

4.0 Transportation Plan

4.1 Introduction

Land use and transportation are interrelated. How the land is used affects how the public moves between home, shopping, their workplace, school, and other places. As land use intensifies, the level of vehicle traffic on the roads increases, thus negatively impacting how one moves from place to place. Improvements to existing roads and construction of new roads are means of relieving congestion and improving safety. The Transportation Plan benefits the County by spelling out in a comprehensive manner the required transportation improvements to achieve acceptable levels of service. Levels of Service (“LOS”) are used to measure the effectiveness of a transportation facility to operate in an efficient manner and are typically categorized from LOS “A” (best operating conditions) to LOS “F” (worst operating conditions).

The roads in Stafford are not maintained by the County. The Virginia Department of Transportation (VDOT) maintains public roads, including those within most residential neighborhoods. Property owners associations and management companies maintain private streets in residential areas and commercial centers. The County works with VDOT and the Fredericksburg Area Regional Metropolitan Planning Organization (FAMPO), the regional transportation planning group, to plan for and secure funding to improve the transportation infrastructure.

The Transportation Plan identifies the future expansion and improvement of existing roadway facilities supplemented by the strategic construction of new roadways, the expansion of existing transit and commuter parking facilities, and the construction of new facilities to support increased options for transportation. The Transportation Plan is intended to implement the goals and objectives identified in Chapter 2 to meet the transportation needs of the County for the next 20 years.

The Transportation identifies all anticipated transportation improvements in the county, the extent of the projects, determine estimated project costs, sources of funding and estimates timelines for completion. It is anticipated that the Plan will include regional and statewide projects that exceed the current 20 year planning horizon. This Plan will be updated on a regular basis to reflect changes in funding and stages of completion of projects.

There are a number of key factors that influence the Transportation Plan and the County’s ability to make transportation network improvements. They are:

- Existing and Future Conditions
- Coordination with federal, state and regional agencies
- Multi-modal transportation facilities
- Transportation demand management

- Levels of service (LOS)
- Right-of-way requirements
- Access management and residential traffic management
- Secondary Street Acceptance Requirements (SSAR)
- Road improvement projects in approved programs
- New transportation improvements
- Funding Sources

4.2 Existing and Future Conditions

Stafford County has a transportation system typical of a suburban locality strategically located near major population and employment centers. The County is influenced by the expansion of the Washington, D.C. metropolitan region and growth of the Fredericksburg metropolitan area. The County's transportation system includes a predominance of narrow rural roads with physical constraints that are generally incompatible with the evolving land use patterns. This transportation system, although not initially designed to support suburban and urban land use densities, is used almost exclusively by automobiles and has significant morning and afternoon traffic congestion.

Interstate 95 and Jefferson Davis Highway/Cambridge Street (US-1), which bisect the County, are major north-south transportation routes for commuters, vacationers, business travelers, residents who use the facilities for local trips, and trucks traveling within and through the County. In addition, the Warrenton Road (US-17) and Kings Highway (SR-3) corridors provide strategic east-west links. VDOT categorizes Interstate 95 and US Route 17 (Warrenton Road) as Corridors of Statewide Significance. Interstate 95 is also known as the Washington to North Carolina Corridor (or Corridor K) and includes US Route 1 (Jefferson Davis Highway). US Route 17 is also known as the Coastal Corridor (or Corridor A) and includes Route 17 Business.

Intra-county traffic places additional demand on the County's transportation facilities. Strategic roadway corridors include Mine Road/Centreport Parkway, Garrisonville Road, Courthouse Road, Brooke Road and Poplar Road. The Mine Road / Centreport Parkway corridor would provide a north/south reliever road to US-1 and I-95. Garrisonville Road provides a connection from Interstate 95 and destinations within Fauquier County. Courthouse Road is an east-west transportation route that links a number of schools and residential areas to Interstate 95 and Jefferson Davis Highway. Brooke Road is a north-south route that serves much of the eastern part of the county. Similarly, Poplar Road is a north-south route that serves the western part of the county providing a linkage between Garrisonville Road and Warrenton Road. These corridors are not principally for travel outside of Stafford County, but serve the citizens of Stafford and allow them to avoid the interstate congestion.

There are two existing rail corridors within the County. The CSX Corporation owns and operates a main rail line that traverses the eastern portion of the County from Quantico to Fredericksburg. There is a spur line known as the Dahlgren Spur that branches off from the main line and parallels Kings Highway. The main rail line serves freight and passenger trains. The Dahlgren Spur serves freight trains only. There are currently two commuter rail stations in the County at Brooke and Leeland. Passenger service is also located outside of the County at the Fredericksburg Train Station.

The basis for identifying future roadway improvements in the Transportation Plan will be derived from the County's Transportation Model. The Transportation Model examines existing and future land use, the existing road network and capacity as well as new planned roadways. The Transportation Model had been used in the 2003, 2005 and 2013 updates to the Transportation Plan. It will be updated again following adoption of this Comprehensive Plan.

The purpose of this model is to evaluate future year conditions and allow for the testing of various roadway improvement alternatives in order to achieve an overall operating Level of Service (LOS) equal to C (see Level of Service, Section 4.6). In order to more accurately evaluate the impact on the roadway system, an iterative process is used, which projects growth on the transportation system over time based on the Land Use Plan. The results of this modeling process will allow the County to better implement effective transportation solutions to ensure that level of service is maintained.

With the exception of most of the residential streets, all roadways are included in the model for greater flexibility and accuracy. The model evaluates both roadway segments and intersections based on a volume-to-capacity ratio. Due to the varying rate and location of development in the County, the final transportation network proposed in this Plan should be considered a dynamic element to be implemented and refined over time. Future detailed studies will determine the exact locations and design features of the Plan's improvements.

Even with the extensive road facility improvements and the establishment of new roadways, several roadways in the County will continue to operate at unacceptable levels of service. To alleviate these congested areas and maximize the capacity of the transportation network, transportation demand management and other transportation alternatives will need to be implemented.

4.3 Transportation Coordination

The Fredericksburg Area Metropolitan Planning Organization (FAMPO), which includes all of Fredericksburg City, Stafford County, and Spotsylvania County, provides the foundation for regional transportation planning. Although Stafford County is also a member of the National Capital Region Transportation Planning Board (TPB), primarily for air quality conformity determinations, the County develops its regional transportation planning initiatives through FAMPO, which coordinates its initiatives with TPB.

The use of any federal funds for transportation improvements within the County must be approved by FAMPO and included within its regional plans. The County competes with the other localities in the region for those funding resources. FAMPO coordinates the development of a Transportation Improvement Program (TIP) for the region. The TIP programs and prioritizes interstate, primary (state route numbers of 599 and below), and secondary (state route numbers of 600 and above) road projects for a six-year period. FAMPO develops a Long Range Transportation Plan, which identifies those regional transportation facilities necessary to meet growth and development projections for the area for the next 20-30 years. Many of those recommendations have been incorporated into this plan.

The Virginia Department of Transportation (VDOT) has primary responsibility for maintaining public streets within the County. The County works closely with VDOT to plan and program road improvement projects. The County approves an annual secondary road improvement budget and secondary road improvement six-year plan in conjunction with VDOT. These two actions program state-allocated funds for secondary road projects. Interstate and primary system funds are allocated by the Commonwealth of Virginia in coordination with FAMPO through the TIP process. In addition, the County coordinates safety-related transportation projects with VDOT to ensure the safe operation of County roadways.

4.4 Multi-Modal Transportation Facilities

4.4.1 *Car Pool and Van Pool*

The County's carpool and vanpool programs are coordinated by George Washington Regional Commission (GWRC) through GWRideConnect. GWRideConnect maintains a database of participating individuals, but specific assignments are left to private arrangements. The Commonwealth of Virginia provides grant funds to support GWRC's coordination effort.

In 2014, there were 120 formal carpools and 426 vanpools in the region. In addition, numerous carpools exist that do not formally register with GWRideConnect. GWRC's program is geared toward matching individuals who are new to the area and are unfamiliar with available carpools and vanpools. Carpools and vanpools are organized primarily to serve Northern Virginia; however, some provide service to Dahlgren in King George County, the Richmond area, and Maryland. FAMPO provides financial assistance in the early stages of new vanpool operation and provides technical assistance to potential operators on such matters as insurance, in addition to providing potential riders for the vanpool.

The County supports all initiatives that will expand carpool and vanpool operations, including encouraging the Commonwealth to provide additional services and funds to GWRC that allow them to further assist citizens in the community.

4.4.2 *Park and Ride Lots*

Four commuter parking lots serve Stafford County. Each lot is located near one of the Interstate 95 interchanges. There are two lots adjacent to Garrisonville Road. The lot on the north side of Staffordboro Boulevard has a capacity of 1,865 vehicles following a 2014 expansion resulting from demand consistently exceeding capacity. The Mine Road lot on the south side of Garrisonville Road has a capacity of 740 vehicles and demand is at 99 percent of capacity. The lot on Courthouse Road has a capacity of 534 vehicles and is at 90 percent of capacity. It is planned to be relocated as part of the reconstruction of the Courthouse Road interchange at interstate 95. The lot on Warrenton Road has a capacity of 1,024 vehicles and is at 62 percent capacity, according to GWRideConnect 2012 data.

The County supports efforts to acquire land adjacent to or nearby the Warrenton Road commuter parking lots for future expansion when additional capacity is needed and funds are available. The County supports the relocation of the Courthouse Road commuter parking lot.

The new lot would be designed for future expansion to meet future needs of this area for commuter parking. Commuter parking has not been established at the Centreport Parkway (SR-8900) interchange, but should be considered in the future as development occurs in that area. The FAMPO 2040 Long Range Transportation Plan projects the future 2040 need for an additional 8,827 Parking spaces in the region at an estimated cost of \$166.0 million.

In conjunction with these efforts, joint use parking areas at centrally located commercial and office centers should be considered. Specific areas could be designated at major centers for commuters. Larger residential developments should also incorporate commuter parking areas for their residents. The intent of these parking lots is to act as a supplement parking area for commuters for established car and vanpools and not to replace the primary commuter parking lots.

4.4.3 Bus

FREdericksburg Regional Transit (FRED) serves as the local and regional bus provider in the County. FRED provides bus routes within Stafford which primarily serves the transit dependent citizens. Routes to Fredericksburg connect Stafford with the Fredericksburg metropolitan area.

Several private bus operators provide commuter bus service. The County supports the expansion of privately operated bus services. Bus service is most efficient when serving large concentrations of commuters in subdivisions or at central parking areas. All future central parking areas used for commuters should be designed to accommodate bus stops. In addition, developers of large communities should be encouraged to support transit programs and provide a coordinated effort to accommodate bus and commuter parking services.

As part of the I-95/I-395 HOT Lanes Study, the Virginia Department of Rail and Public Transit worked with the developer of the HOT lanes project, Flour-Transurban, to examine Bus Rapid Transit (BRT) as a component of the project. The study concluded that there would be a market for BRT services in the I-95 corridor. Potential BRT stations were evaluated for Garrisonville Road and Warrenton Road. Studies of potential locations for these stations is on-going.

4.4.4 Commuter Rail

Virginia Railway Express (VRE) is supported by Stafford County, Spotsylvania County, Fairfax County, Arlington County, City of Alexandria, Prince William County, City of Manassas, City of Manassas Park, and the City of Fredericksburg. Commuter rail service is primarily a work-related commuting option operating in the morning from Fredericksburg and Manassas to Washington, D.C. and reversing itself for the evening commute.

The Leeland commuter rail station has 1,029 parking spaces and was at 86 percent capacity as of August 2014. The Brooke commuter rail station has 727 parking spaces and was at 78 percent capacity as of August 2014. A new commuter rail station opened in Spotsylvania County in late 2015. It is projected to provide some nominal relief for the Stations in Stafford County.

This Plan supports commuter rail service, including service expansions for mid-day and reverse commuters, geographic extension of rail service, weekends, late evening connections to other

transit programs and additional rush hour trains. Methods which will make better use of capital and operating funds should be pursued as well as economic opportunities associated with the commuter rail program.

Stafford County is within the Washington D.C. to Richmond section of the Southeast High Speed Rail project. This multi-state and multi-agency effort aims to improve the performance and capacity of passenger rail service in the corridor. The project plans for the construction of a third set of rail tracks through the County. Alternative routes around the City of Fredericksburg are currently being considered which may have impacts to areas of the County near the Dahlgren Spur Line. Construction of the third rail line is currently underway between Arkendale and Quantico in the northern part of the County. The construction of a third rail will require the expansion of VRE facilities including an additional passenger platform at both the Brooke Road and Leeland Road stations. The new platforms will be of greater length than the current platforms in order to accommodate longer trains.

4.4.5 Telecommuting

Stafford County supports alternatives that will help reduce traffic congestion, especially on Interstate 95. A program that has direct benefit in this area is telecommuting. Technological advances in recent years have dramatically widened the choice of workplace for information workers and others so they can work wherever these tools are available. This development has paralleled trends toward a service economy, greater worker flexibility, empowerment of employees, and rising frustration from the irritation and time loss associated with commuting.

Telecommuting does not necessarily imply working at home. Although this alternative is widely used, it will continue to grow in popularity as broadband communication networks are expanded. Satellite telecommuting centers near residential areas, fully equipped with appropriate telecommunications equipment and services, can also serve employees of private firms or government agencies located together on the basis of geography rather than business function. In many cases, a shared facility provides a more practical and satisfactory location than the home for telecommuting and a setting less threatening to traditional business management styles.

Telecommuting centers should be encouraged in areas where the greatest number of individuals may be served.

4.4.6. Stafford Regional Airport

The Stafford Regional Airport is an operating reliever airport. The facility was developed by an authority comprised of representatives from Prince William County, Stafford County, and the City of Fredericksburg. It is located along Centreport Parkway on the south side of Ramoth Church Road, west of I-95 in central Stafford County. The airport site is approximately 500 acres in size. The runway is 5,000 feet in length with a full parallel taxiway system. The airport began operating in December 2000. Efforts are underway to expand the runway to 6,000 feet. This will allow aircraft to take on additional fuel and pay-loads and make the airport more attractive to corporate users for cross country and international flights.

A reliever airport is a general aviation airport which the Commonwealth of Virginia and the Federal Aviation Administration (FAA) have identified as being close enough to a commercial airport (Reagan National and Dulles International Airports) to provide congestion relief for commercial air traffic. General aviation airports serve business and personal transportation, emergency rescue, express delivery, and news reporting flights. Most general aviation aircraft are small single and twin engine aircraft as well as business and corporate jets with wing spans up to 80 feet.

The Stafford Regional Airport accommodates both fixed-wing and helicopter aircraft. The airport accommodates up to 100 based aircraft and 75,000 flights annually. Ultimate design of the airport includes hangar space for 120 non-corporate aircraft; 200,000 square feet of corporate hangar space; and tie-down space for 150 aircraft.

4.4.7 Bicycle and Pedestrian Facilities

All new, reconstructed, or expanded roadways should include bicycle and pedestrian routes. Inside the Urban Service Area, subdivisions should accommodate pedestrian and bicycle facilities. Development for bicycles and pedestrians should comply with VDOT standards. Virginia Bike Route 1 traverses Stafford County. Bicycle accommodations along this state designated route should be provided.

Most of the trails in Stafford County are privately owned and constructed as part of individual neighborhoods. Providing a series of connecting trails and sidewalks is a priority for the County. Trails projects include the planned Belmont-Ferry Farm trail and the Warrenton Road Corridor Trail. Where roads cannot be constructed to connect adjacent existing neighborhoods, pedestrian and bicycle trails should be considered to create connectivity.

Stafford County participated in the FAMPO 2040 Bicycle and Pedestrian Plan. The purpose of the Plan was to develop a safe, comprehensive and connected regional network of on-road and off-road bicycle and pedestrian corridors and related facilities. The 2040 Bicycle and Pedestrian Plan is part of the regional 2040 Long Range Transportation Plan.

4.5 Transportation Demand Management

Transportation Demand Management (TDM) is designed to alleviate traffic problems through improved management of vehicle trip demand. These actions, which are primarily directed at commuter travel, are structured to either reduce the dependence on and use of single-occupant vehicles, or to alter the timing of travel to other, less congested time periods. Simply stated, the purpose of TDM is to maximize the movement of people, not vehicles, within the transportation system.

The most common form of TDM is used by employers to stagger working hours of their employees. Staggered working hours allows vehicles to arrive at the place of business in a regulated manner to minimize congestion on-site as well as on the nearby streets. TDM also offers travelers alternatives to driving alone. Alternatives include various types of transit such as bus, commuter rail, carpooling and vanpooling, high-occupancy-vehicle (HOV) lanes, and where appropriate, provisions for walking and bicycling. The emphasis, however, is on

providing these alternatives in a manner which makes them competitive with the service levels offered by the automobile. Individuals are more likely to use alternate modes of travel when familiar with the various programs.

4.6 Level of Service

The Level of Service (LOS) is a measure of a road's effectiveness to operate in an efficient manner. The operating characteristics of a roadway include, but are not limited to, the number of lanes, pavement width, design speed, traffic controls, shoulder condition, and horizontal and vertical alignments. Levels of Service are divided into six categories from LOS A (best operating conditions) to LOS F (worst operating conditions). At a minimum, LOS should be maintained at LOS C or better.

LOS A	Free flow; low volumes and no delays; volume less than 60% of capacity; delay at signals 0-10 seconds.
LOS B	Stable flow; speeds restricted by travel conditions; minor delays; volume 60-70% of capacity; delay at signals 10-20 seconds.
LOS C	Stable flow; speeds and maneuverability closely controlled due to higher volumes; volume 70-80% of capacity; delays at signals 20-35 seconds.
LOS D	Stable flow; speeds considerably affected by change in operating conditions; minor delays; high density traffic restricts maneuverability; volume 80-90% of capacity; delays at signals 35-55 seconds.
LOS E	Unstable flow; low speeds; considerable delay; volume at or near capacity; freedom to maneuver extremely difficult; volume 90-100% of capacity; delay at signals 55-80 seconds.
LOS F	Forced flow; very low speeds; volume exceeds capacity; long delays; stop and go traffic; delays at signals more than 80 seconds.

LOS is used in transportation modeling to determine the impacts of a particular development project or the addition of a new transportation facility on the operation of the existing road network. Development applications that meet specified thresholds will be required to submit a traffic impact analysis (TIA) in accordance with VDOT Chapter 527 requirements. Stafford County will review the TIA based on LOS C. Where LOS C cannot be attained, development applications will be evaluated by "non-degradation" and "offsetting impact" policies discussed below:

The Non-Degradation Policy requires applicants to ensure that the transportation system affected by the application performs no worse after the project is developed than it would otherwise. This approach is primarily a performance based approach which requires applicants to provide improvements or other guarantees to maintain certain performance levels. These levels would be measured by levels of service or other measures as deemed appropriate by the County and VDOT.

The Offsetting Impact Policy requires applicants to contribute to transportation improvements. The contributions would be proportional to the traffic generated by the project and the amount of transportation capacity required to accommodate that traffic, presumably based on lane-miles. However, this policy would not ensure that the localized performance of the transportation system would be maintained. Instead, it recognizes that in some instances, it may be impossible for performance to be maintained or for one individual applicant to provide the transportation improvements which may be needed.

In general, the Non-Degradation Policy would be pursued in reviewing development applications, with the Offsetting Impact Policy employed in those instances where the Non-Degradation policy is not appropriate.

4.7 Right-of-Way Requirements

In an effort to preserve land for roadway improvements and to decrease delays in land acquisition, requirements are set forth in the Road Improvement table in Appendix G regarding right-of-way for roadways. The right-of-way specified therein should be obtained through the development approval process (e.g. zoning reclassification, conditional use permit, site plan, etc.) as applications are submitted to the County or through their purchase by the County. The provision of these rights-of-way will allow for future road improvements to be constructed with adequate ancillary features such as turning lanes, sidewalks, trails, and buffering, while minimizing impacts on properties which are subsequently developed. It should be stressed, however, that the ultimate roadway designs will recognize available right-of-way to the extent possible; the intent of these requirements is not to impose a rigid right-of-way swath through areas or mature neighborhoods, but rather to secure additional right-of-way needed for road improvements as development or redevelopment occurs.

Figure 4.1 depicts the anticipated road network improvements within the county based on the 20 year growth projection and build-out of the land use plan. Right of way requirements for specific road segments are identified as future improvements on the map and are described in more detail in Appendix G. Many of these projects are not currently funded and may be constructed beyond the 20 year plan horizon. However, it is important to identify these needed roadway improvements for future planning purposes. In the future, funding opportunities may come available for corridor improvements and safety improvements as new projects and lane widening and shoulder improvements as maintenance projects. Appendix H also contains diagrams depicting typical street sections with extents of desired right-of-way, number of lanes to be provided, median sizes and types and treatments for the of the roadway.

4.8 Access Management

The latest Access Management Regulations were adopted in 2009 and amended in 2011, 2012, and 2014. Recognizing the benefit of minimizing impacts to roadways by development and the community benefits, the County follows the Access Management Regulations as established by VDOT. The regulations are designed to preserve the performance of the existing highway and retain capacity through reduction in conflicting traffic movements. This will extend the transportation infrastructure capacity and promote economic development.

Typical techniques used in access management are use of reverse frontage, inter-parcel access and combining street entrances. Reverse frontage and/or inter-parcel connectors are required by the County's zoning ordinance along arterial and collector roads. In the Highway Corridor Overlay District (HCOD), the requirement supports the County's transportation objective to maximize the efficiency of roadway facilities. Principal arterials primarily accommodate through travel movements. However, direct access to and from these highways occurs frequently. In general, the provision of many access points reduces the efficiency and capacity of an arterial road. This reduction is caused by the interruptions in smooth traffic flow due to turning movements into and out of driveway entrances. Reverse frontage and inter-parcel connectors provide for the separation of the access and travel functions along roadways. When correctly planned and built, their use allows the adjacent parallel roadway to operate more efficiently, with increased capacity and safety. At the same time, access to adjacent properties is provided and oriented to controlled access points. These alternatives also allow for purely local inter-parcel trips to be made without disrupting the through traffic on the adjacent arterial.

Since October 2002, Stafford County has served as a liaison between residents and VDOT regarding traffic related concerns. Through the County's residential Traffic Management Plan (formerly the Traffic Calming Plan), various programs are available to citizens and communities to address residential traffic related problems for streets and roads operated and maintained by VDOT.

Based closely on VDOT's Residential Traffic Management Program and Traffic Calming Guide for Local Residential Streets, the County's Residential Traffic Management Plan provides the minimum criteria (if any) to be satisfied, the steps citizens need to follow to obtain assistance with traffic related requests, and the process that the County will follow to resolve those requests.

As traffic issues in residential areas may have various sources, the following programs are available to address most concerns:

- Multi-Way Stop Program
- Residence District – Additional \$200 Fine Signs
- Residential Cut-Through Traffic
- Through Truck Restriction
- Traffic Calming
- Watch for Children Signs

4.9 VDOT Secondary Street Acceptance Requirements

In March 2009, VDOT implemented its revised Secondary Street Acceptance Requirements (SSAR). These standards were further revised in 2011. The purpose of these requirements is to ensure that streets built by developers will enhance the overall capacity of the transportation network by providing additional transportation connections to adjacent developments. A disconnected local street network reduces the effectiveness of the overall regional and local roadway system by forcing local trips onto the regional network. A connected transportation system provides benefits to citizens and residents. The revised requirements expand street connectivity and improve traffic circulation. It also reduces the number of one entrance

subdivisions. This should also enhance emergency access to neighborhoods improving safety for the residents of Stafford. The County supports the VDOT Secondary Street Acceptance Requirements. Roads that are designed in accordance with these requirements may qualify for acceptance into VDOT's secondary system of highways for public maintenance.

4.10 Road Improvement Projects in Approved Programs

Several transportation improvements are close to becoming reality. Programs at the County and Regional level have designated funding for projects.

- The 2008 Transportation Bond that was approved by the citizens identified 18 projects. Most of these projects consist of capacity and safety improvements to existing roads.
- The Transportation Impact Fee program has been in place since 2003. The purpose of the program is to require new development to assist in the funding of future road improvements, the need for which results from the additional demand generated. The impact fee service area encompasses all land located in the county, except any land located within the boundary of Marine Corps Base Quantico.
- The VDOT Six Year Improvement Program is a list of designated transportation improvements that will be undertaken by VDOT. The list is developed by VDOT (for the interstate and primary systems) and in consultation with county staff (for the secondary system).

A summary of all of these road improvement projects in approved programs are listed in Table 4.1 and graphically represented in Figure 4.2.

4.11 New Transportation Improvements

New roads will be required to support additional traffic generated by the growth patterns identified in the Land Use Plan. Some of these roads have been previously identified on the Transportation Plan Map and Land Use Plan Map. The new roads have many benefits. In the designated TGAs and redevelopment areas, road segments are proposed that are intended to meet the vision of these areas by creating a grid pattern street network that serves to relieve existing congested roadways. In new growth areas, collector roads will be required to move residents to work, shopping and other activities. In addition, roads are identified that have been designated as components of previously approved development projects. These new roads that are anticipated to be constructed during the 20 year planning horizon are identified in Table 4.2.

During the 20 year planning horizon, it is also anticipated that there will be a number of improvements to the transit facilities. Potential expansion of existing commuter parking lots was discussed in 4.4.2. As described in Chapter 3, development of the Targeted Growth Areas (TGAs) will drive the need to construct additional commuter parking areas. The map in Figure 4.3 identifies the new improvements to the road network and transit facilities.

4.12 Funding Sources

Road improvements in Stafford County are financed from various sources including the federal government usually through the Federal Highway Administration (FHWA), the Commonwealth of Virginia through VDOT, FAMPO, and with developers as well as County contributions. Funding sources include, but are not limited to:

- VDOT Six-Year Improvement Program for Interstate and Primary Systems (SYIP) — determined through VDOT. Funding is based on the Code of Virginia formula and approved by the Commonwealth Transportation Board (CTB).
- VDOT Six-Year Improvement Program for Secondary System (SSYP) — determined by VDOT. Funding is based on the Code of Virginia formula and approved by the Board of Supervisors and the CTB.
- Congestion Management and Air Quality (CMAQ) Program funds—federal monies allocated by FAMPO negotiated and based on formula
- Regional Surface Transportation Program (RTSP) funds — federal funds allocated by FAMPO
- VDOT Revenue Sharing Program
- SMART SCALE: VDOT administered multi-modal transportation funding program
- Legislative appropriations (others not currently programmed)
- Advance construction funds through VDOT
- Federal Highway Administration (FHWA) Bonus Obligation Funds
- Federal earmarks
- County general funds
- Debt issued by the County for road projects
- 2% fuel sales tax
- Recordation fees
- Transportation Impact Fees
- Transportation Service District Tax
- Developer funds and improvements
 - Proffers
 - Built directly
 - Financial securities, usually supplemented by other funds for projects abandoned or unfinished by developers.
- Transportation Enhancement Grants — federal grants allocated through the CTB
- Other grants—there are a wide variety of grant programs

4.12.1 Transportation Impact Fees

In 2000, and amended in 2007 the Virginia General Assembly granted the County the authority to impose transportation impact fees for new development in order to generate revenue for the costs of reasonable road improvements “necessitated by and attributable to new development.” Two impact fee areas were in effect between 2003 and 2014, the Central West district (Area A) created in 2003 and the South East district (Area E5) established in 2005. In 2012, the South East district (Area ES) was repealed, and in 2014, the Central West district (Area A) was repealed and replaced with a County-wide Impact district. Transportation Impact Fees are unique to Stafford County. Currently, no other locality in Virginia has taken advantage of this legislative authority.

The transportation impact fee program identifies specific road improvements that are identified as necessary due to new growth.

The identified improvements for the Stafford County are:

- Upgrade Richards Ferry Road (SR-752) from Warrenton Road (US-17) to Cotton Lane (private road) to a rural two lane major local standard
- Upgrade Holly Corner Road (SR-655) from Warrenton Road (US-17) to Hall Lane (SR-726) to a rural two lane major local standard
- Upgrade Ramoth Church Road (SR-628) from Courthouse Road (SR-630) to Kellogg Mill Road (SR-651) to a rural two lane major local standard
- Upgrade Embrey Mill Road (SR-733) from Winding Creek Road (SR-628) to Eustace Road (SR-751) to an urban two lane major local standard
- Widen Courthouse Road (SR-630) from an urban two lane major local to a four lane divided major collector from Austin Ridge Drive (SR-1486) to Walpole Street (SR-709)
- Widen Enon Road (SR-753) from an urban two lane major local to a four lane divided major collector from Hulls Chapel Road (SR-653) to Truslow Road (SR-652)
- Upgrade Enon Road (SR-753) from Porter Lane (SR-640) to Hulls Chapel Lane (SR-653) to an urban two lane major local standard
- Widen Enon Road (SR-753) from an urban two lane major local to a four lane undivided major collector from Cambridge Street (US-1) to Porter Lane (SR-640)
- Widen Cambridge Street (US-1) from a four lane undivided minor arterial to a six lane divided major arterial from the Fredericksburg City Line to Warrenton Road (US-17) / Butler Road (SR-218)
- Widen Eustace Road (SR-751) from an urban two lane major local to a four lane divided major collector from Embrey Mill Road (SR-733) and Garrisonville Road (SR-610)
- Upgrade Kellogg Mill Road (SR-651) from Poplar Road (SR-616) to Ramoth Church Road (SR-628) to a rural two lane major local standard
- Upgrade Eskimo Hill Road (SR-628) from Jefferson Davis Highway (US-1) to Potomac Run Road (SR-626) to a rural / urban two lane major local standard
- Upgrade Brooke Road (SR-608) from New Hope Church Road (SR-605) to Andrew Chapel Road (SR-629) to a rural / urban two lane major local standard
- Widen Jefferson Davis Highway (US-1) from a four lane undivided minor arterial to a six lane divided major arterial from Garrisonville Road (SR-610) to Telegraph Road (SR-637)
- Upgrade Andrew Chapel Road (SR-629) from Courthouse Road (SR-630) to Brooke Road (SR-608) to a rural / urban two lane major local standard

- Upgrade Winding Creek Road (SR-628) from Courthouse Road (SR-630) to Shelton Shop Road (SR-648) to an urban two lane major local standard
- Upgrade Staffordboro Boulevard (SR-684) from Sunningdale Drive (private) to Pike Place (private) to an urban two lane major local standard
- Widen Staffordboro Boulevard (SR-684) from an urban two lane major local to a four lane divided minor collector from Garrisonville Road (SR-610) to Sunningdale Drive (private)
- Upgrade Mine Road (SR-684) from Garrisonville Road (SR-610) to Settlers Way (SR-1460) to a four lane major collector standard
- Upgrade Truslow Road (SR-652) from Cambridge Street (US-1) to Poplar Road (SR-616) to a rural / urban two lane major local standard
- Upgrade Garrisonville Road (SR-610) from Rock Hill Church Road (SR-644) to Joshua Road (SR-643) to a rural / urban two lane major local standard
- Widen Plantation Drive (SR-1706) from an urban two lane minor collector to a four lane divided minor collector from Lichfield Boulevard (SR-700) to Lyons Boulevard (SR-2030) / Gladstone Drive (private)
- Upgrade Joshua Drive (SR-643) from Garrisonville Road (SR-610) to St. George's Drive (SR-1250) to an urban two lane major local standard

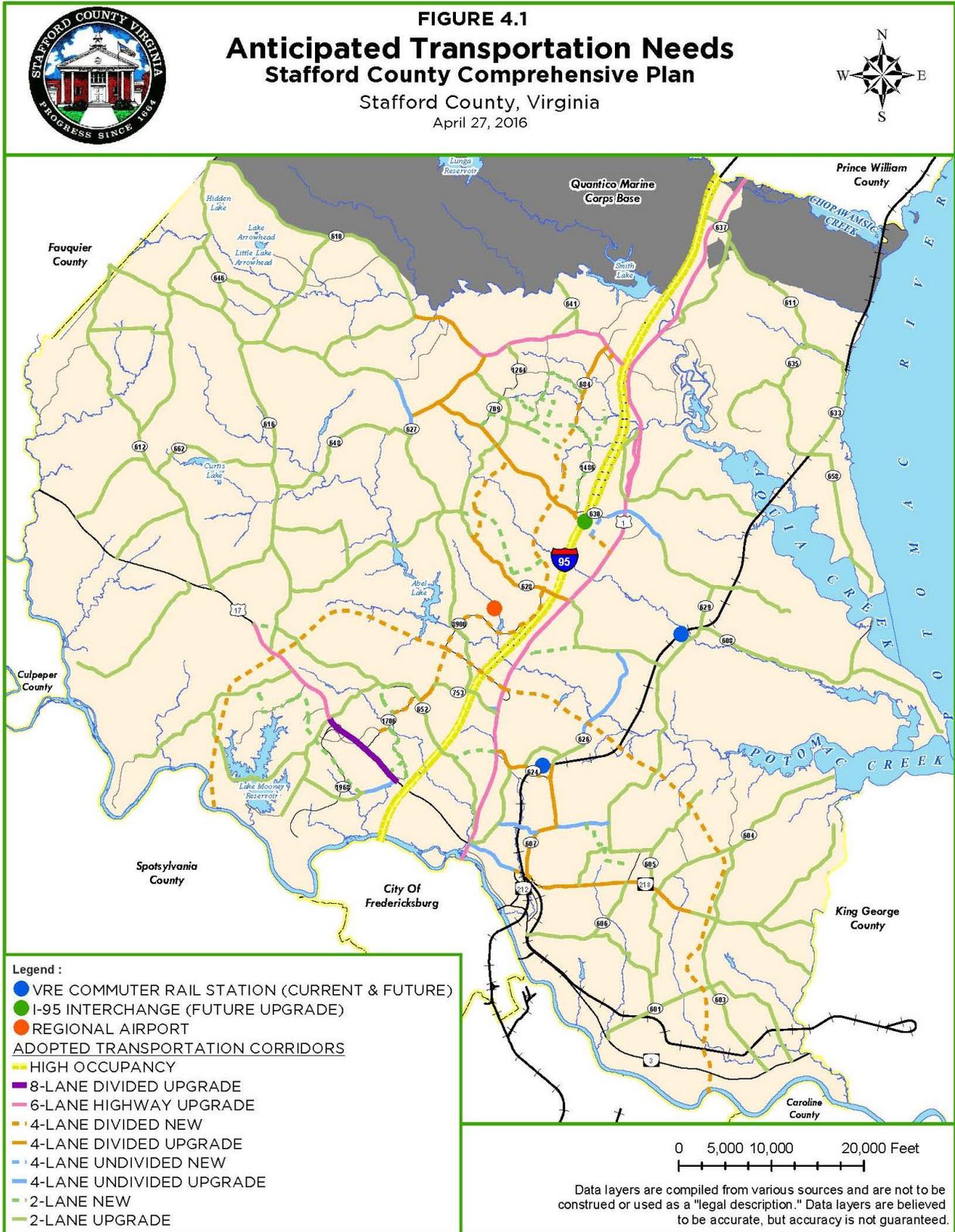
Figure 4.4 provides a map of the County-wide impact fee road projects.

4.12.2 Transportation Service Districts

Two transportation service districts serve the County, one in the Garrisonville Road (SR-610) area and one in the Warrenton Road (US-17) area. The County began collecting revenues in 2008. The Transportation Service Districts are special taxing districts in which commercial properties contribute to transportation improvement projects within the service district areas. All funds must be expended on transportation improvements within the respective service areas.

4.12.3 2% Fuel Sales Tax

As a member of the Potomac and Rappahannock Transportation Commission, (PRTC), a two-percent motor fuels sales tax is collected and paid monthly by registered retail outlets in the County. The tax is, in effect, assessed at the pump. The revenue collected through this tax is used for transportation improvements in the County. PRTC is the management agency for the fuels tax collected within Stafford County's borders. Except for a small annual PRTC administrative fee, all of the fuels tax revenue collected in the County is used in the County. The County is obligated to use these funds to off-set the subsidy for VRE ridership within the County. Any remaining funds beyond what is required for the subsidy can be used by the County for other transportation improvement projects.

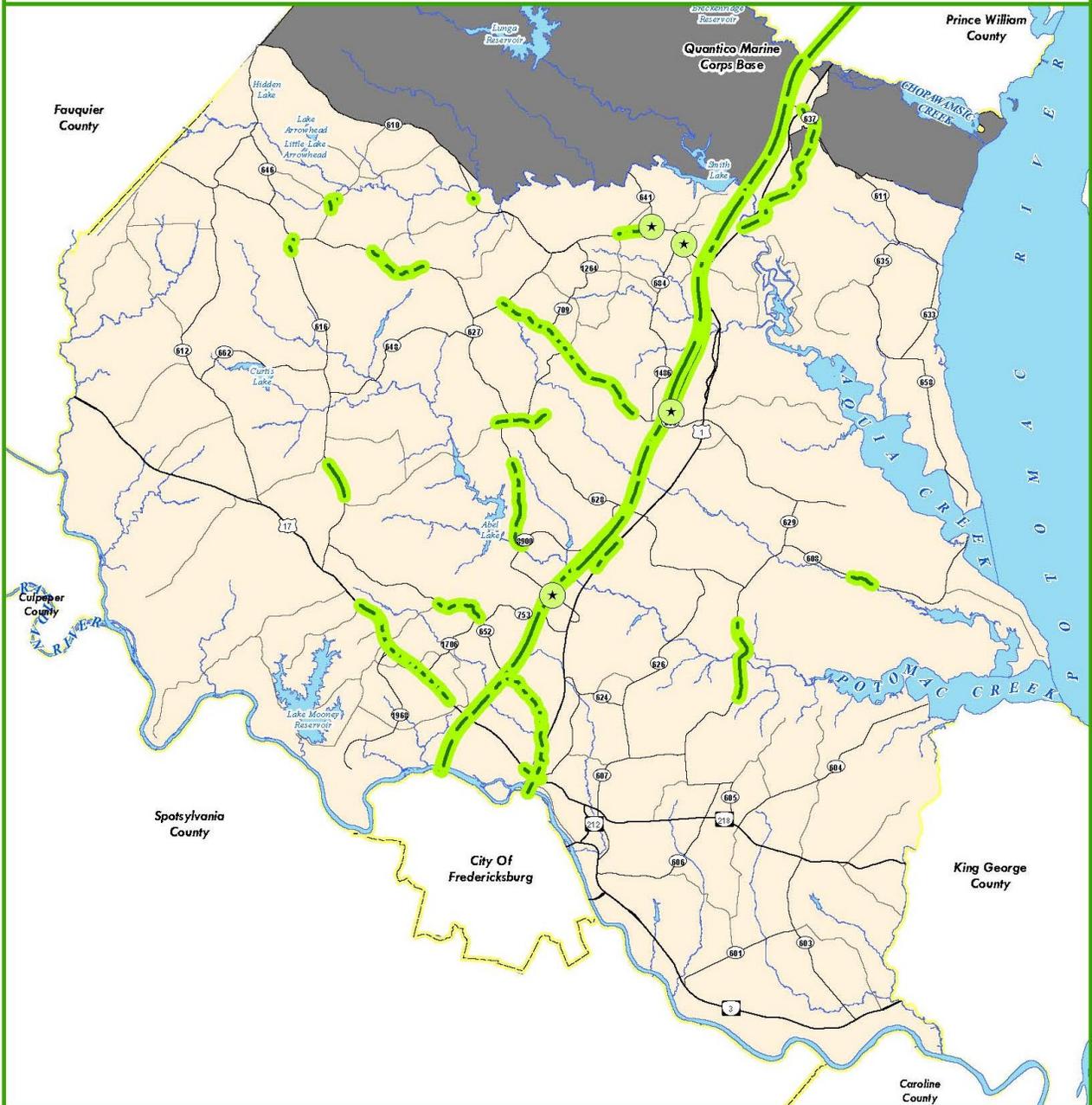


NAD 1983 HARN StatePlane Virginia North FIPS 4501 Feet

W:\arcdatar\arcmxd\CompPlan_2016revisions\Chapter4.1_AnticipatedTransportationNeed.mxd



FIGURE 4.2
Road Improvement Projects
In Approved Funding Programs
Stafford County Comprehensive Plan
Stafford County, Virginia
April 27, 2016



Legend :

-  Intersection Improvement Projects
-  Road Projects

0 5,000 10,000 20,000 Feet
|-----|-----|-----|-----|

Data layers are compiled from various sources and are not to be construed or used as a "legal description." Data layers are believed to be accurate, but accuracy is not guaranteed.

NAD 1983 HARN StatePlane Virginia North FIPS 4501 Feet

W:\arcdata\Arcmxd\CompPlan_2016revisions\Chapter4.2_RoadImprovementProjects.mxd

Table 4.1. Road Improvement Projects in Approved Programs

VDOT Route Number	Street Name	Termini From	Termini To	Project Scope	Length (miles)	Program	Est. Cost (In millions)
1	Jefferson Davis Highway	0.25 miles North of Potomac Creek Dr.	0.25 miles South of Potomac Creek Dr.	Intersection Improvement -YDTF	0.50	Transportation Bond/ VDOT Six-Year Improvement	1.8
608	Brooke Road	0.64 miles South of Eskimo Hill Road	2.44 miles South of Eskimo Hill Road	2-Lane Reconstruction -YDTF	1.80	Transportation Bond	6.5
608	Brooke Road	Raven Road	0.50 miles East of Raven Road	Spot Improvement - YDTF	0.50	Transportation Bond	1.8
616	Poplar Road	0.20 miles North of Kellogg Mill Road	0.77 miles North of Kellogg Mill Road	2-Lane Reconstruction - YDTF	0.57	Transportation Bond	2.1
616	Poplar Road	Mountain View Road	0.25 miles South of Mountain View Road	Spot Improvement - YDTF	0.25	Transportation Bond	1.6
627	Mountain View Road	Centreport Parkway	1.48 miles North of Centreport Parkway	2-Lane Reconstruction - YDTF	1.48	Transportation Bond	5.3
627	Mountain View Road	Rose Hill Farm Drive	0.25 miles North of Joshua Road	2-Lane Reconstruction - YDTF	1.27	Transportation Bond VDOT Six-Year Improvement	8.3
627	Mountain View Road	0.25 miles North of Kellogg Mill Road	0.25 miles South of Kellogg Mill Road	Intersection Improvement - YDTF	0.50	Transportation Bond	1.3
644	Rock Hill Church Road	Crown Manor Drive	0.15 miles South of Dunbar Drive	Spot Improvement - YDTF	0.26	Transportation Bond	0.9
17	Warrenton Road	McLane Drive	Village Parkway	Widen to 6- and 8-lanes	2.10	Transportation Bond / VDOT Six-Year Improvement	47.2
610	Garrisonville Road	Onville Road	Eustace Road	Widen to 6-Lanes	0.65	Transportation Bond	13.8
606	Ferry Road	Kings Highway	Colebrook Road	2-Lane Reconstruction	1.40	Transportation Bond	5.0
630	Courthouse Road	Cedar Lane	0.2 miles West of Ramoth Church Rd	Widen to 4-Lanes	2.10	Transportation Bond / VDOT Six-Year Improvement	34.9
630	Courthouse Road	0.2 miles West of Ramoth Church Rd	Shelton Shop Road	Widen to 4-Lanes (PE & ROW Only)	1.30	Transportation Bond / VDOT Six-Year Improvement	8.9
637	Telegraph Road (East of US-1)	Jefferson Davis Highway, South Intersection	Jefferson Davis Highway, North Intersection	Spot Improvements	1.75	Transportation Bond	6.3
651	Kellogg Mill Road (Relocated)	0.15 miles West of Ramoth Church Rd	0.35 miles East of Ramoth Church Rd	New 2-Lane Road on New Location	0.50	Transportation Bond	1.8
652	Truslow Road	Cambridge Street	Interstate 95 Bridge	2-Lane Reconstruction	1.96	Transportation Bond	7.0
652	Truslow Road	Berea Church Road	Plantation Drive	2-Lane Reconstruction	0.87	Transportation Bond VDOT Six-Year Improvement	7.3

VDOT Route Number	Street Name	Termini From	Termini To	Project Scope	Length (miles)	Program	Est. Cost (In millions)
1/17/218	Falmouth Intersection			Intersection Improvements		VDOT Six-Year Improvement	24.9
95 & 630	I-95 / Route 630 Interchange			Reconstruct / Relocate Interchange		VDOT Six-Year Improvement	151.0
1	Jefferson Davis Highway	Telegraph Rd	Woodstock Lane	Safety Improvement		VDOT Six-Year Improvement	8.8
1	Jefferson Davis Highway	Prince William County line	Telegraph Rd	Widening Study		VDOT Six-Year Improvement	0.5
1	Jefferson Davis Highway	At Aquia Creek		Bridge Replacement		VDOT Six-Year Improvement	5.7
1	Jefferson Davis Highway	At Garrisonville Rd Intersection		SB Turn Lane Addition		VDOT Six-Year Improvement	1.4
1	Jefferson Davis Highway	At Courthouse Road Intersection		Intersection reconstruction		VDOT Six-Year Improvement	6.3
1	Jefferson Davis Highway	At Potomac Creek		Bridge Replacement		VDOT Six-Year Improvement	6.5
1	Jefferson Davis Highway	At Rappahannock River		Bridge Replacement		VDOT Six-Year Improvement	50.0
3	Kings Highway	At Rappahannock River		Bridge Replacement		VDOT Six-Year Improvement	20.0
218	Butler Rd	US 1	Chatham Heights Rd	Widen from 2 to 4 lanes	1.0	VDOT Six-Year Improvement	26.1
606	Ferry Rd	SR-3	Taylor St	Reconstruct Intersection	0.1	VDOT Six-Year Improvement	3.9
610	Garrisonville Rd	At Onville Rd Intersection		Intersection Improvement		VDOT Six-Year Improvement	14.9
616	Poplar Rd	0.16 miles North of Truslow Rd	0.63 miles North of Truslow Rd	2-lane Reconstruction	0.46	VDOT Six-Year Improvement	2.7
654	Berea Church Rd	Truslow Rd	US 17	2-lane Reconstruction	1.3	VDOT Six-Year Improvement	4.2
753	Enon Rd	US 1	Beauregard Dr	2-lane Reconstruction	0.6	VDOT Six-Year Improvement	3.6
95	I-95	Garrisonville Rd	Interstate Exit 126	HOT Lane Extension	18	FAMPO CLRP	735
95	I-95	End of HOT Lanes	Accokeek Creek	Convert inner shoulders to lanes during peak hours	6.1	FAMPO CLRP	20
95	I-95	US 17	SR-3	Add 2 CD Lanes & 2 new 2-lane bridges		FAMPO CLRP	275
95	I-95	AT Centerport Parkway		Ramp Improvements		FAMPO CLRP	90
95	I-95	Prince William Co.	City of Fredericksburg	Widen to 8 general purpose lanes	17.1	FAMPO CLRP	269

Produced: 5/2/2016

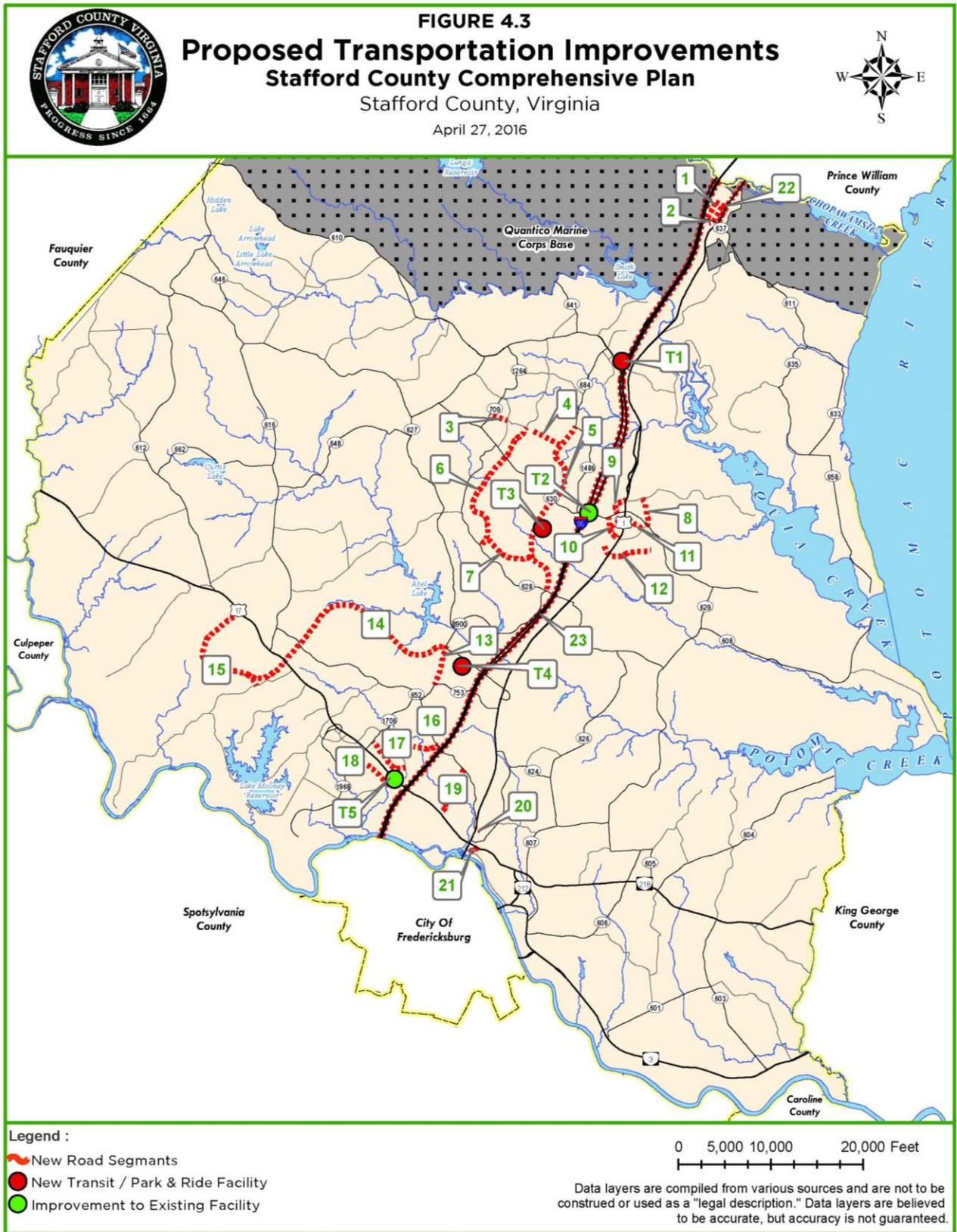


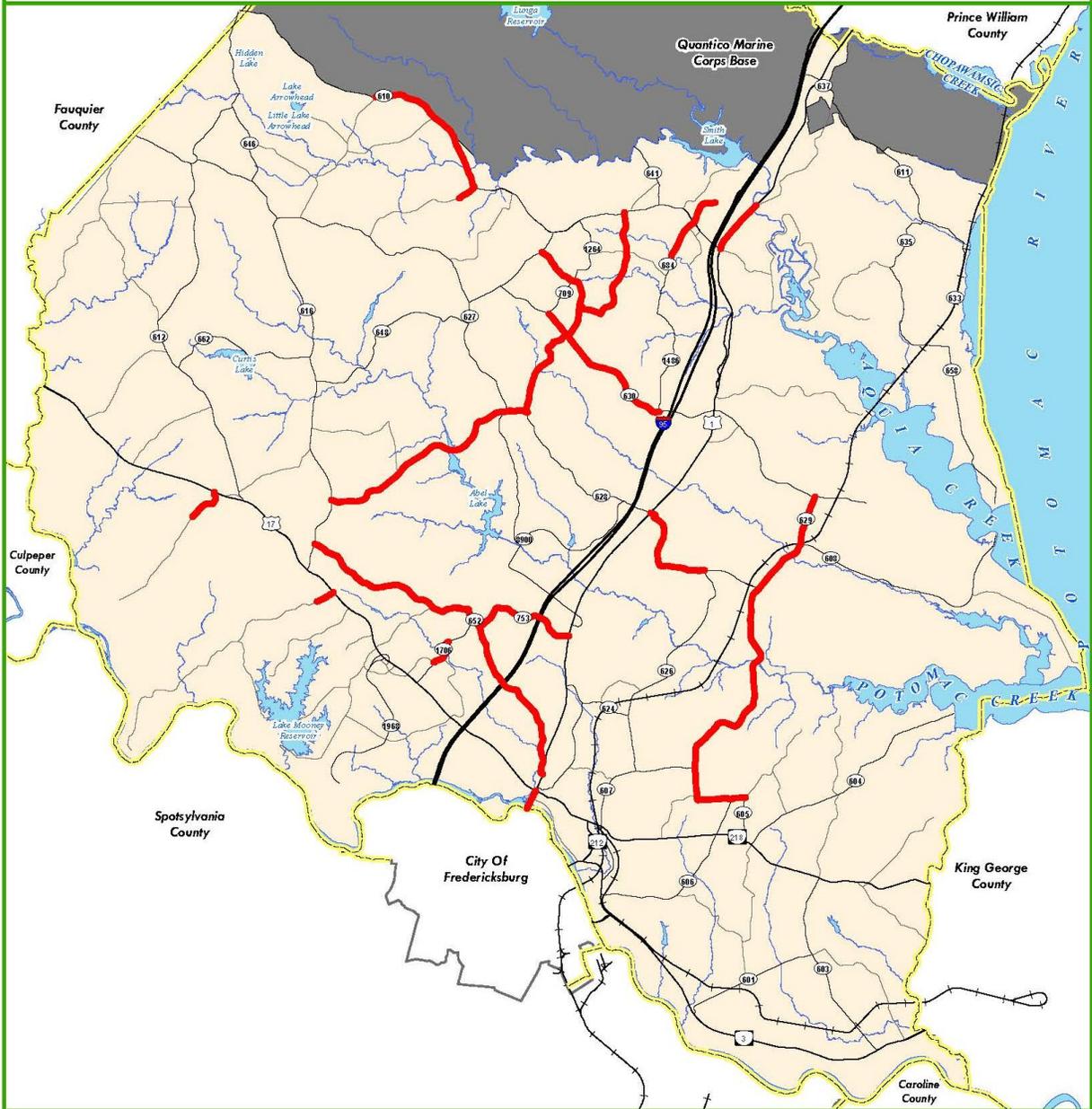
Table 4.2. Proposed Transportation Improvements

Map Number	Road Name	Estimated Cost
1	Corporate Drive Extension (to Telegraph Road)	Unknown
2	US Route 1 Parallel Roads (Corporate Drive to Telegraph Road)	Unknown
3	Embrey Mill Road Extension West (to Walpole Street)	Unknown
4	Embrey Mill Road Extension East (to Mine Road)	Unknown
5	Mine Road Extension (Austin Ridge Drive to Ramoth Church Road)	Unknown
6	Woodcutters Road (Eustace Road to Ramoth Church Road)	Unknown
7	George Washington Village Connector Road	Unknown
8	Northeast Courthouse Bypass (Courthouse Road to Hope Road)	Unknown
9	Northwest Courthouse Bypass (US Route 1 to Government Center Access Drive)	Unknown
10	Jason Mooney Drive Extension (Courthouse Road to US Route 1)	Unknown
11	Courthouse Road Parallel Road (Jason Mooney Drive to Hospital Center Blvd)	Unknown
12	Venture Drive Extension/South Campus Blvd	Unknown
13	Centerport Parkway Extension (south to Enon Road)	Unknown
14	Berea Parkway (Centerport Parkway to Warrenton Road)	Unknown
15	Westlake Parkway (Loop Road off of Warrenton Road)	Unknown
16	Falls Run Drive Extension (South Gateway Drive to Truslow Road)	Unknown
17	US Route 17 Parallel Road (North side - from Plantation Dr to South Gateway Dr)	Unknown
18	US Route 17 Parallel Road (South side - extension of Capital Ave to Sanford Dr)	Unknown
19	Lendall Lane Extension (Warrenton Road to Truslow Road)	Unknown
20	Clearview Avenue Extension (to US Route 1)	Unknown
21	Rowser Road Extension (River Road to Butler Road)	Unknown
22	Jefferson Davis Highway Widening (Telegraph Road to Prince William County Line)	Unknown
23	Interstate 95 High Occupancy Toll (HOT) Lanes	Unknown
T1	Garrisonville Road Transit Center	Unknown
T2	Courthouse Road Park and Ride Lot Expansion	Unknown
T3	George Washington Village Transit Center and Park and Ride Lot	Unknown
T4	Centerport UDA Transit Center and Park and Ride Lot	Unknown
T5	Warrenton Road/Southern Gateway UDA Park and Ride Lot Expansion	Unknown

Produced: 5/5/2016



FIGURE 4.4
Transportation Impact Fee Area
Stafford County Comprehensive Plan
Stafford County, Virginia
April 27, 2016



Legend :
Impact Fee Eligible Road Projects

0 5,000 10,000 20,000 Feet

Data layers are compiled from various sources and are not to be construed or used as a "legal description." Data layers are believed to be accurate, but accuracy is not guaranteed.

NAD 1983 HARN StatePlane Virginia North FIPS 4501 Feet W:\arcdata\Arcmxd\CompPlan_2016revisions\Chapter4.4_TransportationImpactFeeAreas.mxd