

3.6 Future Land Use Recommendations

The recommended future use of land in the County is designated in Figure 3.9, the Future Land Use Map. The type of development that is recommended in each land use designation, as depicted in the map, is described in detail in this section.

Urban Services Area

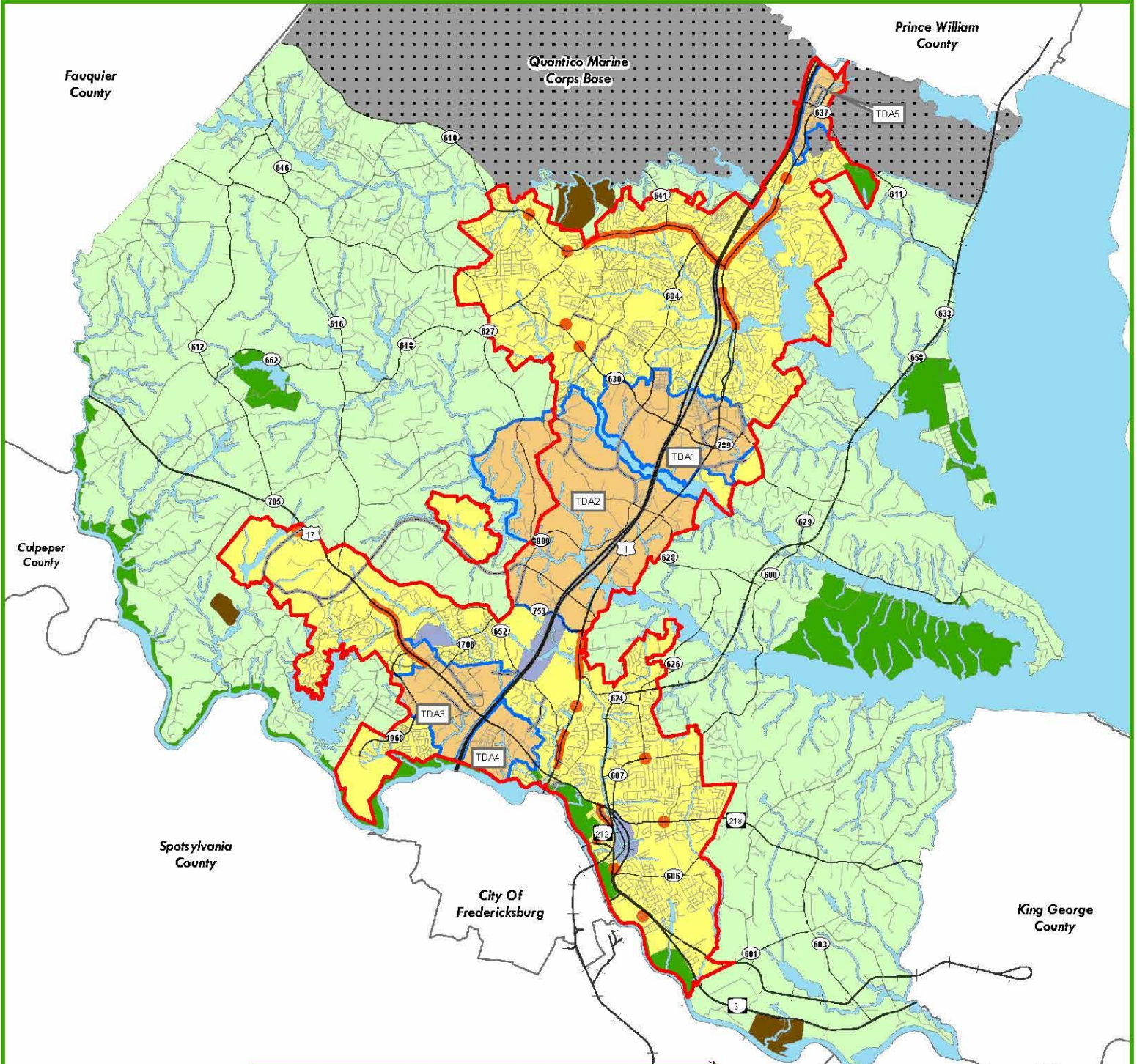
Urban Services Areas (USAs) are areas designated within the County where more compact development patterns are recommended. Provision of government and community services and facilities will be focused in these areas. Such services will include public sewer and water utilities, location of schools and other public and community buildings as well as provision of transit services. Improvements to the utility system, road networks, pedestrian accommodations, street lights and community facilities may be required to support the land development in these areas. The area will be comprised of the following land use designations:

- Targeted Development Areas (TDAs),
- Suburban Areas, and
- Business and Industry Areas.



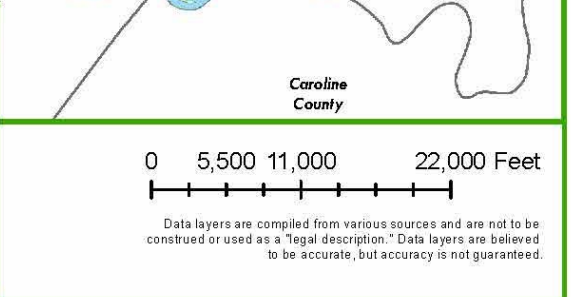
FIGURE 3.9 Future Land Use Stafford County Comprehensive Plan Stafford County, Virginia

October 19, 2021



Map Number	Targeted Development Areas
TDA1	Courthouse
TDA2	Central Stafford
TDA3	Berea
TDA4	Falmouth Gateway
TDA5	Boswell's Corner

Legend:		Future Land Use - Proposed	
	Urban Services Area		Suburban
	Railroads		Business and Industry
	Proposed New Roads		Agricultural/Rural
	Commercial Node		Mining
	Commercial Corridors		Federal
	Targeted Development Areas		Resource Protection
			Parks



Targeted Development Areas

Targeted Development Areas (TDAs), previously called “Targeted Growth Areas (TGAs)”, highlight the locations where a significant amount of new development and redevelopment (both commercial and residential) is expected to occur. This is where much of the County’s infrastructure and other public facility planning will be focused.

By its name, TDAs emphasize where development will be targeted. Each TDA, by its very location, has a different mix of targeted development that may be residential, mixed-use, commercial (retail), and “industrial”. In general, at least 50 percent of the County’s future residential and business development is recommended in these areas.

TDAs are areas of the County where a potential concentrated urban or higher density suburban development pattern is most appropriate. These areas will support a more intense, pedestrian and transit-oriented form of development, located in close proximity to primary road networks and transportation hubs. The land use recommendations in the TDAs are consistent with Section 15.2-2223.1 of the Code of Virginia pertaining to Urban Development Areas.

Areas with a more urban form of development will allow residents to work, live, shop and play within a relatively small area without fully relying on the automobile. Focus should be on the form of development, incorporating principles of traditional neighborhood design, including, but not limited to, (i) pedestrian-friendly road design, (ii) interconnection of new local streets with existing local streets and roads, (iii) connectivity of road and pedestrian networks, (iv) preservation of natural areas, (v) and mixed-use neighborhoods. Various types of dwellings, community uses and business activities may locate within the same block or within a single building. Town centers may include a mix of retail commercial enterprises on the first floor with residential or office condominium units located on the second and higher-level floors as a preferred development pattern to ensure that residents have the ability to shop and work within walking distance of where they live.

The suburban form of development should provide the same benefits as an urban development, but will have an appearance and form similar to the established suburban communities.

Residential – Commercial Land Use Mix and Phasing

It is expected that residential development within TDAs utilizing urban level densities will include a mix of housing types and a mix of uses (residential and commercial). Such mix of housing types and uses will generally occur on the subject parcel(s). Where such parcel(s) are not of sufficient size, the mix of housing types and/or commercial uses may be sited on adjacent or nearby parcel(s). Unless directly connected to a previously approved multi-use project, the mix of housing types and commercial uses shall be in addition to what is already in place or otherwise already approved but not yet completed. Applicants may work in partnership with other developers to satisfying this expectation. In such cases, the partnership to achieve the mix of housing types and uses shall be identified in a consolidated concept and/or master plan.

Additionally, development of the residential uses in a TDA utilizing urban level densities shall be phased contingent/consistent with new commercial development to help offset the impacts.

Residential Density Requirements

A goal of the TDAs, as originally adopted in 2016, has been to accommodate 50 percent of the projected population growth over the 20 year period between 2016 and 2036. This requires the

creation of one or more TDAs within the Comprehensive Plan that provide for the construction of approximately 10,570 new residential units. This should support over half of the projected 56,900 -person population growth and 18,355 dwelling units over the 20-year planning horizon. This estimate is derived by Weldon Cooper Center estimates of future growth trends. The total dwelling unit growth projected between 2016 and 2036 is derived by dividing the 20-year population growth (56,900) by the average persons per household of 3.1 (from the 2020 Census).

The Plan recommends that 10,570 dwelling units be distributed across the five (5) designated TDAs. Each TDA describes the desired number and types of dwelling units. The Plan recommends a maximum dwelling unit figure by unit-type or the maximum commercial square footage for an individual TDA.

Target densities for development within the TDAs include 12.0 condominiums or apartments, 6.0 townhouses, or 4.0 single-family homes per acre where residential development occurs and a minimum density of 0.4 floor area ratio (FAR) where commercial development occurs. To provide flexibility and allow for variations in individual projects, zoning district standards created for TDAs should incorporate the following density ranges:

- 3 to 6 dwelling units per acre for single-family detached homes,
- 5 to 8 dwelling units per acre for townhomes,
- 11 to 14 dwelling units per acre for condominiums or apartments, and
- 0.4 to 1.0 floor area ratio for commercial development

However, in the Downtown Stafford area of the Courthouse TDA, higher density development is permitted as outlined in the Courthouse TDA section of this chapter.

A variety of single-family detached units are supported in these areas. To achieve these higher densities, smaller lot sizes than typically found are anticipated, particularly when located in mixed-use areas and in close proximity to multi-modal transportation.

TDA Development Promotion and Incentives

In the past five years, development of the TDAs has lagged behind other areas of the County. It has been noted by the development community that the zoning entitlement process in these locations can be more costly, time consuming and has higher risk. To promote the appropriate amount of development in TDAs as recommended in this Plan, without sacrificing the necessary evaluation, efforts should be explored by staff to identify and recommend to the Board of Supervisors and Planning Commission appropriate modifications to the review and approval process. Some of the process improvements may include:

- Pursue the development of Small Area Plans in each of the TDAs to clarify desired development patterns.
- Consider a phased approach to zoning reclassification requests that would minimize risk and provide greater comfort level to potential developers.
- Simplify application requirements - impact assessments and development concept details.
- Establish criteria that may allow for an expedited review process.
- Consider modifying application fees.
- Establish standard development guidelines and impact mitigation criteria.

Locations

To encourage smart growth and reduce the impact of unintended and negative impacts upon I-95 and commute times for Stafford residents, Stafford County has included five (5) TDAs within the comprehensive plan. TDAs provide for concentrated areas of development rather than distributing future development across the USA and Agricultural/Rural areas. The TDAs have been located to minimize encroachment concerns with Marine Corps Base Quantico and the Stafford Regional Airport.

TABLE 3.3 TDA Development Summary

Targeted Development Area		Residential (dwelling units)				Commercial (total square feet)
		Single Family	Townhouse	Multi-family	Total	
1	Courthouse	1,500	750	3,190	5,440	5,500,000
2	Central Stafford	550	200	1,000	1,750	12,075,000
3	Berea (Warrenton Rd West)	500	400	750	1,650	3,750,000
4	Falmouth Gateway (Warrenton Road East)	500	400	750	1,650	1,000,000
5	Boswell’s Corner	--	80	--	80	1,000,000
Total		3,050	1,830	5,690	10,570	22,325,000

Transfer of Development Rights (TDR)

Furthermore, up to an estimated 1,490 dwelling units could be made possible by the transfer of development rights from properties outside the TDAs as part of the TDR Program. For residential purposes, 1 residential development right in the sending area is equivalent to 1 by-right residential development right in the receiving area. For non-residential purposes, 1 residential development right in the sending area is equivalent to by-right construction of 3,000 square feet of commercial space in the receiving area.

Public Infrastructure and Services

The TDAs should include transportation, recreational, public safety, and educational amenities. For example, smaller yards and open spaces within the required dense developments makes the provision of parks and other recreational facilities essential for a healthy lifestyle for the residents. Therefore, the Comprehensive Plan provides for the creation of 575 acres of new public park space in or around the TDAs. It also provides for the creation of an additional large recreational facility similar in size and amenities to Embrey Mill Park.

The types of Parks developed will provide different uses, they may be active or passive in nature. It is not the intent of this Plan to require all of the 575 acres within the limits of the TDAs designated on the Land Use Map. At the same time, the recommended Park land should be within reasonable proximity of the population within each TDA. The following is a list of criteria for the suitable location of parks in relation to each TDA. The types of parks are further described in the Development Control Policy Guidelines for Parks and Recreation Land Requirements.

- Neighborhood Parks/Civic Uses – should be located within the limits of the TDA, be within a 5 to 10 minute walk, or ¼ to ½ mile of the residents within the TDA, and include safe pedestrian and bicycle access.
- Community Parks should be located within 2 miles of the TDA they are intended to serve.
- District Parks shall be located within 15 to 20 minutes driving time of the TDA they are intended to serve.

The requirement for educational facilities will also be driven by such dense development. Traditionally, such facilities are located within the residential areas of the communities. The Comprehensive Plan identifies future need for the construction of three (3) new elementary schools, two (2) new middle schools, and one (1) new High School, which may include a Center for Technical Education. It also provides for the upgrade to one (1) existing fire and rescue facility and construction of four (4) new fire and rescue facilities to meet the increased public safety demands of the planned TDAs as well as a new Stafford Parkway, the extension of Mine Road, and other road upgrades to mitigate the local transportation impacts. These facilities should be sited within or in close proximity to the TDAs.

The above infrastructure improvements are essential components of the more concentrated suburban and traditional neighborhood design recommended in the TDAs and would be required components for approval of rezoning changes within the planned TDAs. Without the upgrades, approval should not be given for rezoning changes because the impact of the development would not be sufficiently mitigated. The infrastructure needs of the TDAs, Suburban and Rural areas relate to Chapter 5 with the Public Facilities Plan and corresponding methodology to calculate anticipated infrastructure needs in Appendix B.

Small Area Plans

To establish the desired land use pattern in each TDA, Small Area Land Use Plans should be developed and adopted as part of the Comprehensive Plan. A Small Area Plan was created for a portion of the Courthouse Area. That Plan provides a finer level of detail, identifying how the recommended land uses and density should be distributed throughout the Courthouse Area in an urban, traditional neighborhood design. The Plan includes a recommended street network.

Site Design

Use of buffering, screening and extensive building setbacks should be limited except when bordering the edge of a TDA. Buildings should not exceed six stories in height. Development in these areas should accommodate the need for affordable housing. Both on-street and off-street parking will be anticipated. In the most densely developed areas, structured parking should be encouraged. Parking structures should be sited and include architectural features to complement surrounding buildings. Development around primary transportation hubs should accommodate commuter parking while respecting the more urban form of development. Future developments should include open common areas or public spaces for residents and/or employees to enjoy leisure time activities. Streets and buildings should be designed to encourage physical and visual interaction at the street level. Street lighting and sidewalks are essential elements to ensure vibrant communities. These areas could also be designated as receiving areas in the County's transfer of development rights program.

Form-Based Codes

Should an urban, traditional neighborhood design be desired in a given area, the use of Form-based Code may be desired as Stafford County continues its evolution. For the purposes of this 20-year view, Form Based Code will be defined by the following:

Form-based codes address the relationship between building facades and the public realm, the form and mass of buildings in relation to one another, and the scale and types of streets and blocks. The regulations and standards in Form-based codes, presented in both diagrams and words, are keyed to a regulating plan that designates the appropriate form and scale (and therefore, character) of development rather than only distinctions in land-use types. This is in contrast to conventional zoning's focus on the micromanagement and segregation of land uses, and the control of development intensity through abstract and uncoordinated parameters [e.g., FAR, dwellings per acre, setbacks, parking ratios, traffic levels of service (LOS)] to the neglect of an integrated built form. Not to be confused with design guidelines or general statements of policy, Form-based codes are regulatory, not advisory.

Form-based codes are drafted to achieve a community vision based on time-tested forms of urbanism. Ultimately, a Form-based code is a tool; the quality of development outcomes is dependent on the quality and objectives of the community plan that a code implements. The County should make every effort to use Form Based Codes to achieve the desired outcomes for RDAs and the TDAs that are proposed and or contained within this Comprehensive Plan.

Fiscal Balance

The TDAs recommend a fiscally balanced amount of commercial and residential development, as discussed in the prior section of this chapter titled: “Residential – Commercial Land Use Mix and Phasing”. To mitigate any increased tax burdens on current residents, it is recommended that each TDA develop over time in a balanced and phased manner, with adequate commercial development to offset the demands on community facilities and infrastructure that residential development brings. This can be accomplished by ensuring appropriate phasing of larger mixed-use projects and tracking the amount and type of growth in each TDA on a regular basis.

Airport Impacts

Two of the TDAs (Courthouse and Central Stafford Business Area) are in the vicinity of the flight patterns for to the Stafford Regional Airport and its aircraft operations. An Airport Compatible Land Use Plan has been developed which recommends appropriate land uses and development standards in relation to different air traffic pattern areas. To ensure the safety of people and property on the ground and aircraft flying overhead, and the long-term viability of the Airport, any development proposals in these TDAs should be in conformance with the recommendations of the Airport Compatible Land Use Plan.

Specific TDA Locations

The following pages describe the five (5) designated TDAs.

Courthouse Targeted Development Area

Situated in a central location in the County, the Courthouse TDA consists of approximately 2,580 acres. The area is located along Courthouse Road, and bisected by Interstate 95. On the east side of the Interstate, the area incorporates the Historic Courthouse and extends south of the Stafford Hospital Center, along U.S. Route 1. The area extends west along Courthouse Road to Colonial Forge High School, incorporating land that includes portions of Austin Ridge and Embrey Mill to the north and south to Accokeek Creek.

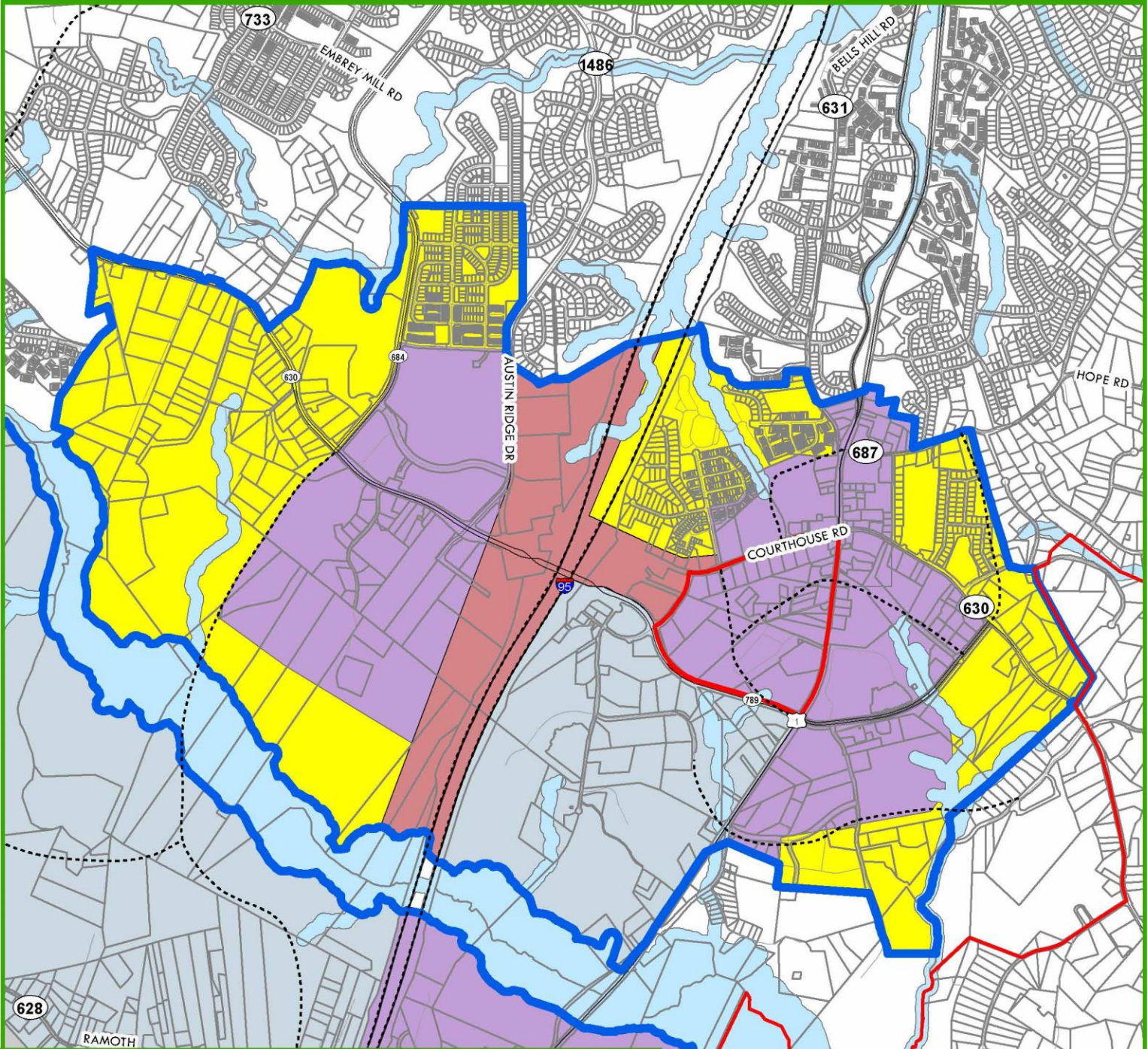
In total, the TDA is recommended to include 5,440 residential dwelling units, including 3,190 multi-family, 750 townhouse, and 1,500 single-family units, and 5,500,000 square feet of commercial development.

Land Use Concept

Figure 3.10 provides a generalized land use concept plan to guide the future development of the Courthouse Targeted Development Area.



FIGURE 3.10 Courthouse Targeted Development Area Stafford County Comprehensive Plan Stafford County, Virginia September 8, 2021



Legend

- Proposed New Roads
- Urban Services Area
- Targeted Development Areas

Land Use Classification:

- Business and Industry
- Commercial – Retail and Office
- Mixed Use – Commercial/ Residential
- Downtown Stafford - Mixed Use
- Residential
- Stafford Regional Airport

0 1,150 2,300 4,600 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.

The development areas can be further defined by three subareas: (1) East - Downtown; (2) Embrey Mill, and; (3) Southwest. Each sub-area will include a town center or one or more commercial centers to serve the new residents in this area of the County.

East - Downtown

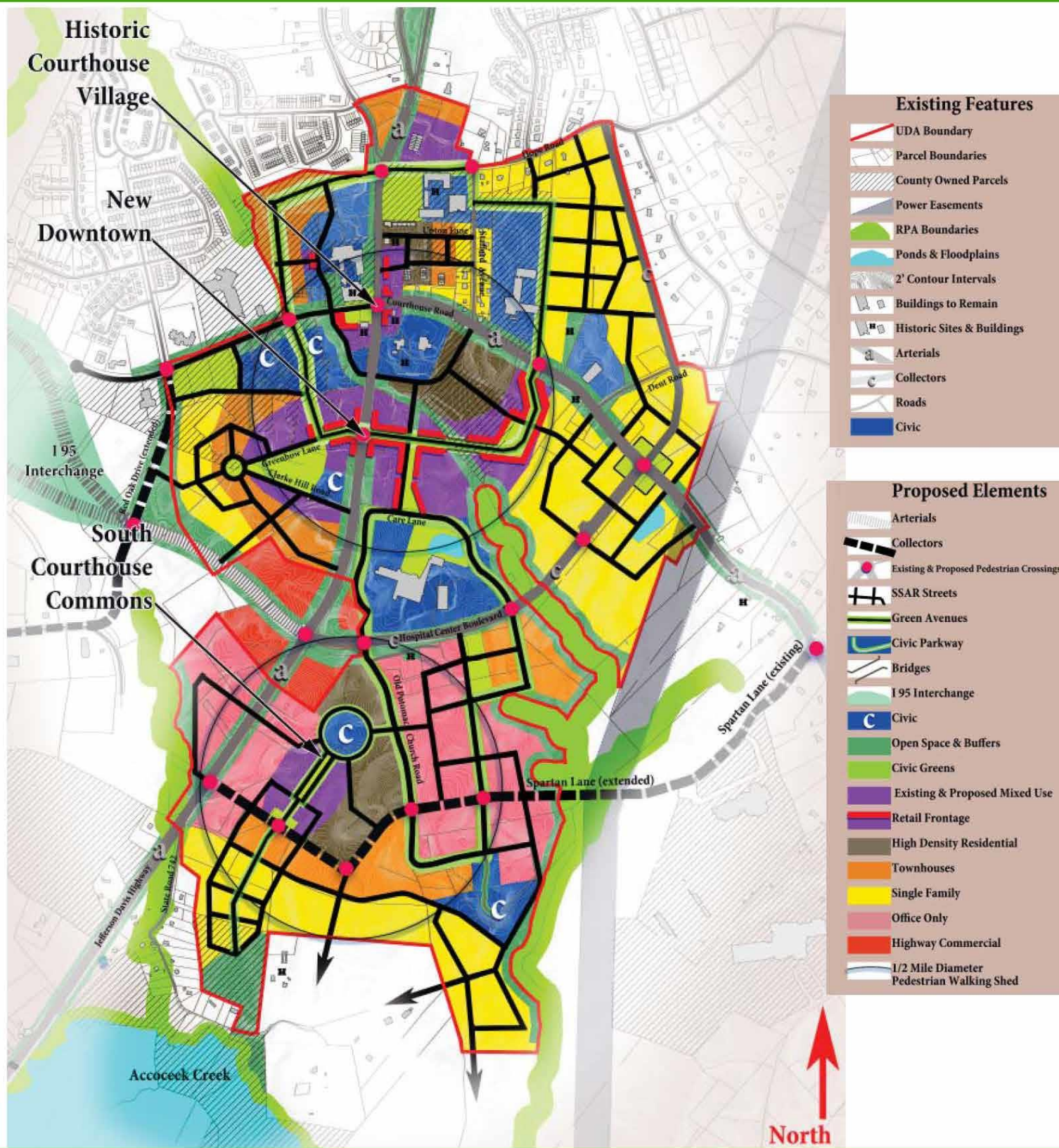
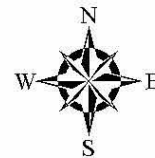
This area east of Interstate 95 includes the area around the historic Courthouse area. Over the past several years, the community has supported the concept of developing the area as a downtown. It has been identified as an Economic Development Priority Focus Area, more specifically as a Redevelopment Area, and the *Courthouse Small Area Plan* provides a more detailed land use concept plan for this area. The most recent effort focuses on the area envisioned as the urban core of the new downtown. Development in the Courthouse TDA would be centered around several commercial nodes, including a New Downtown, east of Interstate 95. The following describes the *Courthouse Redevelopment Area Plan* and *Courthouse Small Area Plan*, *Economic Development Strategic Action Plan*, and *new Downtown Stafford Plan*.

COURTHOUSE SMALL AREA PLAN

As part of the past efforts toward the planning for the development of the Courthouse area, a Small Area Plan was adopted as an element of the Comprehensive Plan. This Plan has established the recommended land use patterns for the portion of the TDA to the east of Interstate 95. The Plan identifies three commercial nodes: Historic Courthouse Village (adjacent to the Courthouse); New Downtown (between the Courthouse and Hospital); and South Courthouse Commons (south of the Hospital). These nodes will include a mix of commercial and retail uses at their core, surrounded by residential uses. The Small Area Plan establishes the desired roadway network in the Courthouse Area, designed to provide a hierarchical system of interconnected streets and recognizes the dual purpose and functionality of U.S. Route 1. A comprehensive access management plan should be developed to mitigate the impact of new development. Furthermore, an additional 400-space park and ride lot with a bus stop shelter has been completed to offset increased vehicle volumes on Interstate 95 during peak commute periods.



FIGURE 3.11
Courthouse Small Area Plan
 Stafford County Comprehensive Plan
 Stafford County, Virginia
 September 8, 2021



Existing Features

- UDA Boundary
- Parcel Boundaries
- County Owned Parcels
- Power Easements
- RPA Boundaries
- Ponds & Floodplains
- 2' Contour Intervals
- Buildings to Remain
- Historic Sites & Buildings
- Arterials
- Collectors
- Roads
- Civic

Proposed Elements

- Arterials
- Collectors
- Existing & Proposed Pedestrian Crossings
- SSAR Streets
- Green Avenues
- Civic Parkway
- Bridges
- I 95 Interchange
- Civic
- Open Space & Buffers
- Civic Greens
- Existing & Proposed Mixed Use
- Retail Frontage
- High Density Residential
- Townhouses
- Single Family
- Office Only
- Highway Commercial
- 1/2 Mile Diameter Pedestrian Walking Shed



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.

DOWNTOWN STAFFORD PLAN

Downtown Stafford is envisioned as a mixed-use pedestrian friendly community, conducive to supporting retail and entertainment venues, community uses, offices, and residential development. Community uses may include uses such as a Public Plaza and Cultural Center/Museum. The area is generally defined as being bordered by Courthouse Road and the County Government Center to the north, U.S. Route 1 to the east, Hospital Center Boulevard to the south, and Interstate 95 to the west. The road improvements around the new Interstate 95 Exit 140 interchange, completed in 2020, will improve access to this area. Highway commercial uses are recommended in the area along Courthouse Road, closest to Interstate 95.

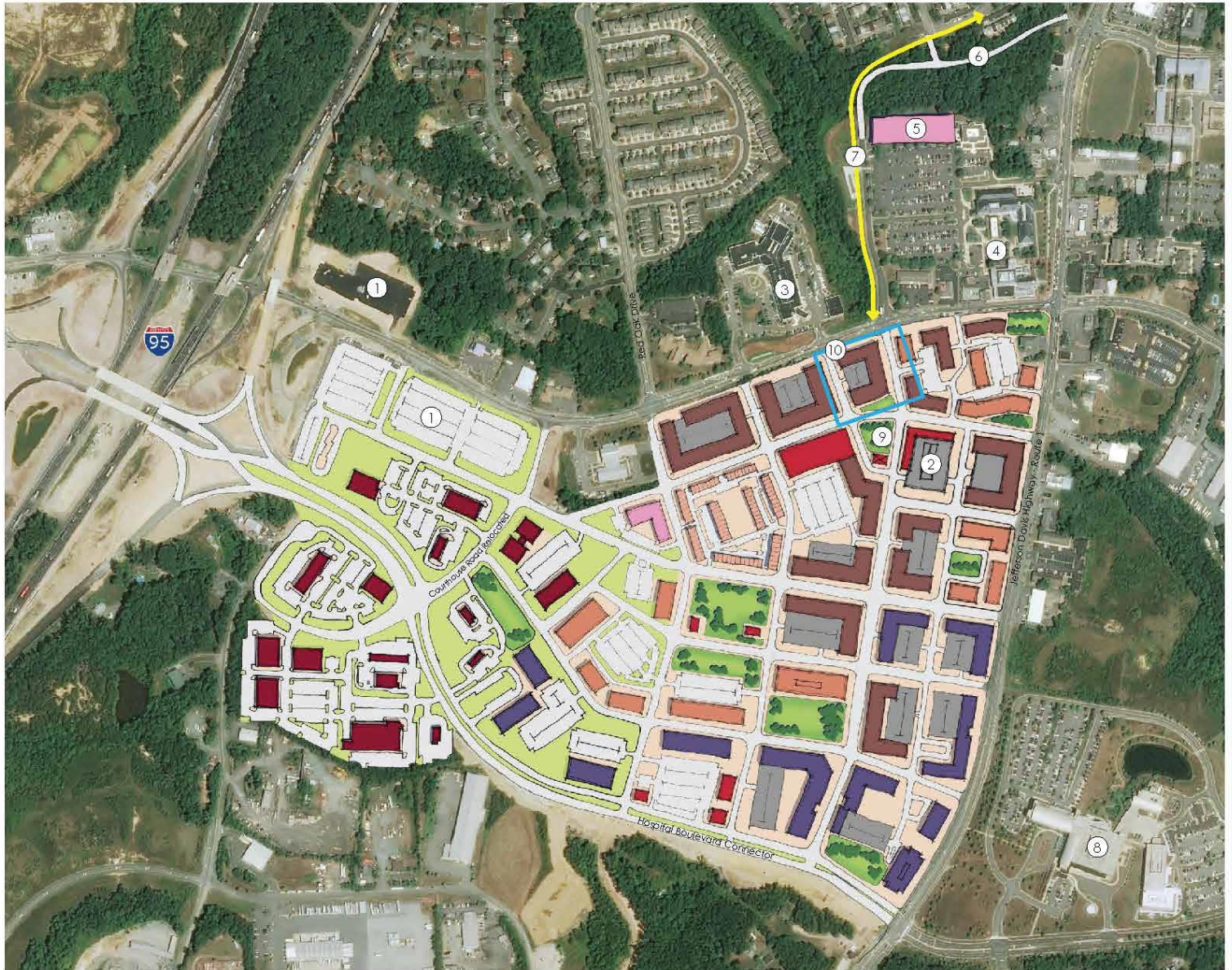
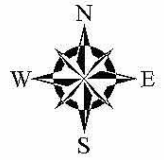
The first phase of Downtown is planned along the south side of Courthouse Road, across from the Government Center and Public Safety Building. Much of this land is County-owned. Additional privately owned land may be included in Phase 1. Access to Phase 1 is envisioned across from the current Government Center Access Road. Other connection points will be needed from US-1 and Courthouse Road to minimize traffic impacts, and to improve access to interior properties and promote walkability.

This area is envisioned as complementing the adjacent County Government Center. Improvements to the Government Center include the construction of a new Circuit Court building on a portion of the parking lot on the northern end of the site. This will require the relocation of parking in the complex. This plan recommends parking be accommodated in the Downtown area. In the initial phase, a temporary surface parking lot would be utilized. Ultimately, a multi-level public parking deck is recommended to be integrated into the development of Downtown. The parking deck will not only serve patrons of the government center, but may also support new area businesses and community events.

The Future Land Use Concept Plan represents a recommended development pattern for the buildout of the entire Downtown area beyond Phase 1. The Concept Plan highlights some of the public facilities and infrastructure recommended to serve this area. Flexibility should be provided to allow for the realities of site constraints and market trends.



FIGURE 3.12 Downtown Stafford Stafford County Comprehensive Plan Stafford County, Virginia September 8, 2021



- ① North Park and Ride Lot
- ② Proposed County Parking Garage
- ③ Stafford Sheriff's Office
- ④ Stafford Government Center
- ⑤ Proposed New Courthouse
- ⑥ Proposed Bells Hill Road/Jefferson Davis Highway Road Link
- ⑦ Bells Hills Road Pedestrian Connection
- ⑧ Stafford Hospital
- ⑨ Downtown Stafford
- ⑩ Temporary Courthouse Parking

Proposed Land Use Legend

- Open Space
- Civic
- Community Retail
- Highway Retail
- Mixed Use - Residential
- Mixed Use - Office
- Multifamily Residential

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.

The following is a summary of the potential buildout of Phase 1 and all of Downtown, as represented in this concept plan. Note that this is a maximum potential and it is more likely that a lesser amount may be realized given site constraints.

Phase 1 Estimated Buildout:

- 50,856 square feet of retail
- 64,145 square feet of office
- 979 residential dwelling units
 - 957 multi-family units
 - 22 townhouse units

Complete Buildout of Downtown:

- 288,256 square feet of retail
- 941,945 square feet of office
- 2,490 multi-family residential dwelling units
 - 2,418 multi-family units
 - 72 townhouse units

Note that the multi-family dwelling unit buildout estimate in the Downtown Plan (2,418) exceeds the original estimate for all of the Courthouse Planning Area (1,500). It is estimated that 728 of the original 1,500 dwelling units would be accommodated in this area under the original density recommendations. The remaining 1,690 units are added to the original 1,500 units for a total of 3,190 future multi-family units in the Courthouse TDA. The 72 townhouse units are considered part of the original recommended 750 units.

Good planning practice dictates that at least 1,000 dwelling units should be located within walking distance of the commercial core to make a downtown viable. This density would ensure enough households to patronize businesses during non-peak hours and improves the chances to succeed. The overall buildout recommendations and estimated public facility needs of the Courthouse TDA should be reevaluated and adjusted during the next 5-year review of the Comprehensive Plan.

The following is a summary of the recommended Public facilities and Infrastructure:

Government Center Area – North side of Courthouse Road

- New Circuit Court Building
- Renovation and expansion of existing Courthouse
- Bypass Road and Pedestrian Trail (connecting Bells Hill Road to the Government Center)

Downtown Stafford Area – South side of Courthouse Road

- Surface Parking lot (temporary – if Circuit Court building precedes permanent parking garage construction)
- Multi-level parking garage (permanent)
- Downtown Public Plaza
- Cultural Center/Museum

Smart Downtown

Downtown Stafford and the Government Center campus has the opportunity to become a first-of-its-kind model “Smart Community” in Virginia, demonstrating smart technologies and serving as a model for other communities. A Smart Community is one with technological infrastructure that

enables it to collect, aggregate, and analyze real-time data to improve the lives of its residents, businesses and visitors. Through a partnership with the Center for Innovative Technology, Downtown Stafford has been identified as a “Testbed” for the Commonwealth. This will allow for the acquisition of state funds and promote the private investment of the necessary infrastructure. Applications from this technology include 5G wireless, smart meters, smart street lighting, surveillance cameras, automated vehicle technology, ride sharing, smart parking, and real-time energy monitoring. These efforts serve to improve community safety, including safety of pedestrians and vehicles, reduce traffic congestion, and cut energy consumption,

Density and Design Recommendations

The following development standards are recommended. The current UD Zoning District regulations should be amended to accommodate these standards.

Downtown Area

- Buildings shall be no more than 5 stories/75 feet in height.
- Any buildings taller than 5 stories shall require a Conditional Use Permit with consideration given to impacts on adjacent properties.
- A mix of uses is encouraged, including retail restaurants, entertainment, and other commercial uses, offices, and residential uses.
- To ensure that no one project uses a disproportionate share of the recommended dwelling units, the location, amount and type of land uses shall be generally consistent with the land use recommendations in the Downtown Stafford Concept Plan.
- To ensure a mix of commercial and residential development, consistent with the buildout amount and location of uses, as envisioned in the Downtown Stafford Plan, the following ratios of commercial development to residential development should be achieved in each development proposal:
 - In Phase 1, the County property / JPI property, provide a ratio of approximately 100 square feet of commercial development per 1 dwelling unit;
 - In the remaining Downtown Stafford area, provide a ratio of approximately 700 square feet of commercial development per 1 dwelling unit;
- Any development proposing a higher ratio of residential to commercial development than what is prescribed above should prepare a fiscal impact analysis to ensure the project would generate positive revenue for the County;
- In no event should the number of total dwelling units in the Downtown Stafford Area exceed the recommended 2,490;
- The commercial development (existing or approved) should be within walking distance or within the pedestrian shed of the residential units and not impeded by any natural or physical barriers.
- Proposed commercial development shall be appropriately phased-in with the construction of the residential units.
- Commercial development referenced herein should consist of retail, restaurants, entertainment, office, or other uses that provide a service to the area residents.
- Mixed use buildings are permitted.
- Primarily multi-family residential is recommended in this urban setting.
- Residential densities up to 50 multi-family dwelling units per acre are permitted, with lesser densities as you move out from the urban center, including 12 townhouse dwelling units per acre and 6 single family dwelling units per acre.
- A maximum 3.0 floor area ratio is permitted for commercial development.

- Density bonuses would be permitted through the provision of transferable development rights.
- Building setbacks will be minimal with sidewalks and street trees.
- Outdoor dining areas should be incorporated into the design of sidewalks and planting strips in commercial areas. These areas may be located adjacent to the building or within the planting strip area. Outdoor dining areas shall be situated to maintain a minimum 10-foot wide sidewalk clearance, and may include a physical barrier no taller than 36 inches.
- Minimum parking requirements should be relaxed with the provision of public parking.
- Shared parking should be encouraged to minimize the footprint of parking areas and allow for more developable areas/green space.
- Utilization of both private and public parking garages is encouraged.
- Public parking garages shall be conveniently located.
- On-street parking shall be provided.
- Buildings shall incorporate high quality building materials and design.
- Buildings are encouraged to be designed to achieve the U.S. Green Building Council's Leadership in Energy and Environment Design (LEED) certification.
- Incorporation of green roof elements into the design of buildings to reduce the urban heat island affect and to provide an alternative means of stormwater management should be considered.
- The materials and design of buildings in the vicinity of the Courthouse and other historic structures should be compatible with the historic nature of those buildings and the area.
- Lighting and landscaping and public spaces shall be designed to incorporate Crime Prevention Through Environmental Design (CPTED) principles.
- Green space/parks shall be interspersed through the downtown area to serve as community gathering spaces and amenities for area residents, with an overall purpose of maintaining a high quality of life and mitigating the effects of climate change.
- It is expected that all developments within the designated Downtown Stafford Area will provide or otherwise support community amenities within the Downtown Stafford Area. The community amenities identified in the Downtown Stafford Concept Plan should achieve the desired quality of life for the residents of Stafford. Additional amenities to support this goal should also be provided.
- Such community amenities can and should include usable open space, parks, trails, picnic areas, playground equipment, stages, gazebos, benches and support recreational activities.
- For those developments where the identified amenities are fully within the boundaries of such developments, they are expected to provide the amenity/amenities in total. For those developments that partially contain the area where such amenities are identified, or which abut the area where amenities are identified, the developments are expected to partner to provide such amenities and/or contribute toward amenities within the Downtown Stafford Area, as permitted by state code. Alternatively, the development(s) may provide the identified amenities elsewhere within the Downtown Stafford Area as may otherwise be feasible and as approved by the county as an alternate location.
- For those developments not within or adjacent to amenities identified in the Concept Plan, and which have not otherwise partnered with others to provide identified amenities within the Downtown Stafford Area, such developments are expected to provide their own community amenities, partner with others to provide amenities, and/or contribute toward amenities within the Downtown Stafford Area beyond those identified in the Concept Plan, as permitted by state code. The additional amenities, or the contribution, is

expected to be in proportion to the size, scope and location of such developments in relationship to the overall Concept Plan.

- An interconnected network of streets shall be planned to relieve traffic congestion and ease of pedestrian access.
- One or more “festival streets” should be incorporated into the downtown area. A festival street shall be a segment of a road that can be closed off to vehicle traffic to allow for special events. The ability to provide alternative vehicle access shall be considered in the planning of this type of street.
- Pedestrian and bicycle accommodations should be provided where safe and feasible, including wide sidewalks, signalized crossings, clearly designated bike routes, and supporting infrastructure such as bike racks & benches. Complete Street Design Concepts shall be referenced when addressing this factor.

Highway Commercial

- Highway commercial uses such as vehicle fueling stations, fast food restaurants, hotels and other similar retail uses should be oriented toward the Interstate 95 interchange.
- Access points should be limited onto the main highway corridor.
- Building materials and design should be of high quality to provide for an attractive gateway into the County and Downtown Area.

Embrey Mill

This area incorporates the southern portion of the approved Embrey Mill Subdivision. The center of this area of the TDA would include a town center, which should be modeled using the principles of new urbanism. It should be pedestrian oriented with a mix of commercial space and condominiums on 80 acres. Buildings may include single story retail and multi-level single-use or mixed-use buildings up to four stories in height. A residential neighborhood located to the north of the town center and east of Mine Road has been completed with a mix of townhouses and single-family homes. To the west of Mine Road, is the Embrey Mill Park with rectangular athletic fields and an indoor swimming complex that serves the needs of the new residents in this area and serve as an asset to the entire County and region.

Southwest Quadrant

This area west of Interstate 95 and south of Courthouse Road would include either: a town center, which should be modeled using the principles of new urbanism with buildings three to four stories in height, or one or more commercial centers serving nearby residential uses; and stand-alone commercial areas with a mix of retail, office and industrial uses. Town centers should consist of a mix of commercial and residential uses.

OTHER COURTHOUSE TARGETED DEVELOPMENT AREA RECOMMENDATIONS

The following section of the Courthouse TDA includes area-wide recommendations regarding: Building and site design, and Public Facility needs.

Area Building and Site Design Standards

Architectural standards (i.e., building height, mass, materials, amenities, and signage), minimum and maximum setback requirements, environmentally friendly materials, and other design features should be incorporated into any development, consistent with the Neighborhood Design Standards Plan. The Plan supports a mix of uses following the concepts of a traditional neighborhood design.

Public Facilities

Getting the residents of the Courthouse Area to and from work and other destinations without creating an undue hardship on them and other residents of Stafford County and the Commonwealth of Virginia will require the provision of adequate transportation facilities (beyond the internal community road network).

VDOT recently completed the reconstruction of the Courthouse Road / Interstate-95 interchange, which included the extension of Hospital Center Boulevard, providing a new connection from the interchange to U.S. Route 1. This improvement has coincided with the recently completed first phase of the widening of Courthouse Road from two to four lanes west to Winding Creek Road and Ramoth Church Road. The project includes a new 10-foot wide shared use path along its entire length and extends to the east side of the interstate.

To avoid burdening any single interchange, Mine Road extended from Courthouse Road through the Southwest sub-area and beyond to Ramoth Church Road will need to be built to distribute the traffic volume between the Courthouse Road and Centerport Parkway interchanges. As part of the Courthouse Road interchange reconstruction, the park-and-ride lot has been relocated to the east side of the interstate. An additional transit facility including a park and ride lot with bus stop shelter, as well as a commuter van pool and bus transit station will need to be completed to reduce increased vehicle volumes on I-95 during peak commute periods.

Because of the amount of new residential density planned, the provision of adequate parks and recreational facilities is necessary. This will require that developers provide park property suitable for passive and active recreational activities, plazas and congregational spaces, as well as cultural activity, consistent with the recommendations of the Plan — not encumbered by restrictive easements and capable of supporting athletic fields and a network of trails. Dedication of open space to support these activities will be required. Parkland should meet the characteristics of having gradual terrain with limited sensitive resources and allow for flexible design and location of park facilities. Although the parks are not required to be located entirely within the TDA, they should conform to the location criteria provided in the introduction of the TDA section of the Plan.

The development of so many new dwelling units will by their nature increase the demand on Stafford County schools. To offset the capital cost of that demand, new schools will need to be constructed. A proffered elementary and middle school site is located within the Embrey Mill Subdivision and should be considered for future school construction.

The public facility needs are not limited to the items previously listed. The proposed residential development in the Courthouse TDA, would have an estimated 16,864 residents, creating the need for the below listed public facilities. These facilities should be provided for within the TDA or in areas outside the TDA within close proximity and within the Urban Services Area.

Parks and Recreation	202 acres
Fire and Rescue	0.90 stations
Public Schools	
Elementary Schools	1.25 schools
Middle Schools	0.50 schools
High Schools	0.40 schools
Libraries	0.67 libraries

The data tables that serve as a basis for these public facility needs are provided in Appendix B of this document.

As previously mentioned in the TDA summary section entitled “Public Infrastructure and Services,” these new infrastructure requirements listed above, are the result of the new development, its density and location, and **therefore will be the responsibility of the developer or developers of the Courthouse Area properties.**

Consistent with this goal, a proposed zoning change should offset the impacts of the new development. Impacts may be offset by voluntary proffers of such things as cash contributions, land dedication for a public facility, or construction of a public facility, as appropriate. Proffers may also include restrictions on the intensity and type of development. In the case of uses requiring a conditional use permit or special exception, the approving body may impose conditions to offset the impacts of the new development.

Phasing of Development

Near-term:

Courthouse (Undeveloped land). The number one area where growth should be targeted given the completed improvements to Courthouse Road and interstate interchange reconstruction, proximity to the interstate express lanes, and proximity to the hospital, and other public facilities. The near-term potential for development of vacant property is greatest in this area as new development projects are being planned. This area includes the Embrey Mill subdivision near the Interchange. The proximity to active development and proximity to public facilities makes the northern portion of this TDA the logical next step for growth extending south from the Garrisonville Road corridor.

Mid-term:

Courthouse (Redevelopment). The area, primarily focused on the intersection of Courthouse Road with U.S. Route 1, includes properties with older, underutilized, and some historic structures. The assembling of parcels for redevelopment may take additional time. Near-term development of vacant parcels may spur the redevelopment of underutilized property.

Summary

Projected New Dwelling Units:	5,440
Projected New Business Sq. Footage:	5,500,000
Minimum Facility needs within the limits of the TDA (accounting for a portion of the total facility needs identified to serve the TDA):	
Upgraded road network, as shown in Figure 4.2 of the Transportation Plan	
Passive and active recreational uses, plazas, and civic spaces	

Central Stafford Targeted Development Area

Located in the geographic center of the County, the Central Stafford Targeted Development Area (TDA) includes 6,742 acres. It extends from Accokeek Creek, south to the vicinity of the Centerport interchange and Enon Road, along Interstate 95 and U.S. Route 1, within the USA. The area surrounds the Stafford Regional Airport and extends to the west, outside of the USA, to include areas underneath the aircraft traffic patterns.

Due to the proximity to the Stafford Regional Airport and major transportation corridors, the area is intended to serve as an employment center in the County, where business and industrial uses are recommended. In total, the TDA is recommended to include 12,075,000 square feet of commercial development.

The area also includes two mixed use areas where residential dwelling units could be supported. In total, the TDA is recommended to include 1,750 dwelling units, including 1,000 multi-family, 200 townhouse, and 550 single-family units.

Southern Mixed Use Area: The southern area includes 1,000 dwelling units. In this area, development rights exist for 600 multi-family units along Centerport Parkway. An additional 400 units (100 multi-family, 50 townhouse, and 250 single-family units) are recommended between Centerport Parkway and Enon Road.

Northern Mixed Use Area: The remaining 750 units (300 multi-family, 150 townhouse, and 300 single-family units) are recommended along U.S. Route 1, north of American Legion Road and Eskimo Hill Road.

Proximity to other Community Attributes

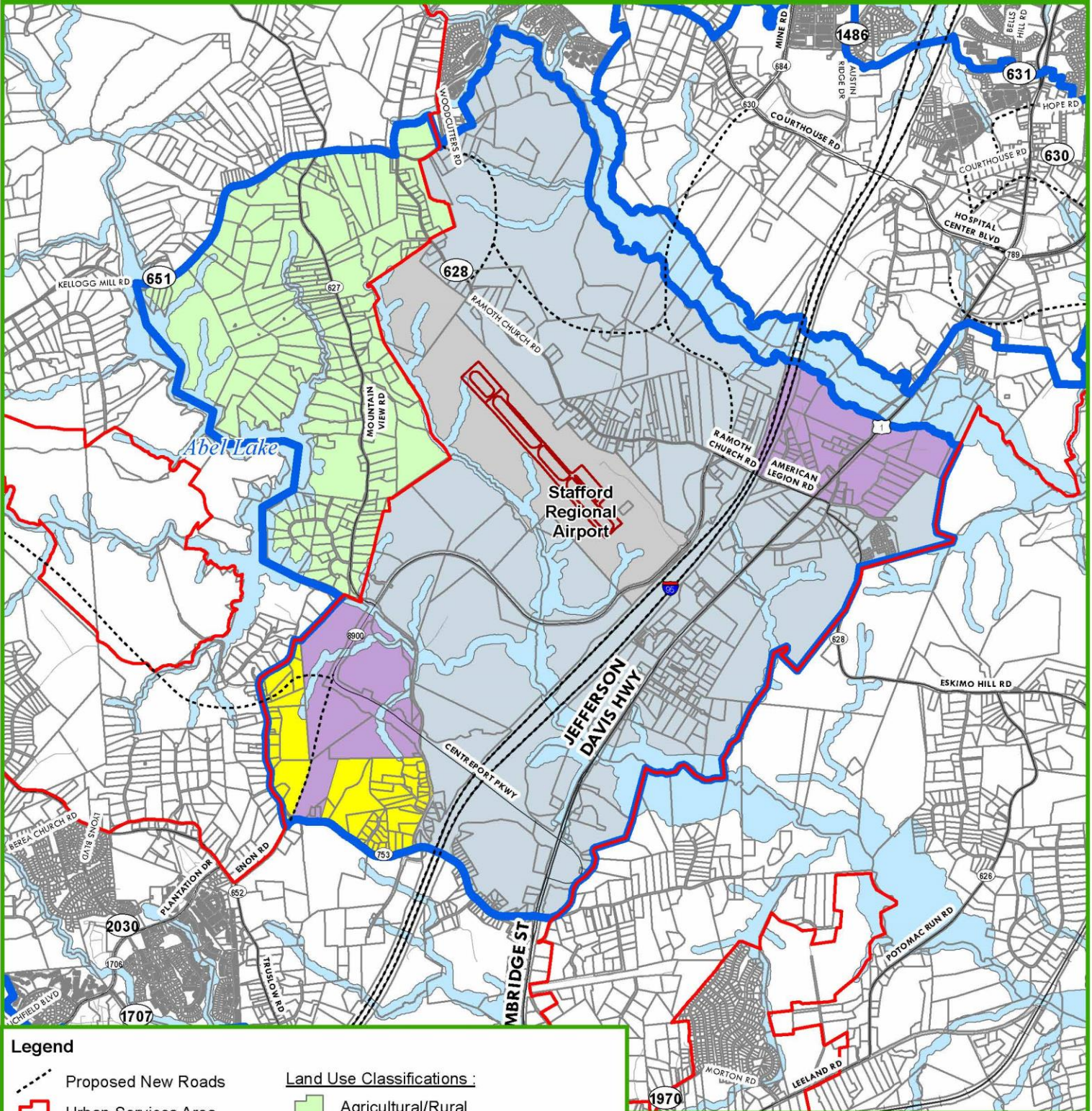
The area is located between the 2 main residential concentrations in the County. Additional residential development is planned in these areas, in close proximity to Central Stafford. This will provide the opportunity for employees to reside in close proximity and reduce commute times. The adjacent Courthouse Area includes existing and planned community resources that will benefit this area. Resources include the Stafford Hospital Center, County Courthouse and Government Center, and a planned Germanna Community College Campus. Germanna Community College can provide technical training for the business complex. This area is also planned for mixed use development, with commercial retail.

Land Use Concept

Figure 3.13 illustrates the land use concept plan for the area. The recommended land use areas are described below. Additional recommendations regarding land use compatibility with the airport are described in more detail in the Stafford Regional Airport section.



FIGURE 3.13
Central Stafford Targeted
Development Area
Stafford County Comprehensive Plan
Stafford County, Virginia
September 8, 2021



Legend

- Proposed New Roads
 - Urban Services Area
 - Targeted Development Areas
- Land Use Classifications :**
- Agricultural/Rural
 - Business and Industry
 - Mixed Use – Commercial/ Residential
 - Residential
 - Stafford Regional Airport

0 2,000 4,000 8,000 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.

Business and Industry

The area is recommended to serve as one of the employment centers in the County, as a location that could accommodate a wide range of commercial activities, serving small business entities to larger corporations. Uses include, but are not limited to, research and technology, data centers, general office, industrial related warehousing and manufacturing, airport related operations, hotels and conference space, and complementary retail uses. The area may develop in commercial neighborhoods, each serving different purposes. Several large land bays are within the district that may allow for the development of large scale campus style office parks and light industrial parks.

Mixed Use

The two mixed use areas with residential potential, identified in the north and the south, is located in close proximity to existing population centers and services for residents. Development of these areas should be modeled using the principles of new urbanism with buildings three to four stories in height, or one or more commercial centers serving nearby residential uses; and stand-alone commercial areas with a mix of retail, office and industrial uses. Town centers should consist of a mix of commercial and residential uses.

Residential

Residential areas are recommended on the perimeter of the southern targeted growth area, that are located in the proximity of Centerport Parkway and south to Enon Road. Primarily single-family detached residential unit types are recommended in these areas, along with complimentary recreation and community uses.

Agricultural/Rural (Outside of the USA)

This area is located along Mountain View Road and Kellogg Mill Road, outside of the USA. The area consists of primarily large lot residential uses and vacant properties. This area is included in the district as it is identified as being located under the traffic patterns for the airport. While there are no near term plans for expansion of the USA, commercial development would be a potentially more compatible use. Generally residential uses are considered an incompatible use with airport operations, due to noise and safety concerns. The level of incompatibility is of a lesser degree with large-lot rural residential. These recommendations do not prohibit any current or future rural residential use as allowed by-right. Rather it highlights the potential land use conflicts.

Stafford Regional Airport & Airport Compatible Land Use

Improvements are planned for the Stafford Regional Airport that will expand its range of use. The business and industry uses in this area are for the most part compatible with the operations associated with the Stafford Regional Airport with some exceptions. While commercial development is generally acceptable and consistent with airport operations, there are some considerations that should be made for compatible commercial development adjacent to an airport.

Building and Site Design

This area is highly visible to residents and visitors traveling through the area. To ensure a high quality business park, uses fronting on primary road corridors, including Interstate 95, U.S. Route 1, and Centerport Parkway should design structures in accordance with the Architectural Guidelines in the Neighborhood Design Standards Plan element of the Comprehensive Plan. Enhanced building design is recommended, including all building facades fronting on and facing Interstate 95. To minimize visual clutter, signage should be coordinated with the primary building

design. Efforts should be taken to screen loading docks and storage areas from view of the primary corridors.

Public Facilities

The recommended amount of commercial and residential development in this area could have a significant impact on the road network. The following improvements will be needed to provide adequate transportation facilities:

- Widening of Centerport Parkway (from 2 lanes to 4 lanes)
- Extension of Mine Road (from Courthouse Road to Ramoth Church Road and Centerport Parkway to Enon Road)
- Widening of U.S. Route 1 (from 4 lanes to 6 lanes)
- New Stafford Parkway extending to Warrenton Road.

To determine the full impacts and needs, a transportation modelling exercise should evaluate the total transportation needs, such as the number and location of additional travel lanes.

The development of new dwelling units will by their nature increase the demand on Stafford County schools, parks, libraries, and fire and rescue services. The proposed residential development in the Central Stafford TDA would have an estimated 5,425 residents, creating the need for the following public facilities. These facilities should be provided for within the TDA or in areas outside the TDA within close proximity and within the Urban Services Area.

Parks and Recreation	65.1 acres
Fire and Rescue	0.29 stations
Public Schools	
Elementary Schools	0.42 schools
Middle Schools	0.17 schools
High Schools	0.12 schools
Libraries	0.22 libraries

The data tables that serve as a basis for these public facility needs are provided in Appendix B of this document.

Consistent with this goal, a proposed zoning change should offset the impacts of the new development. Impacts may be offset by voluntary proffers of such things as cash contributions, land dedication for a public facility, or construction of a public facility, as appropriate. Proffers may also include restrictions on the intensity and type of development. In the case of uses requiring a conditional use permit or special exception, the approving body may impose conditions to offset the impacts of the new development.

Phasing of Development

Near-term:

Central Stafford TDA (South of Ramoth Church Road). This area, which includes land in close proximity to the airport, currently has limited utility infrastructure and is largely undeveloped. It is a logical area to target future commercial growth given its proximity and access to the airport and interstate.

Mid-term:

Central Stafford TDA (North of Ramoth Church Road). This area currently has limited utility infrastructure and lacks needed road infrastructure and public facilities. It is a logical area to target future growth given the proximity to Interstate 95 and location along the planned extension of Mine Road, providing a north-south transportation link.

Development Incentives

To promote and accelerate development of the Business Area, the County should consider implementing the following incentives:

- Construct sewer and water utility and road capital improvements.
- Accelerate development approvals.
- Provide tax incentives.
- Designate the area as a TDR receiving area whereby residential development rights may be converted to commercial floor area, consistent with the desired land use in the area.
- Forgive existing proffer requirements for qualifying businesses.

Berea (Warrenton Road West) Targeted Development Area

Situated along Warrenton Road (US-17), on the west side of Interstate 95, the Berea Targeted Development Area (TDA) consists of approximately 1,647 acres. The area extends to International Parkway and includes portions of land along Celebrate Virginia Parkway.

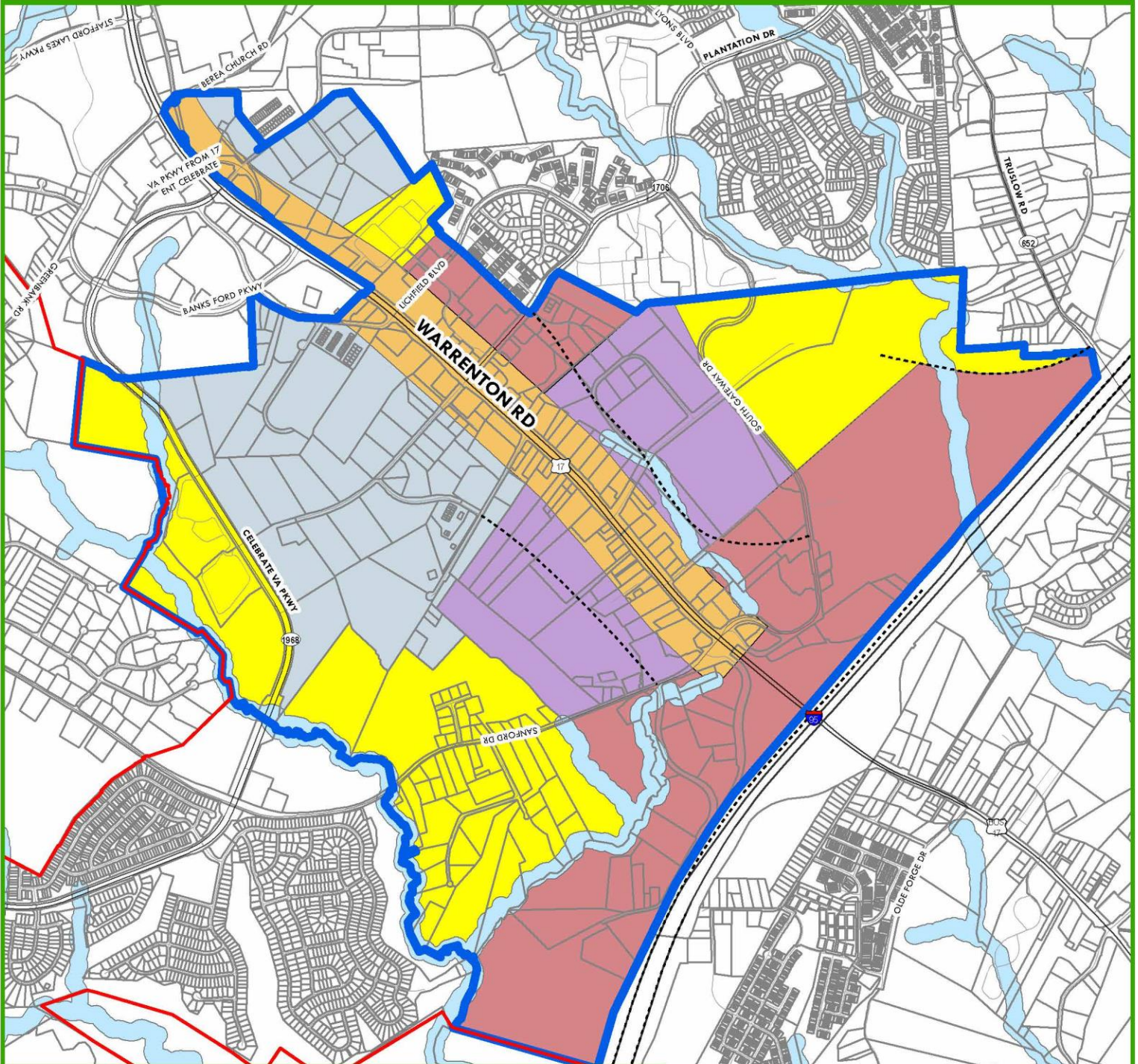
In total, the Berea TDA is recommended to include 1,650 residential dwelling units, including 750 multi-family, 400 townhouse, and 500 single-family units, and 3,750,000 square feet of business development.

Land Use Concept

Figure 3.14 provides a generalized land use concept plan to guide the future development of the Berea TDA.



FIGURE 3.14
Berea
Targeted Development Area
Stafford County Comprehensive Plan
Stafford County, Virginia
September 8, 2021



Legend

- Proposed New Roads
- Urban Services Area
- Targeted Development Areas

Land Use Classification:

- Business and Industry
- Commercial – Retail and Office
- Highway Commercial
- Mixed Use – Commercial/ Residential
- Residential



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.

The area is traversed by Warrenton Road, a major East-West connector for vehicular traffic, and acts as an important link for trucks between Interstate 95 (I-95) and Interstate 81 (I-81), carrying approximately 60,000 vehicles daily.

Currently, Berea is developed with a mix of low-density retail and commercial uses with several hotels located closer to Interstate 95 (I-95). Several office buildings are located along Riverside Parkway adjacent to Interstate 95 (I-95). The England Run residential community is located north of Warrenton Road along Plantation Drive and Lichfield Boulevard, although it is not a part of Berea. The Celebrate Virginia North planned development currently under construction is located beyond the western end of the redevelopment area (but not a part of it) along McWhirt Loop and Celebrate Virginia Parkway.

Partially within and adjacent to the TDA, Celebrate Virginia North is a 2,400 acre development. It was originally envisioned as a retail, corporate office, and tourism hub. However, this development concept never materialized. Uses include commercial retail and restaurant uses are located along Warrenton Road, a training facility and apartment complex in the middle of the project, and a large age-restricted community located near the southern end of the development. Several undeveloped parcels of land remain.

The area surrounding Berea is emerging as an employment center, including the GEICO operations center and other office space. The area is also home to the University of Mary Washington's Graduate and Professional campus, servicing approximately 1,000 students.

The position of this TDA on Interstate 95 (I-95) makes it attractive for hotels. The availability of road access and ample services and employment may also make this an attractive residential location.

Design

Architectural standards (i.e., building height, mass, materials, amenities, and signage), minimum and maximum setback requirements, environmentally friendly materials, and other design features should be incorporated into any development, consistent with the Neighborhood Design Standards Plan. Where appropriate, a mix of uses following the concepts of a traditional neighborhood design is recommended.

Public Facilities

Getting the residents of the Berea TDA to and from work and other destinations without creating an undue hardship on them and other residents of Stafford County and the Commonwealth of Virginia will require the provision of adequate transportation facilities (beyond the internal community road network).

The roadway network should be designed and developed to provide a hierarchical system of interconnected streets and recognize the dual purpose and functionality of Warrenton Road (Route 17). A comprehensive access management plan should be developed to mitigate the impact of new development. Furthermore, upgrades to the existing transit facility on Warrenton Road may be necessary to offset increased vehicle volumes on I-95 during peak commute periods, including adding parking spaces to the existing park and ride facility.

It is recommended that this TDA include passive and active recreational uses, plazas and congregational spaces, as well as cultural activity. Dedication of open space to support these activities will be required.

The development of so many new dwelling units will by their nature increase the demand on Stafford County schools. To offset the capital cost of that demand, new schools will need to be constructed within this TDA.

The public facility needs are not limited to the items previously listed. The proposed residential development in the Berea TDA would have an estimated 5,115 residents, creating the need for the following public facilities. These facilities should be provided for within the TDA or in areas outside the TDA within close proximity and within the Urban Services Area.

Parks and Recreation	61 acres
Fire and Rescue	0.27 stations
Public Schools	
Elementary Schools	0.42 schools
Middle Schools	0.17 schools
High Schools	0.12 schools
Libraries	0.20 libraries

The data tables that serve as a basis for these public facility needs are provided in Appendix B of this document.

As previously mentioned in the TDA summary section entitled “Public Infrastructure and Services,” these new infrastructure requirements are the result of the new development, its density and location, and therefore will be the responsibility of the developer or developers of properties in the area.

Consistent with this goal, a proposed zoning change should offset the impacts of the new development. Impacts may be offset by voluntary proffers of such things as cash contributions, land dedication for a public facility, or construction of a public facility, as appropriate. Proffers may also include restrictions on the intensity and type of development. In the case of uses requiring a conditional use permit or special exception, the approving body may impose conditions to offset the impacts of the new development.

Phasing of Development

Near-term:

Berea (Undeveloped Land). Seen as an area where growth should be focused to support the businesses along the corridor. The potential for near-term development on vacant parcels is high. The development that has recently occurred in this corridor has followed the highway commercial development pattern.

Mid-term and Long-term:

Berea (Redevelopment). The area consists of a mix of highway commercial and industrial uses that do not fit in with the long-term vision of the Redevelopment Area plans. Widespread redevelopment of the area will take significant time and effort to achieve. It is suggested that the development phase will extend through the mid- and long-term time horizons.

Summary

Projected New Dwelling Units: 1,650

Projected New Commercial Sq. Footage: 3,750,000

Minimum Facility needs within the limits of the TDA (accounting for a portion of the total facility needs identified to serve the TDA):

Upgrades to Warrenton Road (Route 17) and other roads as shown in Figure 4.2 of the Transportation Plan

Passive and active recreational uses, plazas, and civic spaces

Falmouth Gateway (Warrenton Road East) Targeted Development Area

Situated along Warrenton Road (US-17), on the east side of Interstate 95, the Falmouth Gateway TDA consists of approximately 866 acres. The area extends to Washington Drive and the historic Falmouth Village area. This aging commercial corridor has the potential for redevelopment.

In total, the Falmouth Gateway TDA is recommended to include 1,650 residential dwelling units, including 750 multi-family, 400 townhouse, and 500 single-family units, and 1,000,000 square feet of business development.

Land Use Concept

Figure 3.15 provides a generalized land use concept plan to guide the future development of the Falmouth Gateway TDA.

The area is traversed by Warrenton Road, a major East-West connector for vehicular traffic, and acts as an important link for residents and other visitors to South Stafford and the City of Fredericksburg. Currently, the area is developed with a mix of aging highway oriented commercial uses. A mix of older and newly developing residential neighborhoods are located on the south side of Warrenton Road.

The position of this TGA on Interstate 95 (I-95) makes it attractive for hotels. The availability of road access and ample services and employment may also make this an attractive residential location. Additionally, historic Falmouth Village is a relatively easy to reach, creating an added attraction.

Design

Architectural standards (i.e., building height, mass, materials, amenities, and signage), minimum and maximum setback requirements, environmentally friendly materials, and other design features should be incorporated into any development, consistent with the Neighborhood Design Standards Plan. A mix of uses following the concepts of a traditional neighborhood design is recommended.

Public Facilities

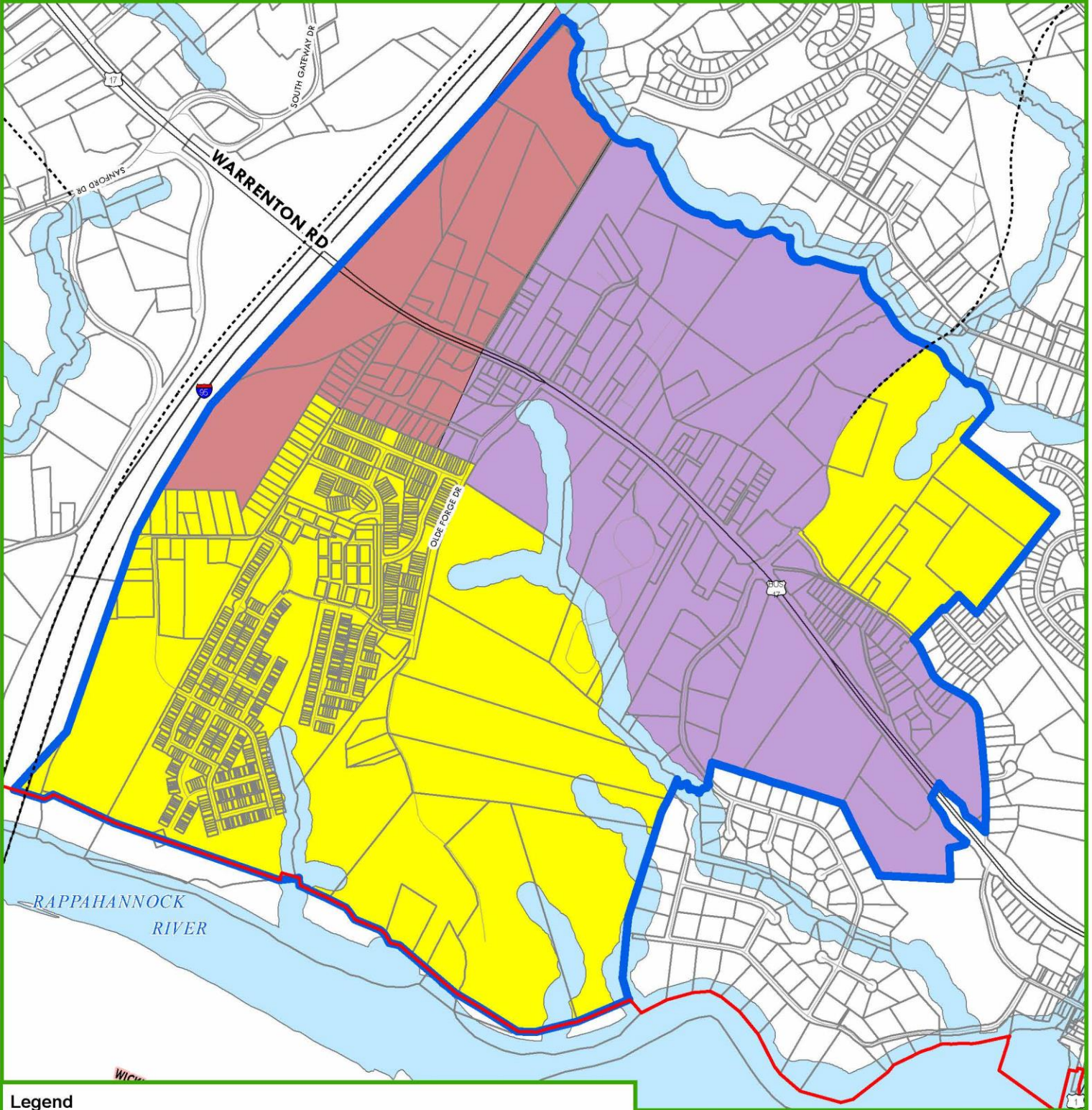
Getting the residents to and from work and other destinations without creating an undue hardship on them and other residents of Stafford County and the Commonwealth of Virginia will require the provision of adequate transportation facilities (beyond the internal community road network).

The roadway network should be designed and developed to provide a hierarchical system of interconnected streets and recognize the dual purpose and functionality of Warrenton Road (Route 17). A comprehensive access management plan should be developed to mitigate the impact of new development. Furthermore, upgrades to the existing transit facility on Warrenton Road may be necessary to offset increased vehicle volumes on I-95 during peak commute periods, including adding parking spaces to the existing park and ride facility.

It is recommended that this TDA include passive and active recreational uses, plazas and congregational spaces, as well as cultural activity. Dedication of open space to support these activities will be required.



FIGURE 3.15 Falmouth Gateway Targeted Development Area Stafford County Comprehensive Plan Stafford County, Virginia September 8, 2021



Legend

- Proposed New Roads
- Urban Services Area
- Targeted Development Areas

Land Use Classification:

- Commercial – Retail and Office
- Mixed Use – Commercial/ Residential
- Residential

0 600 1,200 2,400 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.

The development of so many new dwelling units will by their nature increase the demand on Stafford County schools. To offset the capital cost of that demand, new schools will need to be constructed within this TDA.

The public facility needs are not limited to the items previously listed. The proposed residential development in the Falmouth Gateway TDA would have an estimated 5,115 residents, creating the need for the following public facilities. These facilities should be provided for within the TDA or in areas outside the TDA within close proximity and within the Urban Services Area.

Parks and Recreation	61 acres
Fire and Rescue	0.27 stations
Public Schools	
Elementary Schools	0.42 schools
Middle Schools	0.17 schools
High Schools	0.12 schools
Libraries	0.20 libraries

The data tables that serve as a basis for these public facility needs are provided in Appendix B of this document.

As previously mentioned in the TDA summary section entitled “Public Infrastructure and Services,” these new infrastructure requirements are the result of the new development, its density and location, and therefore will be the responsibility of the developer or developers of properties in the area.

Consistent with this goal, a proposed zoning change should offset the impacts of the new development. Impacts may be offset by voluntary proffers of such things as cash contributions, land dedication for a public facility, or construction of a public facility, as appropriate. Proffers may also include restrictions on the intensity and type of development. In the case of uses requiring a conditional use permit or special exception, the approving body may impose conditions to offset the impacts of the new development.

Phasing of Development

Near-term:

Falmouth Gateway (Undeveloped Land). Seen as an area where growth should be focused to support the businesses along the corridor. The potential for near-term development on vacant parcels is high. The development that has recently occurred in this corridor has followed the highway commercial development pattern.

Mid-term and Long-term:

Falmouth Gateway (Redevelopment). The area consists of a mix of highway commercial and industrial uses that do not fit in with the long-term vision of the Redevelopment Area plans. Widespread redevelopment of the area will take significant time and effort to achieve. It is suggested that the development phase will extend through the mid- and long-term time horizons.

Summary

Projected New Dwelling Units:	1,650
Projected New Commercial Sq. Footage:	1,000,000

Minimum Facility needs within the limits of the TDA (accounting for a portion of the total facility needs identified to serve the TDA):

- Upgrades to Warrenton Road (Route 17) and other roads as shown in Figure 4.2 of the Transportation Plan

- Passive and active recreational uses, plazas, and civic spaces

Boswell's Corner Targeted Development Area

Boswell's Corner is largely defined by Interstate 95 (I-95) to the west, the Marine Corps Base Quantico to the west, north and east, and Telegraph Road to the east. U.S. Route 1 runs north-south through the middle of the area. This area generally consists of roughly 354 Parcels that contain approximately 491 acres of land area.

Boswell's Corner is identified as a Targeted Development Area due to its location characteristics and development potential. As opposed to the other TDAs, where there is generally a more balanced mix of residential and commercial development, the primary focus of this TDA recommends business and industry development.

Boswell's Corner's location at the northern gateway into Stafford County, and proximate to Marine Corps Base Quantico (Quantico) and Interstate 95 (I-95), make the area attractive for redevelopment, especially with the anticipated growth at Quantico as a result of the Base Realignment and Closure (BRAC) actions. The biggest driver for the area is Marine Corps Base Quantico and those who serve the government operations.

Currently, development in the area is limited to a few service and automotive retail locations intermixed with industrial and residential. However, Quantico Corporate Center has been developing over the past decade and is nearing buildout. The area includes several class A office buildings, hotels, and complementary retail uses. The development is planned to continue southward with the extension of Corporate Drive to Telegraph Road.

Efforts to focus commercial development in this area date back many years. Boswell's Corner was targeted for redevelopment by Stafford County upon the presentation of Stafford County's Economic Development Plan of 2006, which states that this area exists as future economic development site due to location, road access, and the Quantico Marine Corps Base, which is expected to see significant gain in employment through the BRAC process. Boswell's Corner "stands as the gateway to Stafford County from the north. Development of high-quality office space and supporting retail would announce that Stafford County is an area for economic progress and not solely a bedroom community."

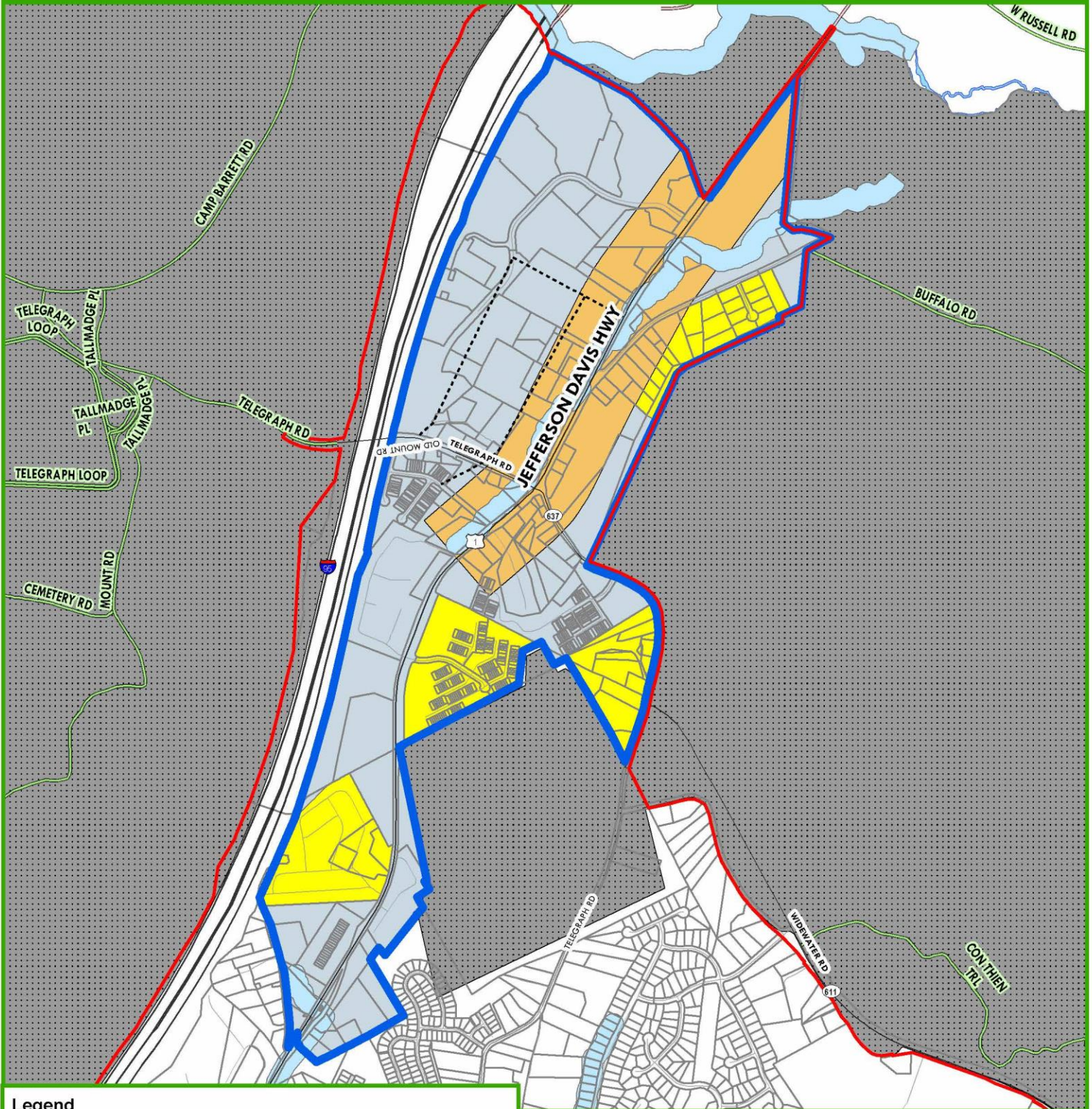
There are also several established housing developments interspersed throughout the area. One new 80-unit residential townhouse community known as Quantico Village is under construction. No additional residential developments are recommended in this area of the County due to the areas' proximity to Quantico and potential land use conflicts.

Land Use Concept

Figure 3.16 provides a generalized land use concept plan to guide the future development of the Boswell's Corner TDA. The area is recommended as a primarily Business and Industry future Land Use. Highway Commercial is recommended along U.S. Route 1 from the boundary with Prince William County to a point south of Telegraph Road. There are approximately 518 existing dwelling units in the area. No more than 80 additional dwelling units, anticipated in the approved Quantico Village development, is recommended.



FIGURE 3.16
Boswell's Corner
Targeted Development Area
Stafford County Comprehensive Plan
Stafford County, Virginia
September 8, 2021



Legend

- Proposed New Roads
 - Urban Services Area
 - Targeted Development Areas
- Land Use Classifications :
- Business and Industry
 - Highway Commercial
 - Residential

0 700 1,400 2,800 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.

Design

Architectural standards (i.e., building height, mass, materials, amenities, and signage), minimum and maximum setback requirements, environmentally friendly materials, and other design features should be incorporated into any development, consistent with the Neighborhood Design Standards Plan. A mix of uses following the concepts of a traditional neighborhood design is recommended.

Public Facilities

Getting the residents to and from work and other destinations without creating an undue hardship on them and other residents of Stafford County and the Commonwealth of Virginia will require the provision of adequate transportation facilities (beyond the internal community road network).

The roadway network should be designed and developed to provide a hierarchical system of interconnected streets to minimize the impact on U.S. Route 1, the main artery through this area. A comprehensive access management plan should be developed to mitigate the impact of new development.

The commercial development focus of this area with very few additional residential units will have a very slight impact on public facility needs. The limited residential development recommended in Boswell's Corner would add an estimated 248 residents, creating the need for the following public facilities.

Parks and Recreation	3 acres
Fire and Rescue	0.01 stations
Public Schools	
Elementary Schools	0.02 schools
Middle Schools	0.01 schools
High Schools	0.006 schools
Libraries	0.01 libraries

The data tables that serve as a basis for these public facility needs are provided in Appendix B of this document. These limited additional facility needs can be provided for as other nearby facilities are expanded or improved.

Consistent with this goal, a proposed zoning change should offset the impacts of the new development. Impacts may be offset by voluntary proffers of such things as cash contributions, land dedication for a public facility, or construction of a public facility, as appropriate. Proffers may also include restrictions on the intensity and type of development. In the case of uses requiring a conditional use permit or special exception, the approving body may impose conditions to offset the impacts of the new development.

Phasing of Development*Near-term:*

Expansion of Quantico Corporate Center is seen as near-term development as it is actively developing, and the expansion to the south is the logical next step in the development of this area. Other infill commercial development may occur on a piecemeal basis as opportunities arise.

Mid-term:

Other infill or redevelopment of commercial retail and office along this corridor may stretch into the mid-term planning horizon. The process of redeveloping existing uses and consolidating smaller parcels generally takes longer than development of raw land.

Summary

Projected New Dwelling Units: 80

Projected New Commercial Sq. Footage: 1,000,000

Minimum Facility needs within the limits of the TDA (accounting for a portion of the total facility needs identified to serve the TDA):

Upgrades to US Route 1 and other roads as shown in Figure 4.2 of the Transportation Plan

Suburban Areas

Suburban Areas of the County are areas where suburban scale of development is most appropriate. Suburban scale of development is considered single-family detached dwelling units, typically on $\frac{1}{4}$ to $\frac{1}{2}$ acre lots, and $\frac{1}{2}$ to 1 acre lots or larger towards the boundary of the USA, which may include community amenities and are buffered from any adjacent commercial development. Lot sizes less than $\frac{1}{4}$ acre may be supported if located adjacent to higher density residential or commercial development. These areas are intended to serve as infill development in proximity of the established communities in the northern and southern areas of the County and in proximity to major existing or planned transportation networks.

Focus should be on the form of development and its relationship with existing communities. Such areas will be primarily residential in nature but will be complimented by neighborhood and community oriented activity centers, places of worship, parks and play areas, and retail and business activities. Development densities should not exceed three (3) dwelling units per acre for residential development and a floor area ratio (FAR) of 0.4 for non-residential development. New dwelling unit types should be limited to single-family detached homes. Townhomes and apartments are permitted where land is already zoned for these types of dwelling units or under *Special Conditions for Townhomes and Multi-family Units* described in the following Residential section. Otherwise, all structures should be low rise in nature and not exceed three stories in design. Site lay-out and building design shall be oriented to compliment, be in scale with and minimize undesirable effects to existing neighborhoods and communities. Preservation of unique or sensitive environmental features should be incorporated into development design. Parking areas should be primarily off-street. Sidewalks and pedestrian trails should be located within neighborhoods and provide access between residential and non-residential uses. Commercial development should be oriented along arterial transportation corridors or at nodes where arterial and collector roads intersect.

More detailed design parameters are provided regarding residential, commercial and industrial uses within the Suburban land use designations.

RESIDENTIAL

The Plan recommends that new residential development in Suburban Areas should be limited to single-family detached housing types with the exception of projects that meet the *Special Conditions for Townhomes and Multi-family Units* provisions. Single-family detached units may be developed at a maximum density of three (3) units per acre. On land that has previously been rezoned or approved for a more urban form of residential development, single-family attached units (townhomes) may be developed at a density of three and a half (3.5) to seven (7) units per acre and apartment/condominiums may be developed at a density of seven (7) to fifteen (15) units per acre.

Special Conditions for Townhomes and Multi-family Units

A goal of the Plan is to locate at least 80% of the future cumulative residential growth within the Urban Services Area, and outside of the Agriculture/Rural Area. The design and construction of infill development, including mixed-use projects, will be considered to further this goal and reduce impacts on the environment and best utilize existing infrastructure. The use of reduced perimeter buffers and clustering will allow in-fill development to utilize higher densities without impacting adjoining properties. The opportunity for residents to live, work, and play within the same

development reduces impact on regional highways, reduces sprawl, and increases each citizen's satisfaction with their community.

If the land has not been previously rezoned or developed, single-family attached units (townhomes) and apartment/condominiums may be developed under the following special situations:

- A. As infill development in the Suburban land use district if:
 - 1) It is located on land where 60 percent or more of the linear footage of the property perimeter physically abuts property that has been or is currently approved for the same type of dwelling unit (e.g. townhomes next to townhomes, and condominiums next to condominiums) or a higher density dwelling unit type (e.g. proposed townhomes next to existing or planned condominiums);
 - 2) The density and design of the units would be compatible with the current pattern of development of adjacent parcels; and
 - 3) The infill development appropriately mitigates visual impacts from existing or planned lower density dwelling unit types or other incompatible uses through buffering or site design.

- B. As mixed-use infill development on property within and adjacent to designated Commercial Corridors in the Suburban land use district if:
 - 1) It is located on land where 60 percent or more of the linear footage of the property perimeter physically abuts property that has been or is currently approved for commercial, industrial, or residential development and is inside of the Urban Services Area;
 - 2) The development is located on a major County transportation corridor such as Garrisonville Road, Courthouse Road, U.S. Route 1, or Warrenton Road;
 - 3) It is located within two (2) miles of any existing or planned ramp accessing Interstate 95;
 - 4) The development includes a mix of commercial and residential uses, with uses integrated into the same building(s) or as part of a unified project, and commercial uses of sufficient scope based on the entirety of the project;
 - 5) A phasing plan is proffered for the development that demonstrates that a significant portion of the non-residential uses will be built before all residential dwellings are constructed;
 - 6) Residential uses are designed to be integrated into existing or planned adjacent commercial uses, if practical, by providing vehicular and pedestrian connections;
 - 7) The infill development appropriately mitigates visual impacts from the perspective of existing or planned lower density dwelling unit types or other incompatible uses through buffering or site design; and
 - 8) When structures are proposed to exceed three stories, consideration is given to the need for mitigation of impacts to adjacent properties through enhanced buffering, landscaping, screening or other site design considerations. Mitigation may include wider transitional buffers, retention of existing trees, increased new tree plantings, or utilizing evergreen trees, berms, or fences.

- C. If a project does not meet these special situations, dwelling units other than single-family detached may be allowed on a case by case basis, provided that they are compatible with the existing nearby development and do not exceed a density of 3.0 dwellings per acre.

Residential development should be designed and located with consideration given to the local road network. Single-family detached housing developments generally have access to collector streets. Residential developments should be designed to provide adequate and safe traffic flow and emergency service access. Interconnecting local streets should be planned between residential subdivisions.

Buffering should be required along major arterial and collector roads to limit road noise in residential areas. Residential development should be appropriately buffered and set back from commercial and industrial uses. In Planned Development districts, site specific evaluations can determine if buffers and setbacks can be reduced.

Residential developments should be designed to provide an aesthetically pleasing community with open space areas and in proximity to public parks and schools. Infill lot development which makes use of existing public infrastructure investments should be considered.

The use of innovative development techniques (clustering, zero lot lines and planned unit developments) are encouraged to allow for development with minimal impact on sensitive natural resources (steep slopes, poor soils, floodplains, and drainage ways). Developments are encouraged to preserve twenty-five (25) to fifty (50) percent of the site for a combination of natural and usable open space.

Staffordshire:

An approved residential project known as Staffordshire is identified in a Suburban Land Use area west of Abel Reservoir, separated from the larger Suburban areas. This project was approved with proffers that limited the site to a maximum of 336 dwelling units. It is the purpose of this Plan to maintain the existing limitation on the number of dwelling units.

COMMERCIAL RETAIL AND OFFICE

Development of commercial areas should be conducted in a manner to minimize noise, social, transportation and visual impacts on established residential neighborhoods. The Plan identifies commercial corridors and nodes within Suburban and Urban Areas where commercial development has occurred or is envisioned. Residential development within commercial corridors or nodes should only be allowed in accordance with the *Special Conditions for Townhomes and Multi-family Units* section of this chapter. It is not intended for commercial development to be limited only to the commercial corridors and nodes designated on the map.

Commercial activities should be located where there are adequate transportation facilities to accommodate the use. Development along commercial corridors should incorporate limited points of road access or shared access points to limit the number of turning movements, thereby placing fewer restrictions on traffic flow and reducing the potential for vehicle conflicts. Development of less intensive service-oriented suburban commercial uses are encouraged near major residential developments along major collector roadways with secondary access to other collector streets.

Infill development and the reuse of vacant commercial sites will be considered along existing commercial corridors, including U.S. Route 1, Courthouse Road, Garrisonville Road, Warrenton

Road, and Kings Highway. Infill development in this case is defined as new construction or significant reconstruction of existing commercial sites, with the exception of historically significant structures.

Commercial uses adjacent to residential uses should be designed such that the commercial use is integrated into and accessible to the community and designed so as to be unobtrusive to and compatible with the community. Provisions for shared parking to minimize impervious cover should be considered. Adequate parking for both residential and non-residential uses should be ensured.

Development of commercial and office areas should include mitigation of potential environmental impacts through preservation of significant features and natural vegetation, as well as site design and layout to incorporate open spaces and green areas.

The following design criteria should apply to business development along arterial and major collector roadways (including, but not limited to, U.S. Route 1, Courthouse Road, Garrisonville Road, Warrenton Road, and Kings Highway) to minimize the potential for vehicle conflicts:

- *Shared access for site entrances should be provided along the corridor highways;*
- *Building setbacks and design should be consistent to the greatest extent practical;*
- *Inter-parcel access between commercial uses should be provided;*
- *Adequate street buffers should be provided;*
- *Sidewalks should be provided along all street fronts;*
- *Adequate lighting should be provided. Fixtures within parking lots should be cutoff style. Street and sidewalk lighting should be designed to complement the nearby community character. Lighting should be directed away from abutting properties and the corridor highway;*
- *Monument signage should be of a coordinated color and design with principal structures with limitations on the height and size;*
- *The use of carnival style flags, banners, balloons and other devices that may be seen as a distraction to vehicular travel should not be allowed.*

Vehicle sales are highway-oriented businesses and should be limited to major arterials, at or near major intersections. In the Suburban Area designation, new and used vehicle sales, including automobiles and boats, should be limited to the area along U.S. Route 1 near the intersection with Ramoth Church Road; and near the intersection with Garrisonville Road.

The following design criteria should apply to neighborhoods serving commercial development in Suburban Areas adjacent to existing or approved single-family detached or attached development.

- *Structures should be low rise and situated such that they are integrated with the surrounding community;*
- *Maximum floor area ratio should not exceed 0.35 and open space ratio should be at least 0.4;*
- *Sidewalks should be provided along all street fronts;*
- *Adequate lighting should be provided. Fixtures should be cutoff style and not exceed twenty feet in height. Lighting should be directed away from abutting properties;*
- *All loading areas abutting residential uses should be screened with opaque fencing and natural vegetation. Where natural vegetation is insufficient, a variety of evergreen and deciduous landscaping may be substituted;*

- *Inter-parcel access between commercial uses should be provided;*
- *Pedestrian trails should be extended off-site to access secondary streets and other trail systems;*
- *Architectural design should be compatible with the neighborhood character and architectures. Massing, texture and materials should be similar to those predominantly used by nearby residences. Front facades should consist at least partly of brick or equally suitable materials. All facades immediately visible from any public street or nearby residence should have architectural treatment of brick, textured masonry or siding;*
- *Maximum building height should be 35 feet;*
- *All parking areas should be landscaped;*
- *Structures should be located in such a way as to maximize pedestrian accessibility.*

Recommended uses in Commercial nodes adjacent to residential development should be low to medium intensity. High intensity uses require a conditional use permit to protect against potential negative impacts. The use of drive-thru windows should be limited. Single use sites should be discouraged. Recommended uses include the following:

- *Bakery*
- *Bank and lending institution*
- *Barber/beauty shop*
- *Convenience center*
- *Dance studio*
- *Drug store*
- *Dry cleaner/laundry*
- *Florist*
- *Gift/antique shop*
- *Low intensity commercial retail*
- *Medical and dental clinics and Offices*
- *Medium intensity commercial retail*
- *Place of worship*
- *Professional office*
- *Restaurant*
- *Retail food store*
- *Tailor shop*

The Plan encourages the location of office uses in commercial nodes and corridors, and as a transition between more intense commercial uses and residential uses. Office developments should be located along or in close proximity to major collector or minor arterial roadways with secondary access to other collector streets. Office developments may be free-standing structures or office parks. The following design criteria apply to office development:

- *Office development should be in scale with adjacent residential development. Where there is no existing residential development adjacent to office uses, the development of the structures should be in a manner to be in scale with the planned development pattern;*
- *Sidewalks should be provided along all street fronts and tie into existing pedestrian facilities;*
- *Adequate lighting should be provided for parking lots and on-site pedestrian walkways. Fixtures should not exceed twenty feet in height. Lighting should be directed away from residential properties;*
- *All loading areas and refuse disposal sites should be screened from view of any public street or residence;*

- *Mechanical or telecommunications equipment should be screened from view of any public street or residence;*
- *Architectural design should be compatible with the neighborhood character and architecture. Architectural treatment such as brick, stone, stucco, split face block, wood or glass should be encouraged, while materials such as unadorned cinder block, corrugated or sheet metal should be discouraged.*
- *Vegetated, pervious green space, should be incorporated into overall design, as well as amenities including plazas or other gathering spaces for employees*

INDUSTRIAL

Areas designated for clean, non-nuisance industrial uses which are not water intensive and are located near railroad lines and/or major highways. Preferable industrial development in Suburban Areas provides goods and services to nearby businesses and residences, including warehousing, wholesaling, manufacturing, processing operations, mixed-use commercial/industrial development, and flex office space.

The following design criteria should apply to industrial development in Suburban Areas.

- *Industrial development should be adequately screened and set back from nearby residential uses to minimize visual and noise impacts.*
- *Maximum floor area ratio should not exceed 0.35 and open space ratio should be at least 0.20;*
- *All loading areas abutting residential uses should be screened with opaque fencing and natural vegetation. Where natural vegetation is insufficient, a variety of evergreen and deciduous landscaping may be substituted;*
- *Maximum building height should be 40 feet;*
- *All parking areas should be landscaped;*
- *Adequate lighting should be provided. Fixtures should be cutoff style and not exceed twenty feet in height. Lighting should be directed away from abutting properties.*

Business and Industry Areas

Areas of the county where large-scale business and industry activities are encouraged. These areas are to be the primary economic engines for the County. Such businesses and industries would primarily serve markets that stretch beyond the County borders. Activities will typically include retail, wholesale, corporate and professional offices, research and development, entertainment, manufacturing, distribution and transportation. Special consideration shall be given when locating heavy industrial uses in these areas. Buildings would typically be large in nature with extensive setbacks, parking and lot coverage requirements. They should be located in proximity to major transportation facilities. Residential activities in the area should be discouraged. Where such areas abut existing residential communities, berms, buffers, noise attenuation measures and additional setbacks may be necessary to minimize community conflicts.

It is noted that new and used vehicle sales, including automobiles and boats, shall also be considered in Business and Industry areas along major arterials, where compatible uses exist. This includes areas along U.S. Route 1 between Ramoth Church Road and Potomac Creek.

Agricultural/Rural Areas

Areas of the county where farming, forestry and land conservation activities are encouraged. Location of new single-family detached dwelling units are to be discouraged; however, such uses may be developed at a maximum density of one (1) unit per six (6) acres. These areas are located beyond the limits of the Urban Service Area and would have limited community services. Agricultural service establishments and community service retail establishments may be located at significant crossroads. As a means to support agriculture and the existing rural character, some of these areas are designated as sending areas in the current transfer of development rights (TDR) program. They are also the focal point for the County's purchase of development rights (PDR) programs and voluntary land conservation efforts.

To help preserve the rural character, the following design criteria for development are recommended for the Agricultural/Rural area:

- useable open space shall be preserved for agriculture, forestry, and conservation purposes
- areas containing steep slopes greater than 35%, Resource Protection Areas, and floodplains should be excluded from the developable area
- a building setback of 100 feet should be maintained from the perimeter boundary where located adjacent to existing agricultural uses
- a building setback of 100 feet to be maintained along existing state-maintained roads to help retain the scenic quality of rural county roads
- wildlife migration corridors to be maintained where identified. Connectivity of open space areas shall be considered to enhance wildlife movement
- large stands of trees shall be maintained to the greatest extent possible on forested tracts of land
- the preservation of cultural resources to be considered in accordance with the Cultural Resources Management Plan
- cluster subdivisions should be encouraged where permitted
- Low Impact Development (LID) practices should be encouraged for stormwater management

Mining and Extraction

This designation identifies the location where mining and extraction activities are actively occurring or planned through previously approved expansions to existing operations or new operations. These areas correspond with the M-2, Heavy Industrial zoning designation. Associated processing uses may occur in this area, including asphalt and sand and gravel manufacturing. These uses shall be well buffered from residential uses so as to minimize noise and visual impacts.

Parks

Areas identified for parks and recreation that may attract visitors from the County, region and state. These parks are comprised of expansive land holdings that are owned and or managed by local government and state agencies. They may have limited or focused recreational activities. Extensive areas would be devoted to passive recreation and conservation. These areas do not

reflect all parkland in the County, such as neighborhood scale parks located in Suburban and Urban Areas.

OTHER LAND USE CONSIDERATIONS - NOT SPECIFICALLY DESIGNATED ON THE FUTURE LAND USE MAP

Special Uses

The educational opportunities in the region are enhanced by higher education institutions and cultural and performing art venues. The continued expansion of these uses is encouraged. Although not specifically designated on the Land Use Map, general location criteria are provided. Within the Urban Services Area, the County supports the continued expansion of higher education facilities and performing art venues. These facilities should be in close proximity to major population centers and be sited and designed for minimal impact on the existing community and transportation networks.

The location of cultural venues such as museums may be less reliant on urban services, although the impact on transportation and the surrounding uses and landscape should be a major consideration.

Tree Preservation Guidelines

Preservation of trees and forest cover is a priority over replanting where existing tree cover exists. Preservation of existing trees provide many benefits to the environment and community. Mature trees and forest cover improve air quality, provide, for healthy streams and wildlife habitat, reduce the urban heat island effect, and community benefits include providing visual and sound buffering from road traffic or other conflicting land uses, and provides recreational opportunities. The following standards should be considered in the planning and evaluation of new development proposals.

- Any new development should be designed with a goal of preserving existing mature tree cover over removal.
- Any rezoning proposal should include an environmental inventory map that identifies all sensitive environmental resources, including streams, wetlands, steep slopes, 100-foot CRPA, and tree cover.
- Site design should prioritize development outside of identified sensitive areas.
- Consideration of tree preservation areas should consider the existing characteristics on adjacent properties, with a goal of maintaining uninterrupted forest areas or stream and wildlife habitat corridors.
- Avoidance of clearing into stream corridors should be a top priority. If this is unavoidable, encroachment and clearing should be the minimum necessary to access development areas.
- Retention of mature tree cover is recommended for the purpose of buffering uses from adjacent properties or developments.
- Invasive, dead, diseased or dying trees may be removed and replaced with a variety of native species.

- Clearing and grading limits should avoid critical root zones to maximize.
- Tree replanting should be considered where land clearing cannot be avoided.

Development adjacent to High-voltage Electric Transmission Lines

To minimize land use conflicts adjacent to high-voltage transmission lines, the following guidelines are recommended for development inside the Urban Services Area:

For residential development:

- Locate residential lots outside of the powerline easements.
- Retain existing trees between the easement and any residential lots.
- Designate community open space within the easement areas,
- Neighborhood streets required to traverse these easements should do so at 90-degree angles
- Provide consideration to viewsheds within the neighborhood. For example, sight vista terminations along neighborhood streets should avoid powerline towers.

For commercial development:

- Orient main entrances to stores and shopping areas away from power lines.
- Limit use of powerline easement areas for overflow parking or open space.

Other Economic Development Primary Focus Areas

The County's Economic Development efforts cover all corners of the County and have different focus. Although the majority of the efforts are focused on attracting businesses to our Targeted Development Areas, this section highlights some of the other efforts and areas outside the TDA that deserve special attention. These primary focus areas can be categorized as: Commercial/Retail; Industrial; Tourism, and; Water Access/Recreation. The following notes the locations within each category. Figure 3.17 identifies the location of each of these primary focus areas in the County.

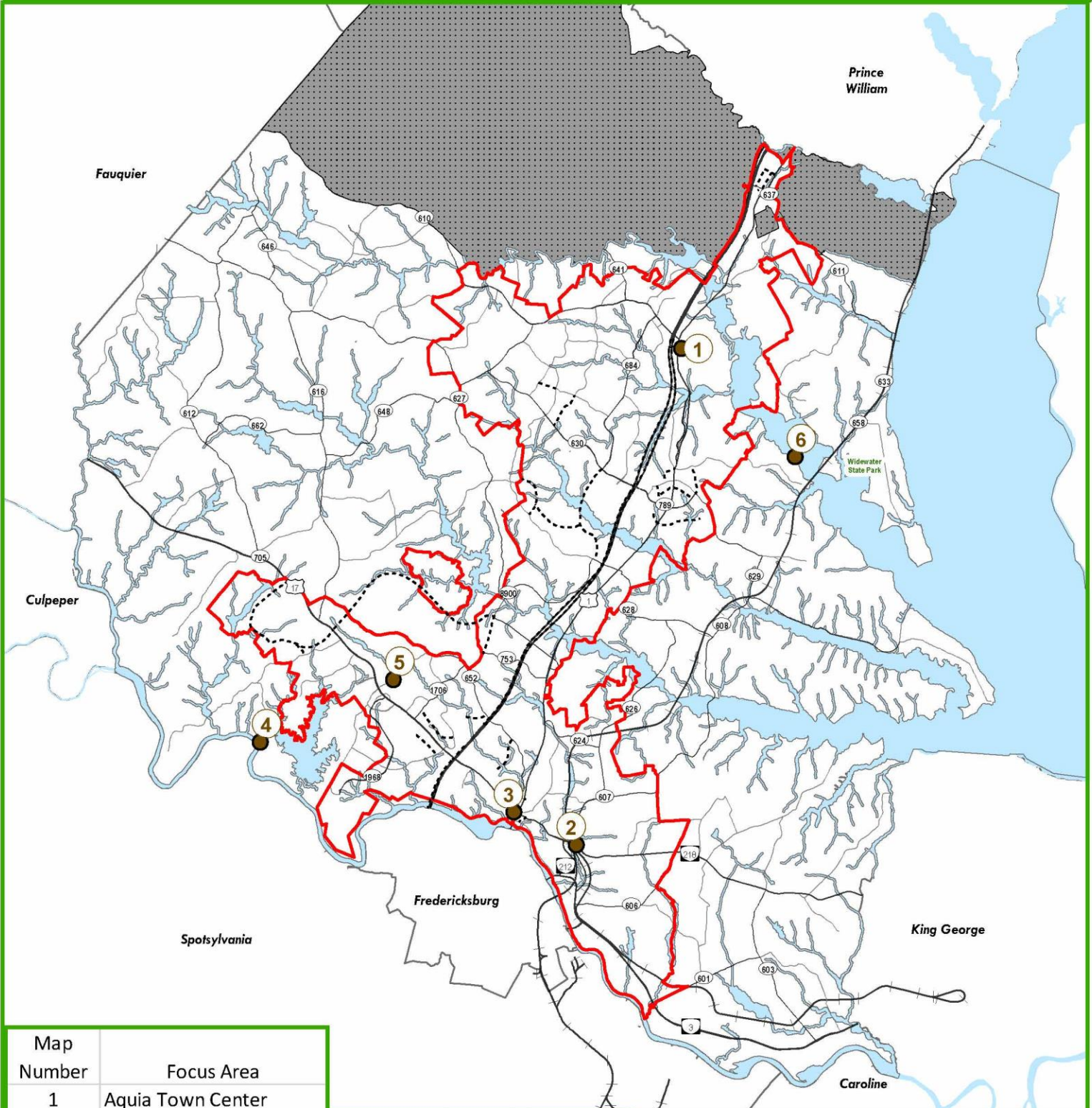
Commercial/Retail Primary Focus Area

- **Aquia Town Center**

This Planning Area represents the Aquia Town Center private redevelopment project. Aquia Town Center consists of 75 acres and is located along U.S. Route 1, on the east side of Interstate 95 (I-95) at the Garrisonville Road/Aquia exit. The site is located adjacent to the entrance into Aquia Harbour. The original shopping center was demolished and redevelopment of the site was planned to include a mix of uses. However, redevelopment has gone stagnant. A Class-A office building and apartments are existing. Commercial retail uses are envisioned in the remainder of the site. Properties fronting on U.S. Route 1 include existing highway commercial uses. These uses are recommended to continue.



FIGURE 3.17 Other Economic Development Primary Focus Areas Stafford County Comprehensive Plan Stafford County, Virginia September 8, 2021



Map Number	Focus Area
1	Aquia Town Center
2	Cool Spring Road
3	Historic Falmouth Village
4	Old Banks Recreation
5	Stafford Industrial Park
6	The Marina District

Legend

- Proposed New Roads
- Urban Services Area

0 7,500 15,000 30,000 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.

Industrial Primary Focus Areas

- **Stafford Industrial Park / International Parkway**
- **Cool Spring Road**

Stafford Industrial Park / International Parkway is located along Warrenton Road, west of Interstate 95, and represents a dedicated industrial park. The Cool Spring Road area represents the properties along this collector road. The area is not a dedicated industrial park, but rather has grown over time into a collection of various industrial uses. These areas are highlighted as locations that support the continued growth of light industrial and manufacturing uses.

Tourism Primary Focus Area

- **Falmouth Village**

The heart of Falmouth Village, located at the southern portion of Stafford County, is generally defined as the crossroads of Warrenton Road (US-17) and Cambridge Street (US-1). The redevelopment area is generally bounded by Truslow Road to the north, the Rappahannock River to the south, Colonial Avenue to the east and Melcher Drive to the west. This area generally consists of roughly 200 parcels within approximately 146 acres of land area.

One of the earliest colonial settlements in the area, historic Falmouth Village presents a unique opportunity to preserve, enhance and develop a cultural attraction in Stafford County. This village, setting adjacent to the Rappahannock River, is already recognized as a National Register Historic District and contains some of the most significant historic sites in Stafford County.

Current land uses include commercial uses, intermixed with residential communities. Much needed access improvements were identified as vital to its potential to provide another center to foster economic opportunity that could add to Stafford County's strength. A Master Interpretive Plan for the Historic Falmouth District was adopted by the Board in May, 2014. This document is part of ongoing efforts by the County to preserve important history while also considering the opportunities for tourism and economic development. The plan offers a way forward to help focus decisions in communicating the stories of the Historic Falmouth District, a once prosperous town that is now a quiet residential community. The effort will require investments in parking, interpretive media and a sustained plan involving public-private partnership.

Water Access/Recreation Primary Focus Area

- **Marina District**
- **Old Banks River Access**

The Marina District represents the area along Aquia Creek that includes several private marinas. These are located off of Willow Landing Road, Hope Road, and Aquia Creek Road. The Old Banks Area represents a potential public access point along the Rappahannock River at the location of the water intake station for the Lake Mooney Reservoir. This is located via an access easement off of Old Banks Drive.

Access to the riverfront areas in the County is identified as a Priority Focus Areas in the Economic Development Strategic Plan. These areas are identified as potential locations where

the County can promote access to the County's water resources through appropriate commercial development. The County has not been able to tap into its waterfront amenities because a significant amount of waterfront land is in conservation districts or privately owned. A challenge is that many of the waterfront sites are underserved by road and utility infrastructure. The Economic Development Plan identifies that the Marina District should be considered for attractive, high-end restaurants, niche retail, marinas or other complementary uses such as eco-tourism businesses. The Old Banks Area is one of the few potential public access points to the upstream portion of the Rappahannock River

3.7 Land Use Map Growth Projections

This section of the Plan includes an evaluation of the projected residential and commercial growth of the County under the draft Land Use Plan. The Growth projections look at the amount of growth that can be expected over the 20 year planning horizon from 2016 to 2036. The year 2021 update modifies this same 20-year projection based on the latest available data.

Growth Projections

Growth projections have been applied to the Land Use Map to identify where the County desires growth to occur over the next 20 years. The projections anticipate the amount of future growth inside the Urban Services Area (USA) in suburban areas, targeted growth areas (TDAs), and business and industry areas, as well as outside the urban services area. Growth projections are based on County projections and County commercial growth estimates. Determining how growth is divided across the County is based on the following facts and assumptions or goals:

- Assumes the addition of 18,355 future dwelling units countywide between years 2016 and 2036. This future growth estimate is derived by County staff based on the most recent population estimates and past building permit trends.
- Projects a total population growth of 56,900 additional residents between 2016 and 2036 (derived by multiplying the number of future dwelling units by the average persons per household of 3.10).
- Future residential growth includes a goal to achieve 80 percent of future growth inside the USA
- Conversely, assumes 20 percent of the future residential growth will occur in Rural Areas outside of the Urban Services Area
- Plans for over half of future population growth, or 10,570 future dwelling units, within designated TDAs.
- The following assumptions have been made for non-residential growth:
 - Countywide, at least 1 million square feet of non-residential growth per year is anticipated based on past growth (i.e., 10 million square feet over 10 years)
 - Projects 500,000 square feet of non-residential growth per year outside of TDAs in industrial, suburban and rural areas (half of the anticipated growth)
 - Projects that additional non-residential growth will occur in TDAs beyond past growth levels. Some TDAs will take a different form of development than previously seen in the County. Non-Residential development will likely be better integrated into the traditional neighborhood development fabric.

The outcome of the growth projections can be found in Table 3.4. The table divides the growth projections among the areas designated on the future land use map. The County should track the location of future growth on a regular basis to evaluate how new development is conforming to these projections.

Projected Dwelling Unit Types

Provided below is an estimation of the dwelling units by type in each of the land use designations that support residential development. The unit totals correspond with the growth projections in Table 3.4. To clarify the chart, the Suburban category includes an estimated number for each dwelling unit type. The particular mix of unit types will vary depending on market conditions. An

assumption made in this chart is, regardless of the unit mix, the end result is to meet the goal of 4,114 dwelling units in Suburban areas. The TDA dwelling unit mix reflects the recommendations within the individual TDAs.

<u>Dwelling Unit Type</u>	<u>TDA</u>	<u>Suburban</u>	<u>Rural</u>	<u>Total</u>
Single-Family	3,050	3,114	3,671	9,835
Townhouse	1,830	500	---	2,330
Multi-family	5,690	500	---	6,190
<hr/>				
Total	10,570	4,114	3,671	18,355

Table 3.4 Land Use Map Growth Projections

INSIDE THE URBAN SERVICES AREA					
SUBURBAN					
Sub-Area	Net Acreage	Residential Units			Projected Non-Residential Square Footage (5)
		Existing	Projected (1)	Total	
North	13,567	18,674	2,501	21,175	1,500,000
South	13,774	13,355	3,715	17,070	2,000,000
Staffordshire	617	-	336	336	-
Sub-Total	27,958	32,029	6,552	38,581	3,500,000
PLANNING AREAS (2)					
Courthouse	2,580	1,255	3,750	5,005	5,000,000
Central Stafford	5,311	224	1,750	1,974	12,075,000
Warrenton Road	2,587	772	3,300	4,072	4,750,000
Leeland Town Station	328	151	780	931	123,660
Brooke Station	212	26	240	266	40,000
Boswells Corner	621	518	-	518	1,000,000
Aquia Town Center	75	2	-	2	-
Historic Falmouth Village	146	63	-	63	-
Sub-Total	11,860	3,011	9,820	12,831	22,988,660
BUSINESS/INDUSTRY					
Central Stafford Corridor	341	27	-	27	700,000
Stafford Industrial Park	165	-	-	-	250,000
Cool Spring Road	169	6	-	6	250,000
Sub-Total	675	33	-	33	1,200,000
OTHER					
Resource Protection Area	4,570	357	-	357	-
Park	532	7	-	7	-
Total	5,102	364	-	364	-
INSIDE THE URBAN SERVICES AREA TOTALS					
	Acreage	Residential Units			Projected Non-Residential Square Footage
		Existing	Projected (3)	Total	
Total	45,595	35,437	16,372	51,809	27,688,660

OUTSIDE THE URBAN SERVICES AREA					
AGRICULTURAL/RURAL AREA					
Sub-Area	Net Acreage	Residential Units			Projected Non-Residential Square Footage (5)
		Existing	Projected (1)	Total	
All Agricultural/Rural Areas	75,487	9,647	4,168	13,815	250,000
Total	75,487	9,647	4,168	13,815	250,000
PLANNING AREAS (2)					
Central Stafford	1,431	169	-	169	
The Marine District	337	38	-	38	
Potomac Landing	2	-	-		
Old Banks Recreation	5	-	-		
Rappahannock Recreation	373	1	-	1	
Widewater	1,453	103	-	103	
Sub-Total	3,601	311		311	
OTHER					
Resource Protection Area	17,855	99	-	99	
Mining	1,014	5	-	5	
Park	4,734	-	-	-	
Federal	32,221	-	-	-	
Total	55,824	104	-	104	
OUTSIDE THE URBAN SERVICES AREA TOTALS					
	Acreage	Residential Units			Residential Square Footage
		Existing	Projected (3)	Total	
Total	134,912	10,062	4,168	14,230	250,000
COUNTYWIDE PROJECTIONS					
	Acreage	Residential Units			Projected Non-Residential Square Footage
		Existing	Projected (3)	Total	
Inside the USA	45,595	35,437	16,372	51,809	27,688,660
Outside the USA	134,912	10,062	4,168	14,230	250,000
Total	180,507	45,499	20,540	66,039	27,938,660

3.8 Transfer of Development Rights

The Board of Supervisors adopted the Transfer of Development Rights Ordinance, O13-21, on February 19, 2013, establishing a Transfer of Development Rights (TDR) program in Stafford County. The Board of Supervisors then adopted Ordinance O15-06 on February 17, 2015, and Ordinance O17-19 on June 20, 2017, further enabling the TDR program.

The purpose of the TDR program is to provide a mechanism by which a property owner can transfer by-right residential density from sending areas to receiving areas and/or to a transferee without relation to any particular property. This is a voluntary process intended to permanently conserve agricultural and forestry uses of lands, reduce development densities on those and other lands, and preserve rural open spaces and natural and scenic resources.

The TDR program complements and supplements County land use regulations, resource protection efforts, and open space acquisition programs. The TDR program also encourages increased residential and commercial density in areas that can better accommodate this growth with less impact on public services and natural resources.

Sending Areas are defined as those authorized areas from which development rights can be severed and transferred to a receiving area or transferee without relation to any particular property. Figure 3.8, Sending and Receiving Areas Map, shows the sending area, outlined in blue, which is land located east of the CSX rail line, north of Potomac Creek, and south of Aquia Creek. To qualify as a sending area, property shall be:

- (1) Designated for agricultural, rural, or park land use(s), in the Comprehensive Plan;
- (2) Located within areas designated as sending areas on the map entitled “Figure 3.8 Transfer of Development Rights Sending and Receiving Areas Map” in the Comprehensive Plan; and
- (3) Zoned A-1 (Agricultural) or A-2 (Rural Residential) on the Zoning Map and meet one of the following criteria:
 - (i) A separate parcel in existence on the effective date of the Transfer of Development Rights ordinance that is at least twenty (20) acres;
 - (ii) Contiguous parcels in existence on the effective date of the Transfer of Development Rights Ordinance comprising at least twenty (20) acres and are under the same ownership on the date of application; or
 - (iii) A separate parcel in existence on the effective date of Transfer of Development Rights Ordinance that is at least two (2) acres and designated as Park on the Land Use Map in the Comprehensive Plan.

Receiving Areas are defined as areas authorized to receive development rights transferred from a sending area. Figure 3.18, Sending and Receiving Areas Map, shows the receiving area, outlined in red. To qualify as a receiving area, property shall be:

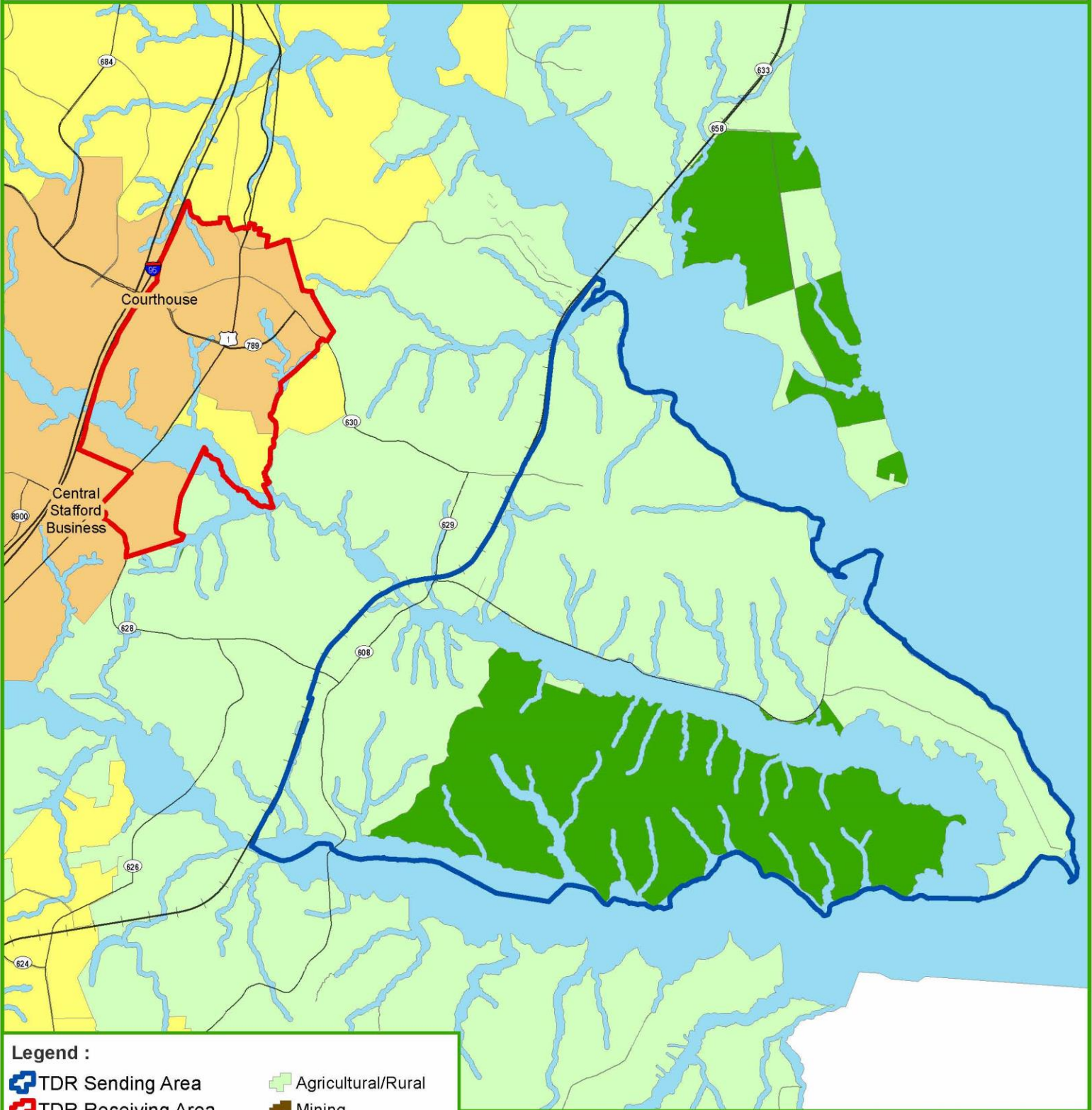
- (1) Located in one of the following zoning districts: A-1, Agricultural; R-1, Suburban Residential; PD-1, Planned Development -1, PD-2, Planned Development-2; P-TND, Planned Traditional Neighborhood Development; UD, Urban Development; and B-3, Office;
- (2) Located within a receiving area on the Sending and Receiving Areas Map;
- (3) Located within the USA by the Comprehensive Plan; and
- (4) Included in an assessment of the infrastructure in the receiving area that identifies the ability of the area to accept increases in density and the plans to provide necessary utility services within any designated receiving area.

Under the TDR program, the sending area could send up to an estimated 1,490 units and the receiving area could accommodate up to an estimated 3,081 future units. The success of the TDR program may alter the number of units built in the rural areas but it will not change the number of units in the overall Comprehensive Plan.

Architectural Design of structures constructed within the receiving area should utilize materials, quality, appearance, and details pursuant to the Neighborhood Design Standards Plan element of the Comprehensive Plan.

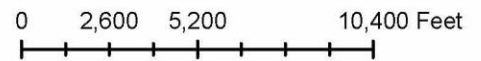


FIGURE 3.18 Transfer of Development Rights Sending and Receiving Areas Stafford County Comprehensive Plan Stafford County, Virginia September 8, 2021



Legend :

-  TDR Sending Area
-  TDR Receiving Area
- Future Land Use - Proposed**
-  Targeted Development Areas
-  Suburban
-  Business and Industry
-  Agricultural/Rural
-  Mining
-  Federal
-  Resource Protection
-  Parks



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.

3.9 Cluster Subdivisions

Cluster Subdivision Areas

The State Code allows localities to provide standards, conditions, and criteria for the clustering of single-family dwellings and the preservation of open space on a minimum of 40 percent of the unimproved land contained in residential and agricultural zoning district classifications. In accordance with State Code, cluster subdivisions are recommended within an area of the County that contains a minimum of 40 percent of the unimproved land in residential and agricultural zoning districts, as designated on the map Figure 3.19, Cluster Subdivision Area. These areas include all of the land within the Urban Services Area and a portion of the land adjacent to and outside of the Urban Services Area. For the purpose of designating these areas, unimproved land includes:

- Land without a dwelling or taxable structure, and
- Parcels of two or more acres in size,

And excludes:

- Land owned or controlled by the County, Commonwealth, or Federal Government,
- Land subject to a conservation easement, and
- Unimproved lands that were part of dedicated open space for a subdivision.

Cluster subdivisions may occur on improved land and unimproved land assuming the proposed subdivision is in conformance with the cluster subdivision development standards.

Cluster subdivisions are a subdivision development design technique that concentrates detached single-family dwellings in specific areas on a site to allow the remaining land to be used for recreation, common open space, and preservation of environmentally sensitive features and rural character.

A. Any cluster subdivision should meet the following county-wide criteria:

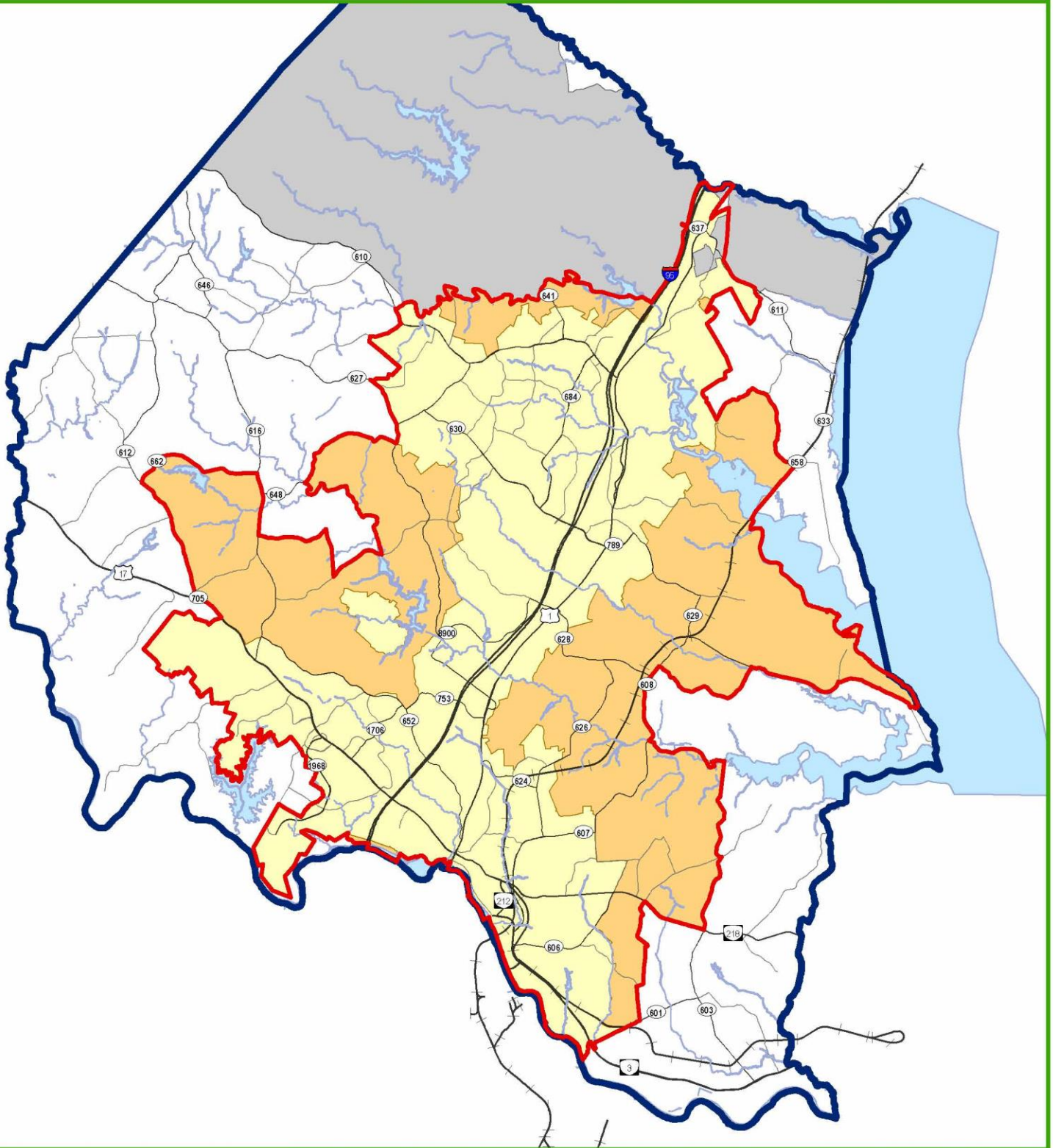
- Cleared natural resource area should be restored through the provision of increased landscaping in open space, buffer areas and on residential lots.
- Viable areas of natural resources should be avoided when possible as part of the development design.
- Impacts of the development should be mitigated where existing public facilities are inadequate.
- Environmentally sensitive areas should be preserved within open space areas, including wetlands, floodplain, alluvial soils, slopes greater than 25%, designated trees and significant tree stands.
- Open space areas should be a contiguous land mass that is not fragmented by the development of the subdivision and shall be of sufficient size and shape to support its intended use.
- The proposal should be consistent with airport land use compatibility standards, if the subdivision will be located within the Airport Impact Overlay District, as outlined in Section 3.5 of the Land Use chapter and Appendix H of the Comprehensive Plan, including but not limited to:
 - a. the provision of a minimum area of usable open space, as described in the airport land

- use compatibility standards.
 - b. clustering dwelling units away from aircraft traffic patterns.
 - c. locating dwelling units at least 3,000 feet from the runway centerline.
 - d. noise mitigation measures in building standards.
 - e. disclosure notices where applicable.
- o The proposal should be consistent with military facility land use compatibility standards that are in accordance with Chapter 3.4 of the Land Use chapter, and provide for real estate disclosure notices, noise mitigation measures in building standards, and other sound attenuation measures where applicable, if the subdivision will be located within Quantico Military Impact Zones.
- B. Cluster subdivisions inside the Urban Services Area should meet the following criteria, in addition to the county-wide recommendations noted in sub-section A above:
- o Subdivisions proposing additional density should be located in areas of the County where public facilities (including schools, transportation, parks and recreation, water/sewer, emergency services) have capacity to absorb the demand of the additional density.
 - o Open space areas should include adequate areas of usable open space, in addition to areas that may be designated for stormwater management and utility easements and environmentally sensitive areas.
 - o The minimum side yard setback for each residential lot should be ten (10) feet or a fire suppression system should be provided within each dwelling unit.
- C. Cluster subdivisions outside the Urban Services Area should meet the following criteria, in addition to the county-wide recommendations noted in sub-section A above:
- o Viable areas of active agricultural and forestry uses should be avoided when possible as part of the development design.
 - o Open space areas should include adequate areas of active agricultural and forestry uses, in addition to areas that may be designated for stormwater management and utility easements and environmentally sensitive areas.






FIGURE 3.19 Cluster Subdivision Areas Stafford County Comprehensive Plan Stafford County, Virginia

September 8, 2021



Legend :

-  Boundary
-  Portion Inside the Urban Services Area
-  Portion Outside the Urban Services Area

0 6,500 13,000 26,000 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.

3.10 Solar Energy Generation and Energy Storage Facilities

SOLAR ENERGY GENERATION

Solar energy generation facilities, sometimes referred to as solar farms or solar facilities, provide an expanding alternative to generation of electricity as they are becoming more cost effective. A solar facility is defined as a facility primarily consisting of activities, applications or devices designed to convert sunlight into electricity for storage and/or distribution from one property to others through the utility grid.

Solar facilities can be classified into two different types, Community Scale and Utility Scale. Both types of solar facilities are similar in design. The main defining factor is the amount of power that is generated, which correlates to the size of the project. The following defines the two types:

Community Scale: consists of a series of solar arrays, typically ground mounted, that generate up to 5 MW of electricity. Roughly 10 acres of land are needed for every 1 MW of power generation, or 50 acres of land in total, or lesser amounts under optimal site conditions. The electricity generated feeds into the local distribution lines, the lines that run along area streets to a nearby transfer station. The concept allows area residents to purchase their electricity that is generated from this community scale project.

Utility Scale: this is the largest application of solar generation that follows the same development concept as community scale projects but at a larger scale. This category includes any project that generates over 5 MW of electricity. These projects generally require more than 50 acres of land, and often require hundreds and even thousands of acres of land. Siting such large scale facility is encouraged to not exceed 300 acres. They usually connect directly into the transmission network, which are the large overhead high voltage power lines that carry electricity over long distances. The solar arrays in these projects have the same dimensions as in a community scale project. Utility scale solar is expected to be secured and screened just as community scale solar would.

As solar energy facilities are being proposed in Stafford, the following siting and design guidelines are intended to ensure that solar facilities are developed in a manner that is consistent with the goals of the community and do not negatively impact surrounding properties.

These guidelines do not apply to residential or non-residential properties containing solar technology used primarily to generate electricity for on-site use.

SOLAR ENERGY RECOMMENDATIONS:

Siting Guidelines:

The following siting guidelines are included that are specific to Utility Scale and Community Scale solar facilities, along with guidelines that apply to all solar projects, regardless of the type.

Utility scale solar facilities should conform with the following location standards:

- Located outside of the Urban Services Area.
- Located on property that is within 1,000 feet of major electric transmission lines.
- The total parcel area of a project should not exceed 300 acres.

Community scale solar projects should conform with the following location standards:

- Encouraged to be located outside of the USA.
- Consideration of projects inside the Urban Services Area under the following criteria:

- Project areas should not exceed fifty (50) acres. Project areas are defined as the areas bounded by the fenced solar array areas and any surrounding landscape buffers.
- Discouraged on property where future housing, commercial, or industrial development may be viewed as a better use of the land.

All solar projects should conform with these location standards:

- To reduce visual impacts, solar energy facilities are encouraged to be located on sites with established and/or preserved vegetative and/or forested buffers of enough depth or density to effectively screen the facility as determined by viewshed analysis along public roadways, nearby or adjacent residential properties, and/or significant cultural or historic resources.
- To preserve rural character and ecological integrity, avoid locating on sites with active agriculture, high levels of biodiversity, and/or mature forests.
- To minimize land use conflicts, avoid locating near and within the viewshed of dense residential developments, cultural or historic resources, and/or near public drinking water sources. For this purpose, dense residential developments are defined as any residential subdivision with typical lot sizes less than one (1) acre in size.
- In urbanized settings, encourage placement on rooftops of industrial or other large buildings.
- Encourage solar projects on land that has limited redevelopment potential, such as capped landfills, brownfield sites, abandoned industrial sites, completed and decommissioned surface mining sites near major electric transmission lines.
- Consider the placement on open water surfaces, such as decommissioned mines or other reservoirs.

Individual Site Design Criteria:

All solar facility projects should incorporate the following design features into the development of the project.

- Locate mechanical equipment such as inverters and transformers internal to the property or away from any residential or incompatible uses.
- Prioritizing retention of existing tree cover over planting of new trees; Considering berms as an additional optional means of screening.
- Provide for adequate emergency access by providing a travelway around the perimeter of each group of solar arrays and minimize fire hazards by providing adequate spacing between brush vegetation and the ground-mounted panels and equipment.
- Minimize environmental impacts by avoiding developing in environmentally sensitive areas, including Critical Resource Protection Areas, wetlands, and floodplains, while retaining existing trees outside of the project area and preserving stream drainage channels and associated wetlands that may run through a site.

- Maintain wildlife corridors by providing separate fence enclosures for each group of solar arrays and consider fence design to allow passage of smaller wildlife.
- Where possible, utilize the site as grazing lands for sheep and other appropriate livestock.
- Incorporate development techniques that can facilitate conversion of the land back to agricultural uses upon decommissioning of the facility.
- Minimize impacts during the construction phase by: Placing limits on the hours of construction; Consider establishment of preferred truck delivery routes, and; Require repair of road damage after construction or decommissioning.
- Solar panels should not exceed a maximum height of 15 feet from the finished ground elevation at maximum tilt. Exceptions to this height limitation may be appropriate where complete and adequate screening from view is provided or sudden changes in topography would preclude a consistent height of adjacent solar panel arrays.
- Solar panels should retain a minimum ground clearance of 12 inches from the finished ground elevation at maximum tilt to allow for vegetation maintenance.

ENERGY STORAGE

Energy storage allows for increased effectiveness and reliability of electricity power distribution from both non-renewable and renewable energy sources, such as solar energy facilities. This is accomplished by storing energy then releasing it later when needed, such as during peak usage events (hot summer days) or during periods when solar electricity generation is diminished (nights or long periods of cloudy or snowy weather). Energy storage facilities are defined in the Code of Virginia as the energy storage equipment and technology within an energy storage project that is capable of absorbing energy, storing such energy for a period of time, and redelivering such energy after it has been stored.

The predominant form of energy storage currently is with battery energy storage systems (BESS), and specifically Lithium Ion batteries. A facility would consist of a series of lithium-ion battery banks, located within either a building, several shipping container structures, or smaller equipment cabinets. These facilities would most likely need to be sited within or in close proximity to utility transfer stations or accompany a solar energy facility.

Land Use Compatibility:

Energy storage facilities are characteristic of industrial uses, with larger cleared areas, metal structures, and void of landscaping. This type of development would not be visually compatible with most non-industrial uses. The structures that house the batteries need to be climate controlled, thus requiring the use of air conditioning units. Across a site, there may be several larger units that may generate higher levels of noise. Due to the industrial nature of the use, potential noise impacts, and fire safety concerns, these facilities should be appropriately separated and screened from incompatible land uses such as residential uses, schools, and highly visible commercial corridors.

ENERGY STORAGE RECOMMENDATIONS:

The following recommendations should be considered when considering the siting of an energy storage facility in Stafford County:

The following location siting criteria are recommended:

- The preferred location for energy storage facilities is within areas designated Business and Industry on the Future Land Use map.
- For energy storage facilities proposed within areas designated Business and Industry on the Future Land Use map, the following siting considerations include:
 - Screening from non-industrial uses should be provided.
 - Providing a connection to public water is preferred.
- If an energy storage facility is installed in conjunction with a solar facility, consider siting the energy storage facility internal to the solar panel arrays.

However, other locations may be considered appropriate based on the following criteria.

- For energy storage facilities proposed within areas designated Agricultural / Rural on the Future Land Use map, the facility should be adequately set back from adjacent properties.
- Should a facility be proposed in the vicinity of an electricity transfer station within a designated Suburban area on the Future Land Use map, the following siting criteria are recommended:
 - Locations adjacent to higher density residential development or other incompatible uses are discouraged.
 - The facility should be appropriately screened from view with a combination of existing trees, new vegetation, opaque fencing, and/or berms.
 - Providing a connection to public water is preferred.

Fire Safety:

Energy Storage Facilities are not free from fire and explosion hazards and risks. The primary concern with energy storage units usually involves thermal runaway of the battery cells and units. The by-products of this thermal runaway include toxic and flammable gasses and ultimately risk of explosion or deflagration. As such, incidents at these facilities are essentially hazardous material incidents that require a long-duration incident with specialized resources. Currently, those specialized hazardous materials response resources would come from the Virginia Department of Emergency Management for incidents in Stafford County. The following are location, design, and operation recommendations for fire safety at energy storage facilities:

Location and Design:

- 1) Provide adequate water for fire protection by limiting future facility locations to the urban services area where a water supply is available or require adequate setback from buildings and property lines.

Operations:

- 2) Ensure access to battery management system information by providing a separate facility for battery management system information and hazardous gas monitoring display for first responders.
- 3) Ensure site management coordination by posting facility operator information as well as 24-hour emergency contact information at the entrance to the facility.
- 4) Provide an emergency response plan and associated training for first responders that is site-specific.