consisted of four (4) routes and five (5) vehicles. The system has grown significantly over the years into a regional system of 17 routes (14 local service routes across the City of Fredericksburg and Stafford and Spotsylvania Counties and three (3) VRE feeder routes[1]) with 30 revenue vehicles. The following milestones show FXBGO!'s incremental growth from a local transit system to a regional transit provider.

- 1996 – FXBGO! is formed to provide service to residents of the City of Fredericksburg, originally under the monicker "FRED".
- 1997 – FXBGO! becomes the local ticketing agent for Greyhound.
- 1998 – FXBGO! expands service to Spotsylvania County.
- 1999 – FXBGO! Express begins weekend operations for the University of Mary Washington.
- 2001 – FXBGO! expands service to Stafford County.
- 2002 – FXBGO! expands service to Caroline County.
- 2005 – FXBGO! expands service into northern Stafford County and King George County (King George County has since discontinued FXBGO! service due to budget constraints).
- 2007 – FXBGO! begins feeder service for the Virginia Railway Express.
- 2007 – FXBGO! opens the Lawrence A. Davies Transit Center (Central).
- 2015 – FXBGO! opens the Maintenance and Training Facilities at the Bowman Center
- 2019 – FXBGO! discontinues service to Caroline County.
- 2020 – FXBGO! temporarily discontinued VRE feeder service and reduced service in response to the COVID-19 pandemic.
- 2022 – FXBGO! received a Virginia Department of Rail and Public Transportation (DRPT) Zero and Reduced Fare Transit Ridership Incentive Program (TRIP) grant allowing FXBGO! to run fare-free service through 2026.
- 2022 – FXBGO! underwent a rebranding process, changing its branding and dropping the monicker "FRED."

A.2 Governance

FXBGO! is a department of the City of Fredericksburg and is governed by Fredericksburg's City Council. As a city department, FXBGO! is directly managed and operated by City of Fredericksburg employees. The Director of Public Transit reports directly to the Assistant City Manager who reports to the City Manager. The organizational structure for the program is shown in **Figure A-1**. FXBGO! also takes advice and direction from the Public Transit Advisory Board (PTAB). The purpose of the PTAB is, "to provide citizen and private and public partner input on the public transit needs of the City and the region; to evaluate the operational and financial performance of the region's public transit system; and to advise the City Council on any public transit issues that the PTAB considers appropriate for City Council consideration."

The PTAB consists of one member from:

- Each locality that receives transit services from FXBGO! (City of Fredericksburg, Spotsylvania County, and Stafford County)

[1] *Beginning in 2020 and as of April 2024, VRE feeder service has been suspended. Some of the local routes have been temporarily divided into multiple service patterns or combined due to operational considerations. This is described in more detail in Chapter 2.*

- Any private partner contributing $25,000 or more to FXBGO! per year in cash or in-kind match. As of January 2023, the list of private contributors are Mary Washington Healthcare, University of Mary Washington, and Germanna Community College.
- Fredericksburg Area Metropolitan Planning Organization
- The Fredericksburg Area Chamber of Commerce
- The George Washington Regional Commission
- The disAbility Resource Center
- Citizen Representatives.

The PTAB also has four (4) non-voting members:

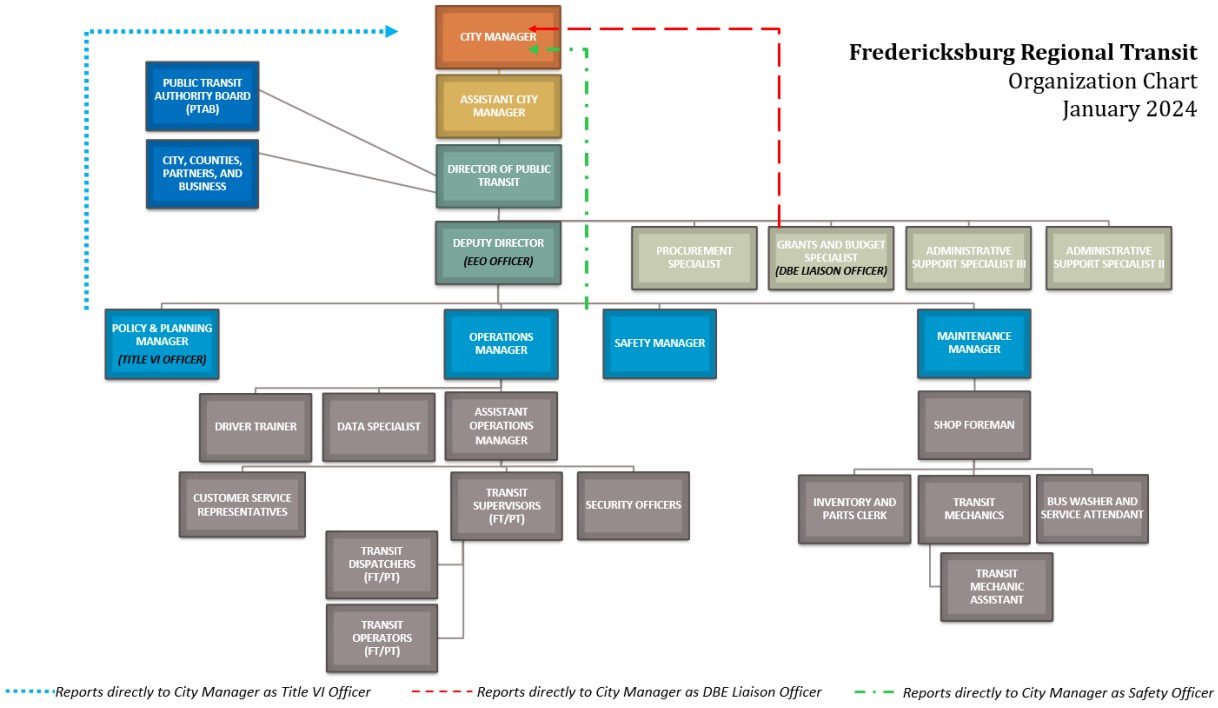
- Healthy Generations Area Agency on Aging
- George Washington Regional Commission
- Virginia Railway Express
- Fredericksburg Area Metropolitan Planning Organization

The PTAB meetings are held on the first Wednesday of February, April, June, July, August, October, and December at FXBGO!'s Operations/Training Building at the Bowman Center. Members of the PTAB serve as advisories for development of the Transit Strategic Plan (TSP) as participants of the stakeholder committee.

A.3 Organizational Structure

FXBGO! operates under the City of Fredericksburg's City Manager with the Director of Public Transit serving as FXBGO!'s lead management staff. There are five (5) additional management-level staff. In total, FXBGO! has 52 full-time employees, according to the City of Fredericksburg's proposed FY 2025 budget. The City of Fredericksburg directly operates FXBGO! without any outside contracted transportation services. FXBGO! transit operators and maintenance technicians are not unionized. The FXBGO! organizational chart, as of January 2024, is shown in **Figure A-1**.

FIGURE A-1: FXBGO! ORGANIZATION CHART (JANUARY 2024)



A.4 Services Provided and Areas Served

FXBGO! provides local bus services across the City of Fredericksburg and the counties of Stafford and Spotsylvania. FXBGO! operates deviated fixed route service which allows buses to travel up to 0.75 miles off the standard route.

FXBGO! serves a 242-square-mile area within the greater Fredericksburg region, operating within the City of Fredericksburg, Stafford County, and Spotsylvania County. As of Fall 2022, FXBGO! operates 17 routes (not including additional patterns). Service is primarily provided Monday through Friday from 6:30 a.m. to 8:30 p.m., with most routes operating on hourly headways. Late night and weekend service is provided 7:00 p.m. to 12:30 a.m. on Friday, 8:00 a.m. to 10:30 p.m. on Saturday, and 9:00 a.m. to 6:30 p.m. on Sunday through an agreement with University of Mary Washington via the “Eagle Express” (EX). The EX Route service is limited to fall and spring academic sessions.

FXBGO! had to pair back service and change operational practices due to the COVID-19 pandemic including:

- Temporarily suspending VRE feeder routes
- Decreasing frequencies and combing Route D3 and Route D5
- Decreasing frequencies and combing Route S4 and Route S5
- Suspending fare collection
- Reduction of service span

In the following years, FXBGO! has begun recovering towards pre-pandemic levels of service: combined Route S4/S5 has been decoupled and hourly service has been restored, fare-free service has been extended through FXBGO! receiving DRPT’s TRIP Zero and Reduced Fares grant, and the service span of certain routes have been extended. The reversal of additional COVID-19 service reductions are planned for the upcoming years.

Table A-1 provides an overview of FXBGO!’s services. Major destinations for each route are displayed in the route sheets listed further down in this section. An in-depth service analysis is provided in Chapter 2: System Performance and Operations Analysis.

TABLE A-1: FXBGO! SERVICE SUMMARY

Route No.	Area Served	Service Hours	Frequency
D1	South Stafford County	8:00 a.m. – 7:00 p.m.	60 minutes
D2	South Stafford County	7:00 a.m. – 8:00 p.m.	60 minutes
D3*	North Stafford County	7:00 a.m. – 8:00 p.m.	120 minutes
D4	North Stafford County	8:50 a.m. – 4:20 p.m.	60 minutes
D5*	South Stafford County	7:00 a.m. – 8:00 p.m.	120 minutes
F1	Fredericksburg	8:30 a.m. – 7:30 p.m.	60 minutes
F2	Fredericksburg	6:30 a.m. – 8:30 p.m.	60 minutes
F3	Fredericksburg	6:30 a.m. – 8:30 p.m.	60 minutes
F4A**	Fredericksburg	6:30 a.m. – 8:30 p.m.	60 minutes
F4B**	Fredericksburg	8:30 a.m. – 4:30 p.m.	60 minutes
F5	Fredericksburg	7:30 a.m. – 8:30 p.m.	60 minutes
S1A***	Spotsylvania County	8:00 a.m. – 8:00 p.m.	60 minutes
S1B***	Spotsylvania County	9:00 a.m. – 5:00 p.m.	60 minutes
S4	Spotsylvania County	8:00 a.m. – 8:00 p.m.	60 minutes
S5	Spotsylvania County	8:30 a.m. – 7:30 p.m.	60 minutes
EX	Eagle Express	Friday: 7:00 p.m. – 12:30 a.m. Saturday: 8:00 a.m. – 10:30 p.m. Sunday: 9:00 a.m. – 6:30 p.m.	30 minutes
VF1	*Temporarily Suspended*		
VF2			
VS1			

1. Route D3 and Route D5 are combined and operate on a temporary, modified, two-hour headway
2. Route F4 operates in two (2) separate operational patterns, each with one-hour headways: F4A and F4B. The two (2) patterns then combine into one (1) route at 4:30 p.m.
3. Route S1 operates in two (2) separate operational patterns, each with one-hour headways: S1A and S1B.
4. Routes and service hours listed are current as of May 2024.

A.4.1 F1: CENTRAL STATION – CENTRAL PARK – SPOTSYLVANIA TOWNE CENTER

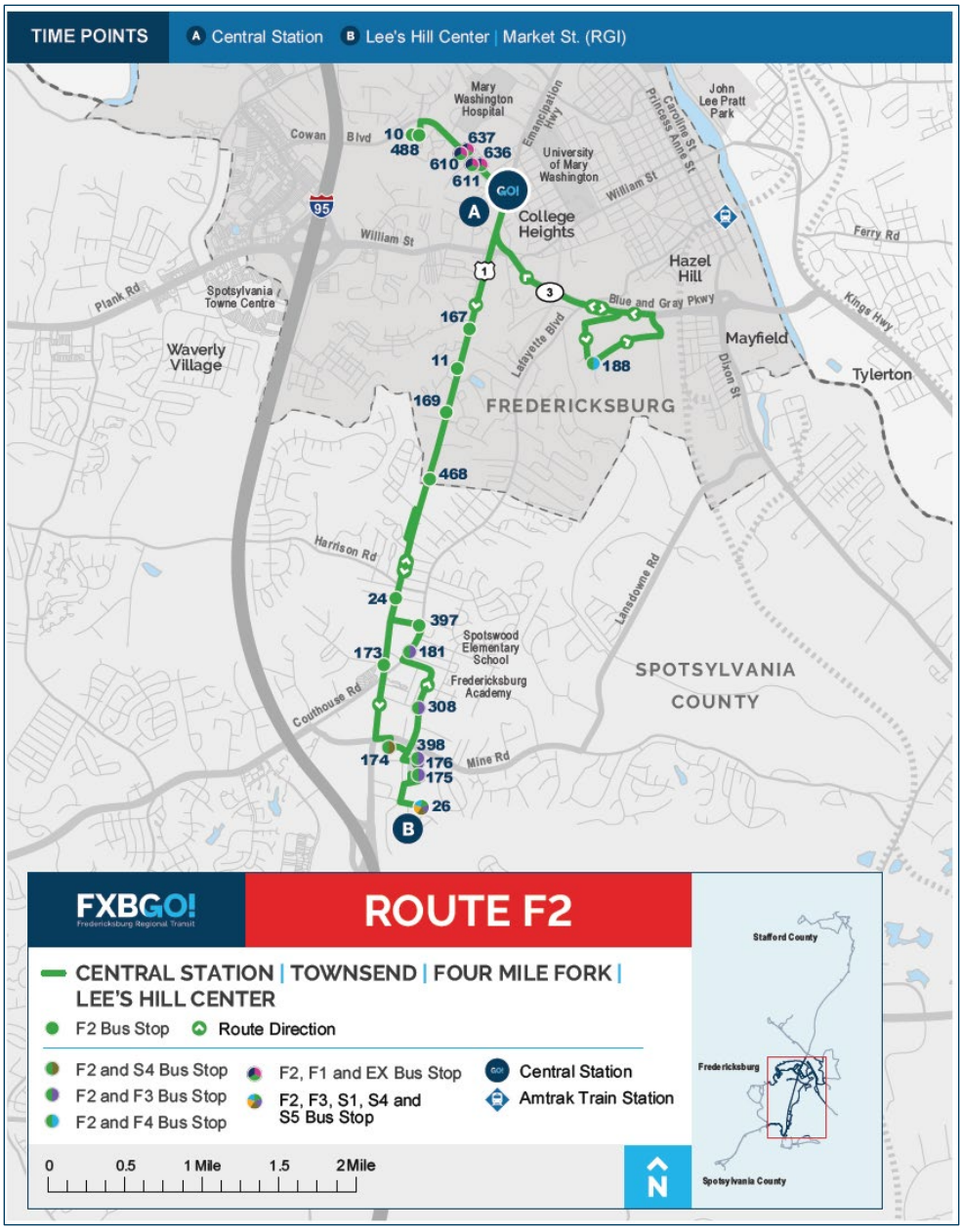
Route F1 originates at Central and proceeds to serve the Greenbrier Shopping Center along William Street before turning back towards Central. The route then continues along Cowan Boulevard hitting multiple, large retailers along Central Park Boulevard until reaching Spotsylvania Towne Centre. The route makes several stops in large commercial areas and provides connections to apartment communities along Cowan Boulevard and Central. The Route F1 alignment is detailed in **Figure A-2.**

FIGURE A-2: F1 ROUTE ALIGNMENT

A.4.2 F2: CENTRAL STATION – TOWNSEND – FOUR MILE FORK – LEE'S HILL CENTER

Route F2 operates between Central Station and the Lee's Hill Transit Center in Spotsylvania County. The route travels primarily along US Route 1 and provides access to several shopping centers, apartment complexes, light industrial areas, and the recently constructed Lee's Hill Transit Center where passengers can transfer to all Spotsylvania routes. **Figure A-3** displays Route F2's alignment.

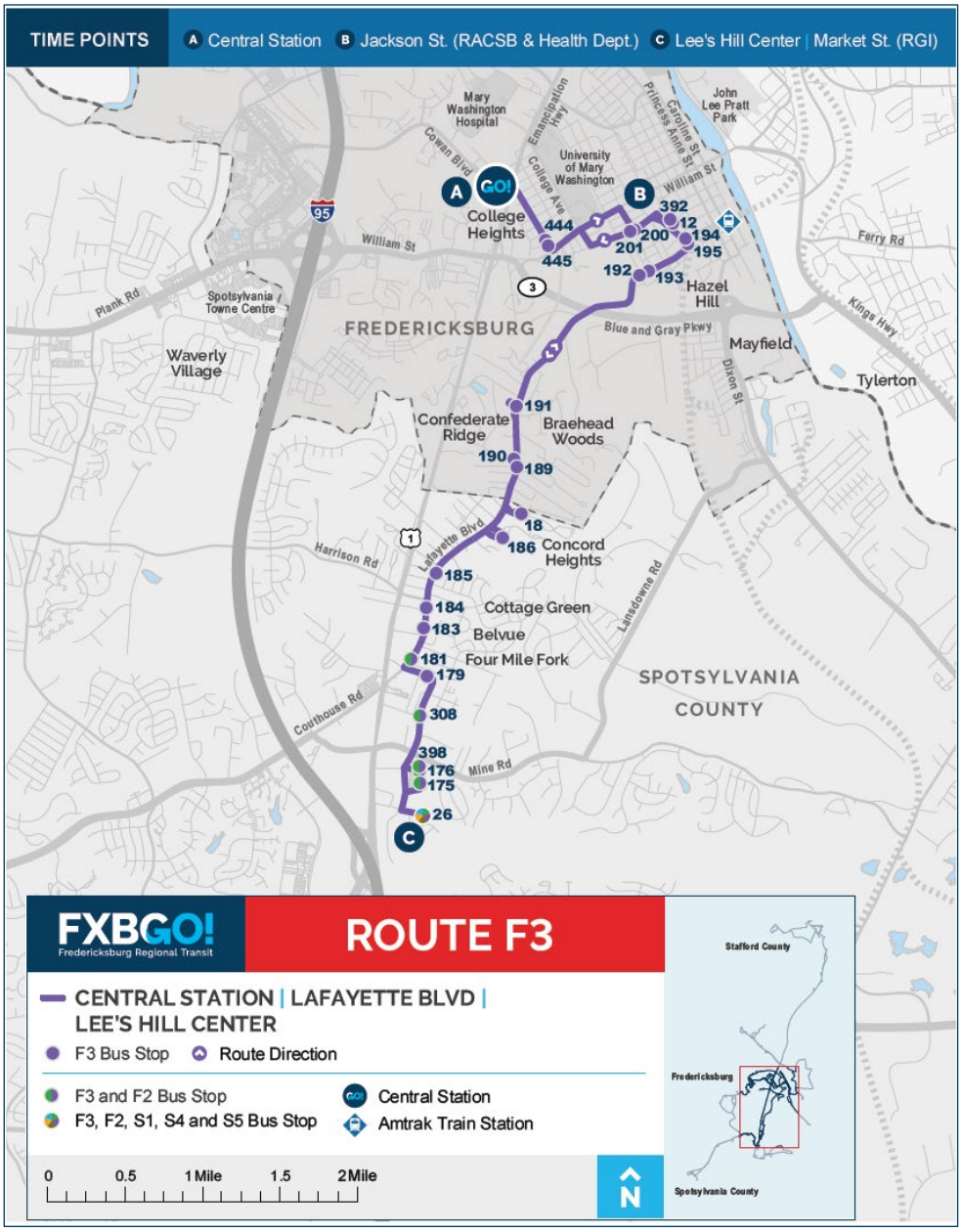
FIGURE A-3: F2 ROUTE ALIGNMENT



A.4.3 F3: CENTRAL STATION – LAFAYETTE BLVD – LEE'S HILL CENTER

Route F3 also operates between Central and Lee's Hill Transit Center, but the route primarily runs along Lafayette Boulevard and enters downtown Fredericksburg. The route serves the many residential and commercial developments along Lafayette Boulevard and stops at the Fredericksburg Department of Social Services. Additionally, Route F3 provides a direct connection between two large transfer stations, Central and Lee's Hill Transit Center, allowing passengers the ability to access most of FXBGO!'s service network.

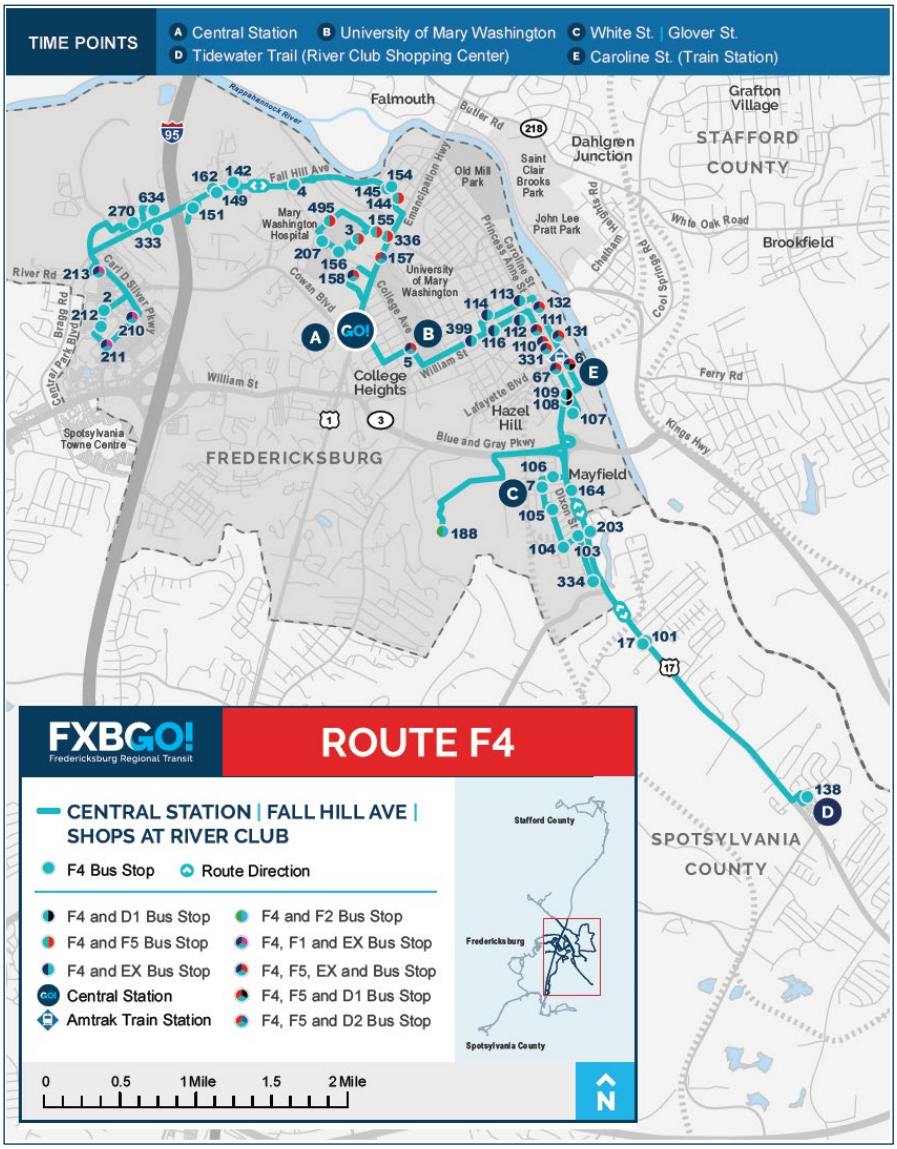
FIGURE A-4: F3 ROUTE ALIGNMENT



A.4.4 F4A: CENTRAL STATION – FALL HILL AVE –RIVER CLUB SHOPPING CENTER

Route F4 has been split into two distinct operating patterns with Central serving as the meeting point. Route F4A serves downtown Fredericksburg and stops at multiple highly visited destinations including University of Mary Washington, the Fredericksburg VRE/Amtrak Station, and the downtown loop. The route then continues down Dixon Street, crossing into Spotsylvania County, until reaching the River Club Shopping Center. Riders can access multiple public amenities and points of interest from the southern portion of the route including the Fredericksburg Regional Food Bank, Dixon Park, and the Fredericksburg Fairgrounds. The route alignment for the entirety of Route F4, including Route F4A's alignment, is detailed in **Figure A-5.**

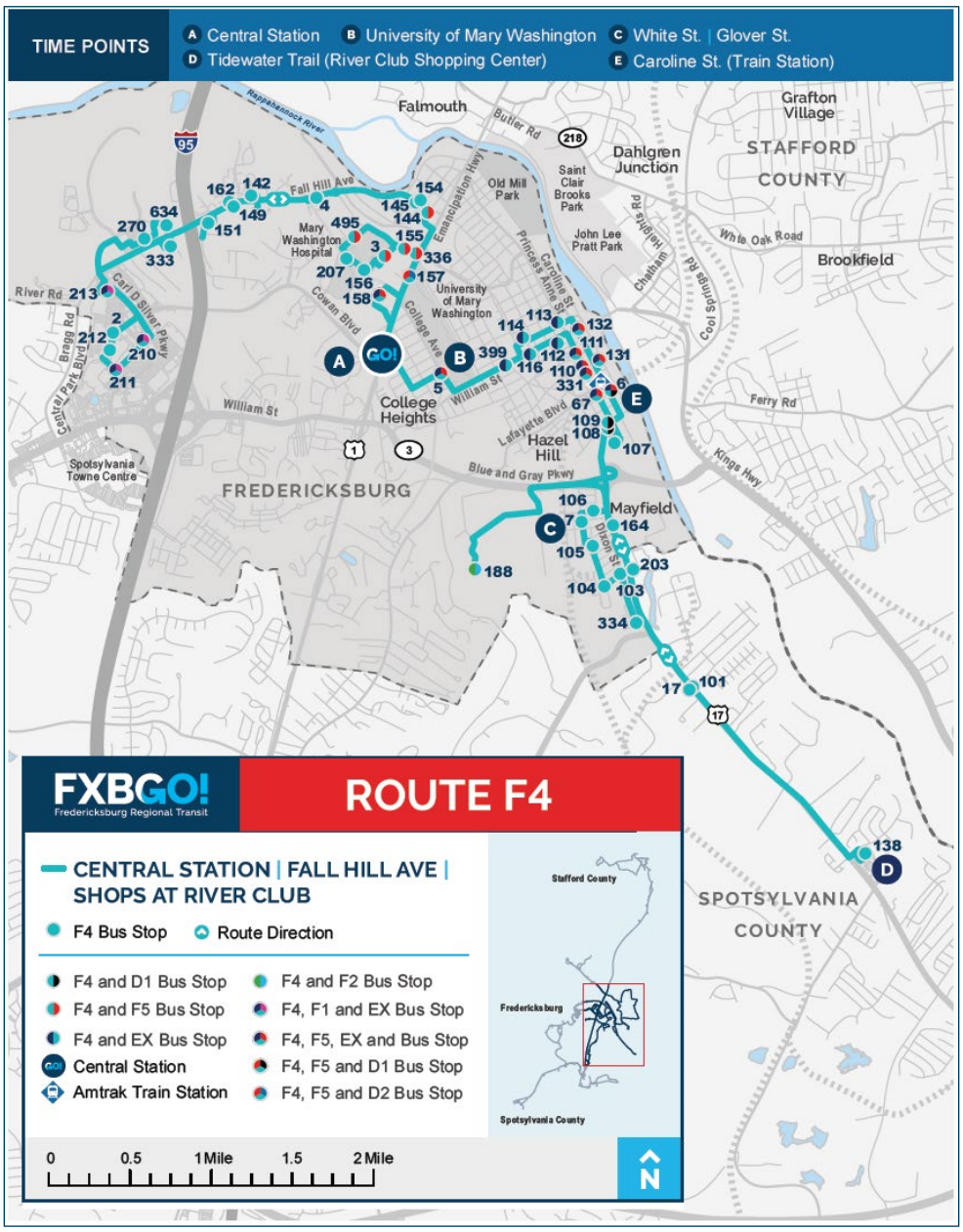
FIGURE A-5: F4 AND F4A ROUTE ALIGNMENTS



A.4.5 F4B: MARY WASHINGTON HOSPITAL – CENTRAL STATION – FOREST HILL APARTMENTS

Route F4 has been split into two distinct operating patterns with Central serving as the meeting point. The F4B route departs Central where it serves a loop around the Mary Washington Hospital and then travels along Fall Hill Avenue until reaching the shopping centers around Central Park Boulevard. Riders on this route can access the medical services provided by the hospital and the commercial areas in western Fredericksburg, including multiple grocery stores. The route alignment for the entirety of the F4 route, including the F4B pattern, is detailed in **Figure A-6.**

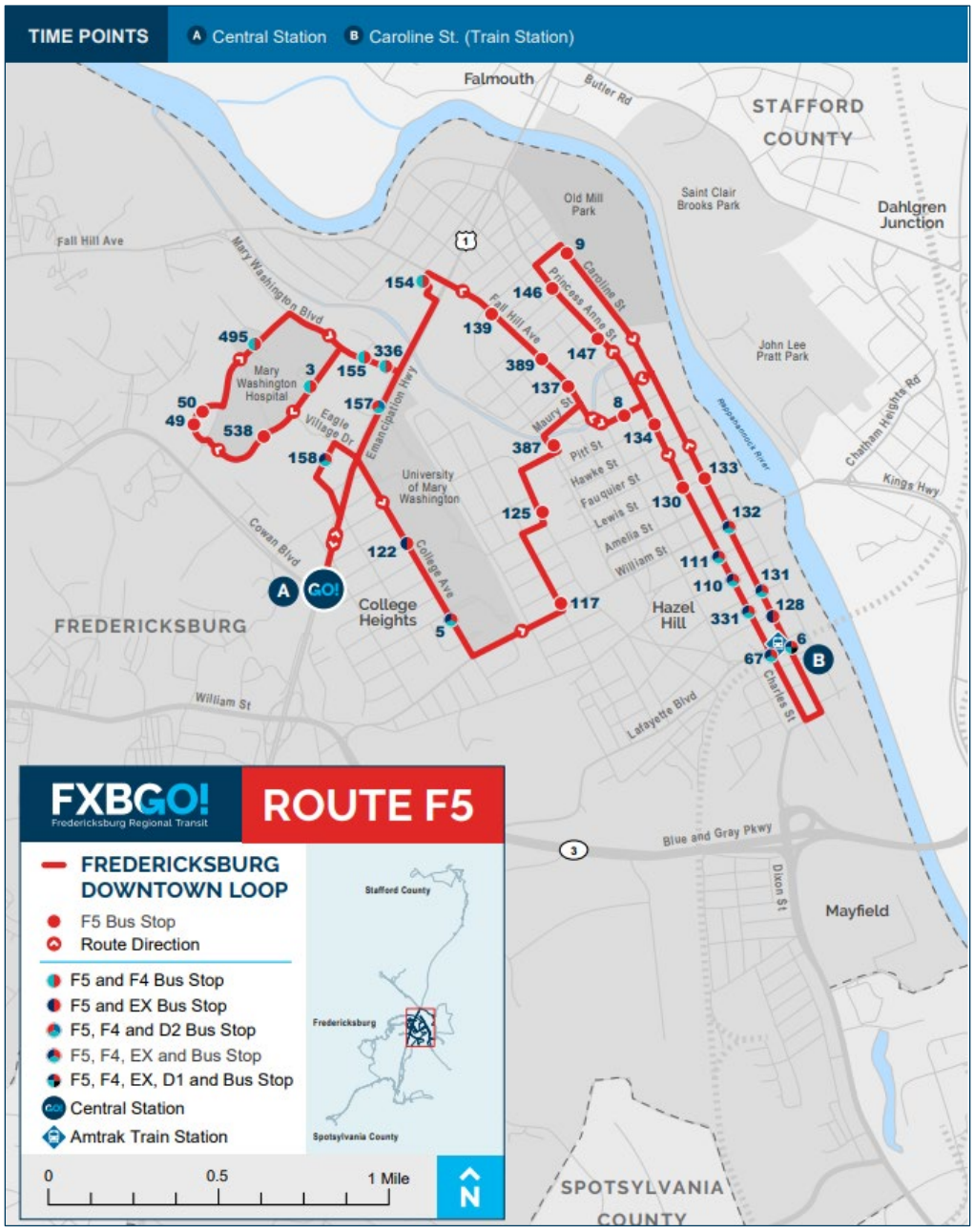
FIGURE A-6: F4 AND F4B ROUTE ALIGNMENTS



A.4.6 F5: FREDERICKSBURG DOWNTOWN LOOP

Route F5 serves downtown Fredericksburg with stops at high-traffic locations including Central, Mary Washington Hospital, the Fredericksburg VRE/Amtrak Station, and the University of Mary Washington. Route F5 operates in a series of one-way loops around downtown Fredericksburg, Mary Washington Hospital, and the University of Mary Washington with the circulator service beginning and terminating at Central. The alignment for Route F5 route can be seen in **Figure A-7**.

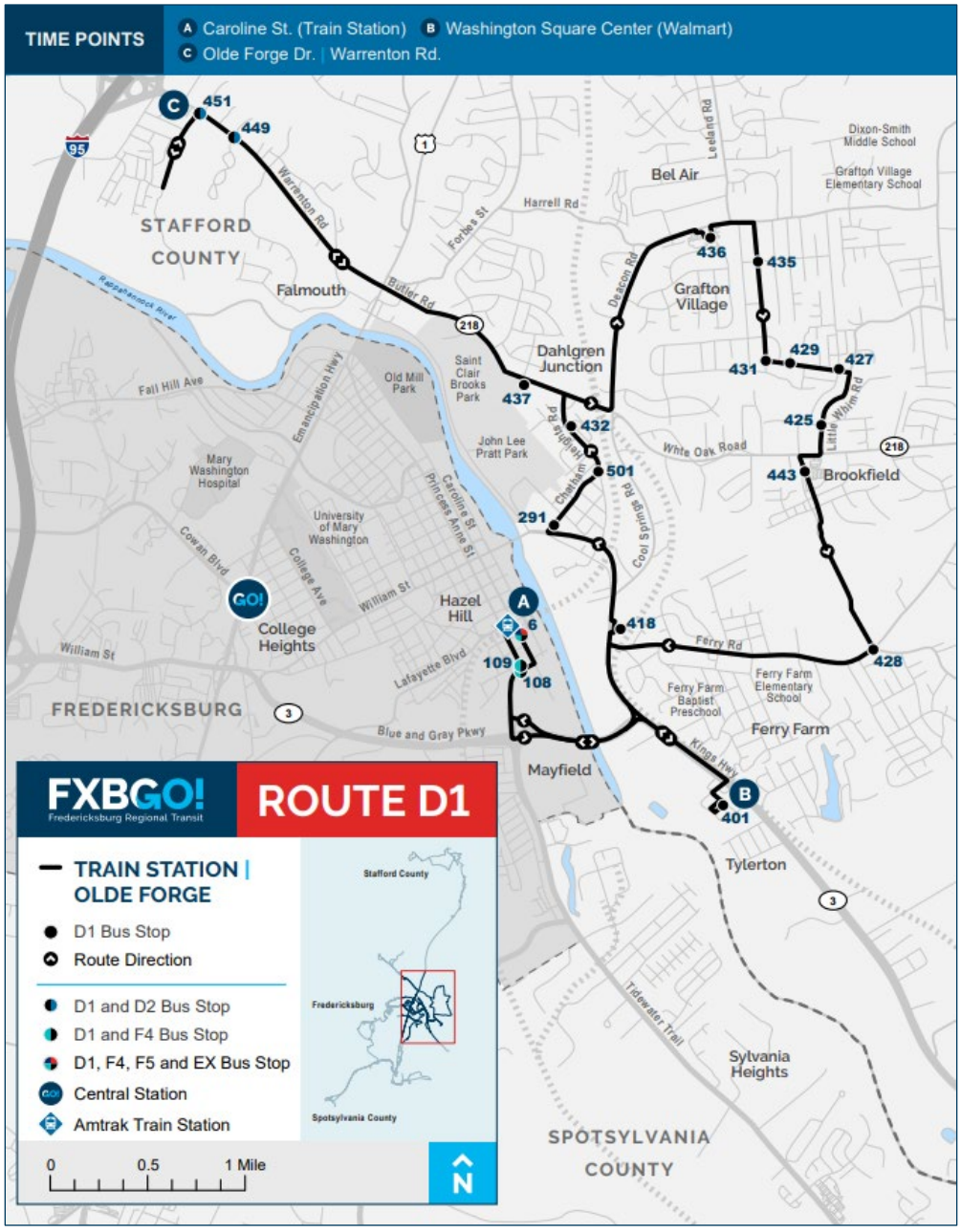
FIGURE A-7: F5 ROUTE ALIGNMENT



A.4.7 D1: FREDERICKSBURG VRE/AMTRAK STATION – OLDE FORGE

Route D1 operates between the Fredericksburg VRE/Amtrak Station and Olde Forge Drive in Stafford County. Route D1 operates primarily along Route 3 and Route 218 with a one-way, clockwise loop around the Stafford County community of Brookfield. Route D1 provides riders with access to multiple commercial areas in southern Stafford County including two stops at the Washington Square Center Walmart Supercenter. The alignment for Route D1 is displayed in **Figure A-8.**

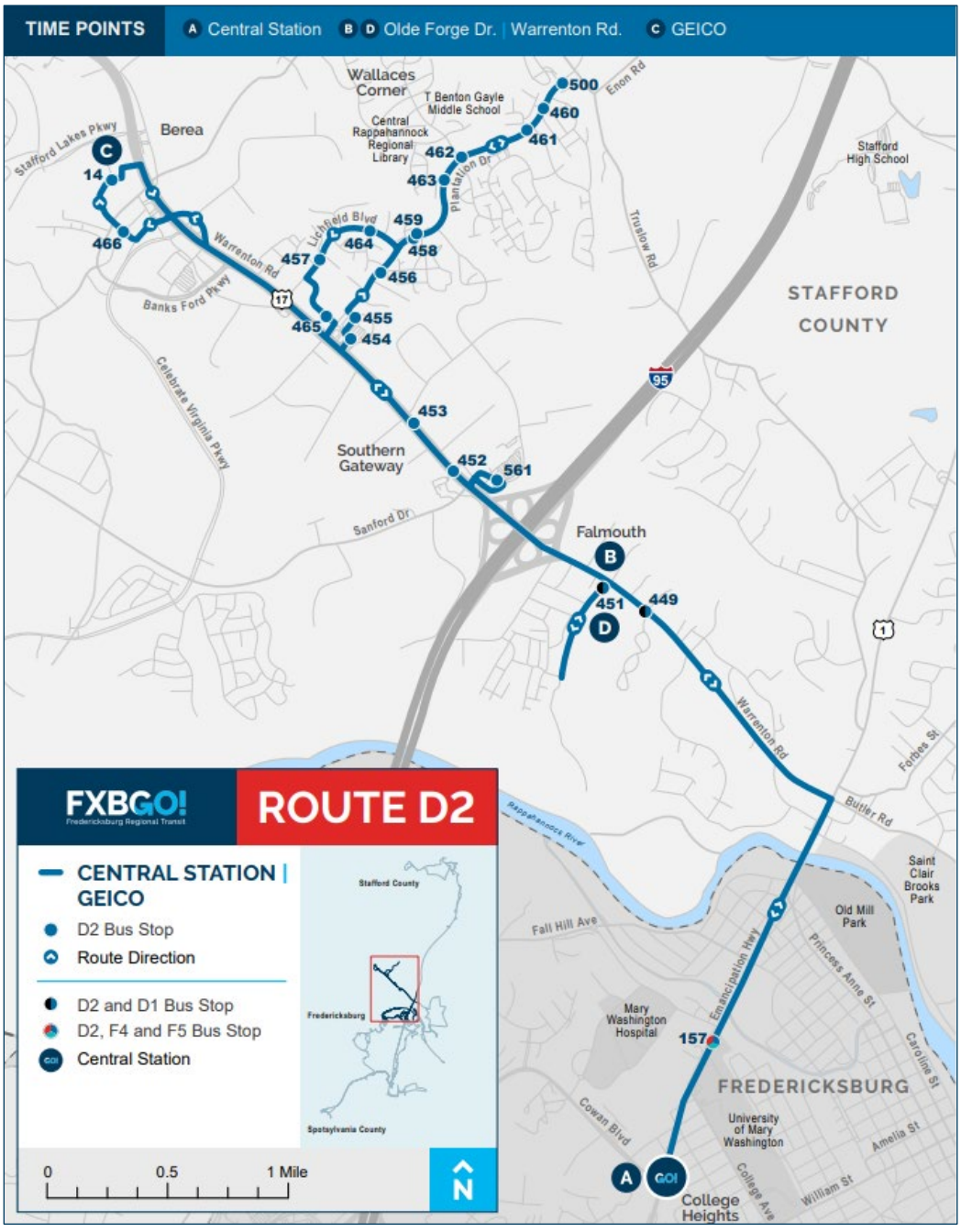
FIGURE A-8: D1 ROUTE ALIGNMENT



A.4.8 D2: CENTRAL STATION – GEICO

Route D2 operates from Central to the GEICO corporate offices in Stafford County. The route runs along Emancipation Highway from Central before turning onto Warrenton Road until reaching the GEICO offices. The route also takes a turn onto Plantation Drive and Lichfield Boulevard servicing multiple multi-family housing communities and the Howell Branch of the Central Rappahannock Regional Library. Route D2's alignment is displayed in **Figure A-9.**

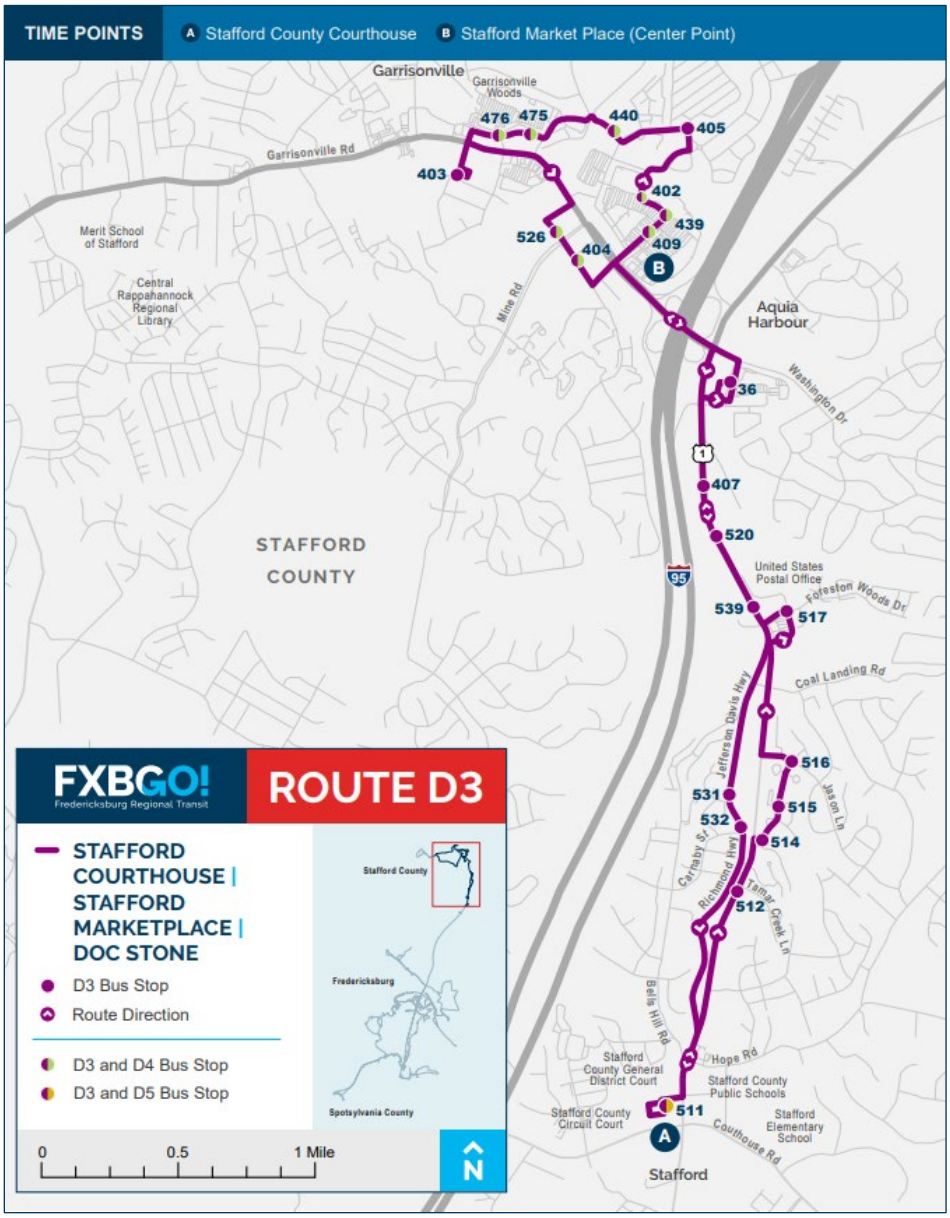
FIGURE A-9: D2 ROUTE ALIGNMENT



A.4.9 D3: STAFFORD COUNTY COURTHOUSE – STAFFORD MARKETPLACE – DOC STONE

Route D3 operates service between the Stafford County Courthouse and Government Center and the Stafford Market Place shopping area near Garrisonville in northern Stafford County. The route runs primarily along US Route 1 between the two ends, exiting US Route 1 to circulate around commercial areas along the route. Route D3 provides connections to Route D4 at its northern end and Route D5 at its southern end, making FXBGO!'s network completely connected. Riders can also access the Staffordboro Commuter Lot on the northern end of the route providing connections to OmniRide's commuter routes and GWRideConnect services. Route D3's alignment is detailed in **Figure A-10.**

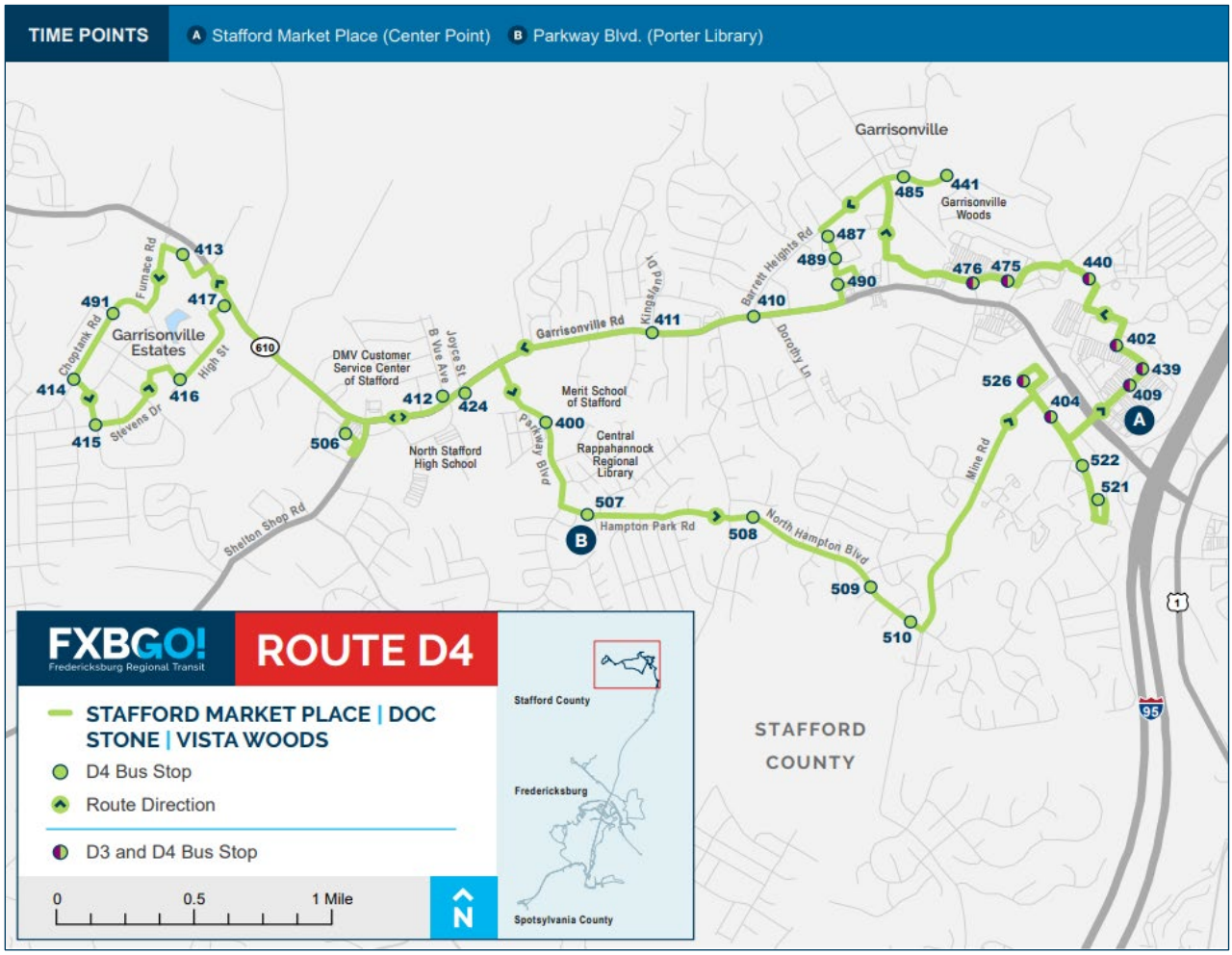
FIGURE A-10: D3 ROUTE ALIGNMENT



A.4.10 D4: STAFFORD MARKET PLACE – DOC STONE – VISTA WOODS

Route D4 provides circulator service to northern Stafford County, connecting the large commercial areas off I-95 with the nearby residential neighborhoods along Garrisonville Road. Route D4 operates primarily in a counterclockwise loop with stops at North Stafford High School and The Merit School, a Walmart Neighborhood Market & Walmart Supercenter and commercial retailers, and Porter Branch of the Central Rappahannock Region Library. Route D4 also provides service to the Staffordboro Commuter Lot on the northern end of the route which provides connections to OmniRide commuter routes and GWRideConnect services. Route D4's alignment is illustrated in **Figure A-11.**

FIGURE A-11: ROUTE D4'S ALIGNMENT



A.4.11 D5: CENTRAL STATION – STAFFORD COUNTY COURTHOUSE

Route D5 operates between Central and the Stafford County Courthouse and Government Center. The route runs primarily along US Route 1, hopping off to serve the Rappahannock Regional Jail, Germanna Community College, and Stafford Hospital Center. Riders can transfer to Route D3 at the Stafford County Government Center to reach northern Stafford County. The route alignment for Route D5 is illustrated in **Figure A-12.**

FIGURE A-12: D5 ROUTE ALIGNMENT

A.4.12 S1A: LEE'S HILL CENTER – SALEM RUN APARTMENTS

Route S1 has been split into two distinct operating patterns with each pattern servicing different destinations along Route S1. Route S1A operates between Lee's Hill Center and Salem Run Apartments, servicing the neighborhoods surrounding Leavells Road and Salem Church Road. Route S1A interlines with Route S1B on Leavells Road and Salem Church Road between the Salem Run Apartments and Hilltop Plaza. Riders can transfer from Route S1A to Routes F2, F3, S4, and S5 at the Lee's Hill Center stop. Route S1A's and the entirety of Route S1's alignments are illustrated in **Figure A-13**.

FIGURE A-13: ROUTES S1 AND S1A ALIGNMENTS

A.4.13 S1B: HILLTOP PLAZA – SPOTSYLVANIA TOWNE CENTRE

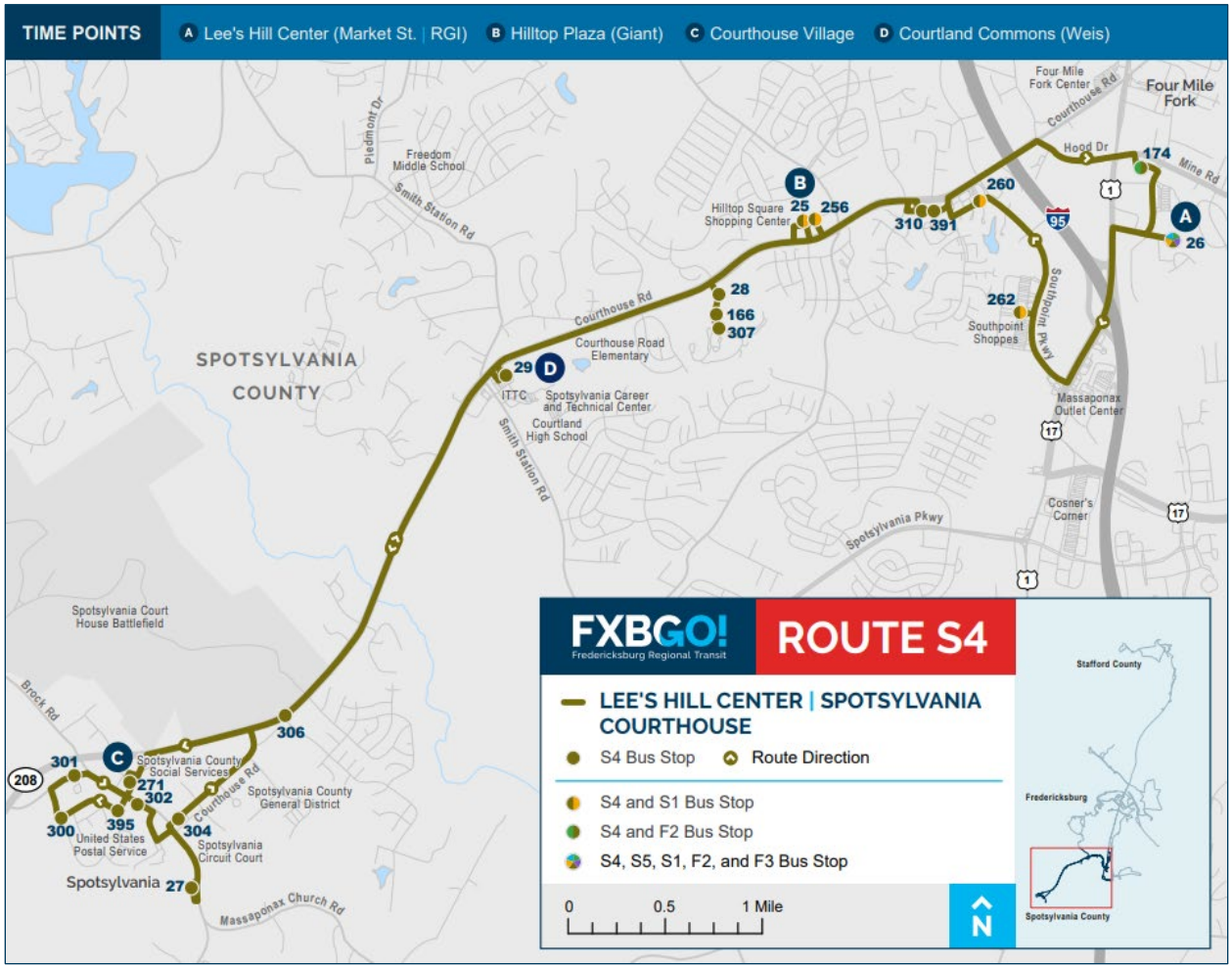
Route S1 has been split into two distinct operating patterns with each pattern servicing different destinations along Route S1. Route S1B operates between Spotsylvania Towne Centre and Hilltop Plaza, servicing the neighborhoods surrounding Salem Church Road. Route S1B interlines with Route S1A on Leavells Road and Salem Church Road between the Salem Run Apartments and Hilltop Plaza. Riders can transfer from Route S1B to Routes F1 and EX at the Spotsylvania Towne Centre Stop. Route S1B and the entirety of Route S1's alignments are illustrated in **Figure A-14.**

FIGURE A-14: ROUTE S1 AND S1B ALIGNMENTS

A.4.14 S4: LEE'S HILL CENTER – SPOTSYLVANIA COUNTY COURTHOUSE

Route S4 operates between Lee's Hill Center and the Spotsylvania County Courthouse, traveling primarily on Route 208. The route circulates around the Breezewood Shopping Center, Hilltop Plaza, and Courtland Commons near Cosner's Corners then turns onto Route 208 until reaching the Spotsylvania County Courthouse with stops at the Hilltop Square and Courtland Commons Shopping Centers. Riders on Route S4 can transfer to other FXBGO! routes at the Lee's Hill Center. The route alignment of Route S4 is displayed in **Figure A-15.**

FIGURE A-15: S4 ROUTE ALIGNMENT



A.4.15 S5: LEE'S HILL CENTER – GERMANNA COMMUNITY COLLEGE

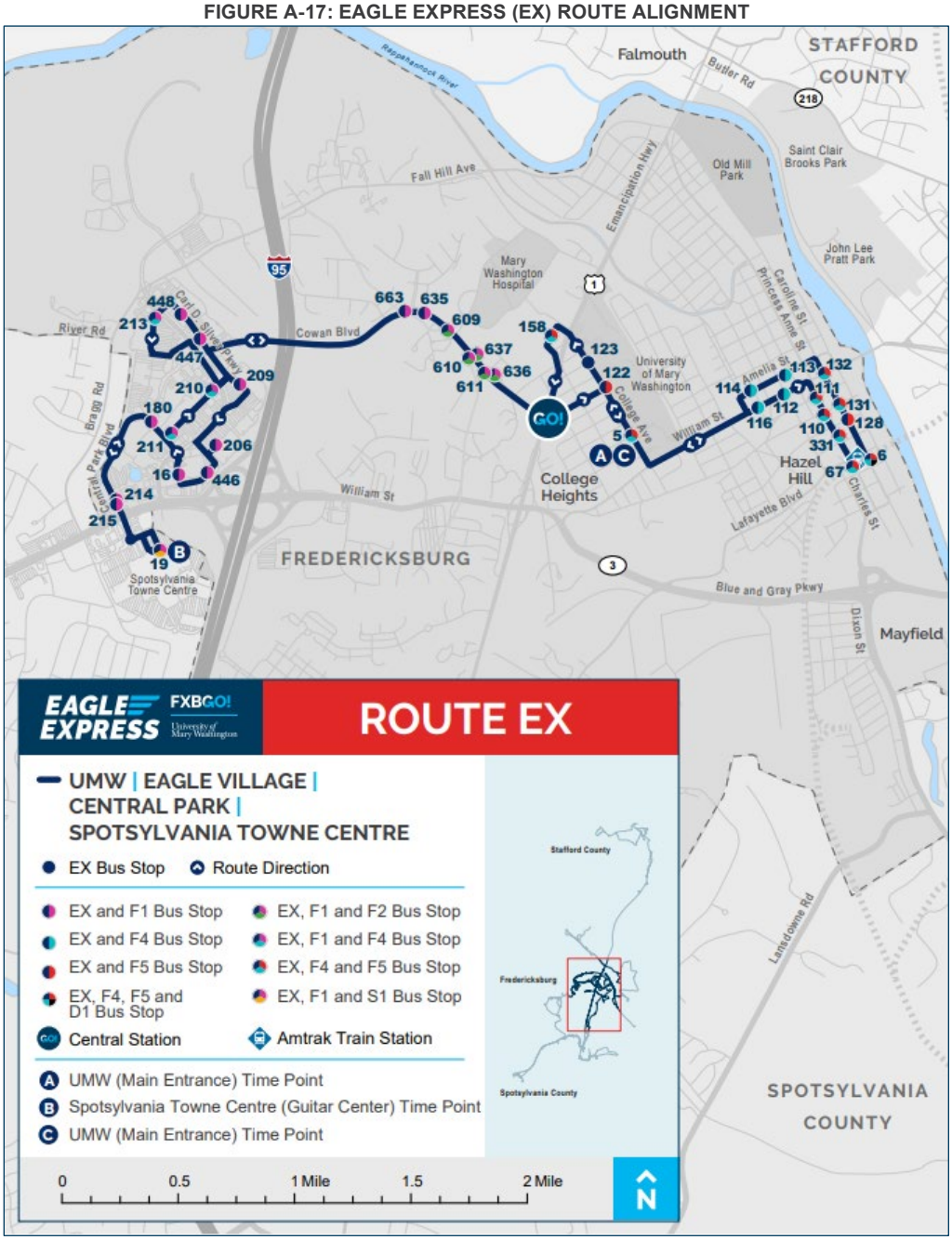
Route S5 operates around the Cosner Corner area of Spotsylvania County serving the major retailers in the area, the Spotsylvania Regional Medical Center, and Germanna Community College's Fredericksburg Area Campus. The route also performs a counterclockwise loop around the residential neighborhood east of the community college. Riders can transfer to the Fredericksburg Routes (F2 and F3) and other Spotsylvania County routes at the Lee's Hill Center. Route S5's alignment is illustrated in **Figure A-16.**

FIGURE A-16: S5 ROUTE ALIGNMENT

A.4.16 EAGLE EXPRESS (EX): UMW – EAGLE VILLAGE – CENTRAL PARK – SPOTSYLVANIA TOWNE CENTRE

Route EX operates between downtown Fredericksburg and Spotsylvania Towne Centre with service to Central at the center point of the route. The route only operates during University of Mary Washington's 's Fall and Spring academic semesters, and Route EX is the only route in FXBGO!'s network, as of the publication of this document, which has a frequency of 30 minutes. Route EX's alignment can be seen in **Figure A-17.**

FIGURE A-17: EAGLE EXPRESS (EX) ROUTE ALIGNMENT



A.5 Fare Structures, Payments, and Purchasing

FXBGO! began fare-free service in February 2022, which was made possible, in-part through a Department of Rail and Public Transportation (DRPT) Transit Ridership Incentive Program (TRIP) Grant. FXBGO! currently anticipates resuming fare collection in FY 2026 after the DRPT TRIP Grant expires near the end of FY 2026 and will be exploring options for different fare payment methods.

A.6 Transit Asset Management – Existing Fleet and Facilities

A.6.1 EXISTING FLEET

FXBGO!'s vehicle fleet consists of 38 vehicles; including, two (2) maintenance vehicles, six (6) carpool vehicles, and 30 revenue service vehicles. FXBGO!'s revenue service fleet consists of a mix of medium-duty and light-duty cutaway buses with makes from Chevy and Ford. FXBGO! is transitioning its revenue fleet towards larger, higher-capacity vehicles. FXBGO! will replace all light-duty cutaways in their fleet with medium-duty cutaways and plans to add heavy-duty transit buses to their fleet as well. **Table A-2** provides a summary of FXBGO!'s current revenue vehicle fleet.

The Federal Transit Administration (FTA) published a Final Rule for Transit Asset Management in July 2016 requiring FTA grant recipients to develop transit asset management plans. Agencies have the option of developing their own transit asset management (TAM) plan. In the Commonwealth of Virginia, FXBGO! is one of the operators opting to use DRPT's statewide Tier II TAM plan, which is permitted under the FTA rule. The TAM plan covers public transportation assets including vehicles, facilities, equipment, and other infrastructure. The latest edition of the statewide TAM plan was published in 2022 and covers FY 2022 through FY 2025.

TABLE A-2: FXBGO! REVENUE FLEET (NOVEMBER 2023)

Year	Type	Useful Life	Manufacturer	Model	Quantity
2017	Light-duty	5 Years	STR – Starcraft	Allstar	11
2019	Light-duty	5 Years	STR – Starcraft	Allstar	1
2019	Light-duty	5 Years	STR – Starcraft	Allstar	8
2021	Light-duty	5 Years	STR – Starcraft	Allstar	1
2022	Medium-duty	7 Years	ARBOC	Spirit of Mobility	9

Source: FXBGO! Maintenance Department

A.6.2 EXISTING FACILITIES

Central Station

The Lawrence A. Davies Transit Center, commonly known as "Central" is located at 1400 Emancipation Highway in Fredericksburg. The facility is owned by the City of Fredericksburg and houses FXBGO!'s administrative offices and main transfer facility. The transfer facility includes seven (7) bus bays, outdoor sheltered seating, an indoor waiting area, restrooms, vending machines, and a customer service office. While Central does have limited parking on site, FXBGO! has an informal agreement with the adjacent Kingdom Baptist Church for additional employee parking. Greyhound Lines, Inc. operates service from Central. There is no formal agreement for the operation of services.

Bowman Center Complex

The Bowman Center Complex is FXBGO!'s vehicle maintenance and operations/training facility. The complex was completed in 2015 and is located at 11710 & 11716 Main Street in an industrial complex in Spotsylvania County, just outside the City of Fredericksburg's limits. The facility consists of an operations building, a maintenance building, and covered parking for 25 transit vehicles.

The complete list of FXBGO!'s facilities registered in the DRPT statewide TAM plan are listed in **Table A-3.**

TABLE A-3: FXBGO!'S TAM PLAN FACILITIES

Facility Name	Type	Address
Lawrence A. Davies Transit Center (Central)	Administration	1400 Emancipation Highway, Fredericksburg, VA 22401
Bowman Center Operations & Training Building	Administration	11710 Main Street, Fredericksburg, VA 22408
Bowman Center Vehicle Maintenance Building	Maintenance	11716 Main Street, Fredericksburg, VA 22408
Bowman Center Vehicle Maintenance Building Parking Lot	Parking	11716 Main Street, Fredericksburg, VA 22408

A.7 Transit Security Program

FXBGO!'s transit security program is comprised of two (2) major components – security-focused staff members and security infrastructure. FXBGO! employs one (1) part-time and two (2) full-time security officers stationed in shifts at Central. When fare collection is in place, these officers patrol the property and escort drivers to the money room when fareboxes are pulled. The officers deposit fares collected for FXBGO!. Security staff provides an additional safety measure for patrons and staff, given Central's location along the busy US Route 1 corridor, coupled with its service as an intercity bus station. Both Central, the maintenance facility, and the operation facility include fire and intrusion alarm systems and electronic key card building access control systems. The operations and maintenance facilities also include a perimeter fence for limiting access to the site and security cameras.

FXBGO!'s vehicles and facilities are equipped with surveillance cameras. The vehicles and the dispatch center are also outfitted with "panic" buttons that contact the police if there is an emergency that requires immediate assistance.

In addition, per FTA's Public Transportation Agency Safety Plan (PTASP) Final Rule (2018), FXBGO! developed a safety plan that includes the processes and procedures necessary for implementing Safety Management Systems (SMS), including safety risk management, safety assurance, and safety promotion. FXBGO!'s PTASP was last updated in May 2022.

A.8 Intelligent Transportation Systems (ITS) Program

ITS programs in public transportation encompass a broad range of communication-based information and electronic technologies that serve to improve safety, efficiency, and service, through use of real-time information.

FXBGO! utilizes real-time vehicle information for drivers and dispatch using a product facilitated and maintained by TripSpark, Inc, known as RouteMatch. The system includes GPS equipment on each vehicle,

as well as computer tablets that record boardings, stops times, and odometer information. Drivers use tablets to record passengers by fare type at each stop, providing valuable information to FXBGO!. Customers can also get real-time information on FXBGO! buses and routes through the mobile application Route Shout 2.0. FXBGO! is in the process of evaluating the replacement of TripSpark Inc. as their ITS software provider but intends to maintain and improve upon the services TripSpark, Inc. currently provides; FXBGO! plans to evaluate the replacement of its ITS System in FY 2025.

FXBGO! will purchase a driving simulator in FY 2025 that will provide a platform for training fixed-route bus operators to learn basic skill development, situational awareness, decision-making, judgment training, and vehicle operations. The driving simulator will supplement behind-the-wheel training for a more cost-effective and efficient method of training operators without sacrificing training quality.

FXBGO! will begin procuring automated person counters (APCs) in FY 2025. APCs will automate passenger counts, currently done manually by bus operators, allowing for more accurate and in-depth passenger data and reducing the workload on bus operators. FXBGO! plans to install APCs on their entire revenue fleet in the upcoming years.

A.9 Data Collection and Ridership/Revenue Reporting

FXBGO! currently uses a blend of paper and electronic methods to capture and report statistical and fare information. Drivers are provided a paper mileage and sales report daily that they use to record the following information:

- Number of fare cards sold by category (when fare collection is applicable)
- Fueling information
- Driver and bus number
- Tablet times at run start, first stop, last stop, and run end
- Odometer readings at run start, first stop, last stop, and run end
- Vehicle change information

Each driver uses a tablet to record ridership by stop and fare type. Tablets record other pertinent statistical information such as mileage. There is some minor redundancy between systems that is captured in order to validate the data collected via the tablets and paper. There is some data that is only recorded via paper, such as pass sales when fares were still being collected prior to February 2022. FXBGO! also has paper data collection forms as backups in case of power outages or technological challenges.

Information entered by drivers via tablets is reviewed for accuracy by a supervisor on a daily basis. The supervisor corrects any data discrepancies and/or enters pertinent information that is recorded by drivers on the daily mileage and sales report if for any reason the software fails to capture the data. Revenue tabulations are cross-checked with actual farebox revenue turned in by drivers, when fare collection is active. Once supervisors have checked the electronic data and entered the paper-based data, ridership and revenue reporting is completed using statistical reports available through the RouteMatch system.

Data collection and reporting methods are set to change upon the introduction of TripSpark, Inc.'s replacement, planned for FY 2025, and the installation of APCs on FXBGO!'s buses.

A.10 Coordination with Other Transportation Service Providers

Virginia Railway Express (VRE)

VRE is the commuter rail service that connects the Fredericksburg and Manassas areas to Northern Virginia and Washington, D.C. VRE operates eight (8) northbound trips (to Washington, D.C.) in the morning from Fredericksburg station and seven (7) southbound trips (from Washington, D.C.) in the evening peak. An additional southbound trip is made in the afternoon.

Prior to the COVID-19 pandemic, FXBGO! operated two (2) VRE feeder routes that provided service to Fredericksburg station for commuters connecting to VRE. Route VF1 operated through Idlewild and Cowan Boulevard before connecting to Fredericksburg VRE/Amtrak Station. Route DS1 operated from Gordon Road Commuter Lot to Fredericksburg station. Both routes were temporarily suspended in response to the COVID-19 pandemic.

As of Spring 2024, Routes F4, F5, and D1 routes service the Fredericksburg VRE/Amtrak Station. Of the eight (8) morning trips that VRE operates in the northbound direction, only two (2) can be connected via an FXBGO! Route: Route F4 that arrives at 7:08 a.m. and Route F5 that arrives at 7:40 a.m. **Table A-4** lists currently scheduled VRE trains to and from Fredericksburg VRE/Amtrak Station.

TABLE A-4: VRE FREDERICKSBURG STATION SCHEDULE

Northbound Departure Times	Southbound Departure Times
5:03 a.m.	2:36 p.m.
5:17 a.m.	4:16 p.m.
5:32 a.m.	5:06 p.m.
5:52 a.m.	5:36 p.m.
6:12 a.m.	6:16 p.m.
6:37 a.m.	6:56 p.m.
7:17 a.m.	7:46 p.m.
7:57 a.m.	8:26 p.m.

Source: VRE Spring 2024 schedule

Amtrak

Amtrak service is provided at the downtown Fredericksburg VRE/Amtrak Station. The Fredericksburg VRE/Amtrak Station is served by Amtrak's Carolinian, Northeast Regional, and Silver Service lines. Major destinations along these lines include Boston, Charlotte, Raleigh, Richmond, Miami, New York City, Norfolk, Orlando, Savannah, Tampa, and Washington, D.C. The weekday schedule is displayed in **Table A-5**.

TABLE A-5: FREDERICKSBURG VRE/AMTRAK STATION WEEKDAY AMTRAK SCHEDULE (SPRING 2024)

Route	Northbound	Southbound
Northeast Regional	7:02 a.m.	8:26 a.m.
	8:25 a.m.	1:18 p.m.
	9:23 a.m.	3:44 p.m.
	12:07 p.m.	5:07 p.m.
	4:09 p.m.	7:02 p.m.
	6:35 p.m.	8:22 p.m.
Carolinian	-	12:19 p.m.
Silver Service	3:07 p.m.	8:35 p.m.

Source: Amtrak Spring 2024 Schedule

Greyhound

Greyhound provides intercity bus service in Fredericksburg with a stop at Central. The Fredericksburg stop is along Greyhound's Philadelphia-Baltimore- Washington-Richmond Route and the Washington-Charlottesville Route. The current daily schedule for southbound service is 9:40 a.m. and 12:05 p.m. for northbound service.

OmniRide

OmniRide is the operating name for the mobility services offered by the Potomac and Rappahannock Transportation Commission (PRTC). OmniRide offers service in Prince William County, Stafford County, Spotsylvania County, and the cities of Manassas, Manassas Park, and Fredericksburg. OmniRide operates 16 express routes, five (5) of which serve the FXBGO! service area: two (2) routes serve the Route 610 Staffordboro Commuter Lot (943 Stafford-Washington and 942 Stafford-Pentagon) and the three (3) other routes serve the Commonwealth Drive Commuter Lot (923 Spotsylvania-Navy Yard), Route 630 Commuter Lot (541 Stafford-Washington State Department), and the Route 17 Commuter Lot (932 Falmouth-Rosslyn/Ballston).

Table A-5 and **Table A-6** list currently scheduled departure times of the OmniRide express routes servicing the Fredericksburg region in the northbound and southbound directions, respectively.

TABLE A-6: NORTHBOUND OMNIRIDE EXPRESS ROUTE SCHEDULE

OmniRide Express Route	Location	Departure Time
943 Stafford-Washington	Route 610 Staffordboro Commuter Lot	4:20 a.m.
		5:00 a.m.
		5:40 a.m.
		6:15 a.m.
		7:25 a.m.
942 Stafford-Pentagon		4:20 a.m.
		4:40 a.m.
		5:20 a.m.
		6:00 a.m.
		6:20 a.m.
		6:40 a.m.
		7:00 a.m.
		7:25 a.m.
		8:00 a.m.
541 Stafford-Washington State Department	Route 630 Commuter Lot	4:15 a.m.
		5:05 a.m.
		5:45 a.m.
		6:25 a.m.
		7:25 a.m.
932 Falmouth-Rosslyn/Ballston	Route 17 Commuter Lot	4:05 a.m.
		4:45 a.m.
		5:15 a.m.
		5:45 a.m.
		6:45 a.m.
923 Spotsylvania-Navy Yard	Commonwealth Drive Commuter Lot	4:05 a.m.
		4:40 a.m.
		5:10 a.m.
		5:40 a.m.
		6:10 a.m.

Source: OmniRide Spring 2024 schedule

TABLE A-7: SOUTHBOUND OMNIRIDE EXPRESS ROUTE SCHEDULE

OmniRide Express Route	Location	Arrival Time
943 Stafford-Washington	Route 610 Staffordboro Commuter Lot	3:05 p.m.
		4:15 p.m.
		4:55 p.m.
		5:30 p.m.
		5:55 p.m.
		6:40 p.m.
942 Stafford-Pentagon		1:20 p.m.
		2:10 p.m.
		3:05 p.m.
		3:30 p.m.
		4:05 p.m.
		4:35 p.m.
		5:10 p.m.
		5:40 p.m.
		6:10 p.m.
		6:10 p.m.
		6:40 p.m.
		7:30 p.m.
541 Stafford-Washington State Department	Route 630 Commuter Lot	1:35 p.m.
		3:56 p.m.
		4:26 p.m.
		5:26 p.m.
		5:56 p.m.
		6:26 p.m.
		7:45 p.m.
932 Falmouth-Rosslyn/Ballston	Route 17 Commuter Lot	1:50 p.m.
		4:10 p.m.
		5:10 p.m.
		5:30 p.m.
		6:30 p.m.
		7:20 p.m.
		8:05 p.m.
923 Spotsylvania-Navy Yard	Commonwealth Drive Commuter Lot	2:10 p.m.
		4:10 p.m.
		4:35 p.m.
		5:15 p.m.
		6:35 p.m.
		7:35 p.m.
		8:25 p.m.

Source: OmniRide Spring 2024 schedule

GWRideConnect

GWRideConnect is a free ridesharing service in Fredericksburg that connects commuters to carpooling, vanpooling, and other transit options. The service is sponsored by the George Washington Regional Commission (GWRC), and partners with Virginia Department of Public Transportation (DRPT) to provide the free ride matching and rewards program. **Table A-8** shows the commuter lot locations for GWRideConnect.

TABLE A-8: GWRIDECONNECT COMMUTER LOT LOCATIONS

County	Description	Address
Caroline	Carmel Church Park and Ride Lot	Telegraph Rd, Ruther Glen, VA 22546
Spotsylvania	Courthouse Road / Route 208	10800 Houser Dr, Fredericksburg, VA 22408
	Rt 3 West / Gordon Rd	12150 Gordan Rd, Fredericksburg, VA 22407
	Rt 3 Salem Church	4240 Plank Rd, Fredericksburg, VA 22407
	Commonwealth Drive / Rt1	Patriot Hwy, Fredericksburg, VA 22407
King George	Visitor's Center on Rt 301	38.359362, -77.018411
Stafford	Rt 17 Warrenton Rd	627 Warrenton Rd, Fredericksburg, VA 22406
	Courthouse Road / Route 630	1150 Courthouse Rd, Stafford, VA 22554
	Rt 610 Mine Rd / South Commuter Lot	1 Salisbury Dr, Stafford, VA 22554
	Rt 610 Staffordboro / North Commuter Lot	139 Staffordboro Blvd, Stafford, VA 22554

Source: GWRideConnect Fall 2022 Locations

Healthy Generations Area Agency on Aging

Healthy Generations Area Agency on Aging (HGAAA) is a 501(c)(3) organization operating in the George Washington Planning District (the City of Fredericksburg and Stafford, Spotsylvania, King George, and Caroline counties), with the mission is to enhance the quality of life for all older citizens. HGAAA provides home and community-based services, including transportation support for the senior population. HGAAA offers the following services:

- Education and outreach
- Informational and referral services through a call center
- Publication of a Mobility Options resource guide
- Complimentary travel training services
- Limited low-cost door-to-door transportation, if available

HGAAA also provides the Fredericksburg Regional Transit Travel Training service, a free educational program designed to educate individuals about the greater Fredericksburg region's public transit network and how to use FXBGO!'s system. One-on-one and group training is available to participants.

A.11 Current Initiatives

FXBGO! has several initiatives aimed at improving transit service and the overall customer experience.

A.11.1 BRANDING

Fredericksburg Regional Transit recently underwent an agency wide rebrand, changing its shorthand name from "FRED" or "FRED Transit" to "Fredericksburg Go!" or "FXBGO!" (capitalizing on the "FXBG" abbreviation often used by the City of Fredericksburg) as well as introducing consistent messaging, color palettes, communication material templates, and logos. The rebranding effort aims to build familiarity

between the agency and the public, clearly communicating FXBGO!'s personality, voice, values, and vision to residents, visitors, and businesses. The new brand values are summarized in **Figure A-18**.

The new branding, as seen depicted on a bus wrap in **Figure A-19**, fully launched in 2023 and appeared across the system, including on buses, transit operators' uniforms, bus stop signage, and maps.

FIGURE A-18: FXBGO! BRAND ESSENCE AND VALUES

Personality
Our brand personality is courteous, inclusive, and responsible. We take pride in providing a welcoming environment and reliable service. An ordinary person doing extraordinary things.

Voice
Genuine with a sense of belonging or being part of a group, of friendship, and care.

Audience
Residents, visitors, and businesses of the City of Fredericksburg, Spotsylvania, and Stafford Counties.

FIGURE A-19: NEW FXBGO! BRANDING

A.11.2 FARE-FREE SERVICE

FXBGO! partnered with the Virginia Department of Rail and Public Transportation (DRPT) to deploy systemwide fare-free operations for all FXBGO! services. Fare-free service was made possible through funding received through DRPT's Transit Ridership Incentive Program (TRIP). The 2020 Virginia General Assembly established TRIP in Virginia Code § 33.2-1526.3 with two (2) distinct goals:

1. Improve regional connectivity of urban areas with a population in excess of 100,000
2. Reduce barriers to transit use for low-income riders

FXBGO! was approved for fare-fare service by DRPT, along with five (5) other transit agencies, beginning in FY 2022 for a duration of four (4) years.

A.12 Retrospective Financials

Capital and operating expenses have steadily increased over the past three (3) years[2]. Prior to the COVID-19 pandemic, years with higher than usual expenditures were typically those where new vehicles were purchased, and capital expenses contributing to spikes in spending. However, recent years have had increases in operating expenses, due to operating costs associated with the pandemic and rising costs due to inflation.

Budgets for FXBGO! have fluctuated over the past five (5) years, in part due to the COVID-19 pandemic, but have ranged between $6.1 million and $13.9 million. The largest contributor of revenue is federal funding, making up more than half of FXBGO!'s revenue.

Along with state and federal funds, FXBGO! receives local funding from a variety of sources, including the jurisdictions served, bus advertisements, the University of Mary Washington, employers like GEICO, and gasoline taxes and landfill fees. FXBGO!'s operating and capital revenues from the previous five (5) fiscal years are shown in **Table A-9.**

TABLE A-9: FIVE-YEAR RETROSPECTIVE OF OPERATING AND CAPITAL REVENUES

	Actual				Revised
	2020	2021	2022	2023	2024
Local Revenue	$1,735,855	$778,016	$1,085,486	$582,724	$647,092
State Revenue	$949,083	$757,581	$1,454,589	$2,451,732	$2,297,021
Federal Revenue	$3,390,940	$2,738,336	$2,768,678	$3,734,835	$6,864,653
Transfers & Adjustment	$18,972	$36,043	$21,430	$60,356	$1,627
Fund Balance	-	-	-	-	$4,123,595
Total	**$6,094,850**	**$4,309,977**	**$5,330,184**	**$6,829,647**	**$13,933,988**

Source: City of Fredericksburg FY 2025 Recommended Budget

[2] *FXBGO!'s expenditures from the previous three fiscal years (FY 2022 – FY 2024) are outlined in the City of Fredericksburg FY 2025 Recommended Budget: https://www.fredericksburgva.gov/DocumentCenter/View/26986/Tab-5---Narratives*