

## Executive Summary

Fredericksburg's Lafayette Boulevard corridor is experiencing residential and commercial development and redevelopment because of its proximity to the downtown area and the Fredericksburg Train Station. Overall, the roadway is the only remaining major corridor into the city that has not received an overhaul treatment. This study will help prioritize investments along the corridor to help meet future needs. The study corridor is defined as the Lafayette Boulevard, Falcon Drive, and Spotsylvania Avenue corridor between the Fredericksburg Train Station and Lee's Hill Center.

### Existing Conditions

#### *FRED Service*

Currently, the Lafayette Blvd corridor is served by FRED Route F3, which operates between 7:30 am and 8:30 pm with a 60-minute headway on weekdays only. Directly on the corridor, there are 18 stops including eight in the northbound direction and ten in the southbound direction. Currently no stops have shelters however shelters are planned at one stop and benches at five others.

#### *Fredericksburg Train Station*

The Fredericksburg Train Station is currently served by the VRE Fredericksburg Line and AMTRAK. Parking at this stations is currently at 82 percent of capacity when the gravel overflow lot is included.

#### *Planned Improvements*

A number of improvements are planned for the corridor in addition to the bus stop amenities mentioned previously, including the following:

- A double roundabout at the Lafayette Boulevard/Kenmore Avenue/Charles Street intersection;
- A bus pull-in between Charles Street and Princess Anne Street serving the Fredericksburg Train Station;
- A shared-use path on the west side of Lafayette Boulevard south of Alum Spring Road, connecting with the Virginia Central Railway Trail;
- A new five-bay transit center on Market Street in Lee Hill to replace the current Lee's Hill Center transfer location on Spotsylvania Avenue; and
- An extension of the platform at Fredericksburg Station and a new staircase into the FAMPO/GWRC parking lot.

### Market Analysis

#### *Transit Need Analysis*

A transit need analysis was conducted using four transit need indexes. The need for All-Day Service is determined using two transit indexes: the Transit-Oriented Population Index and the Service/Activity Index. When combined, these two indexes show where populations that are likely dependent on transit live and what non-work destinations transit riders will likely want to access. The need for Peak Hour commuter service is determined using two transit indexes: the Commuter Index and the Workplace Index. When combined, these two indexes show where commuter populations live and work. Overall, pockets of transit-oriented populations and commuters were found all along the corridor, while concentrations of employment and services were found at either end of the corridor. The transit-oriented population scores in particular show need for increased frequency along the corridor.

#### *Future Growth*

Overall, the neighborhoods along the study corridor are projected to see total population increase by 3,300 residents by 2050. Much of this growth is expected in Spotsylvania County on the east side of corridor just north of Lee's Hill Center. During the same time period, employment along the corridor is projected to increase by 4,400. Much of this growth is expected within Fredericksburg on the west side of the corridor between Willis Street and the city limit.

*Travel Flows*

In order to further determine the demand for transit service to, from, and along the Lafayette Boulevard corridor a travel flow analysis was conducted that combines travel flows from the GWRC Travel Demand Model with the transit need analysis. The all-day transit need (Transit-Oriented Population and Services indices) is combined with all day travel flows of any purpose while the peak period transit need (Commuter and Workplace indices) is combined with AM Peak period home-based work travel flows. The travel flows between TAZs are scored based on the total number of flows between them and the transit index scores of the origin and destination TAZs. Travel flows from the model base year (2015) and future years (2035 and 2050) were included to determine not only existing demand but also future demand. Overall, the peak period demand is indicative of where there is high demand for peak period commuter service and the all-day demand is indicative of where there is high demand for all day, traditional transit service that operates during peak and off-peak periods.

Overall, demand for all-day service was evident between the study corridor and the US-17 corridor in southern Stafford County and the Cosner’s Corner area of Spotsylvania County. Demand for peak period service was similar, though demand was also found between the study corridor and the Centreport Parkway area of Stafford County in 2050. Overall, there was less demand for travel along the study corridor, and rather between certain neighborhoods along it and other areas of the region.

*Gap Analysis*

To form a baseline for potential transit service modifications that would benefit residents, employees, and patrons of the study corridor, a gap analysis was conducted. The gap analysis compares the demand for transit service to the current service offered to see if there are mismatches between service levels offered and connections offered. The following table summarizes the gap analysis.

Transit Travel Time Analysis for Highest Demand Connections

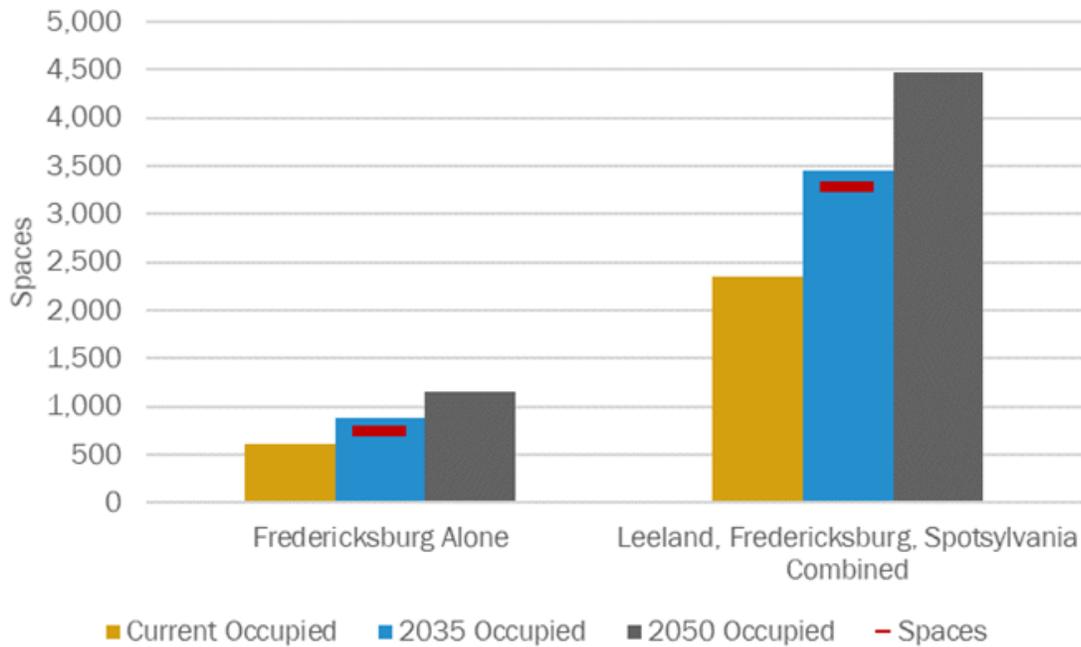
Period	Connection	Transit Travel Description	Current Transit Travel Time	Current Peak Driving Time
All Day	Falcon Drive to Geico	F3, transfer to D2	95 minutes (65 on bus, 30 transfer time)	16-28
All Day	Falcon Drive to Falls Run Drive area	F3, transfer to D2	90 minutes (60 on bus, 30 transfer time)	14-24
All Day	Plantation Dr to Spotsylvania Ave	D2, transfer to F3	95 minutes (65 on bus, 30 transfer time)	12-20
All Day	Celebrate Virginia Pkwy to Spotsylvania Ave	No service	-	14-22
All Day	Geico to Southpoint Centre	S5, transfer to F2, transfer to D2	115 minutes (85 on bus, 30 transfer time)	14-20
All Day	Downtown Fredericksburg to Mary Washington Hospital	F4 or F5	10 minutes	7
All Day, 2050	Falcon Drive to Centreport Pkwy	No service	-	16-26

*Fredericksburg Station*

Future parking demand was calculated for Fredericksburg, Spotsylvania, and Leeland Road VRE stations using current parking utilization at each station and future commuter rail growth projected in the FAMPO Regional Travel Model from TAZs in the catchment areas of each station.

The figure below illustrates the projected demand for parking at Fredericksburg Station alone and at Leeland Road, Fredericksburg, and Spotsylvania Stations combined, to account for the fact that if one station’s parking became consistently over capacity, riders would likely gravitate toward one of the other two nearby stations. This projection assumes that the current drive alone and carpool mode split would remain constant. Space totals at Fredericksburg Station include the gravel lot but do not include the other leased spaces in downtown Fredericksburg. By 2035, both Fredericksburg Station alone and all three stations combined would be over capacity.

Projected Parking Demand at Fredericksburg Station and Leeland Road, Fredericksburg, and Spotsylvania Stations Combined



### Transit Recommendations

To help improve transit along the study corridor, several service improvement scenarios and infrastructure initiatives were developed and analyzed. The goals for these improvements include the following:

1. Improve the transit user experience by addressing the deficiencies outlined in the existing conditions section including bicycle and pedestrian access, lack of bus stop amenities and the need for more stop pairs.
2. Better align transit service with the demand found in the market analysis.
3. Reduce the overall demand for parking at the Fredericksburg Train Station while continuing to grow VRE ridership from the station.

#### Service Scenarios

Six service scenarios were developed to better align transit service with the demand found in the market analysis on the corridor.

1. Adjust Route F3 schedule to provide timed transfers to Route D2
2. Increase frequency on Route F3 to 30 minutes, providing timed transfers to Route D2
3. Combine Routes F3 and D2 and Routes F3 and S5 and overlap the two routes (F3A and F3B) to create a 30 minute frequency along the study corridor
4. Add VRE feeder service to the F3 schedule (F3C), including a connection to the Route 208 commuter lot

Lafayette Blvd Transit Study

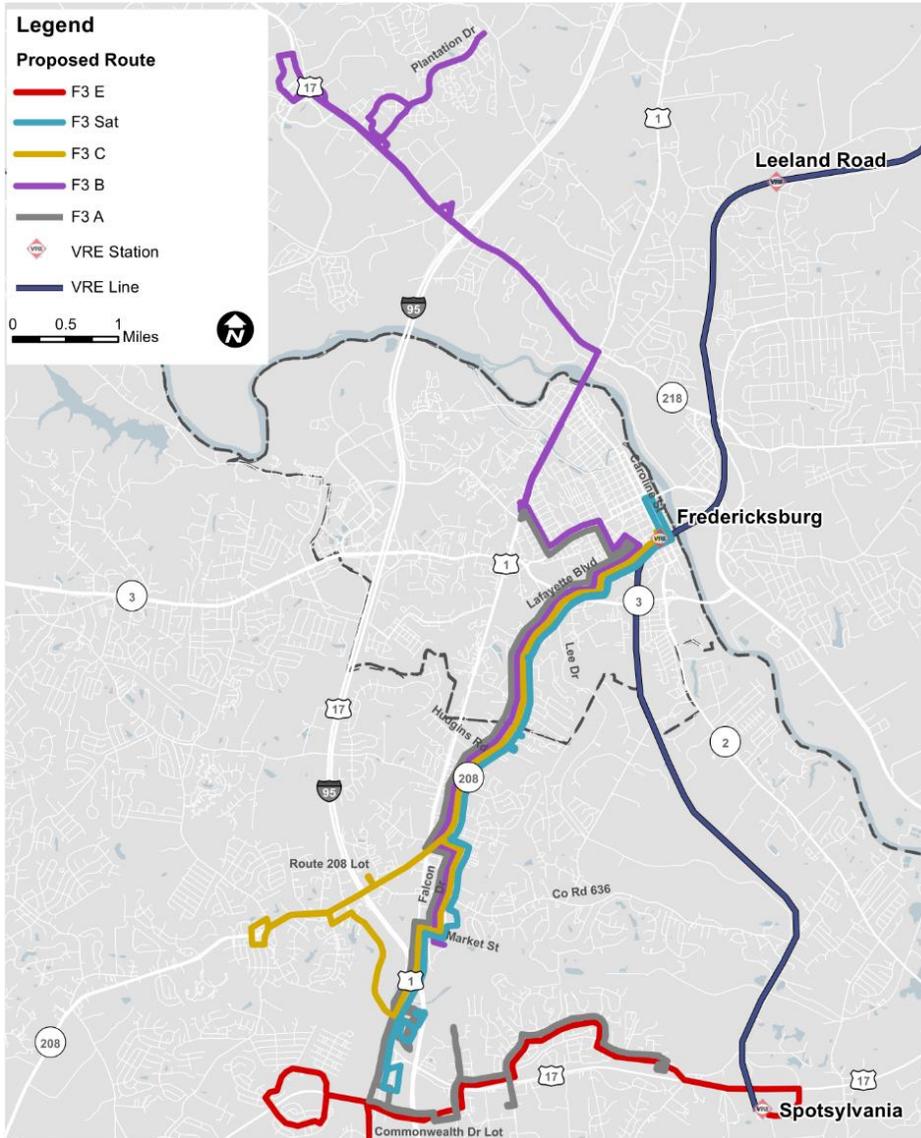
5. Extend Route F3 to the Fredericksburg Train Station during peak periods (F3D)
6. Add Saturday service to a modified Route F3 (F3 Saturday)

Overall, Scenarios 3, 4, and 6 are recommended (see the following table and figure). Additionally, a feeder route to Spotsylvania Station (with a connection to the planned Commonwealth Drive commuter lot) is recommended to further mitigate the combined parking capacity issue projected at Fredericksburg, Spotsylvania, and Leeland Road stations. Future consideration should be given to connecting the study corridor to the Centreport Parkway area of Stafford County as it is built out.

Service Implementation Details by Year

Year	Scenario	Annual Hours		Operating Cost		Operating Cost - Local Contribution	
		No-Build	Build	No-Build	Build	No-Build	Build
2021	Scenario 3 (F3A,B)	9,533	12,750	\$871,198	\$1,165,223	\$522,719	\$699,134
2023	F3E	9,533	14,535	\$906,394	\$1,382,019	\$543,837	\$829,211
2025	Scenario 4 (F3C)	9,533	16,065	\$943,013	\$1,589,206	\$565,808	\$953,523
2030	Scenario 6 (F3 Saturday)	9,533	16,703	\$1,041,162	\$1,824,293	\$624,697	\$1,094,576

Year	Scenario	Vehicles		New Vehicles Purchased		
		No-Build	Build	Number	Total Cost	Local Cost
2021	Scenario 3 (F3A,B)	3	4	1	\$112,200	\$16,830
2023	F3E	3	5	1	\$116,733	\$17,510
2025	Scenario 4 (F3C)	3	6	1	\$121,449	\$18,217
2030	Scenario 6 (F3 Saturday)	3	6	0	\$0	\$0



*Amenities and Infrastructure*

Recommendations for amenities and infrastructure to support the service recommendations include the following:

- Additional shelters at five high ridership bus stops along the study corridor;
- New bus stops to provide access to the route recommendations and to serve new developments;
- A shared-use path along the west side of the corridor and continuous sidewalks along the east side of the corridor; and
- The planned Fredericksburg Station bus pull-in, with an additional staircase to the northwest platform at the station.

**Transportation Demand Management Recommendations**

Various Transportation Demand Management (TDM) strategies will be employed along with the rollout of each scenario that is recommended. These strategies will include: marketing to promote service modifications, improvements to first mile/last mile connections and incentivizing transit use.

### *Marketing*

Marketing the service recommendations will be accomplished using digital and print advertising, including social media radio ads, newspaper ads, and bus cards on buses. Marketing campaigns will last for three months, including one month prior to implementation and then two months following implementation.

### *Access to Transit*

In addition to the infrastructure improvements and new VRE feeder routes outlined, additional recommendations were developed to improve access to transit, including:

- Real-time parking infrastructure and information dissemination through the VRE mobile ticketing app;
- Dedicated space for ride-hailing services at Fredericksburg Station; and
- Expanded bicycle parking, including bicycle lockers and new bicycle racks at Fredericksburg Station and bicycle racks at Lee's Hill Center.

### *Transit Incentives*

Transit incentives in the form of a 14-day fare free period are recommended at each stage of implementation. This will encourage people to try the new or modified services and hopefully retain them as regular riders after the period is over.

### **Impacts to Fredericksburg Station Parking**

Overall, the VRE feeder routes proposed to serve both Fredericksburg Station and Spotsylvania Station in conjunction with the TDM measures proposed will help mitigate the parking capacity issues projected at both stations. Additionally, the VRE feeder routes open up new opportunities for VRE riders to use the Route 208 commuter lot and the proposed Commonwealth Drive commuter lot in Spotsylvania County as satellite lots.

### **Conclusion**

Overall, the recommended improvements will increase frequency along the study corridor, increase transit connectivity between the corridor and the rest of the FAMPO region, improve the overall passenger experience on the corridor, and help mitigate the unavoidable parking capacity issues at the Fredericksburg Train Station.