

Technical Memorandum 1
Title: Data Collection and Previous Studies

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1. RELEVANT PREVIOUS STUDIES

Staff and the selected consultant will use studies relevant to east-west corridors to inform existing conditions and further recommendations. Below are previous and current studies that encompass or relate to east-west corridors, and will be used to inform this study.



1.1 RELEVANT STUDY DETAILS

1.1.1 Local Corridor Studies

Lafayette Boulevard Corridor Study – 2009:

The Lafayette Boulevard Multimodal Corridor Study was completed in 2009 and focused on modifications to the corridor to improve conditions on Lafayette Boulevard for all modes of transportation between downtown Fredericksburg and U.S. Route 1 (Route 1).

Primary Recommendations:

- Widening of Lafayette Boulevard between Route 3 and Route 1 to a four-lane roadway.
- Consolidation of driveways and other points of vehicle access.
- Continuous sidewalks and bicycle accommodations throughout the corridor.
- Appropriately spaced bus stops and transit passenger facilities.

Route 3 Arterial Management Plan – 2016

The process documents an arterial management plan (AMP) that considers the current and future travel needs, as well as potential access for future development along the corridor in Spotsylvania County from Gordon Road to the Orange County line. The AMP serves as a guide for providing future access to economic development sites that promotes the safety of all traffic movements.

Primary Recommendations:

- Remove, upgrade, and convert existing crossovers to meet VDOT standards and only allow certain movements.
- Upgrade, modify, and install new traffic signals to accommodate increased traffic volumes.
- Consolidate existing access points and provide inter-parcel connections in lieu of multiple access points.

Route 3 Corridor STARS Study – 2017

The Virginia Department of Transportation (VDOT), City of Fredericksburg and Fredericksburg Area Metropolitan Planning Organization (FAMPO) identified the need to evaluate existing and future conditions of the State Route 3 (Route 3) corridor from Interstate 95 (I-95) to Route 2 (Dixon Street).

Primary Recommendations:

- Upgrade intersections along the corridor with small targeted improvements

U.S. 17 Business STARS Study – 2017

The Virginia Department of Transportation (VDOT), City of Fredericksburg, Fredericksburg Area Metropolitan Planning Organization (FAMPO) and Stafford County, Virginia identified the need to evaluate existing and future conditions of the U.S. 17 Business (Warrenton Road) corridor from I-95 to Route 1001 (Washington Street) in Falmouth.

Primary Recommendations:

- Upgrade intersections along the corridor with small targeted improvements.
- Install sidewalks between Short Street and Olde Forge Drive.
- Add and upgrade crosswalks at specific intersections.

Lafayette Boulevard Multimodal Study Phase 1 – 2019:

This study, completed in 2019, helps prioritize transit and bicycle and pedestrian investments along the Lafayette Boulevard 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.

Primary Recommendations:

- Continuous sidewalks along the east side of the corridor.
- Continuous shared-use path along the west side of the corridor.
- Transit improvements including bus stop upgrades to benches and shelters.
- Improved headways along FRED Transit route F3 and service to the Virginia Railway Express (VRE) train station.

1.1.2 Transit Studies

Route 3 Transit Study – 2010

This study covers Route 3 from Gordon Road in Spotsylvania County to the Rappahannock River in the City of Fredericksburg. It identified measures, strategies, and concepts to improve the viability, convenience, and efficiency of transit services along the study corridor.

Primary Recommendations:

- Alternative 1: Connect existing right-turn lanes to allow for HOV and transit traffic to continue along the corridor in a dedicated lane. Modify and upgrade transit stops along with pedestrian and bicycle safety recommendations.
- Alternative 2: Improve the performance of local transit service by accommodating them in parallel corridors of local streets and driveways. Modify and upgrade transit stops along with pedestrian and bicycle safety recommendations.
- Alternative 3: Similar to Alternative 1 but would create direct connectivity between FRED Central and Central Park/Spotsylvania Town Center Mall and more continuity of service along Route 3.

I-95 Transit / TDM Study – 2018

The purpose of this study was to identify which transit and transportation demand management (TDM) measures were necessary to accommodate growth in the GWRC region. A major component of the study was to identify the market for a publicly-operated commuter bus system in the region to supplement its existing transit and TDM services.

Primary Recommendations:

- Scenario 1: Growth and excess demand absorbed by new publicly-operated commuter bus service, VRE, and vanpools. Planned improvements to VRE service. Feeder routes serving VRE stations and commuter lots.
- Scenario 2: Growth and excess demand absorbed by VRE and vanpools. Planned improvements to VRE service. Feeder routes serving VRE stations and commuter lots.

King George Transit Study – 2018

This study analyzed and recommended transit service in King George County, where FRED Transit service ceased in 2012. The study analyzed existing conditions and completed a market analysis for transit need and commuter options. It recommended three potential service plans for service in the county.

Primary Recommendations

- Option 1 would include limited stop service to Dahlgren from Fredericksburg during peak periods (called Route K2) and a local circulator during the midday along Route 3, Route 206, and Route 301 (called Route K1).
- Option 2 would include the same routes as Option 1, however additional service would be added to Route K2 to increase the number of trips between Dahlgren and Fredericksburg
- Option 3 would include a local service between Dahlgren and Fredericksburg during peak and midday periods (called Route K3) and a local circulator along Route 3, Route 206, and Route 301 (called Route K1).

King George Transit Study – 2021

This study provided an update to the 2018 King George Transit Study. It analyzed similar aspects with new data and additional analyses. It analyzed existing conditions, transit need, commuter options, StreetLight data, and future growth. It recommended 4 potential route alignments and service plans for service in the County.

Primary Recommendations:

- Scenario 1: Route between Mary Washington Hospital and Dahlgren providing service to Walmart, Route 3, and the Route 301 corridor. This scenario would provide a high density of stops along the corridor with a total of 17.

- Scenario 2: Route between Mary Washington Hospital and Dahlgren providing service to Walmart, Route 3, and the Route 301 corridor. Similar to Scenario 1; however, would provide more centrally located stops along the corridor with only 13.
- Scenario 3: Route between FRED Central and Dahlgren providing commuter service during the morning and evening hours.
- Scenario 4: An inter-county route providing service in Dahlgren, along Route 301, Route 3, and Route 206.

1.1.3 Interstate/Outer Connector Studies

I-95 Access Study (I-95 between Route 3 and River) – 2010

The purpose of this study was to examine how to reduce congestion on Route 3 between Gordon Road and I-95 including the I-95/Route 3 interchange, facilitate movement between I-95 and the key commercial areas in Fredericksburg, and facilitate weekday peak period commuter flows between I-95 and the residential communities in Spotsylvania County.

Primary Recommendations:

- A new full interchange with I-95 (providing access to the west only) between the rest area and the Rappahannock River.
- New two-lane structures over the Rappahannock River parallel to the existing structures (one in each direction).
- Interchange improvements at U.S. 17. At this time, neither the underpass nor the overpass option for the NB to WB off-ramp is being identified as the preferred option. More detailed analysis during the NEPA phase should identify the preferred design.
- A four to six lane limited access connector road from I-95 to the Route 3/Gordon Road intersection.
- An interchange at the Route 3/Gordon Road termini of the connector road.
- An interchange (Interchange A) providing access to commercial areas from the connector road.

Interstate Access Study for I-95 in the Jackson Gateway Area – 2012

This study looked at needed interstate access modifications within the Jackson Gateway area and southern portion of the Primary Settlement District of Spotsylvania County. These modifications will improve traffic safety and operations on the interstate mainline, interstate ramps, and intersecting arterial roadways such as U.S. 1 and U.S. 17.

Primary Recommendations:

- Single Interchange – Keep I-95 access essentially unchanged and accommodate the design year traffic demand within the current footprint of Exits 118 and 126.
- New Interchange – Construct a new independent interchange somewhere between Exits 118 and 126.

- Split Interchange – Expand the Exit 126 interchange to provide additional access from U.S. 17 and/or Spotsylvania County Parkway to collector-distributor (C-D) roads along the I-95 alignment.

I-95 Exit 126 Area Planning Study – 2015

This study built upon recommendations made in the Jackson Gateway Interstate Access Study and the I95 Exit 126 Interchange Modification Report. It provided an overview of previous studies and completed additional analysis on recommendations.

Primary Recommendations:

- I-95 Southbound Exit 126 super ramp connection from the existing off-ramp to U.S. 17 and US 1.
- I-95 Northbound C-D Road and U.S. 17 to I-95 Northbound on-ramp.
- Germanna Point Drive extension.

I-95 Access Study (I-95 between Route 3 and River) – 2010

The purpose of this study was to examine how to reduce congestion on Route 3 between Gordon Road and I-95 including the I-95/Route 3 interchange, facilitate movement between I-95 and the key commercial areas in Fredericksburg, and facilitate weekday peak period commuter flows between I-95 and the residential communities in Spotsylvania County.

Primary Recommendations:

- A new full interchange with I-95 (providing access to the west only) between the rest area and the Rappahannock River.
- New two-lane structures over the Rappahannock River parallel to the existing structures (one in each direction).
- Interchange improvements at U.S. 17. As of 2010, neither the underpass nor the overpass option for the NB to WB off-ramp is being identified as the preferred option. More detailed analysis during the NEPA phase should identify the preferred design.
- A four to six lane limited access connector road from I-95 to the Route 3/Gordon Road intersection.
- An interchange at the Route 3/Gordon Road termini of the connector road.
- An interchange (Interchange A) providing access to commercial areas from the connector road.

Stafford Parkway Study – 2015

This study contemplated the Stafford Parkway as an option to facilitate projected population and employment growth in Stafford County and to manage associated travel demand and congestion on U.S. 17 as well as local roads in Stafford County west of I-95. The objective of the study was to conduct a planning-level assessment and corridor feasibility analysis intended to reach conclusions for I-95.

Primary Recommendations:

- Alternative 1 proposed limited access Stafford Parkway build option
- Alternative 2 proposed the partial access Stafford Parkway build option
- Alternative 3 proposed the tolled limited access Stafford Parkway build option

1.1.4 Bicycle and Pedestrian Studies

Spotsylvania VCR Trail Study – 2012

The purpose of this study was to analyze and create a set of concept plans and trail design guidelines for the Virginia Central Railway trail in Spotsylvania County from the border with the City of Fredericksburg to Orange County. The study provides information on stormwater considerations, potential phases of construction for the trail, and an opinion of probable cost for the trail.

Primary Recommendations:

- Build the Virginia Central Railway Trail from the border with the City of Fredericksburg to Orange County along the historic railway alignment in northern Spotsylvania County wherever feasible.

Fredericksburg Bicycle and Pedestrian Study – 2017

This study outlines a vision for improving pedestrian and bicycle transportation in and around Fredericksburg. The first part of the study examines the feasibility of developing a bike share program. The bike share analysis includes a market study for bike share, recommendations on system size and layout, cost and ridership forecasts, and a discussion on how to implement a bike share program.

The second portion of the study focuses on bicycle and pedestrian infrastructure. A gap analysis was conducted to identify critical missing links in the City of Fredericksburg’s bicycle and pedestrian network. A set of recommendations were then developed to address those gaps and create an integrated network of bicycle and pedestrian routes that can extend into surrounding jurisdictions.

Primary Recommendations:

- Implement a bike share program in the City of Fredericksburg.
- Provide bicyclists a well-marked and safe route through Downtown Fredericksburg, including easy access to the main commercial corridors of Downtown.
- Enhance bicycle access to the Fredericksburg train station.
- Improve cycling connections between Downtown and surrounding neighborhoods.
- Improve connections between neighborhoods on the periphery of the city that currently lack convenient connections to one-another, including better connections to the University of Mary Washington.
- Improve connections between Fredericksburg and adjacent historic sites and parks in Spotsylvania and Stafford Counties.

1.1.5 Ongoing Studies

Lafayette Boulevard Traffic Study Phase II

The purpose of this study is to analyze and recommend roadway improvements to the Lafayette Boulevard corridor in the City of Fredericksburg and Spotsylvania County between St Paul Street and Falcon Drive. Further, it analyzes new roadway access to parking at the Fredericksburg train station.

Stafford Southern Gateway Bicycle and Pedestrian Study

The purpose of this study is to analyze bicycle and pedestrian improvements in the area of the Southern Gateway Urban Development Area along the U.S. 17 corridor in Stafford County.

Pipeline Study Route 3

The purpose of this study is to analyze roadway improvements to Route 3 in Spotsylvania County for SMART SCALE projects.

Pipeline Study I-95 Exit 136 / Route 1 / Centreport Parkway Study

The purpose of this study is to analyze roadway improvements to the area of I-95 Exit 136, Route 1, and Centreport Parkway in Stafford County for SMART SCALE projects.

GWRC Greenway Study

The purpose of this study is to build out a plan for the prioritization and implementation of regional bicycle and pedestrian facilities in the FAMPO region.

2. RELEVANT DATA

Staff will use data from various data sources to help inform sections on existing conditions and recommendations. Below are relevant data sources that may be used in the study.



2.1 RELEVANT DATA DETAILS

2.1.1 FAMPO Transportation Analysis Zones

Current and Future year TAZs

The MPO maintains updated household, population, and employment data for each TAZ in the region from 2017 – 2050. Data is from the FAMPO Travel Demand Model by VDOT.

Transit Oriented Populations

The MPO has data on TAZs by transit-oriented populations; those who have a higher likelihood of using transit services. This includes six categories: age, income, vehicle ownership, disabled population, and minority population. The data was created for the I-95 Transit/TDM study in 2017 and updated in 2019 for the Lafayette Boulevard Transit Study.

2.1.2 U.S. Census

2020 Census

The U.S. Census Bureau provides data on population and housing. This data is available for 2020 at the state, county, census tract, block group, and block level. The data comes from the U.S. Census which was administered in 2020.

2010-2019 American Community Survey

The American community survey from the U.S. Census Bureau provides population and housing data for the years where the U.S. Census is not administered. The most recent survey data available is for 2019.

Longitudinal Employer-Household Dynamic (LEHD)

LEHD data is provided by the U.S. Census Bureau on local employment data. This data set contains job flows and origin-destination employment statistics down to the block level. The data for 2018 is provided to the U.S. Census Bureau through partnership with local and state governments.

2.1.3 Traffic

VDOT Roadway AADT

Data on average annual daily traffic (AADT) is provided by VDOT for primary and secondary roadways in the state of Virginia. The most recent data available is 2019.

VDOT Crash Data

Data on vehicle, bike, and pedestrian crashes is provided by VDOT from 2013-2019 for all roadways in the state of Virginia.

RITIS Probe Data Analytics Suite

The Probe Data Analytics Suite allows agencies to support operations, planning, analysis, research, and performance measures generation using probe data and other agency transportation data using a variety of data visualization and data retrieval tools. These tools

allow users to create and download reports, visualize data on maps or in other interactive graphics, and even download raw data for off-line analysis. Each tool has its own unique purpose. Data from the suite is from HERE, INRIX, or TomTom for various roadways in the state of Virginia.

2.1.4 StreetLight

StreetLight Data

StreetLight Data is an on-demand mobility analytics platform. They take big data from mobile devices to fuel analyses like zone, segment analyses, origin destination, and top-route analyses. Analyses can be completed on vehicles, trucks, bicycle, pedestrian, rail, and bus metrics.

2.1.5 Transit

FREdericksburg Regional Transit (FRED)

FRED is the public transit service provider for the Fredericksburg Region. They can provide stop and route level ridership data.

GWRideConnect

GWRideConnect connects individuals to carpooling, vanpooling, and other transit options in the Fredericksburg region. They can provide data on ridership and destinations of commuters.

Virginia Railway Express

VRE provides commuter rail service from the Fredericksburg region to Northern Virginia and Washington D.C. They can provide data on ridership.

Park and Ride Lots

Data on the capacity and usage of park and ride lots can be acquired through VDOT and GWRideConnect.

OmniRide

OmniRide provides commuter bus service from northern Stafford County to Northern Virginia. They can provide data on ridership.

2.1.6 Surveys

FAMPO Transportation Improvements Survey

The FAMPO Survey was conducted in May and June of 2021 and provides insight into home and work locations and respondents on transportation in the FAMPO region.

VRE Master Agreement Survey

Every year VRE conducts a survey of riders. This survey can be useful for the home locations of riders at each station in the Fredericksburg region.