Land Use Alternative Plan for Thornburg, Virginia

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Prepared For:

Spotsylvania County Planning Department

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Table of Contents

List of Maps, Images, Tables, Figures, Appendices

Maps

List of Maps, Images, Tables, Figures, Appendices

Images

List of Maps, Images, Tables, Figures, Appendices

Tables

Figures

Appendices

Part I

Executive Summary

Thornburg is an unincorporated community located in Spotsylvania County, Virginia. Due to its location along Interstate 95, the rural community has been facing recent development pressures. A variety of developments are proposed near the interstate interchange that could cause drastic impacts on the growth of the area. Spotsylvania County officials envision the Thornburg area as an economic driver of the county. Contrary to certain previous development areas, Spotsylvania County wants to take a proactive planning approach to guide the projected growth of the Thornburg community. This plan creates three different land scenarios and illustrates what types of future development can occur in the area. In addition, the Spotsylvania County Fiscal and Economic Impact Model is used for each scenario to produce indicative economic outputs. The first land use scenario examines the existing zoning of the Thornburg area. The proposed future land use in the 2013 Spotsylvania County Comprehensive Plan was incorporated in the second scenario. The third scenario proposes a village center in the Thornburg community that will establish concepts of smart growth and nodal development.

Preserving the rural character of Thornburg is an important goal of this land use alternative plan. Therefore, a growth boundary was proposed to control sprawl and encourage infill and redevelopment in the community. Thornburg has commonly been a temporary stop for travelers along the busy corridors of U.S. Route 1 and Interstate 95. This plan aims to help Thornburg become a desirable destination that attracts future residents and visitors to the area. In order to accomplish this vision, the community must be strategically planned by incorporating more compact forms of development that help create a sense of place at Thornburg. A successfully planned future of Thornburg will provide many benefits to the community and Spotsylvania County as a whole. This land use alternative plan helps readers envision the future of Thornburg and the potential for it to be one of the most attractive interstate communities in the state of Virginia.

Introduction

Professional Plan Introduction

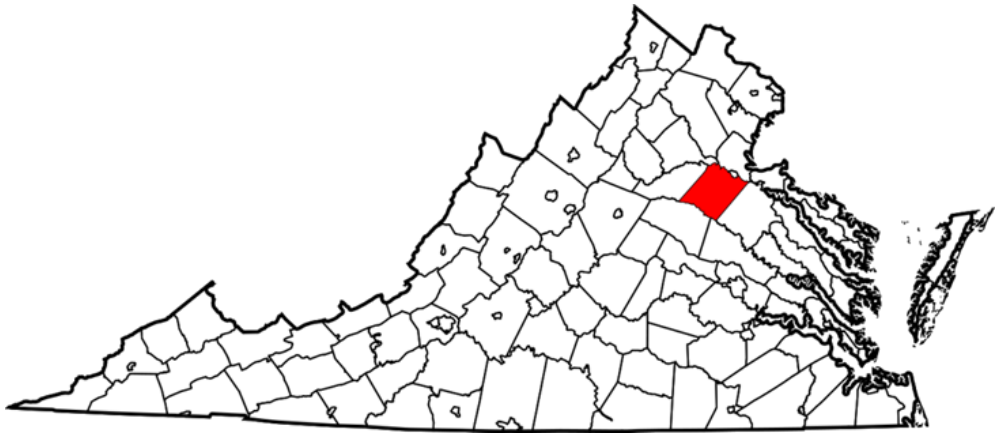
This section provides an introduction to the proposed Land Use Alternative Plan for Thornburg, Virginia. A background to the plan and the client organization is included to show why the plan is needed. The introduction illustrates the approaches and methods that will be used throughout the plan and provides a brief overview of Thornburg and how the plan will be valuable for the future of Spotsylvania County. The document also provides an outline of the entire proposed plan that is divided into different parts and sections.

Client Organization

The Land Use Alternative Plan for Thornburg, Virginia was requested by the Spotsylvania County Planning Department and it also fulfills the requirements of the Master of Urban & Regional Planning Program in the L. Douglas Wilder School of Government and Public Affairs at Virginia Commonwealth University. Located in the recently constructed Spotsylvania Courthouse Village, the Planning Department is responsible for current and long range planning throughout the 407 square miles of the county. The purpose of the Spotsylvania County Planning Department is to provide expertise and carry out the goals and policies of land use in the county as established in the Comprehensive Plan. The recently adopted 2013 Spotsylvania County Comprehensive Plan presents a long range land use vision for the county. In addition to land use, the Spotsylvania Planning Department addresses environmental protection, transportation, housing, public facilities, and design standards. These are some of the aspects analyzed in the proposed Land Use Alternative Plan for Thornburg, Virginia.

Spotsylvania County faces suburban and rural issues that must be addressed in order to improve the local quality of life. A suburb of the independent city of Fredericksburg, Spotsylvania County is also considered part of the Washington Metropolitan Area. Spotsylvania is roughly 65 miles south of Washington D.C. and 55 miles north of Richmond, Virginia's capital city. This position of Spotsylvania County allows residents to live in the county and commute to either major city. The strategic location of

Spotsylvania has caused development pressures in the county around Fredericksburg and along Interstate 95. The Spotsylvania County Planning Department is responsible for controlling and guiding growth in these development areas. The majority of land in Spotsylvania County is designated for rural use with large amounts of open space. These rural areas are generally located outside of the Primary Development Boundary in the county. The Planning Department has the responsibility to manage growth while preserving the unique history of Spotsylvania County. The Land Use Alternative Plan for Thornburg, Virginia controls growth in the community and preserves the rural character of the area.



Map 1: Location of Spotsylvania County

Source: https://www.wikipedia.org/

Plan Purpose

Spotsylvania County is one of the fastest growing counties in Virginia with large increases in population projected over the next 20 years. The Spotsylvania County Planning Department must manage future growth to certain development areas that will help minimize conflicts with the rural land uses. In order to mitigate these conflicts, the county established the Primary Development Boundary to designate where public water and sewer utilities will be provided in the county. The Primary Development

Boundary contains approximately 66.8 square miles of land, or roughly 16% of the total land area in Spotsylvania County (Spotsylvania County, 2013). Land within the boundary is designed for high-density residential uses and more intensive non-residential uses. The areas outside of the Primary Development Boundary are intended for rural residential, agricultural and open space land uses. A major benefit of the boundary is that it helps control growth while preserving the rural character of Spotsylvania County. The proposed future land use of Spotsylvania and the county's Primary Development Boundary can be further analyzed on Maps 3 & 4 of this plan.

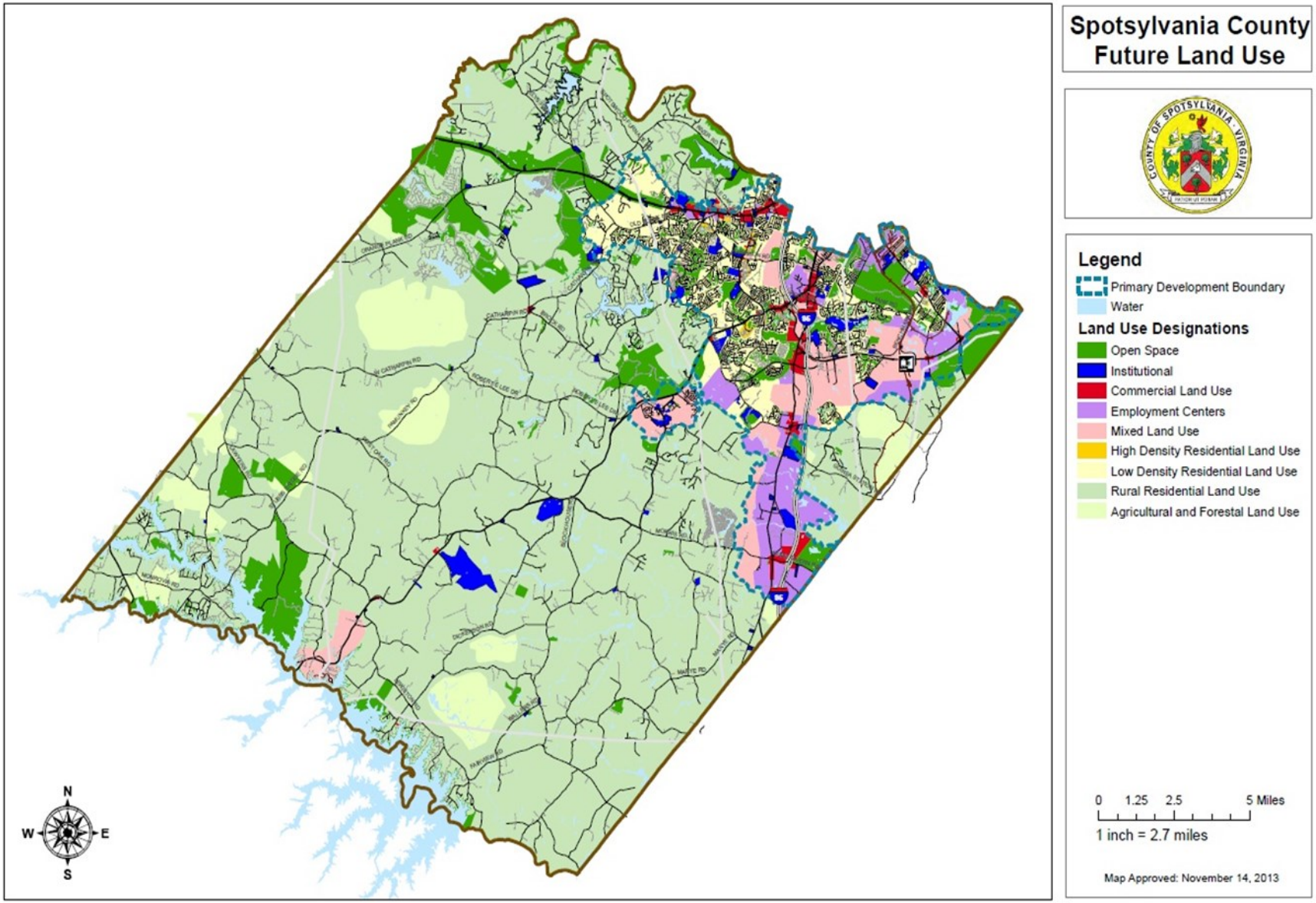
The Spotsylvania County Planning Department wants a land use alternative plan for Thornburg because the community is facing development pressures due to its location along Interstate 95, the main highway on the East Coast of the United States. Thornburg is also situated within the aforementioned Primary Development Boundary in the county. The community is located adjacent to Exit 118, one of the two Interstate 95 interchanges in Spotsylvania County. Exit 126, the other interchange in the County, is positioned at the crossing of Interstate 95 and U.S. Route 1. This interchange has witnessed substantial growth and development over the past two decades. Exit 118 near Thornburg has not experienced similar trends in growth and development. Several gas stations and hotels, designed for travelers along the busy corridor, are currently present at the interchange. The area

Map 2: Location of Thornburg, Virginia

Source: http://www.homefinders.com

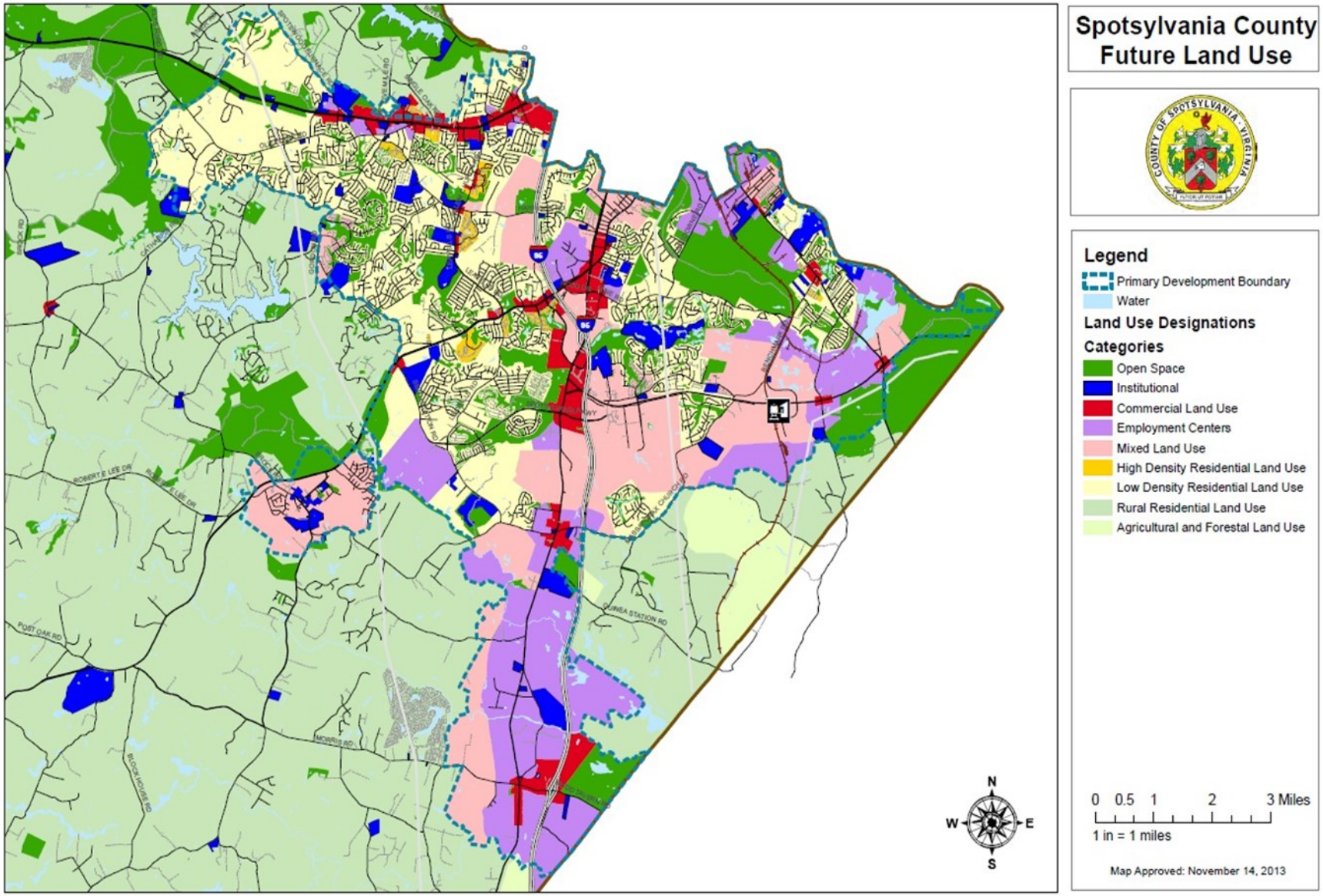
contains large amounts of real estate available for different types of development. The easy access to Interstate 95 and the large parcels available make it an ideal location for a variety of businesses. There are multiple potential projects at Thornburg that have been in discussion with the Spotsylvania County Planning Department. For example, a race and entertainment complex is proposed to be constructed on a 160-acre site northeast of the Thornburg interchange. Old Dominion Speedway plans to use the stock-car and drag-racing facility for year-round festivals, such as concerts, drive-in movies, and collector car auctions (Freehling 2012). The presence of this facility would encourage other development in the vicinity. Planners in Spotsylvania County are aware of these pressures and are interested in a plan that would properly accommodate the proposed growth around Thornburg.

According to the Spotsylvania Planning Department, the county wants to take a more proactive approach to the anticipated development that will produce better long-term outcomes. The county has witnessed reactive approaches to development and the struggles they have caused. In order to avoid future struggles, the Spotsylvania County Planning Department wants to proactively plan for development in Thornburg so that it can be an economic driver for the community and county. The Land Use Alternative Plan for Thornburg will help determine which types of land use should be applied to create the most viable developments that use an efficient amount of acreage . There are types of development in the area that will prove to be better than others. The plan provides different land use scenarios that will be beneficial to a variety of decision makers in Spotsylvania County.



Map 3: Spotsylvania County Future Land Use

Source: 2013 Spotsylvania County Comprehensive Plan



Map 4: Spotsylvania County Primary Development Boundary

Source: 2013 Spotsylvania County Comprehensive Plan

Background Theory

Rural communities across the nation are facing similar development pressures due to increases in local and regional populations. These growths have created conflicts with nearby residents concerned with preserving the rural character of communities. In order to address these development issues and conflicts of interests, contemporary planners have used principles of smart growth. Smart growth focuses on supporting local economies and preserving the environment by concentrating growth in compact and walkable developments. These smart growth concepts will minimize development acreage and negative impacts on the local environment at Thornburg. Sprawled development at Thornburg can be prevented by maintaining a clear edge between development and conservation (McMahon et al. 2001). Smart growth concepts will help respect the local character of Thornburg and should make new developments more favorable to the community residents. These growth concepts will address the subject areas of land use planning and environmental planning for the project.

Establishing mixed land uses through mixed-use zoning was also applied to the plan for Thornburg in order to address the potential issues. The mixed-use zoning technique focuses on locating different land uses in close proximity to each other, putting emphasis on connections and linkages between the different land uses. A combination of employment, residential, and commercial land uses will be analyzed to enhance the economic development of the Thornburg community and Spotsylvania County as a whole. The deliberate use of zoning for mixed land uses can encourage density, preserve open space, and decrease the reliance on cars by creating walkable developments. Proactively planned compact developments can also help significantly reduce infrastructure costs. Compared to sprawl developments, the dense design requires a less amount of construction for new roads, pipes, and power lines (Porter 2008).

Nodal development is another planning technique that will be used for the proposed plan for Thornburg. A nodal development is “a complete, compact, mixed-use community that includes places to live, work, learn, play, shop and access services”

(Regional District of Nanaimo). Nodal developments reduce sprawl and traffic, which helps preserve open spaces and other natural features. The method can also attract businesses to Thornburg due to the proximity of residential areas. Nodal developments are often linked with surrounding areas by transit. There is no mass transit currently in Thornburg, but the location along Interstate 95 between Washington D.C. and Richmond leaves the option possible in the future. Nodal developments can also be in the form of rural village centers, areas with rural character providing community water, sewer services and basic services such as shopping and some limited housing options (Regional District of Nanaimo). These are the conditions that currently describe the Thornburg community. Future development is focused on the rural village centers and will grow to a broader range of services over time. The rural village center of Thornburg is facing development pressures; applying the nodal development method for the professional plan will help guide the proposed future growth.

Another subject area addressed by the Thornburg plan is economic development. The Spotsylvania Planning Department is striving to increase revenues in the county through the expected growth at Thornburg. Contemporary planners use the location theory to explain how firms choose their locations and what affects it has on local economies. Firms are primarily interested in locations that will minimize their costs of producing and transporting to the potential markets (Blakely and Leigh 2010, 85). The location of Thornburg, adjacent to Interstate 95, provides easy access to transport goods to markets along the East Coast. In addition, firms can benefit from the presence of other nearby firms using similar types of labor or inputs. A firm that may supply parts or services to the proposed Dominion Speedway could be interested in creating an employment center at Thornburg. The location theory will help select which types of firms could benefit by establishing a presence in the study area.

The mixed-scanning planning process was used throughout the progression of the plan for Thornburg, creating a compromise between the rational and incremental theories of planning. Rational planning involves a systematic process toward a preferred goal or problem. The process includes identifying issues, collecting data, setting goals and objectives, designing

alternative plans, evaluating the plans, choosing a preferred plan, and implementing the preferred plan. The plan for Thornburg involves a similar process, creating three different land use scenarios and then providing recommendations for the preferred plan. Rational planning can be problematic because the knowledge and resources needed are often beyond the capacity of the plan. Incremental planning creates a less comprehensive model of decision-making than the rational approach. Decision-makers determine principle values while outlining alternative actions that differ incrementally from existing ones. The plan for Thornburg uses incremental approaches due to the limited study time and resources with adjustments throughout the process to make problems more manageable. An issue with the incremental approach is its focus mainly on short-term issues. The land use alternative plan needs to examine long-term effects of the proposed development at the interchange.

Approach and Methods

The proposed plan for Thornburg must address what type of development is desirable for the rural community and also determine what development is compatible with the proposed Dominion Speedway. The ideal plan illustrates how growth can be economically and environmentally efficient. In order to accomplish these objectives, the plan will use the existing zoning map, the future land use map and the proposed village center to determine the types of development that will be economically and environmentally efficient for Thornburg.

Multiple documents and sources were used throughout the planning process to develop the three land use scenarios. The 2013 Spotsylvania County Comprehensive Plan was examined to ensure land use plan principles are in accordance with the vision and goals listed in the Comprehensive Plan. GIS maps were constructed to show certain environmental features of Thornburg; identifying these environmental features will allow the plan to protect the environment and preserve the rural character of the community. In addition, the Dominion Speedway Site Plan was useful for designing development around the proposed track, showing proposed boundaries of the Dominion Speedway, and analyzing the slope and other key environmental features

of the area. Current zoning and future land use maps of Thornburg were used to determine which types of development could occur under these conditions.

Another tool used to benefit the land use plan is the Spotsylvania County Fiscal and Economic Impact Model. The Spotsylvania County Planning Department uses the Fiscal and Economic Impact Model to determine financial impacts on different types of developments. The Model divides Spotsylvania County into multiple regions with different goals and initiatives towards development. The region used for the Thornburg plan is the Primary Development District, which is part of a corridor along U.S. Route 1 in the county between Massaponax and the Thornburg interchange. This corridor, formerly known as the Jackson Gateway, is believed to be the future economic driver of Spotsylvania County. Manual inputs of building square footage, acres consumed, and land use type are an important part of the Fiscal and Economic Impact Model. The Model provides economic costs and benefits to Spotsylvania County after the proposed manual inputs were completed.

Roadmap to the Document

The Land Use Alternative Plan for Thornburg, Virginia will be organized as the following:

Part I

Introduction and Executive Summary- This section provides an introduction to the Thornburg plan and reasons why the Spotsylvania County Planning Department needs the document. The executive summary provides a brief overview of the plan and some recommendations developed throughout the process.

Existing Conditions- The existing conditions section provides a background to the Thornburg community and the causes for development pressure. A series of Geographic Information Systems (GIS) maps are provided to display current demographics and environmental conditions of the area. In addition, the section informs readers of the Dominion Speedway proposed to be constructed in Thornburg. The Speedway proposal has been very contentious throughout community meetings process. Some nearby residents of Thornburg are against development that will not preserve the rural character of the community. Residents closer to the proposed speedway are not in favor of noise produced by the automobiles. This section also describes current and other proposed development in the area and how it impacts the community.

Part II

Scenarios for Comparison- This section describes the three different land use scenarios that are part of the plan. The first land use scenario uses a map of existing zoning in the Thornburg area and determines what type of development can be constructed. The second land use scenario involves the adopted future land use map at Thornburg to show what development can occur under its conditions. The third and final scenario proposes a village center in the Thornburg community. The Spotsylvania County Fiscal & Economic Impact Model was applied to all three scenarios to produce the results. GIS maps were constructed to show potential

building footprints at the Thornburg interchange.

Justifications for Proposed Village Center- This section incorporates planning theories and approaches that justify the reasoning for the proposed village center. The concepts of smart growth and nodal development are described to show how they can apply to the Thornburg community.

Part III

Results- This section provides results from the Economic and Fiscal Impact Model of the three land use scenarios. The Model produces outputs from the proposed square footage of buildings and acres consumed. In addition, the expenditures, costs, and assessed values of the structures are evaluated to propose certain types of developments at Thornburg.

Conclusions- The final section develops the vision statement, goals and objectives to guide future growth in Thornburg. In addition, strategies are listed to describe the process for plan implementation. The plan concludes with future considerations of the Thornburg community that must be briefly addressed.

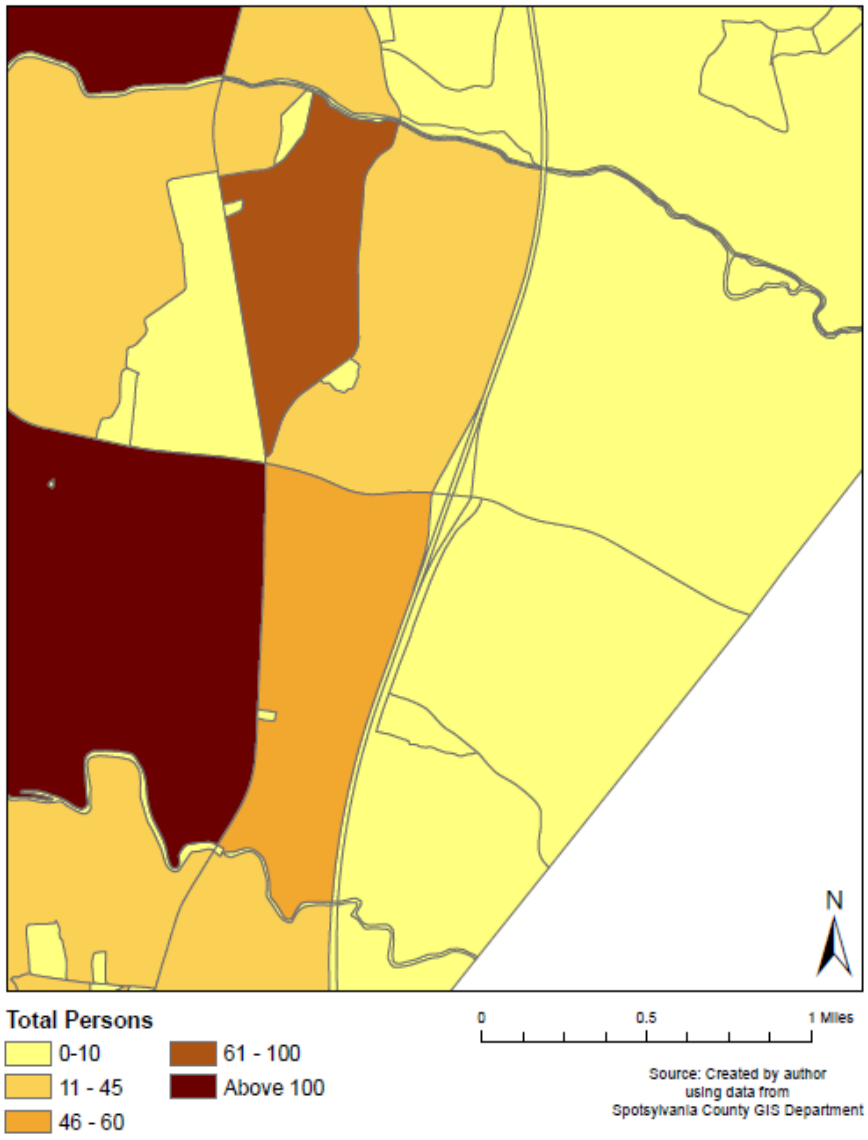
Existing Conditions

Existing Conditions

Thornburg is an unincorporated community located in Spotsylvania County, Virginia. The location of Spotsylvania County between Washington, D.C. and Richmond, VA has caused population growth over the past few decades. The Thornburg community is located along U.S. Route 1 in southeast Spotsylvania County and west of Exit 118 off Interstate 95, the main thoroughfare along the East Coast. Even though the community is located adjacent to the interstate interchange, the area has not experienced substantial growth and development. The rural Thornburg community contains large areas of forests and open space, shown below in Image 1. The presence of the two busy corridors in the community leads Spotsylvania County officials to believe the area is expected to develop and be an economic driver for the county. The three land use scenarios of this plan factor in the anticipated growth and illustrate the potential types of development that can occur.

Image 1: Existing Conditions of Thornburg, Virginia

Source: Google Maps



Map 5: Thornburg Area Population

Source: Created by author using Spotsylvania County GIS data

Demographics

Thornburg is a quiet, rural community with a small residential population. Map 5 on the left shows the total persons per census tract in the Thornburg area. This population map clearly illustrates the rural character of the community. The majority of residential units in the community are single-family detached and located primarily west of the interstate interchange. In particular, the most populated census tract in the area is southwest of the main Thornburg intersection. The land east of Interstate 95 has a sparse population with every tract containing 10 persons or less. Future residential growth will be directed west of Interstate 95 to ensure that proposed land uses are compatible with each other.

The location within Spotsylvania County's Primary Development Boundary shows the potential for the Thornburg community to experience increases in population and development. Land within the development boundary provides public water and sewer utilities to accommodate projected growth.

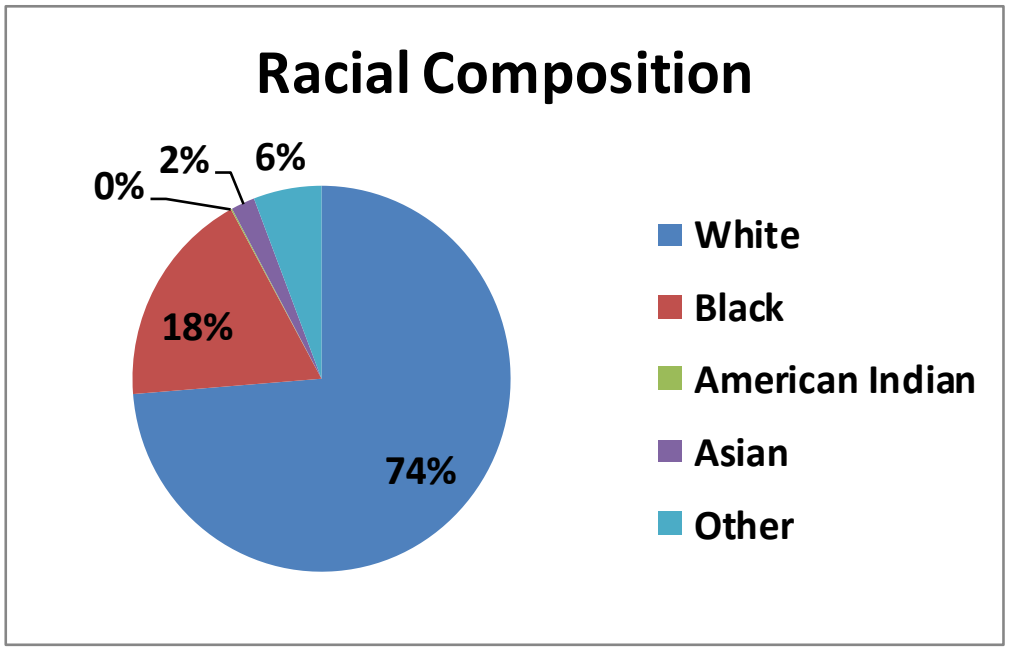


Figure 1: Racial Composition of Thornburg, Virginia (2012)

Source: Pitney Bowes Map Info

Gender Distribution

Male	50. 29%
Female	49.71

Table 1: Gender Distribution (2012)

Source: Pitney Bowes Map Info

The figure and table above show certain demographics of the population within a 3-mile radius of Thornburg. Figure 1 illustrates the racial composition of the community. The rural community is primarily white with a composition of nearly 75%. The black population accounts for 18% while the other and Asian races make up 6% and 2%, respectively. There is a very small population of American Indians in the community accounting for less than 1%.

The distribution of gender in the Thornburg community is fairly even. Table 1 shows 50.29% of the population is males while females account for the remaining 49.71%. This even distribution has potential to attract a variety of businesses, both gender specific and gender neutral.

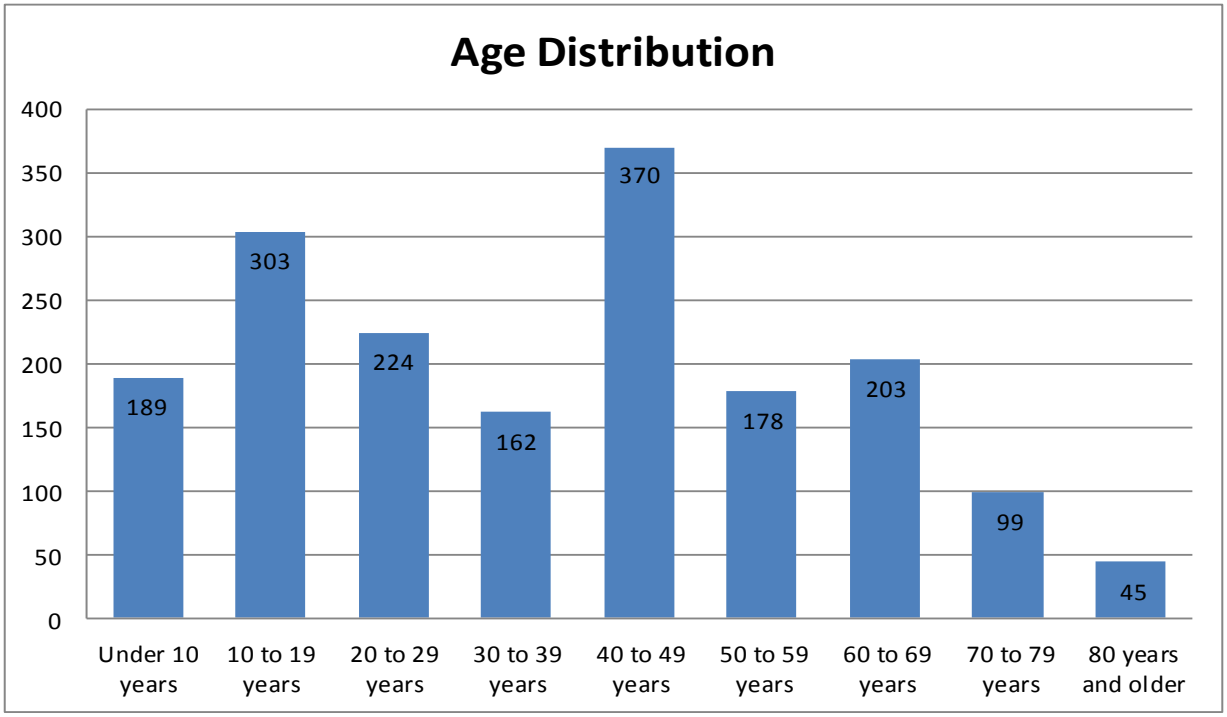


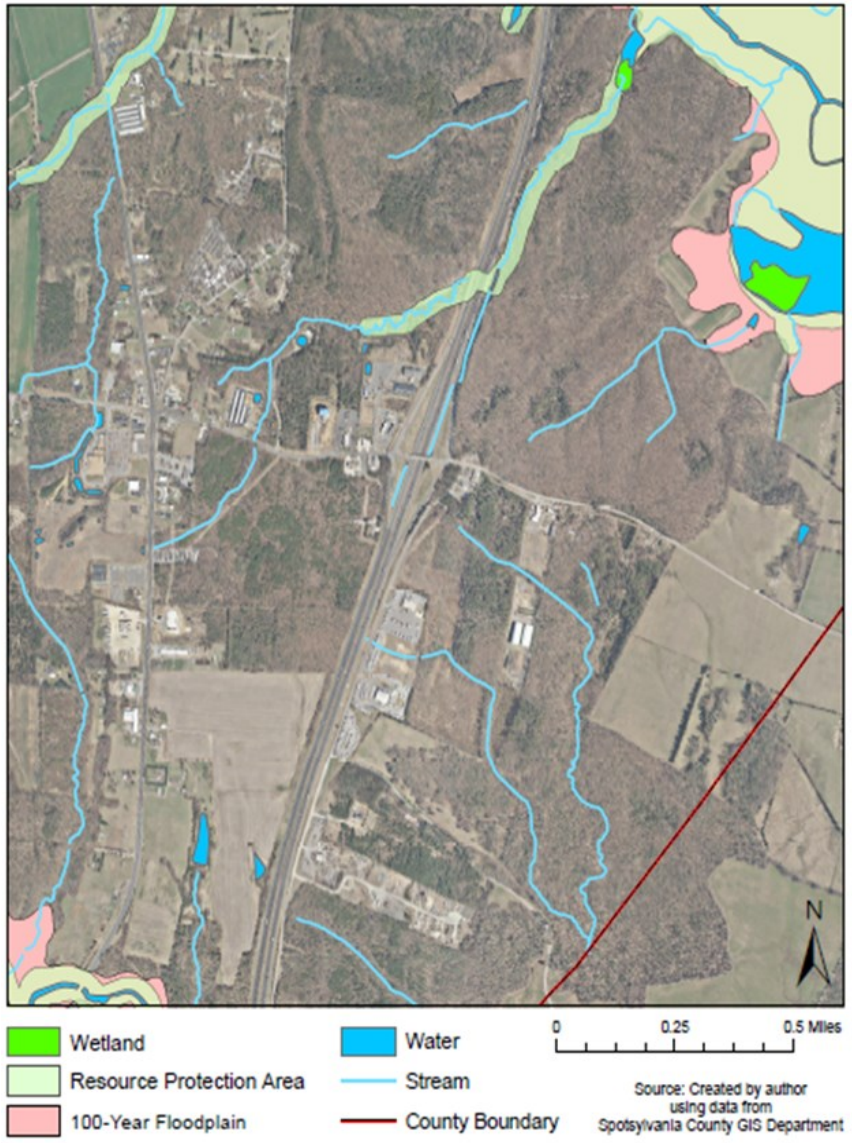
Figure 2: Age Distribution (2012)

Source: Pitney Bowes Map Info

Another beneficial demographic to analyze in this type of study is age distribution. Figure 2 above shows the age distribution of the population within three miles of Thornburg. The largest age cohort of the community is 40-49 years old with a population of 370, primarily a working class cohort. The second largest age cohort is 10-19 years old with a population of 303. Similar to many other communities, the smallest cohort in Thornburg is the population of 80 years and older. There are 45 residents in the area that are 80 years or above. This age distribution of the community can help determine what types of businesses will be desirable in the Thornburg area.

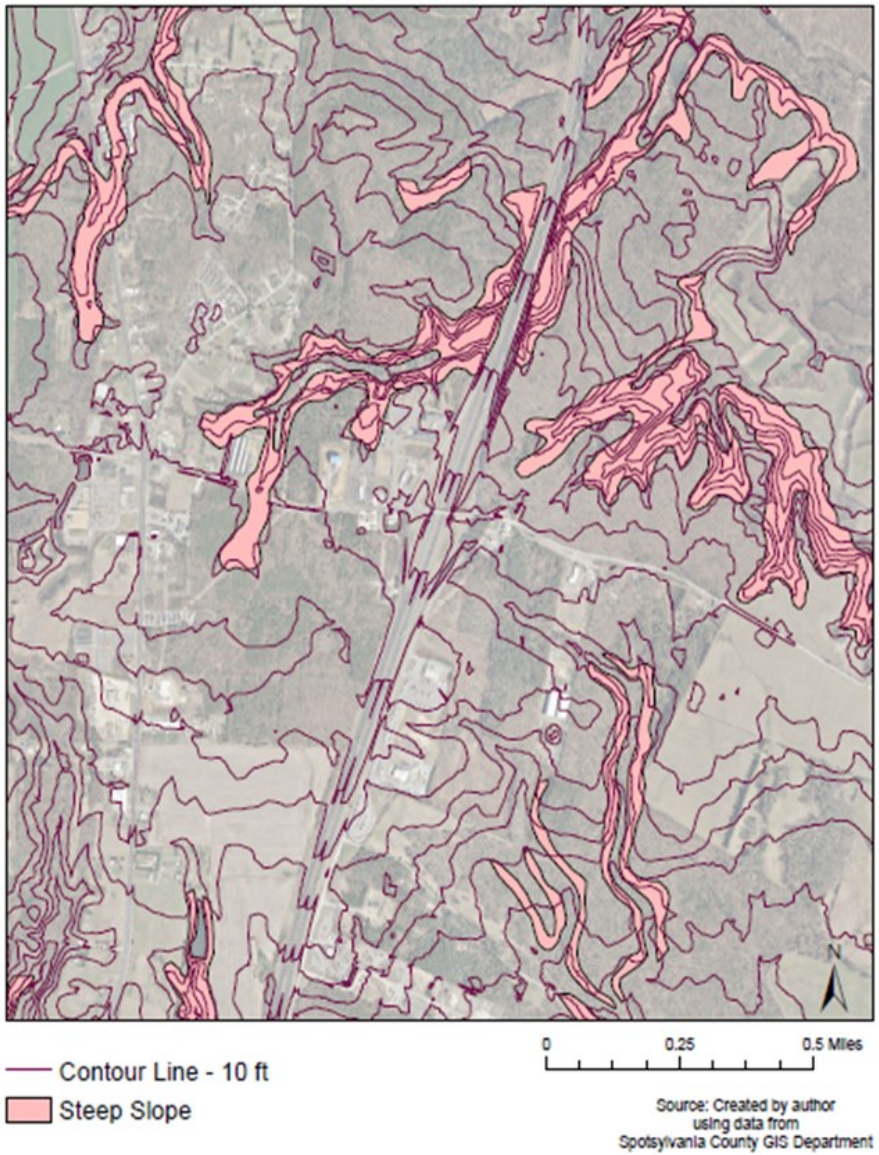
Natural Features

Analyzing the environment is essential before any form of development can occur. The Thornburg community contains some natural features that will have an impact on future development. Map 6 on the right shows natural features in the community and surrounding areas. The majority of significant natural features are northeast of the Thornburg community. This environmentally sensitive area contains a large pond that is surrounded by resource protection areas and a 100-year floodplain. Resource protection areas (RPAs) are corridors of land that lie adjacent to shorelines of streams, river or other waterways. An RPA in the community runs across Interstate 95 closer to the main Thornburg intersection. The 100-year floodplain shows the land area that has a 1% probability of a flood occurring during any given year. These areas can be found around the pond northeast of the interstate interchange and south of Thornburg. There are also several streams and small ponds throughout the community. The aerial image shows the presence of trees and open space in Thornburg and the surrounding areas. Development in the land use scenarios will not impact the natural features that must be preserved.



Map 6: Natural Features

Source: Created by author using Spotsylvania County GIS data



Map 7: Slope of Thornburg Area

Source: Created by author using Spotsylvania County GIS data

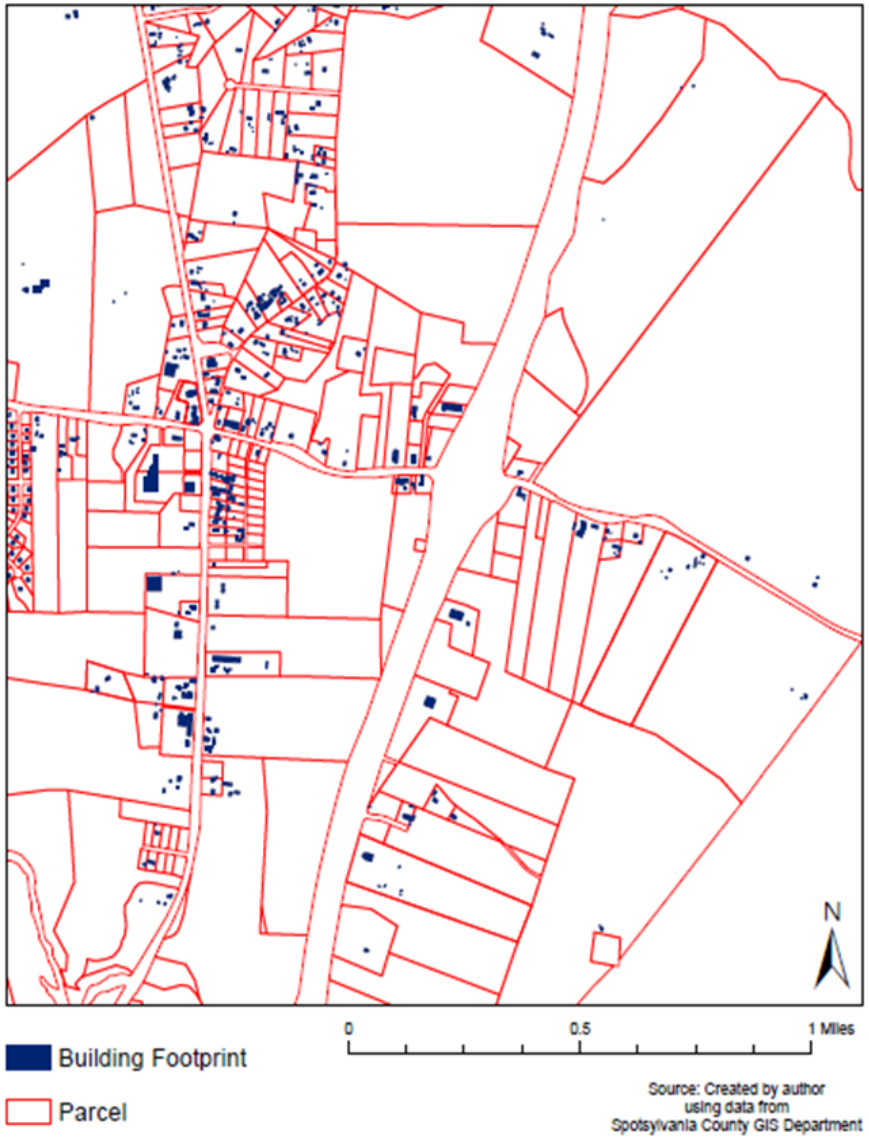
Another important environmental feature to analyze before planning for development is the slope of the proposed area. Slope refers to the direction and steepness of a particular land area. Elevation must be recorded in order to determine the slope; slope is calculated by the change in elevation over the change in horizontal land distance. Contour lines are commonly used to visually display slope. Map 7 displays the slope throughout the Thornburg area with contour lines of 10-foot intervals. These intervals help show where desirable areas for development are located in the community.

The map also displays the steep slopes throughout the area. Steep slopes are generally considered to have a slope angle of 20% or greater. These steep slopes require more alterations to the land in order to level the surface for development. Infrastructure is much safer and more cost effective on level terrains. Steep slope development primarily occurs in low-density areas. The land use scenarios in this study design development to minimize environmental impacts of altering the steep slopes in the community.

Current Development

The Thornburg community is primarily composed of development attracting travelers along Interstate 95 and U.S. Route 1. There are multiple fast food restaurant chains, hotels, and gas stations near the interchange that provide travelers a place to rest. The close proximity of these buildings to the interchange does not encourage travelers to drive to the main Thornburg intersection west of the interstate. Traveler's Row Shopping Center, located at the main Thornburg intersection, contains a grocery store, several restaurants, a tanning salon, and a liquor store. A gas station, bank, and restaurant are also positioned at the main intersection of U.S. Route 1, Morris Road, and Mudd Tavern Road. The Thornburg community contains multiple automobile-related stores primarily situated along U.S. Route 1. The types of development in Thornburg show how the community is designed for temporary travelers along the two busy corridors.

Land parcels in the Thornburg community vary in size and shape. Smaller parcels are generally located closer to



Map 8: Building Footprints and Parcels

Source: Created by author using Spotsylvania County GIS data

the main Thornburg intersection while larger parcels are adjacent to Interstate 95. Map 8 on the previous page shows the current building footprints and parcels in the Thornburg area. Certain parcels in the community are available for future development and will be identified in the three land use scenarios later in the plan.

There are multiple vacant and underutilized buildings in the Thornburg community that must be addressed. In particular, a hotel was under construction on Mudd Tavern Road between U.S. Route 1 and Interstate 95 but was not completed due to financial reasons. Image 2 below shows the conditions of the abandoned structure. Developers are currently analyzing different plans of what to do with the building and parcel. There are also vacant buildings along U.S. Route 1 that are not visually pleasing to members of the community and its visitors. These structures provide opportunities for revitalization along the busy corridor. The three land use scenarios in this plan encourage infill and redevelopment

The presence of U.S. Route 1 bisecting Thornburg hinders pedestrian movement within the small community. A lack of crosswalks at the main Thornburg intersection discourages pedestrians from crossing either street, which makes the community dependent on automobiles. Social interactions in the community are limited because there are no outdoor public spaces in the community. The proposed village center in this plan promotes principles of smart growth to decrease the dependence on the automobile and increase the presence of public spaces.

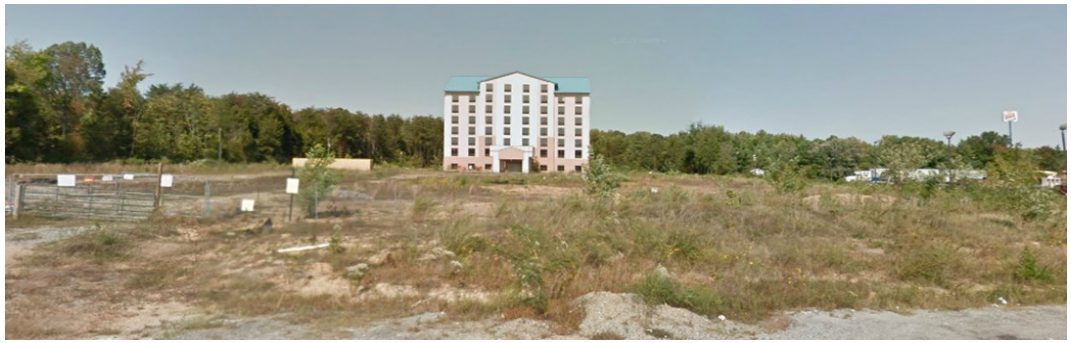


Image 2: Stalled Construction in Thornburg

Source: Google Maps

Image 3: Stonewall Jackson Shrine

Source: National Park Service

Image 4: Indian Acres Community

Source: Distance Calculator

Nearby Attractions

The most popular attraction in the Thornburg community is the Stonewall Jackson Shrine. Thomas "Stonewall" Jackson, a famous Confederate general during the American Civil War, was shot by friendly fire during the nearby Battle of Chancellorsville in Spotsylvania County. Confederate army commander Robert E. Lee decided to send the injured Jackson to the area known as Guinea Station. Stonewall Jackson passed away at a plantation office in the area where the shrine now stands, a few miles east of Thornburg along Stonewall Jackson Road. The shrine is open seasonally and is part of the Fredericksburg & Spotsylvania Military Park.

Another nearby attraction in Thornburg is Indian Acres, a private family camping and recreation community. Located west of Thornburg on Morris Road, the camping community contains amenities such as a 9-hole golf course, swimming pools, basketball courts and a shooting range. The cost-effective campground was established over 40 years ago and continues to be a family-friendly community.

Proposed Development

One of the main inspirations for this land use plan for Thornburg is the proposed Dominion Speedway. The stock car and drag-racing company, Old Dominion Speedway, is currently located in Manassas, Virginia. Owner Steve Britt decided to relocate the company due to the growing residential area around the current speedway in Manassas. Britt searched for new locations in Virginia along Interstate 95 between Stafford County and Richmond. Multiple locations were analyzed and Thornburg became an ideal site because of the easy access to the interstate and the sparse surrounding residential population. In October 2012, Old Dominion Speedway announced plans to relocate to Spotsylvania County (Freehling 2012). The 160-acre site chosen for the project is located east of Interstate 95 and north of Mudd Tavern Road off Exit 118. A rezoning application and special-use permit were required in order for the development to occur in the desired location.

The planning process for the Dominion Speedway has been very contentious as numerous Thornburg residents are against the proposed development. The Coalition to Preserve the Thornburg Countryside was formed to protest the speedway and address concerns with the project. The Coalition has sent multiple letters to Spotsylvania County officials acknowledging issues with noise, environmental impacts, financial costs, traffic backups, and property values. There have been several community meetings throughout the past year in order to mitigate conflicts with the rural community. The Spotsylvania County Board of Supervisors and Planning Commission approved the rezoning application and special use-permit in May 2013 after two joint public hearings, one on each request (Branscome 2013). Spotsylvania County officials also approved amendments to the Spotsylvania County Comprehensive Plan in favor of the proposed speedway. Economic impacts studies have been completed to show the effects of what the speedway could have on the Thornburg community and Spotsylvania County as a whole. Dr. Stephen S. Fuller, a faculty chair and professor at George Mason University, prepared an economic impact analysis for the Dominion Speedway in December 2012. The executive summary of the report can be viewed in Appendix B of this plan.

The proposed Dominion Speedway will contain an oval track for stock-car racing, a drag strip, and a road course. In addition, the facility will have a large screen and a three-story entertainment complex that could be used year-round for festivals, concerts, drive-in movies and other events. Concerts would likely be the biggest draw, with the potential for up to 9,000 people (Branscome 2013). The close proximity to Interstate 95 has raised traffic concerns from the Virginia Department of Transportation (VDOT). The proposed entrance to the Speedway on Mudd Tavern Road is closer to the interstate than what current guidelines allow. This concern can cause traffic backups along Mudd Tavern Road and the Interstate 95 ramp at Exit 118. In addition, Dominion Raceway requested a noise exemption to allow the raceway to host events from 8 a.m. until 11-p.m.-an hour later than the current noise ordinance allows (Branscome 2013). The proposed Dominion Raceway originally planned on opening in March 2014, but the development is now scheduled to open in February 2015. The site plan for the proposed Dominion Speedway is available in Appendix C of this report. The three land use scenarios in this plan account for the presence of this proposed raceway to ensure that adjacent development will be compatible.

Spotsylvania County is also in the process of other development within the Thornburg community. A Taco Bell restaurant is proposed along Mudd Tavern Road west of the interstate interchange. The proposed location is the parcel west of the current Citgo gas station at Exit 118. In addition, a Dollar General variety store is proposed along U.S. Route 1 north of the Thornburg community. These developments can increase commercial activity and revenues in the Thornburg community.

Image 5: Proposed Dominion Raceway

Source: Dunning Group

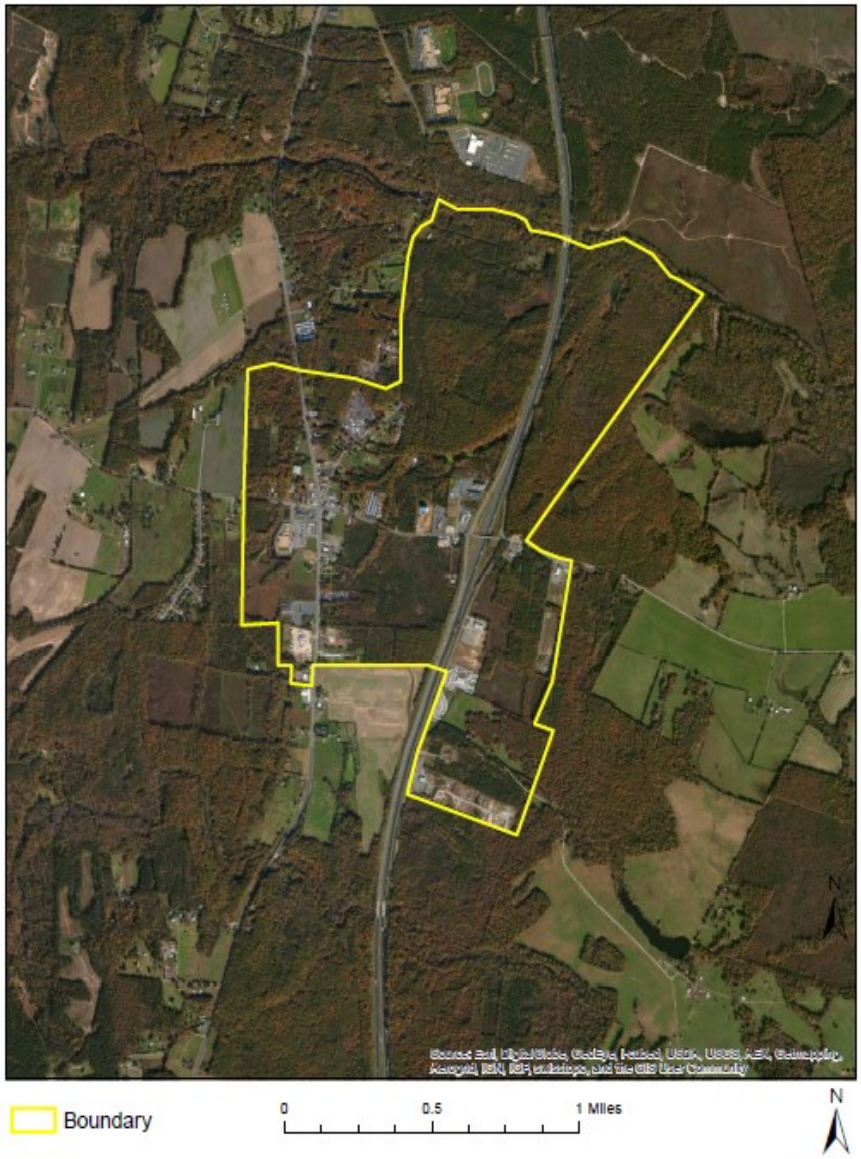
Part II

Scenarios for Comparison

Scenario 1: Existing Zoning

Scenario 2: Future Land Use

Scenario 3: Proposed Village Center



Map 9: Proposed Growth Boundary

Source: Created by author using Spotsylvania County GIS data

Background to Scenarios

A growth boundary is an important land use planning tool that controls sprawl by encouraging development inside a particular area. Spotsylvania implemented a Primary Development Boundary in the county to guide the projected growth and show where public water and sewer lines are provided. The entire Thornburg community is currently situated within the Spotsylvania Primary Development Boundary.

In order to effectively control growth at Thornburg, this land use plan proposes a smaller development boundary around the community (Map 9). This potential boundary will increase density along the major corridors and promote infill development and the revitalization of vacant buildings. Future development in the boundary will utilize the existing infrastructure in the community. Supporting growth within the boundary can conserve surrounding rural lands and preserve the character of the community. Future development of adjacent parcels to the proposed growth boundary is possible, but should be encouraged along the U.S. Route 1 and Route 606 corridors.

The Thornburg area contains large tracts available for future development. Image 6 below shows potential developable and undevelopable areas in the community. The blue area northeast of the interstate interchange is the proposed boundary of the Dominion Speedway. The sensitive environmental areas from Map 6 were used to establish undevelopable areas indicated by the red regions. In addition, the light green boundary represents the current perpetual conservation easement held by the Virginia Outdoors Foundation. The four areas symbolized in yellow illustrate land for potential greenfield development. Vakos Real Estate, a land development company, currently owns the designated yellow areas northeast and southwest of the interstate interchange.

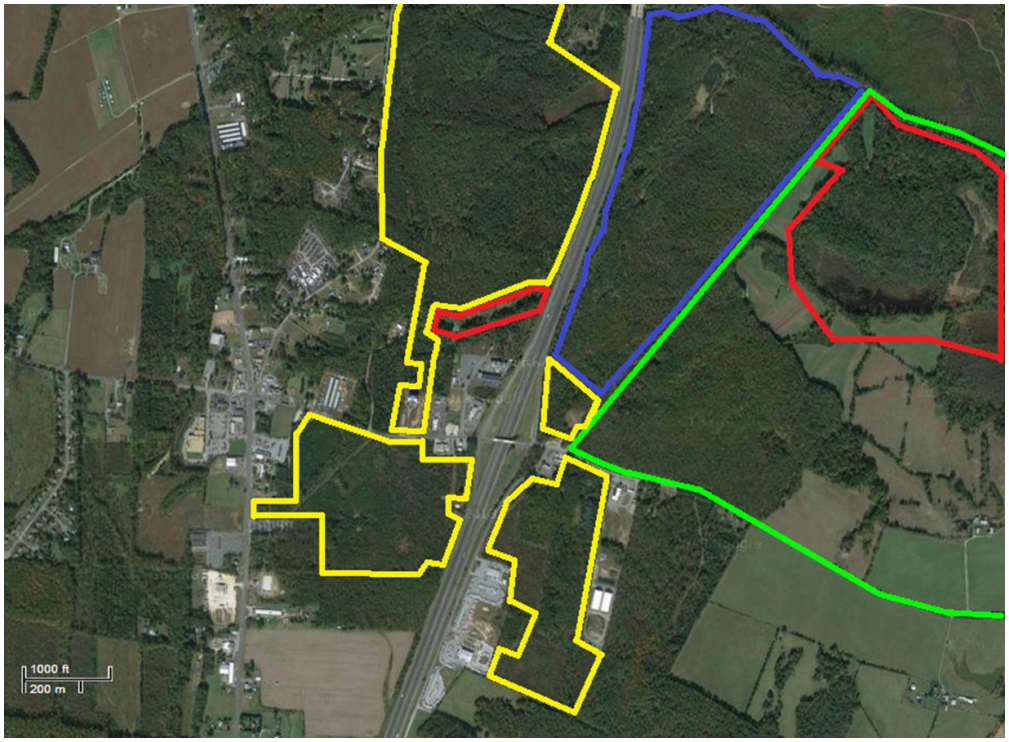
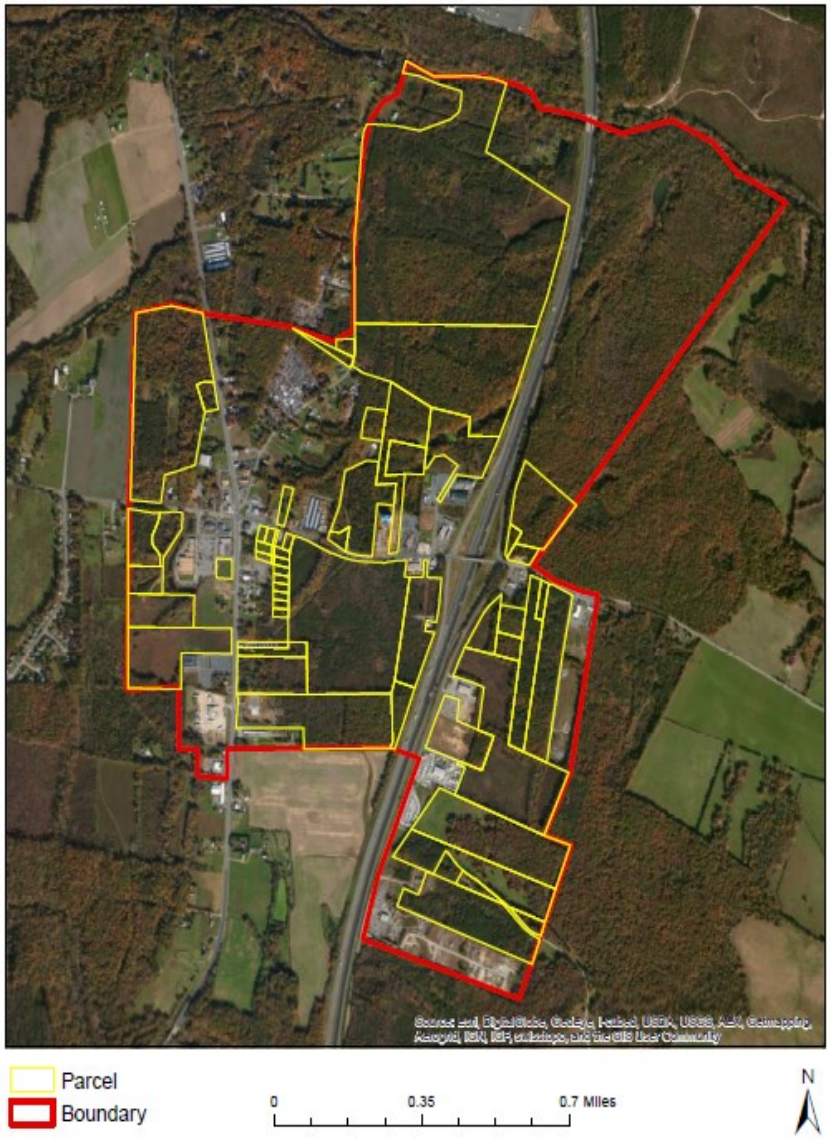


Image 6: Development Districts

Source: Google Maps

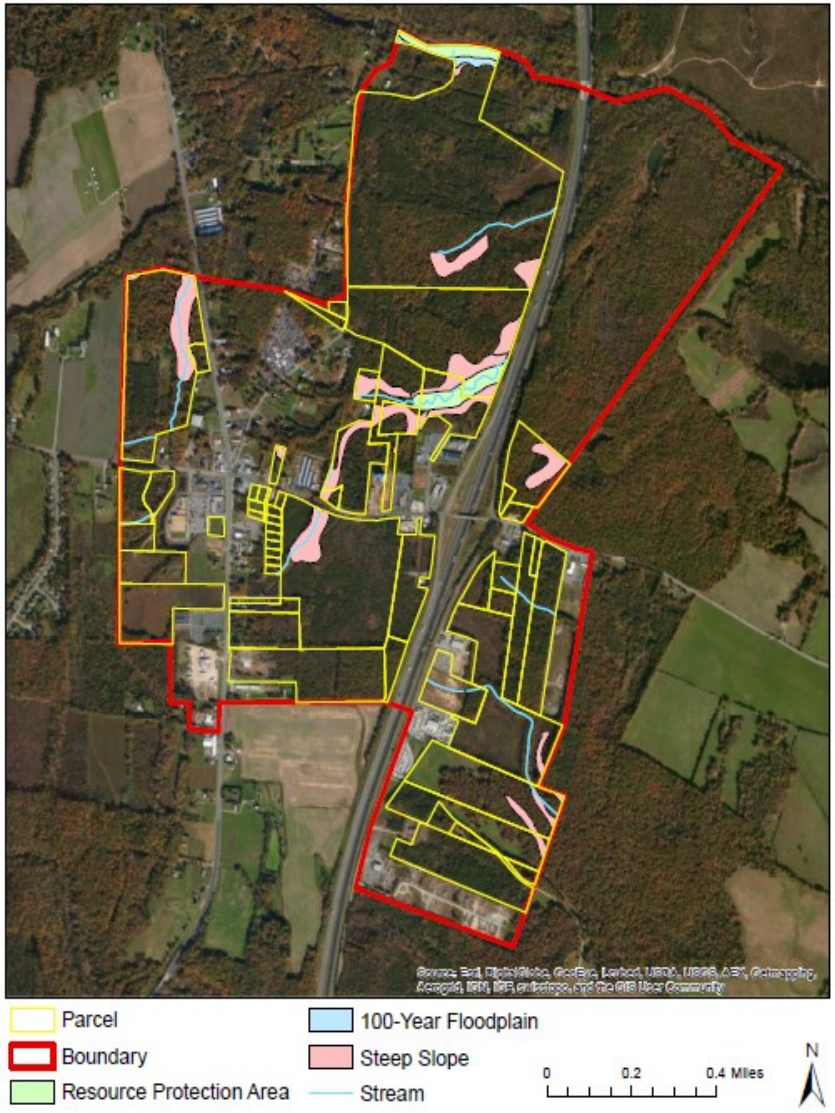
This land use alternative plan selected 56 parcels in the Thornburg community that are located within the proposed development boundary. These parcels were selected as areas of future growth due to their current vacancy or potential of redevelopment. Map 10 to the right illustrates the 56 parcels selected for intentions of future development in the community. Some of the parcels are located along main corridors while others do not contain any access to existing roads. In addition, the parcels vary in size ranging from roughly 130 acres to less than an acre, which enables different forms of development within the community. Depending on ownership, certain parcels could be joined to allow for more desirable development.

The three different land use scenarios will operate from these 56 parcels to determine which types of development can occur. The Spotsylvania County Fiscal & Economic Impact Model was used to produce monetary results from the three scenarios. The Model divides Spotsylvania County into multiple regions that have different projected growth rates, goals and initiatives towards development. The land use scenarios incorporate the Primary Settlement District region in the



Map 10: Selected Parcels

Source: Created by author using Spotsylvania County GIS data



Map 11: Environmental Concerns

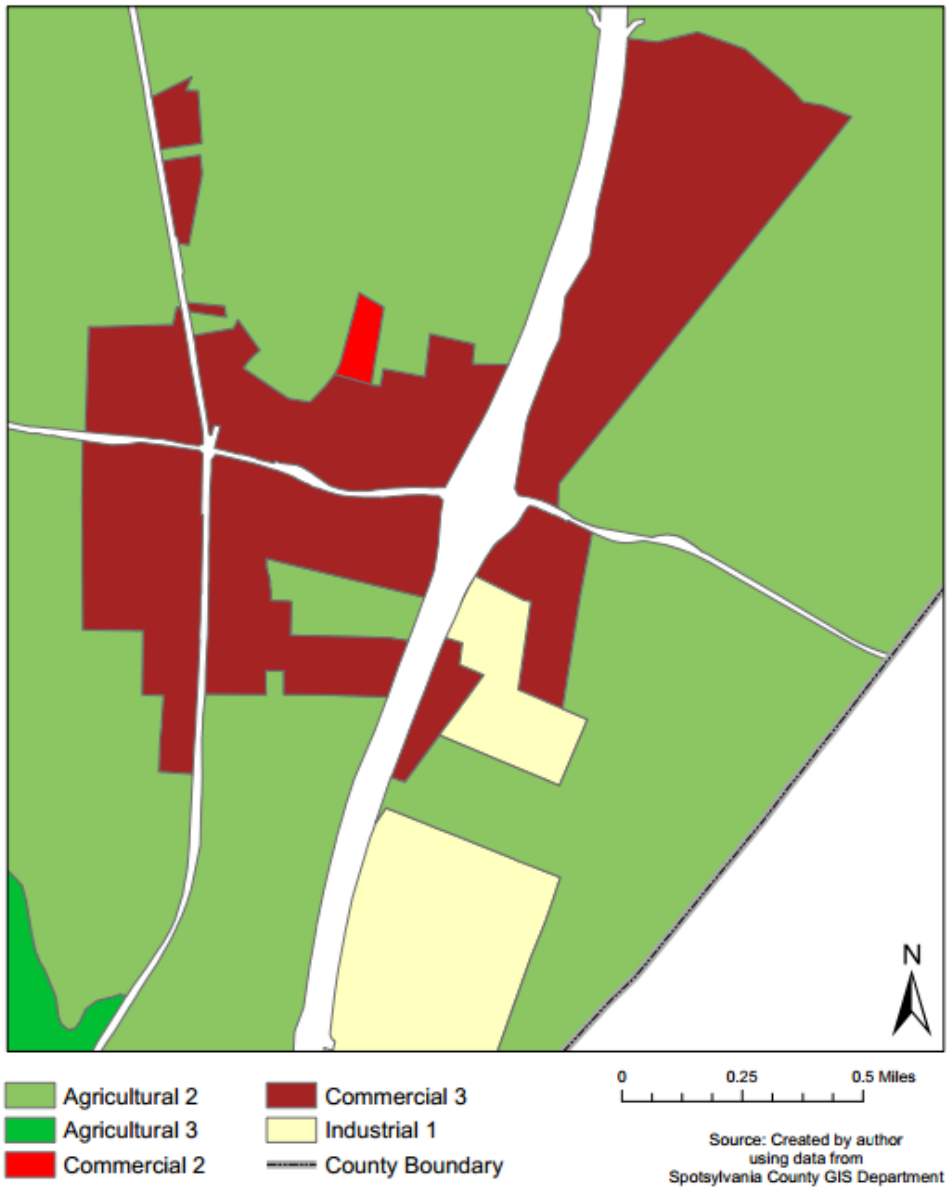
Source: Created by author using Spotsylvania County GIS data

Model due to the location of Thornburg. The acreage of the 56 parcels were aggregated into different zones and future land use types. Certain structure yields from the zones and land use types were used to determine square footage of buildings. These figures for each land use scenario were then inputted into the Fiscal and Economic Impact Model. The results are generated and analyzed in Part III of the plan.

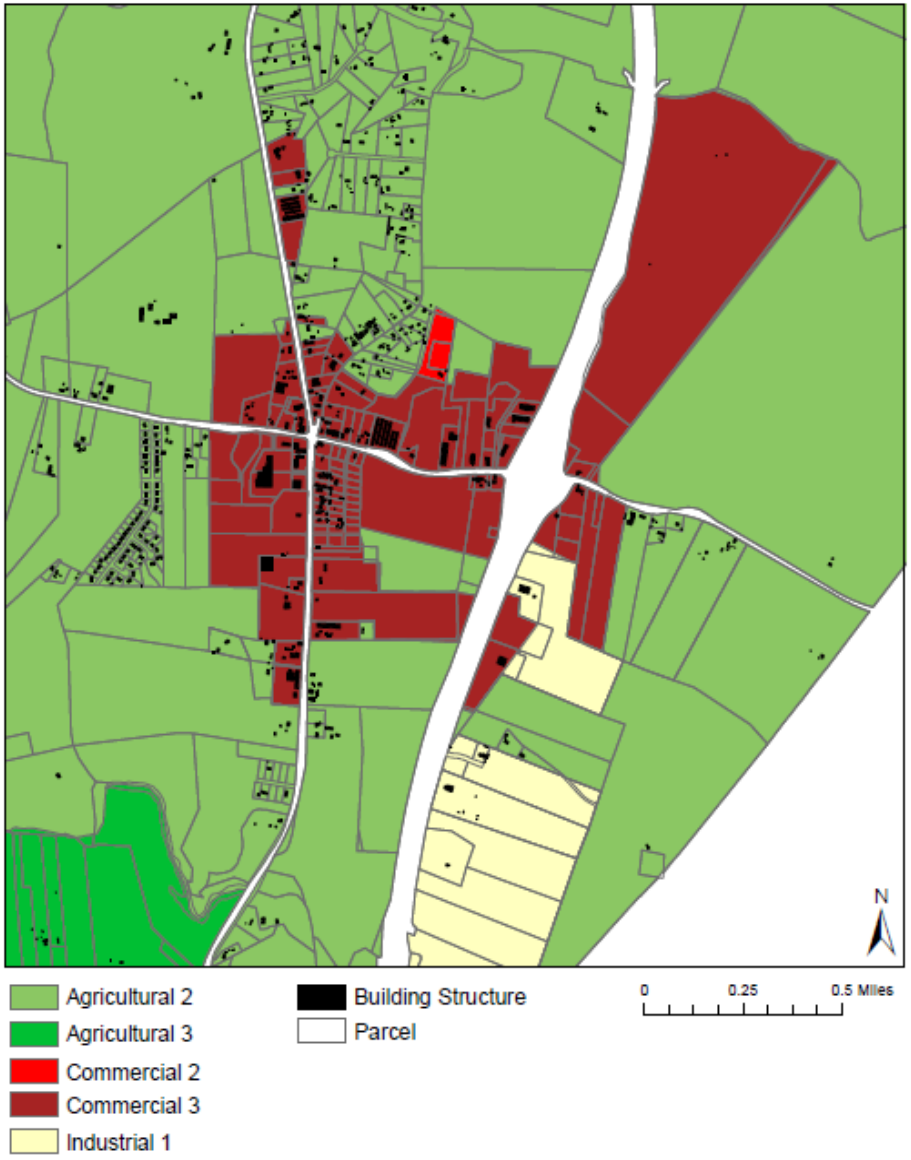
Some of the selected parcels for the plan contain environmental features that must be addressed before any type of development can occur. Map 11 on the left illustrates the environmental concerns in the selected parcels. There are Resource Protection Areas (RPAs) in a few parcels directly northwest of the interstate interchange that should be preserved. A small amount of RPAs and 100-year floodplains are located at the most northern point of the proposed development boundary. These features should not have any impact on future development. Several other parcels contain steep slopes and streams. These features are not as sensitive but they should still be addressed. The potential development maps in each land use scenario accounted for the environment concerns in the designs of future growth.

Scenario 1:

Existing Zoning



The first land use scenario determines what type of development is acceptable under the existing zoning conditions. Map 12 on the right illustrates current zoning districts in the Thornburg area. The community contains commercial districts along Interstate 95, U.S. Route 1, Morris Road and Mudd Tavern Road. The zoning classification for these areas is primarily Commercial 3 Highway District , allowing for high intensity commercial uses. Parcels southeast of the interstate interchange are zoned Industrial 1, providing locations for light industrial activity. Future development will be directed toward these zones to increase density and utilize existing infrastructure along the main corridors of the community. Commercial revitalization and infill development will be encouraged in these zones to help increase density as well. The surrounding parcels symbolized in light green are zoned Agricultural 2, which are designated to help preserve the rural character of the community. Development in these parcels will be limited to decrease sprawl and protect open space.



Map 12: Existing Zoning

Source: Created by author using Spotsylvania County GIS data

Map 13: Selected Parcels Existing Zoning

Source: Created by author using Spotsylvania County GIS data

Map 14: Selected Parcels Existing Zoning with Structures

Source: Created by author using Spotsylvania County GIS data

Map 15: Selected Parcels Potential Development

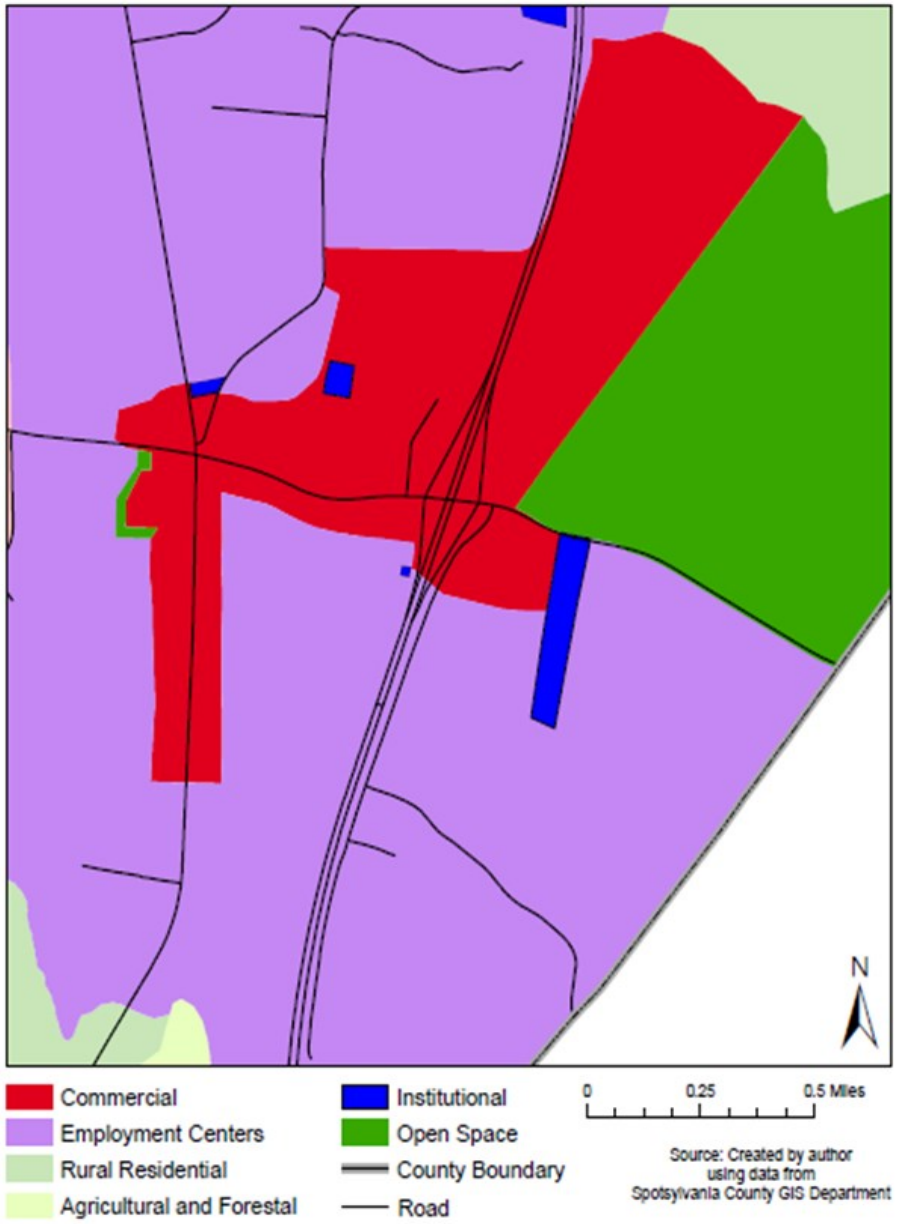
Source: Created by author using Spotsylvania County GIS data

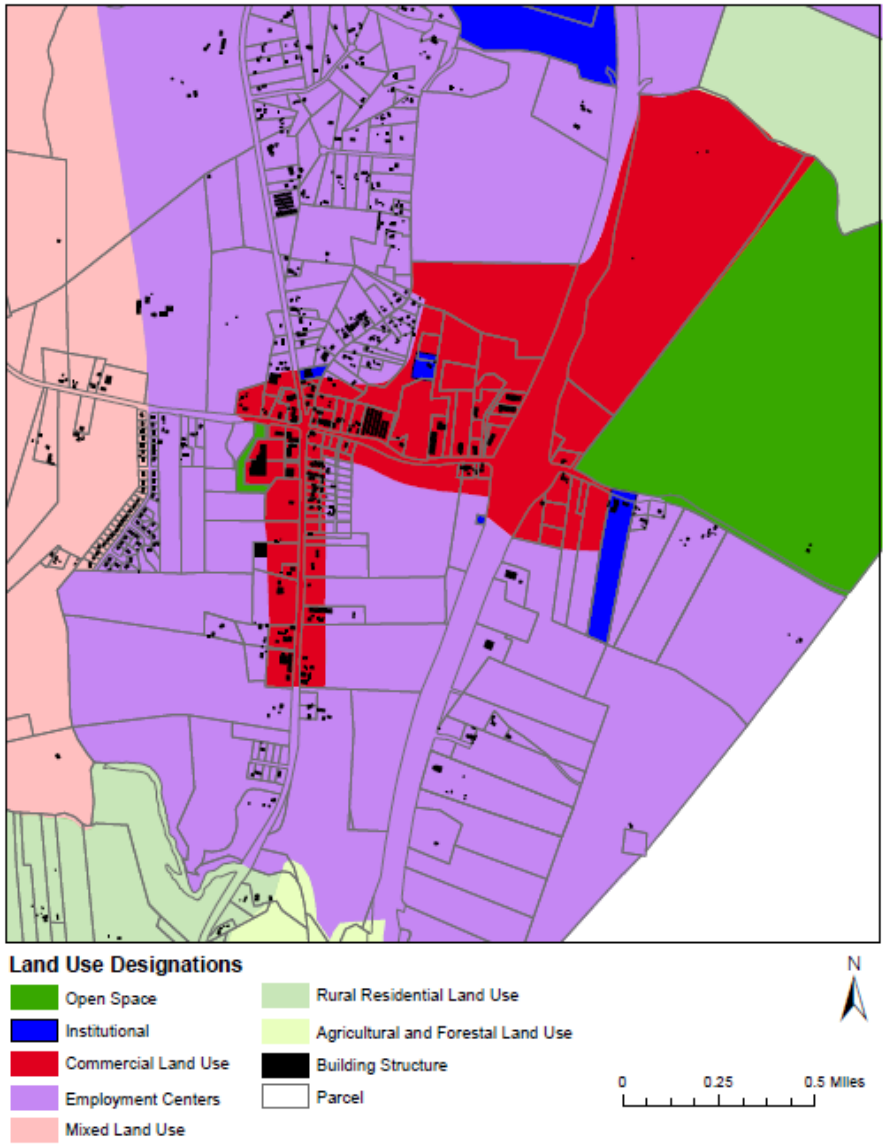
Maps 13 and 14 on the previous page show the existing zoning of the 56 selected parcels. The selected parcels are primarily zoned commercial and agricultural with a relatively even split between both. All the industrial zones parcels selected are located southeast of the interchange. Map 17 includes existing structures in the Thornburg community to show the lack of development in the parcels. In addition, the map illustrates the location of roads in the area, indicating some parcels have easy access to existing roads while others do not.

This plan used zoning codes for each district to determine which types of development could occur under the existing zoning. Map 15 on the left shows a certain design of development acceptable in the zoned parcels. The large parcels to the northwest of the interchange illustrate low-density residential units requiring 5 acres of land per unit in the agricultural zone. New commercial developments were added along Mudd Tavern Road and U.S. Route 1. This development design is one of many that can be applied to the selected parcels.

Scenario 2:

Future Land Use

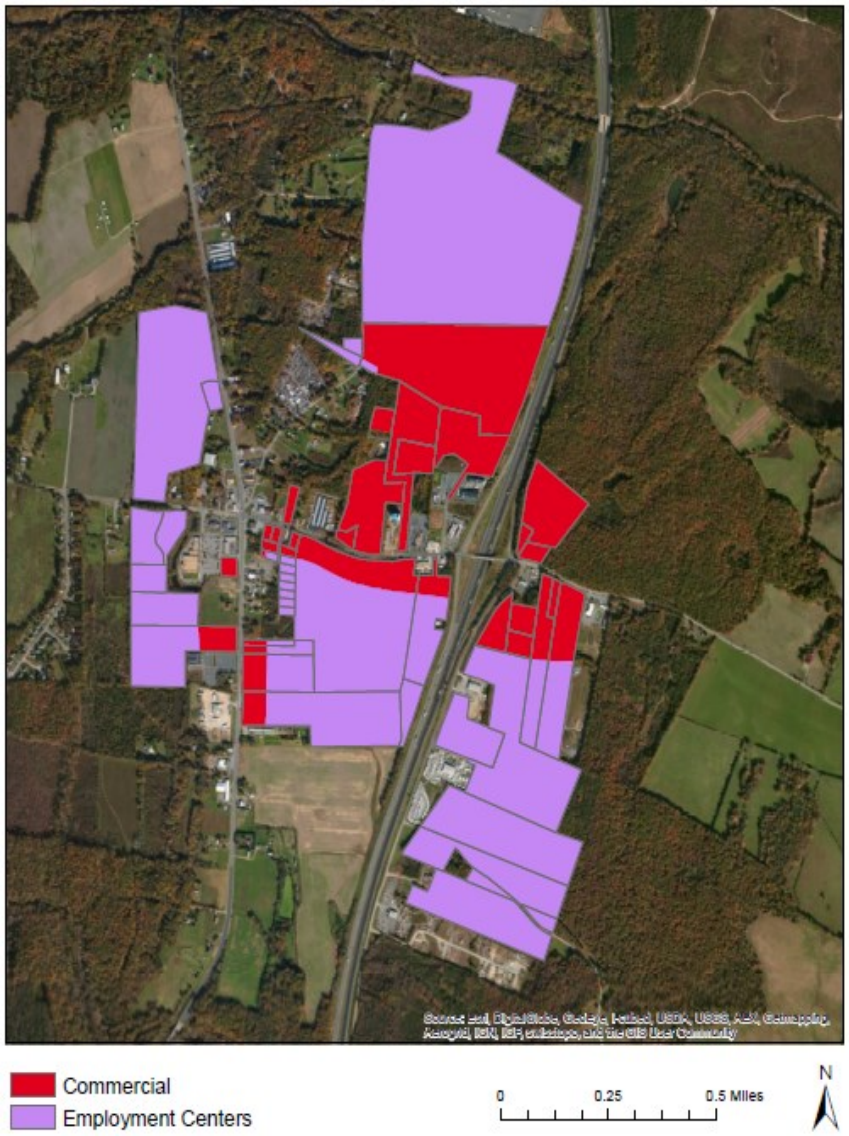




Map 16: Proposed Future Land Use

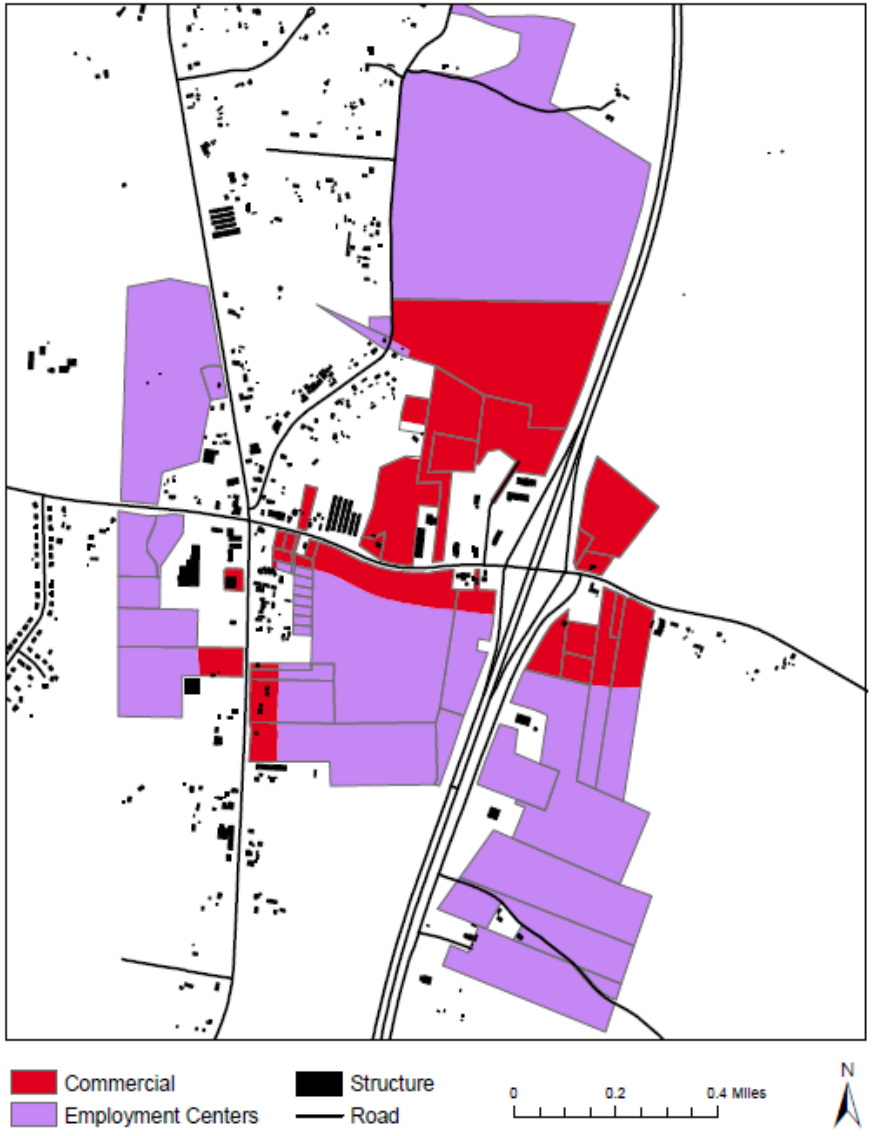
Source: Created by author using Spotsylvania County GIS data

The second scenario of this plan utilizes the proposed future land use in the Thornburg community. Map 6 on the left illustrates the proposed future land use map of the area according to the 2013 Spotsylvania County Comprehensive Plan. Commercial land use, symbolized by red, encourages a variety of retail and office uses. The Spotsylvania Comprehensive Plan encourages that new development in this type of land use should provide interparcel connections to adjoining properties. The areas symbolized in purple are designated as employment center land use, which should be the primary locations for new offices and industrial development. Employment centers will promote job creation in the community that provides sufficient income for employees. Commercial development is acceptable in this type of land use, but only encouraged to support existing office and industrial development. The open space land use, symbolized in green, is designed for preservation and conservation. The large open space land use to the northeast of the interchange is currently under a conservation easement held by the Virginia Outdoors Foundation.



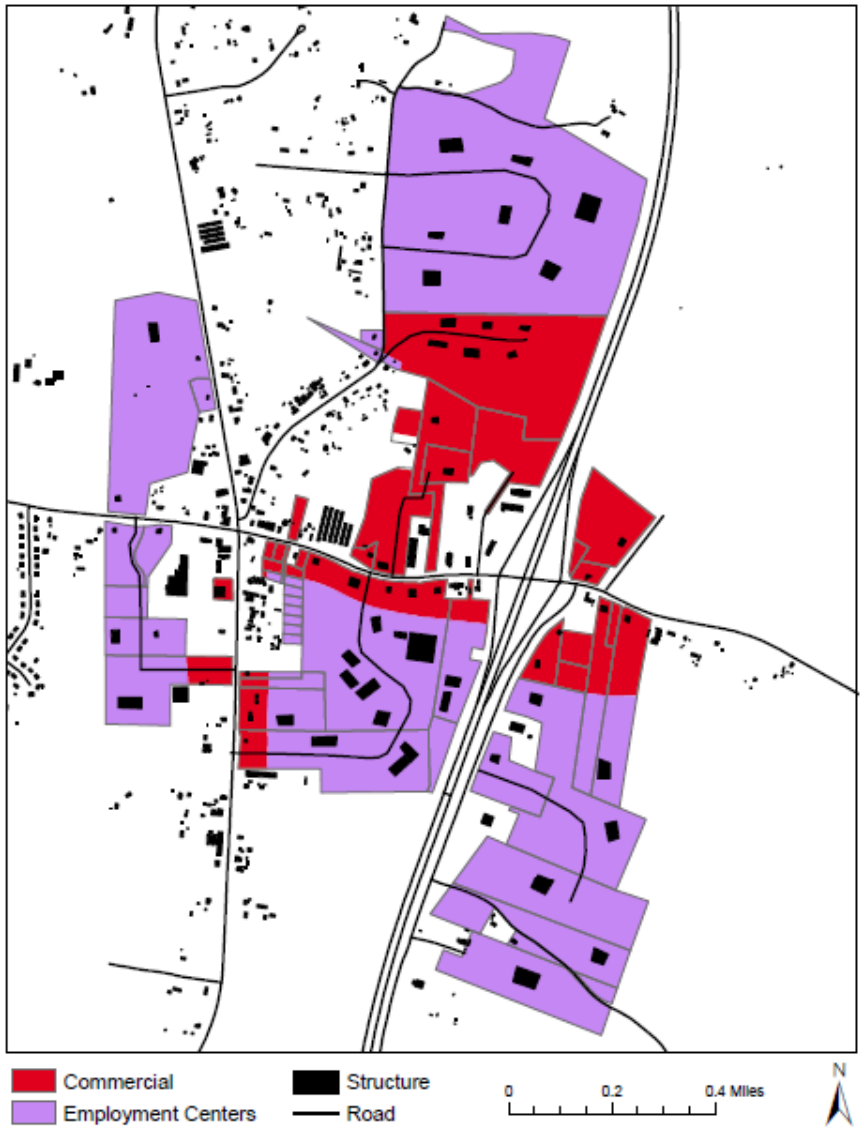
Map 17: Selected Parcels Future Land Use

Source: Created by author using Spotsylvania County GIS data



Map 18: Selected Parcels Future Land Use with Structures

Source: Created by author using Spotsylvania County GIS data



Map 19: Selected Parcels Potential Development

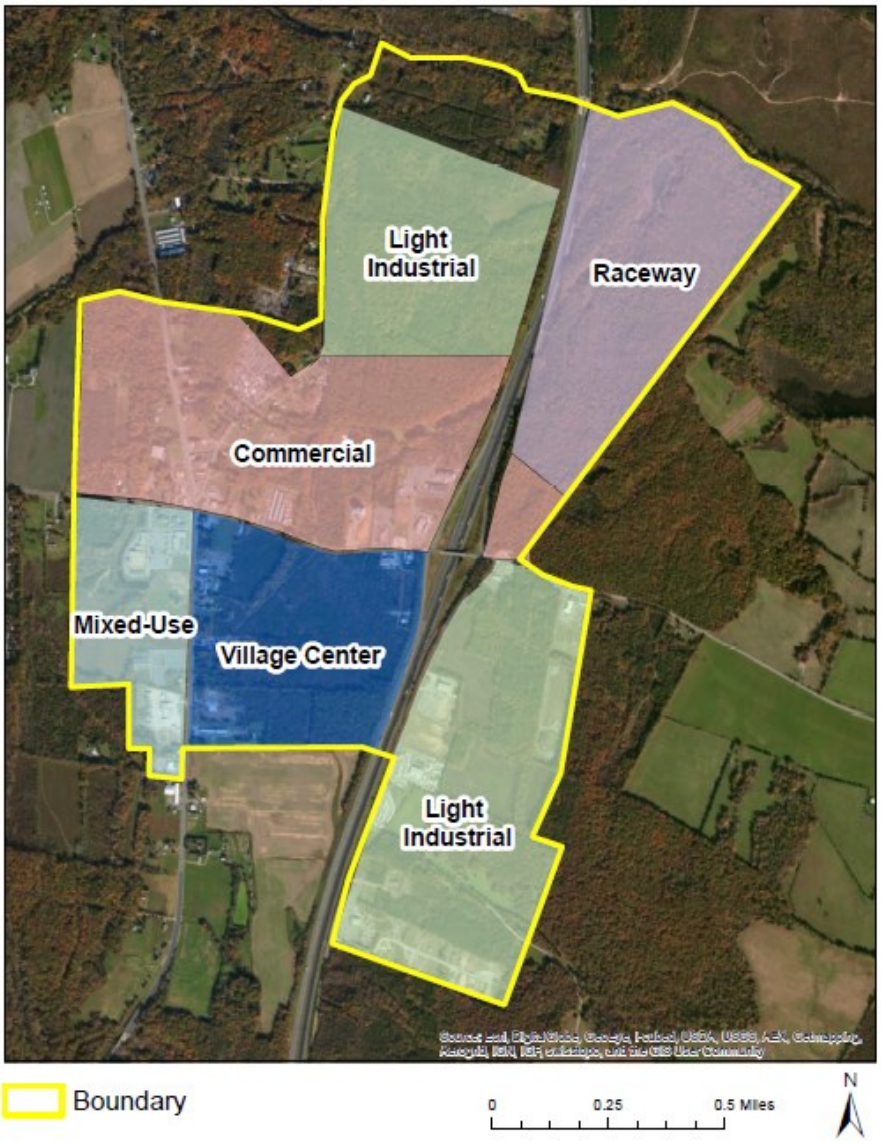
Source: Created by author using Spotsylvania County GIS data

Maps 17 and 18 on the previous page show the future land use proposed in the Spotsylvania County Comprehensive Plan. The 56 selected parcels only contain either commercial or employment center land uses. The proposed future land uses are not parcel specific, which causes a few parcels to contain both types of land use. There are more employment center land uses in the area due to projected future growth of the area. Spotsylvania County envisions this area along U.S. Route 1 and Interstate 95 to be an economic driver with the presence of large office and distribution centers. Map 18 includes the existing structures and roads in the Thornburg community in relation to each type of land use.

There are large tracts in the Thornburg community available for development. Map 19 on the left shows the potential building footprints for development according to the proposed future land use of the area. Larger scale office complexes and industrial development are proposed in the employment center land use. A variety of uses can be developed in designated commercial areas in the community.

Scenario 3:

Proposed Village Center

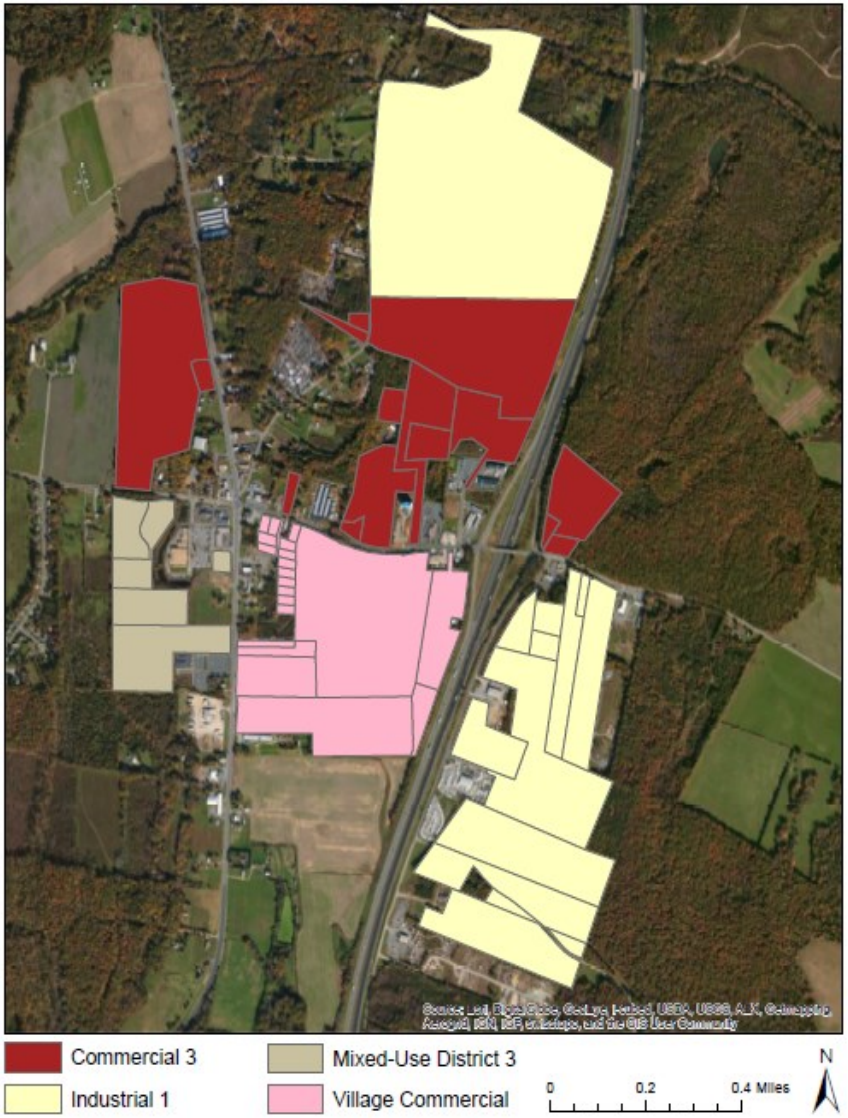


Map 20: Proposed Development Areas

Source: Created by author using Spotsylvania County GIS data

The third and final scenario is based around designating different types of development areas in the Thornburg community. Map 20 on the left illustrates these proposed development areas that can help plan for future growth. All areas are also located within the proposed development boundary around Thornburg. This land use scenario focuses on the potential of a village center in the community. The village center is proposed to be located south of Mudd Tavern Road and between U.S. Route 1 and Interstate 95. This position will allow the village center to be a central location and focal point of the Thornburg community. Mixed-use development is proposed directly west of the village center around the current Traveler's Row shopping center. This type of development will complement the adjacent village center and help promote concepts of smart growth.

The majority of proposed commercial development in the community will be directed north of Mudd Tavern Road and between U.S. Route 1 and Interstate 95. This location follows current zoning and reflects the proposed future land use map of the community. More commercial development is anticipated west of Route 1 and northeast of the interstate



Map 21: Selected Parcels Village Center Zoning

Source: Created by author using Spotsylvania County GIS data

interchange. There are two proposed areas for light industrial development in the Thornburg community as well. The main area designated for industrial development is located southeast of the interstate interchange. This area already contains a few light industrial developments, but there are parcels available for more light industrial growth. The other proposed light industrial development area is located between South Roxbury Mill Road and Interstate 95. The last designated development area is for the proposed Dominion Raceway. This area will be a major tourist attraction to the community and contains other forms of commercial development. As seen on Map 20, the raceway will be located northeast of the interstate interchange.

In order to create a village center in the Thornburg community, certain parcels must be rezoned that will accommodate the potential types of development. Map 21 on the left shows the proposed zoning of the selected parcels for development in the community. Proposed changes in zoning can be compared to the current zoning of the Thornburg community in Scenario 1 of this plan. Symbolized by pink, the parcels of the proposed village center should be rezoned to Village Commercial (VC).

According to the Spotsylvania County Code of Ordinances, the purpose of the Village Commercial (VC) district is to provide for a compatible mixture of commercial, cultural, institutional, governmental, and residential uses in areas described in the comprehensive plan as villages. Specific objectives of such districts include:

1. Open spaces in the form of squares, greens, landscaped streets, and parks woven into the pattern of the town center and dedicated to collective social activity, recreation, and visual enjoyment;

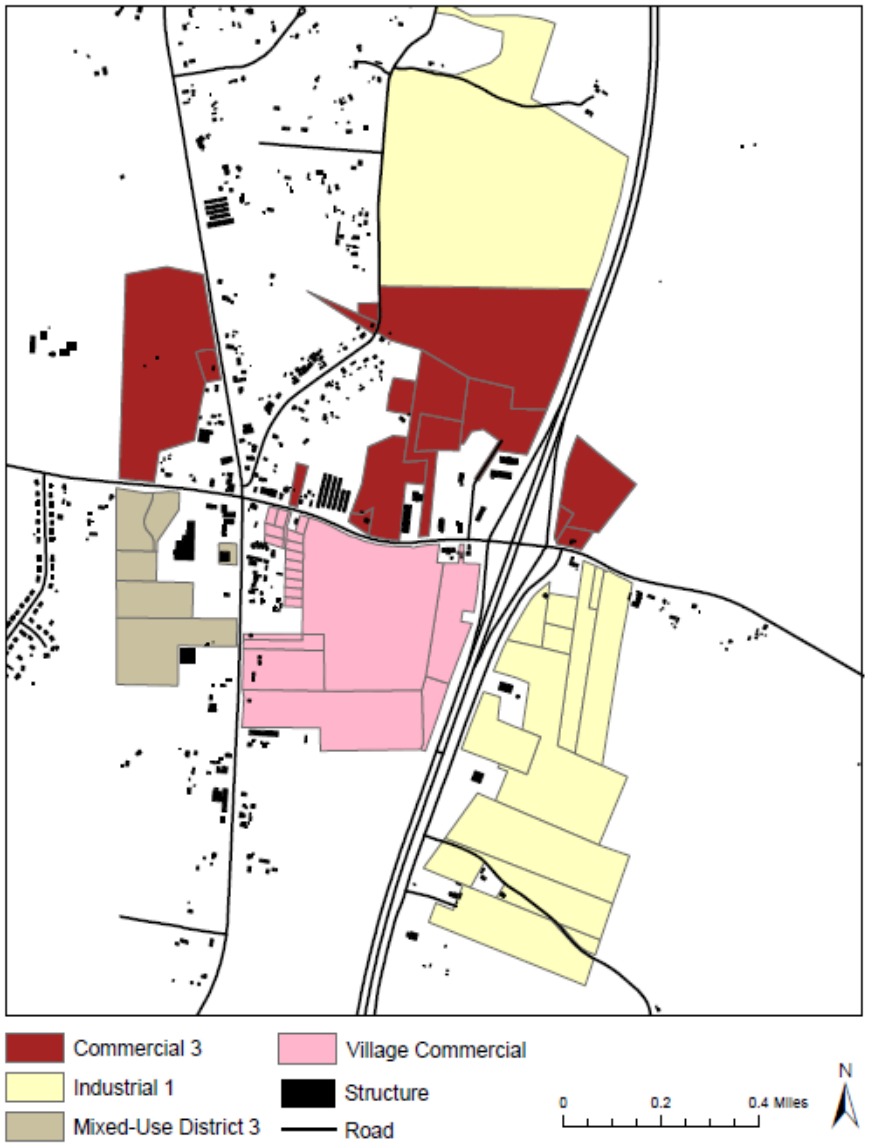
2. A mixture of residential and non-residential uses, types and densities;

3. A design that encourages pedestrian movement through a human-scale and pedestrian friendly environment;

4. Traditional building design and location, with consistent building setbacks close to the street;

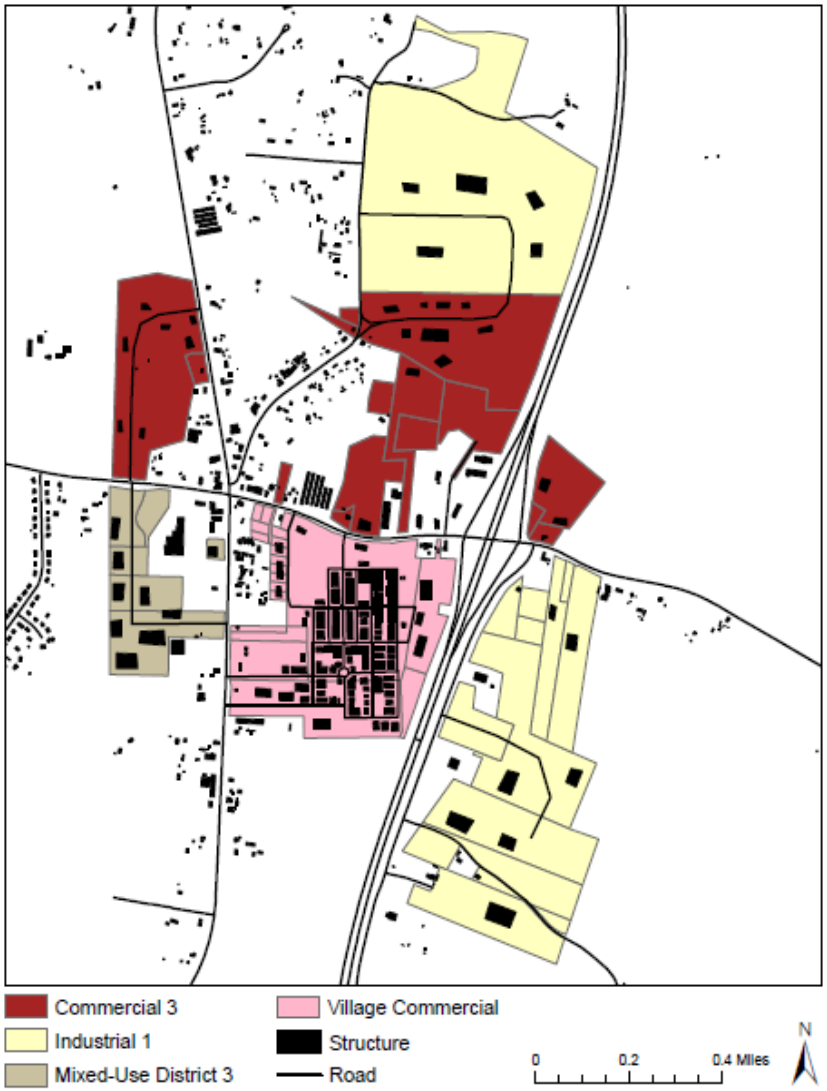
5. Traditional street infrastructure including curb and gutter, street trees, sidewalks, and street lights;

6. A generally rectilinear pattern of streets and blocks, with an orderly network of streets, sidewalks, paths, and trails;



Map 22: Selected Parcels Village Center Zoning with Structures

Source: Created by author using Spotsylvania County GIS data



Map 23: Village Center Zoning Potential Development

Source: Created by author using Spotsylvania County GIS data

7. On-street parking and centralized parking facilities to collectively support principle uses in the village center.

The proposed village center scenario identifies potential areas for a mixed-use district. Map 23 identifies the proposed mixed-use district located west of the village center. The County Code of Ordinances states the Mixed Use (MU) district creates a flexible approach to development, to include infill and redevelopment, by allowing a variety of interrelated and compatible commercial, office, residential, civic, recreational, and entertainment uses in a pedestrian-oriented neighborhood setting based on, but not limited to the following principles:

(1) Connectivity of road networks, including connectivity of new local streets with existing local streets;

(2) Connected pedestrian networks and pedestrian-friendly road design;

(3) Reduced front and side yard building setbacks;

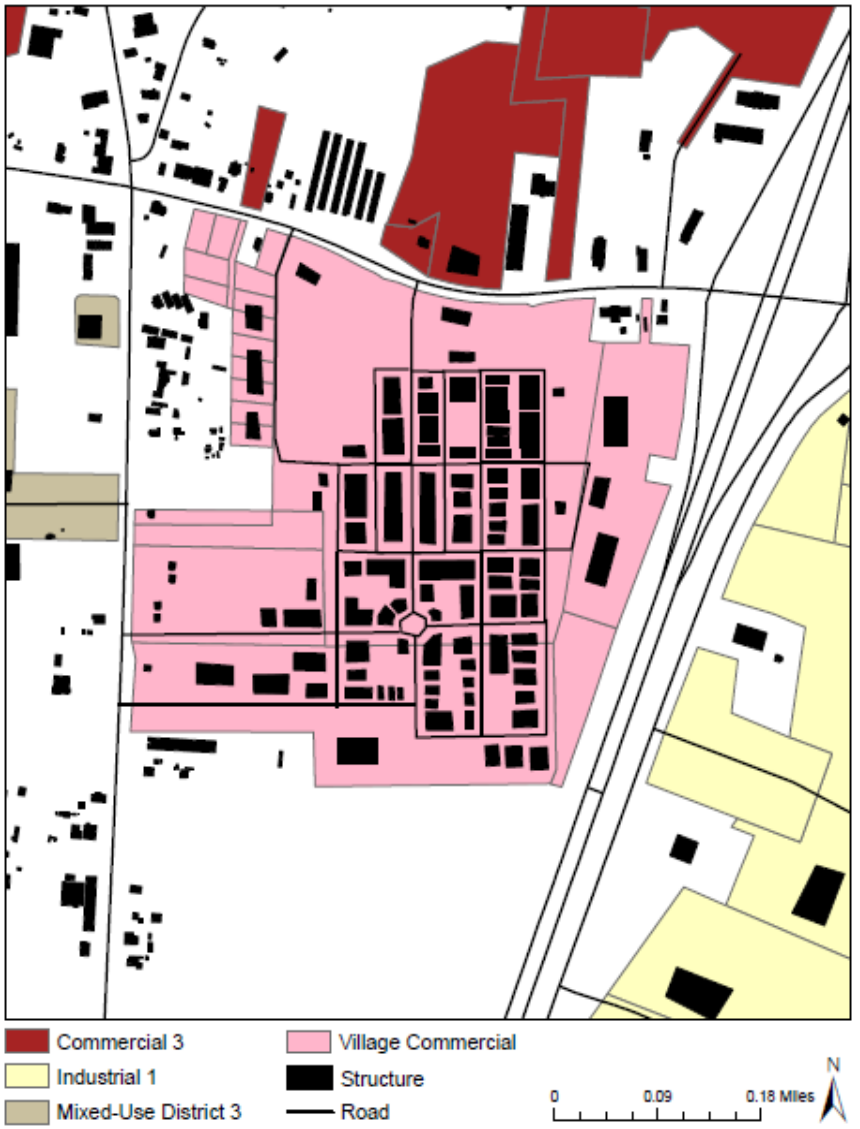
(4) Mixed-use neighborhoods, including mixed housing types; and

(5) Respects the character of adjacent properties and surrounding neighborhoods

The creation of a village center will help create a walkable community that promotes concepts of smart growth. Map 24 on the right shows a potential design of a village center at Thornburg. The center will contain squares and other public spaces to encourage social interactions. Image 7 below illustrates the styles of buildings that are commonly seen in a village center. Retail and other commercial uses shall be established on the first floor with residential units available on the floors above. The compact design will increase density in the village center and decrease the dependence on automobiles.

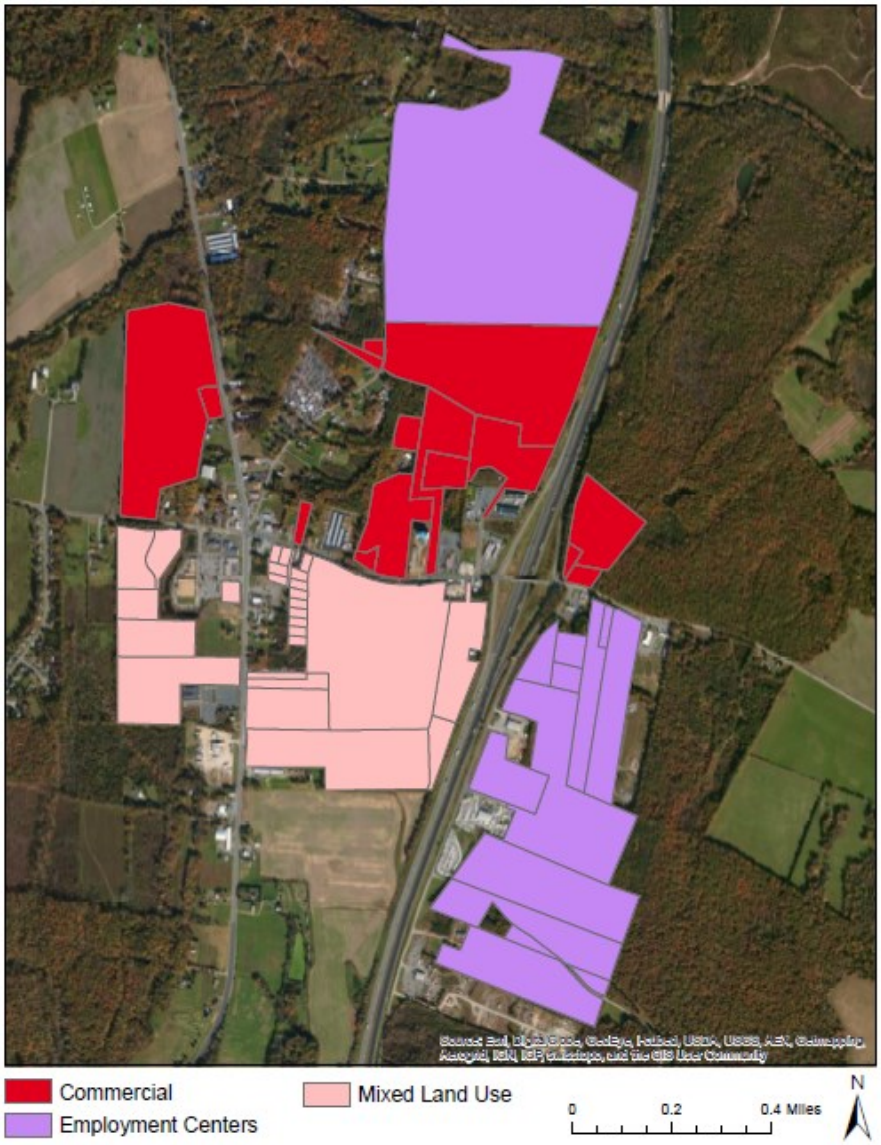
Image 7: King Farm Village Center, Maryland

Source: Congress for the New Urbanism



Map 24: Proposed Village Center

Source: Created by author using Spotsylvania County GIS data



Map 25: Selected Parcels Village Center Future Land Use

Source: Created by author using Spotsylvania County GIS data

The proposed village center will also impact the Spotsylvania County Future Land Use Map. As seen in Scenario 2 of this plan, the two main land use categories proposed for the Thornburg community are commercial and employment centers. The commercial land use category allows for a variety of retail and office uses in Spotsylvania County. This type of land use is proposed along the major corridors in the Thornburg community. Map 25 on the left shows proposed commercial land uses in the selected parcels for development. The employment center land use category encourages new office and industrial development. This land use category is envisioned to help Thornburg become a future economic driver of Spotsylvania County. The village center scenario proposes certain parcels to remain employment centers for office complexes and industrial development.

The creation of a village center will require new designation of the mixed land use category in the community. These changes are symbolized in Map 25 by the presence of the pink parcels. A mixed-use community in Thornburg creates a walkable neighborhood that allows residents to work, live, and play.

Map 26 illustrates the proposed mixed-use areas in the proposed village center and development to the west along Route 1. According to the Spotsylvania County 2013 Comprehensive Plan, the mixed land use category contains the following policies:

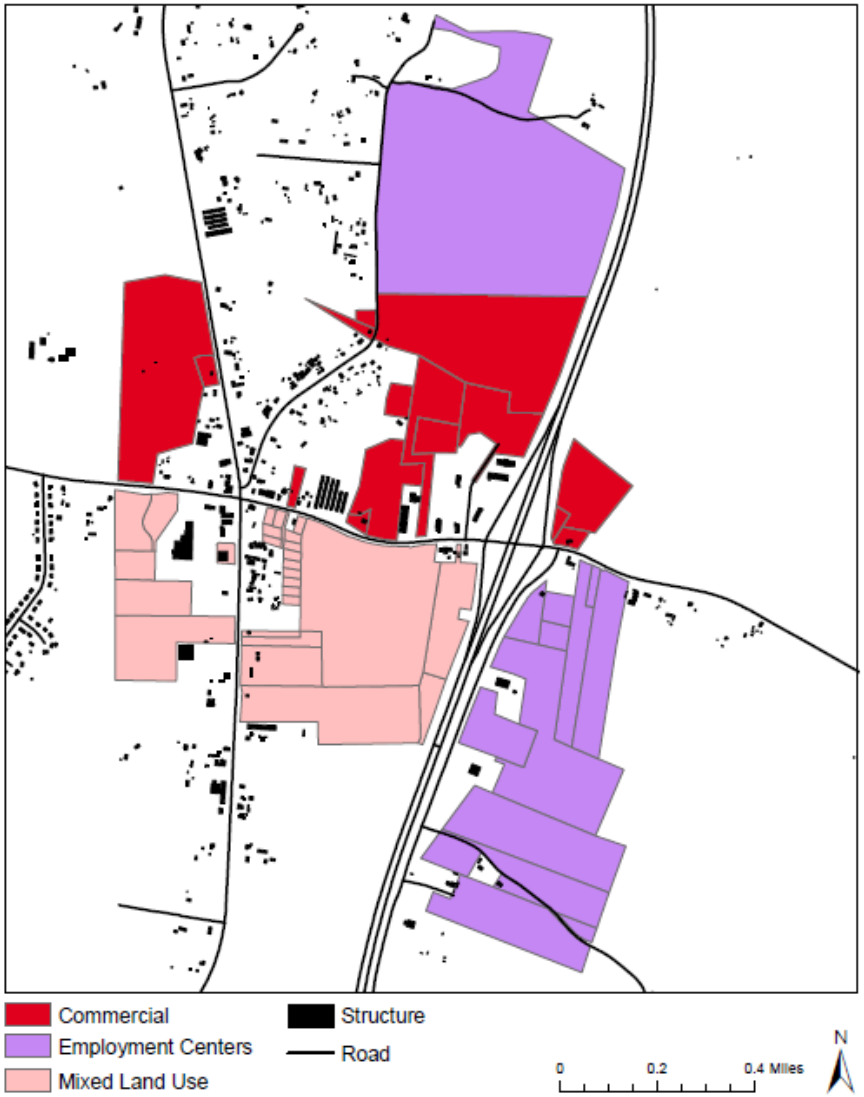
1. Mixed land use developments should display characteristics that provide a unique sense of place (examples could include: design guidelines, architectural features, or common color palette, among others).

2. Appropriate transitions in scale of building and/or buffering should be provided from mixed land use developments to adjoining existing developments.

3. Vehicular and pedestrian connections should be made to a adjoining developments at appropriate locations, including at existing interparcel access points.

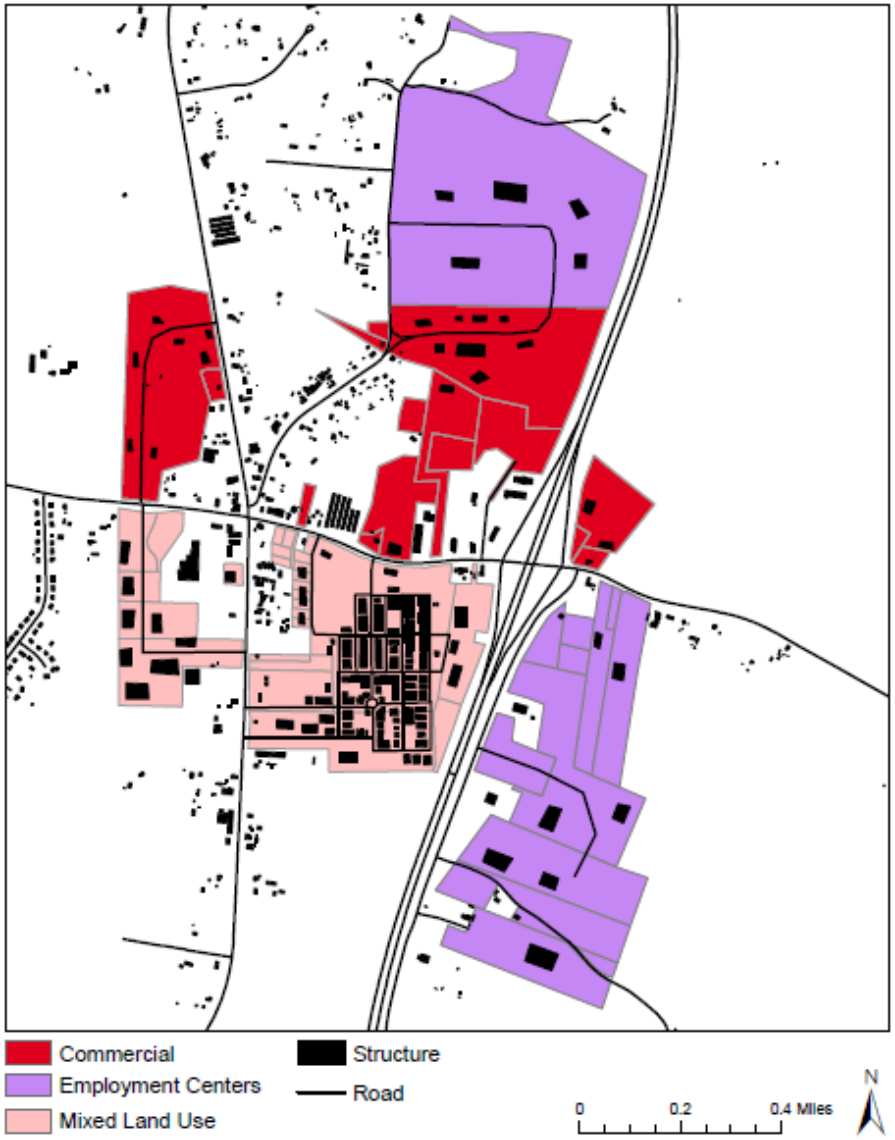
4. A grid pattern of connected streets should be encouraged. Cul-de-sacs should be discouraged and only employed in rare instances.

5. Public open space and pedestrian accommodations should be integrated throughout the development.



Map 26: Selected Parcels Village Center Future Land Use with Structures

Source: Created by author using Spotsylvania County GIS data



Map 27: Village Center Future Land Use Potential Development

Source: Created by author using Spotsylvania County GIS data

6. These developments should be designed so that multiple vehicle trips can be combined into one stop by providing several destinations within easy walking distance. This can be encouraged by closely monitoring the provision of parking and ensuring that there is not an excess supply that encourages additional auto trips. Drive-throughs should be limited and carefully designed to ensure integration into the character of the development.

7. Parking should be located to the rear and sides of buildings with the building facades clearly visible from the street.

8. Promote the provision of a diverse housing mix by encouraging a range of housing sizes and types that meet the needs of citizens throughout all stages of life and income levels.

9. Promote the construction of market rate affordable housing units.

10. Quality open spaces should be integrated into developments and may include passive and active areas, pavilions, walking paths, gardens, forested areas, and lakes, among other features.

The proposed mixed land use area in the community will encourage a variety of uses. Map 28 on the right shows a potential design for the proposed village center in Thornburg. The design follows the recommended grid pattern of streets and pedestrian corridors. The village center should also contain sidewalks and bike lanes to provide alternative modes of transportation in the community. Image 8 below illustrates a potential streetscape for the proposed village center at Thornburg.

Image 8: Village Center at Harbour Pointe

Source: Rutledge Maul Architects

Map 28: Proposed Village Center

Source: Created by author using Spotsylvania County GIS data

Justifications for

Proposed Village Center

The proposed village center scenario for Thornburg must be in accordance with principles and policies of the Spotsylvania County Comprehensive Plan. The Comprehensive Plan stresses the importance of environmental and economic sustainability throughout the County. In order to apply these guiding principles, the proposed land use scenario incorporates several planning approaches and methods. One of the main planning approaches used in the land use scenario is smart growth. Smart growth focuses on supporting local economies and preserving the environment by concentrating growth in compact and walkable developments. These smart growth concepts were utilized to help minimize development acreage and negative impacts on the local environment at Thornburg. Another key principle of smart growth is establishing mixed-land uses. A combination of employment, residential, and commercial land uses will be analyzed to enhance the economic development of the Thornburg community and Spotsylvania County as a whole.

Image 9: Smart Growth
Source: Natural Resources Defense Council

Image 10: Mixed-land use
Source: Mini Jane Jacobs

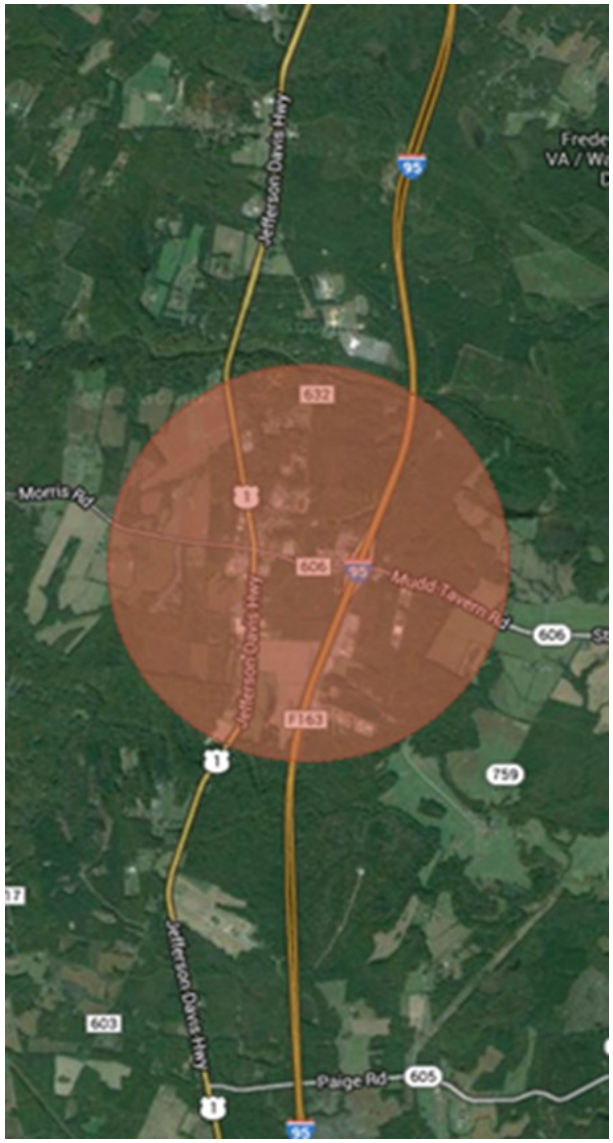


Image 11: Nodal Development at Thornburg

Source: Google Maps

The village center land use scenario also incorporates the nodal development pattern. A nodal development is "a complete, compact, mixed-use community that includes places to live, work, learn, play, shop and access services" (Regional District of Nanaimo). The form of nodal development used for the land use scenarios is a rural village center. Areas with rural character have community water and sewer services, provide basic services, shopping and some limited housing options to the area. These are conditions that currently describe the Thornburg community. Rural village centers are the focus of future development over time and will grow to a broader range of services. The rural village center of Thornburg is facing development pressures and applying the nodal development method for the professional plan will help guide the proposed future growth. Image 11 shows the potential for nodal development at the interstate interchange and highway intersection.

Part III

Spotsylvania County

Fiscal & Economic Impact Model

Results

Background to the Model

In the summer of 2012, RKG Associates, Inc. created a Scenario Builder Development Model for Spotsylvania County to assess the fiscal and economic impacts of proposed development projects. Spotsylvania County has used this Fiscal & Economic Model to create realistic and relevant outputs for a variety of development projects. The Model accounts for numerous local market conditions including market performance (i.e. vacancy rates), market activity (i.e. captured retail expenditures by business type) and market consumption (i.e. school-aged children). These factors are used to derive estimated fiscal and economic impact calculations according to different types of land use. A more detailed description of the Spotsylvania Count Fiscal & Economic Model can be analyzed in a technical memorandum from RKG Associates in Appendix A of this plan.

The three land use scenarios in this plan applied the Fiscal & Economic Impact Model to the 56 selected parcels for development. The environmental concerns from Map 11 were merged together to determine the undevelopable land in the selected parcels. In order to keep consistency throughout the three scenarios, there are 493 acres available for development in the 56 selected parcels. These developable and undevelopable parcels of the three scenarios can be found in Appendices D-I of this plan. In addition, the projection year of 2015 within the Model was used to obtain these results to show the more sustainable and long-term impacts of the development projects. The construction year of development was not included in any of the scenarios. The acreage and building square footage in the three scenarios of this plan do not account for the market and demand of each land use. Each of the scenarios used the 493 developable acres in the selected parcels to portray what impacts would occur if the development was maximized. A more accurate fiscal impact would involve the market and demand for each land use type in the community.

RKG ASSOCIATES INC

Scenario 1: Existing Zoning

Zone	Total New Units	Total Square Feet	Acres Consumed	Assesed Value	Total Projected Revenues	Total Projected Expenditures	Total Projected Impact
Agricultural 2	35	N/A	228	$31,010,955	$392,559	$167,400	$225,160
Commercial 2 & 3	N/A	1,405,000	215	$277,982,172	$3,856,713	$1,866,867	$1,989,846
Industrial 1	N/A	327,000	50	$23,206,959	$408,770	$155,853	$252,917
	35	**1,732,000**	**493**	**$332,200,086**	**$4,658,042**	**$2,190,120**	**$2,467,923**

Source: Spotsylvania County Fiscal & Economic Impact Model

Table 2

Table 2 above shows the results from the types of development that can occur under the current zoning. The square footage in the commercial and industrial zones was derived by multiplying the number of acres by 43,560 (number of square feet in an acre). The building footprint yield of 15% was then applied to obtain the final square footage per zone. The Spotsylvania County Code of Ordinances was used to derive the number of residential units allowed in the parcels zoned Agricultural 2. The zone allows for one residential unit per 5 acres; however, only 35 units are allowed because there is a cap of a 10 parcel yield per parent parcel.

Scenario 1: Existing Zoning

Use	Total New Units	Total Square Feet	Acres Consumed	Assesed Value	Total Projected Revenues	Total Projected Expenditures	Total Projected Impact
Residential							
Detached Residential	35	N/A	228	$31,010,955	$392,559	$167,400	$225,160
Commercial							
Regional Retail	N/A	425,000	65	$83,076,733	$1,053,291	$557,925	$495,366
Community Retail	N/A	360,000	55	$89,321,453	$1,010,386	$599,863	$410,523
Restaurants	N/A	130,000	20	$43,420,859	$818,195	$291,605	$526,590
Hotel	N/A	65,000	10	$10,060,782	$237,352	$67,566	$169,786
Office	N/A	425,000	65	$52,102,345	$737,489	$349,908	$387,581
Industrial							
Industrial/Warehouse	N/A	327,000	50	$23,206,959	$408,770	$155,853	$252,917
	35	**1,732,000**	**493**	**$332,200,086**	**$4,658,042**	**$2,190,120**	**$2,467,923**

Table 3

Source: Spotsylvania County Fiscal & Economic Impact Model

The results above provide a breakdown of the different types of proposed commercial uses in the Thornburg community. Regional retail and office are the two main uses proposed in the commercial zones. The total projected impact for development in these zones is roughly $2.4 million.

Scenario 1: Existing Zoning

Zone	Direct Operation Jobs	Indirect and induced Jobs	Direct Operation Earnings	Indirect and Induced Earnings	Final Operation Demand Output	Average Operational Job Salary	Average Indirect and Induced Job Salary	Average Created Job Salary
Agricultural 2	0	0	$0	$0	$0	$0	$0	$0
Commercial 2 & 3	2,420	723	$62,840,155	$27,260,191	$365,654,897	$25,967	$37,704	$28,667
Industrial 1	58	24	$2,163,050	$968,614	$12,659,073	$37,294	$40,359	$38,191
	2,478	**747**	**$65,003,205**	**$28,228,805**	**$378,313,970**	**$26,232**	**$37,790**	**$28,909**

Source: Spotsylvania County Fiscal & Economic Impact Model

Table 4

The Spotsylvania County Fiscal & Economic Impact Model also provides the number of anticipated jobs created from the different proposed land uses. Table 4 above shows the number of jobs and earnings that are estimated under the current zoning development. The results from each of the three scenarios do not account for the jobs and earnings created from the built out year of 2014. The jobs, earnings and final demand output are derived from direct operation and indirect and induced sources. The results also display the average salary for the jobs created from direction operation and indirect and induced sources. The average created job salary column is weighted from the two types of earnings. Salaries are categorized into the different proposed zones to show the impacts of each type of development. The highest average salaries are created from potential industrial development in the community.

Scenario 2: Future Land Use

Land Use	Total Square Feet	Acres Consumed	Assesed Value	Total Projected Revenues	Total Projected Expenditures	Total Projected Impact
Commercial	717,000	110	$157,660,080	$2,343,919	$1,058,810	$1,285,109
Employment Center	2,500,000	383	$317,526,082	$4,879,492	$2,132,435	$2,747,057
	3,217,000	**493**	**$475,186,162**	**$7,223,411**	**$3,191,245**	**$4,032,166**

Source: Spotsylvania County Fiscal & Economic Impact Model

Table 5

The future land use scenario anticipates all selected parcels for development to have land use categories of commercial or employment center. Due to these land use categories, more building square footage is allowed in this scenario than the existing zoning. Similar to Scenario 1, the square footage of the structures were obtained by applying a 15% building footprint yield for the total acreage of each land use category. Total projected revenues for this proposed development is over $4 million more than the projected expenditures. The total projected impact of this scenario is roughly $1.5 million greater than the potential development under the existing zoning. Table 6 on the following page provides a more detailed analysis of the different proposed commercial and employment center uses. In order to comply with the Spotsylvania Comprehensive Plan, the employment center category puts heavy emphasis on the office and industrial/warehouse land uses for this scenario.

Scenario 2: Future Land Use

Land Use	Total Square Feet	Acres Consumed	Assesed Value	Total Projected Revenues	Total Projected Expenditures	Total Projected Impact
Commercial						
Regional Retail	327,000	50	$63,918,905	$810,402	$429,265	$381,137
Community Retail	130,000	20	$32,286,317	$365,137	$216,828	$148,309
Restaurants	130,000	20	$43,420,859	$818,195	$291,605	$526,590
Hotel	65,000	10	$10,060,782	$237,352	$67,566	$169,786
Office	65,000	10	$7,973,217	$112,833	$53,546	$59,287
Employment Center						
Regional Retail	215,000	33	$42,040,161	$532,956	$282,332	$250,623
Community Retail	130,000	20	$32,286,317	$365,137	$216,828	$148,309
Restaurants	130,000	20	$43,420,859	$818,195	$291,605	$526,590
Hotel	65,000	10	$10,060,782	$237,352	$67,566	$169,786
Office	980,000	150	$120,151,124	$1,700,644	$806,908	$893,736
Industrial/Warehouse	980,000	150	$69,566,839	$1,225,208	$467,196	$758,013
	3,217,000	**493**	**$475,186,162**	**$7,223,411**	**$3,191,245**	**$4,032,166**

Source: Spotsylvania County Fiscal & Economic Impact Model

Table 6

Scenario 2: Future Land Use

Land Use	Direct Operation Jobs	Indirect and Induced Jobs	Direct Operation Earnings	Indirect and Induced Earnings	Final Operation Demand Output	Average Operational Job Salary	Average Indirect and Induced Job Salary	Average Created Job Salary
Commercial	1,707	435	$37,150,004	$16,533,423	$223,836,537	$21,763	$38,008	$25,062
Employment Center	2,114	777	$68,698,028	$29,461,484	$384,835,215	$32,497	$37,917	$33,953
	3,821	**1,212**	**$105,848,032**	**$45,994,907**	**$608,671,752**	**$27,702**	**$37,950**	**$30,169**

Source: Spotsylvania County Fiscal & Economic Impact Model

Table 7

The results above provide the number and salary of jobs, amount of earnings, and final operation demand output from Scenario 2. The designation of commercial and employment center land uses creates more jobs in this scenario than the potential development under the existing zoning. The future land use scenario creates over 5,000 direct operation and indirect and induced jobs, which is 2,000 more jobs created from Scenario 1. Jobs created from the employment center land use category in this scenario provides a higher average jobs salary than commercial uses. Each type of job created by the different land use category has a higher average salary than those created in the existing zoning scenario. In addition, this scenario has a much larger final operation demand output than existing zoning. These results show the presence of employment centers and other industrial development can create more jobs with higher salaries in the Thornburg area.

Scenario 3: Proposed Village Center

Zone	Total New Units	Total Square Feet	Acres Consumed	Assesed Value	Total Projected Revenues	Total Projected Expenditures	Total Projected Impact
Village Commercial	755	471,000	100	$302,785,832	$3,765,075	$2,596,581	$1,168,495
Mixed-Use District 3	150	261,000	35	$107,916,520	$1,384,745	$778,674	$606,070
Commercial 3	N/A	730,000	112	$188,157,480	$2,607,506	$1,263,623	$1,343,883
Industrial 1	N/A	1,607,000	246	$114,078,809	$2,009,123	$766,128	$1,242,995
	905	**3,069,000**	**493**	**$712,938,641**	**$9,766,449**	**$5,405,006**	**$4,361,443**

Table 8

Source: Spotsylvania County Fiscal & Economic Impact Model

The proposed village center scenario incorporates land uses with higher densities than anticipated under the existing zoning and future land use. The higher density in the proposed village center increases the total square footage of buildings allowed in the area. The Village Commercial and Mixed-Use District zones used a 30% building footprint yield for the total acreage of each land use. The buildings in these zones will primarily contain first floor retail stores with two floors of residential units above. These residential units were assumed to be an average size of 1,200 square feet. Table 9 on the following page provides a more detailed breakdown of proposed land uses in the village center and mixed-use district. This third scenario has a slightly higher total project impact than the future land use scenario.

Scenario 3: Proposed Village Center

Use	Total New Units	Total Square Feet	Acres Consumed	Assesed Value	Total Projected Revenues	Total Projected Expenditures	Total Projected Impact
Village Center							
Apartments	655	N/A	54	$152,926,264	$1,750,648	$1,284,193	$466,455
Attached Residential	100	N/A	10	$19,672,697	$249,031	$438,081	($189,050)
Community Retail	N/A	235,000	18	$64,965,959	$718,155	$436,297	$281,858
Restaurants	N/A	118,000	9	$32,610,456	$682,809	$219,005	$463,804
Office	N/A	118,000	9	$32,610,456	$364,432	$219,005	$145,428
Mixed-Use District							
Apartments	150	N/A	15	$35,760,448	$407,416	$294,090	$113,326
Community Retail	N/A	131,000	10	$36,205,512	$400,250	$243,148	$157,101
Restaurants	N/A	65,000	5	$17,975,280	$376,228	$120,718	$255,510
Office	N/A	65,000	5	$17,975,280	$200,851	$120,718	$80,133
Commercial							
Regional Retail	N/A	196,000	30	$38,315,656	$485,776	$257,319	$228,457
Community Retail	N/A	130,000	20	$38,757,247	$422,081	$260,285	$161,796
Restaurants	N/A	130,000	20	$38,757,247	$777,155	$260,285	$516,870
Hotel	N/A	65,000	10	$10,060,782	$237,352	$67,566	$169,786
Office	N/A	209,000	32	$62,266,548	$685,142	$418,168	$266,974
Industrial							
Industrial/Warehouse	N/A	1,607,000	246	$114,078,809	$2,009,123	$766,128	$1,242,995
	905	**3,069,000**	**493**	**$712,938,641**	**$9,766,449**	**$5,405,006**	**$4,361,443**

Table 9 Source: Spotsylvania County Fiscal & Economic Impact Model

Scenario 3: Proposed Village Center

Zone	Direct Operation Jobs	Indirect and induced Jobs	Direct Operation Earnings	Indirect and Induced Earnings	Final Operation Demand Output	Average Operational Job Salary	Average Indirect and Induced Job Salary	Average Created Job Salary
Village Commercial	1,374	354	$30,467,543	$13,467,320	$181,552,320	$22,174	$38,043	$25,425
Mixed-Use District 3	760	196	$16,856,363	$7,449,889	$100,440,834	$22,179	$38,010	$25,425
Commercial 3	1,589	432	$37,149,644	$16,420,684	$219,937,128	$23,379	$38,011	$26,507
Industrial 1	283	120	$10,630,037	$4,760,130	$62,211,407	$37,562	$39,668	$38,189
	4,006	**1,102**	**$95,103,587**	**$42,098,023**	**$564,141,689**	**$23,740**	**$38,201**	**$26,860**

Source: Spotsylvania County Fiscal & Economic Impact Model

Table 10

The results from Table 10 above show the number and salary of jobs, amount of earnings, and final operation demand output from the proposed village center scenario. This scenario creates the highest number of jobs in the projection year than the other two scenarios in the plan. The earnings in the village center scenario are higher than those in the existing zoning, but less than the earnings anticipated in the future land use. Likewise, the final operation demand output in this scenario is the second largest of the three. The indirect and induced job salary has the highest average of any average in the three scenarios. Alternately, the average created job salary is the lowest amongst the three scenarios. The village center scenario produced the highest number of jobs and total projected impact of the three scenarios. Even though the scenario did not produce the best results for square footage and job salaries, the compact development can provide environmental and social impacts that are not measured in the Spotsylvania County Fiscal & Economic Impact Model.

Vision Statement

The community of Thornburg will become a desirable destination rather than a temporary stop for travelers along its two major corridors. Future growth should be encouraged within the proposed boundary and in the form of a village center at the focal point of the community. The proposed village center will enable compact development to provide more jobs while preserving the rural character of Thornburg. This land use alternative plan illustrates the potential designs of future growth and explains why a village center will most likely create a greater sense of place in the community.

Image 12: Holladay Village, Utah

Source: City of Holladay Village, Utah

Goals, Objectives, and Strategies

Goals

Goal 1: Thornburg will be a village center with high-quality planned growth.

Goal 2: Open space and the rural character of the community will be preserved.

Goal 3: Economic development should attract jobs with adequate income.

Goal 4: Infill and redevelopment shall be essential forms of growth.

Goal 1: Thornburg will be a village center with high-quality planned growth.

Objective 1.1: Establish a village center district with mixed land uses.

Strategy: Rezone selected parcels from Agricultural and Commercial to Village Commercial (VC).

Objective 1.2: Prevent costly environmental sprawl by creating compact developments.

Strategy: Adjust zoning and subdivision regulations to allow for higher-density developments.

Issue: The Thornburg community is highly dependent on automobiles. There is limited pedestrian movement and no true public spaces.

Image 13 : Main Thornburg intersection
Source: Google Maps

Goal 2: Open space and the rural character of the community will be preserved.

Objective 2.1: Growth over the next 15 years should be concentrated within ½ mile of inter-state interchange and main Route 1 intersection.

Strategy: Establish a growth boundary around the Thornburg community to guide development.

Objective 2.2: Designate 2 new conservation easements by 2025 within 3 miles of Thornburg community.

Strategy: Explore opportunities for potential conservation easements.

Issue: The rural community is facing development pressures due to its location. Losing the rural character would devastate local residents.

Image 14 : Rural character of Thornburg

Source: Google Maps

Goal 3: Economic development should attract jobs with adequate income.

Objective 3.1: Ensure a balanced economic base in the community.

Strategy: Rezone selected agricultural parcels to light industrial.

Issue: Thornburg lacks a sufficient amount of jobs with mid-to-high paying incomes.

Image 15: Development along Mudd Tavern Road

Source: Google Maps

Goal 4: Infill and redevelopment shall be essential forms of growth.

Objective 4.1: Infill and redevelopment should be at least 20% of growth.

Strategy: Identify and promote locations for infill and redevelopment.

Objective 4.2: Growth should be guided along existing infrastructure networks.

Strategy: Encourage development of parcels along U.S. Route 1 and Route 606.

Issue: Thornburg has several existing structures that are abandoned or underdeveloped. Many parcels along the corridors are vacant and available for development.

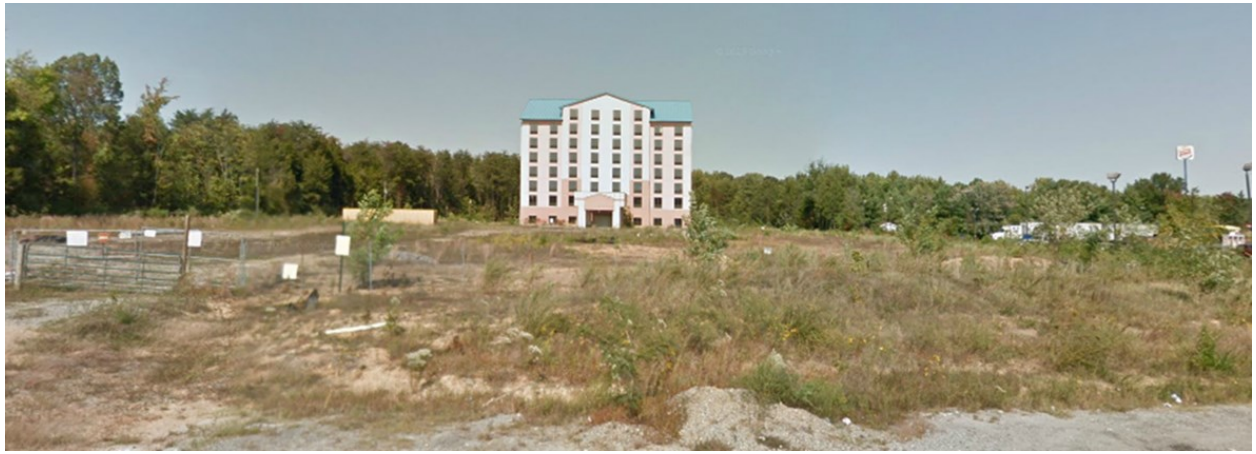


Image 16 : Redevelopment opportunity in Thornburg

Source: Google Maps

Implementation Strategies

Goals and Objectives	Strategy	Department Lead	Less than 3 Years	3-10 Years	10-20 Years
Goal 1: Thornburg will be a village center with high-quality planned growth.					
Objective 1.1: Establish a village center district with mixed land uses.	**Rezone selected parcels from Agricultural and Commercial to Village Commercial (VC).**	Zoning			
Objective 1.2: Prevent costly environmental sprawl by creating compact developments.	**Adjust zoning and subdivision regulations to allow for higher-density developments.**	Planning			
Goal 2: Open space and the rural character of the community will be preserved.					
Objective 2.1: Growth over the next 15 years should be concentrated within ½ mile of interstate interchange and main Route 1 intersection.	**Establish a growth boundary around the Thornburg community to guide development.**	Planning			
Objective 2.2: Designate 2 new conservation easements by 2025 within 3 miles of Thornburg community.	**Explore opportunities for potential conservation easements.**	Planning			
Goal 3: Economic development should attract jobs with adequate incomes.					
Objective 3.1: Ensure a balanced economic base in the community.	**Rezone selected agricultural parcels to light industrial.**	Zoning			
Goal 4: Infill and redevelopment shall be essential forms of growth.					
Objective 4.1: Infill and redevelopment should be at least 20% of growth.	**Identify and promote locations for infill and redevelopment.**	Planning			
Objective 4.2: Growth should be guided along existing infrastructure networks.	**Encourage development of parcels along U.S. Route 1 and Route 606.**	Planning			

Future Considerations

Interchange Improvements

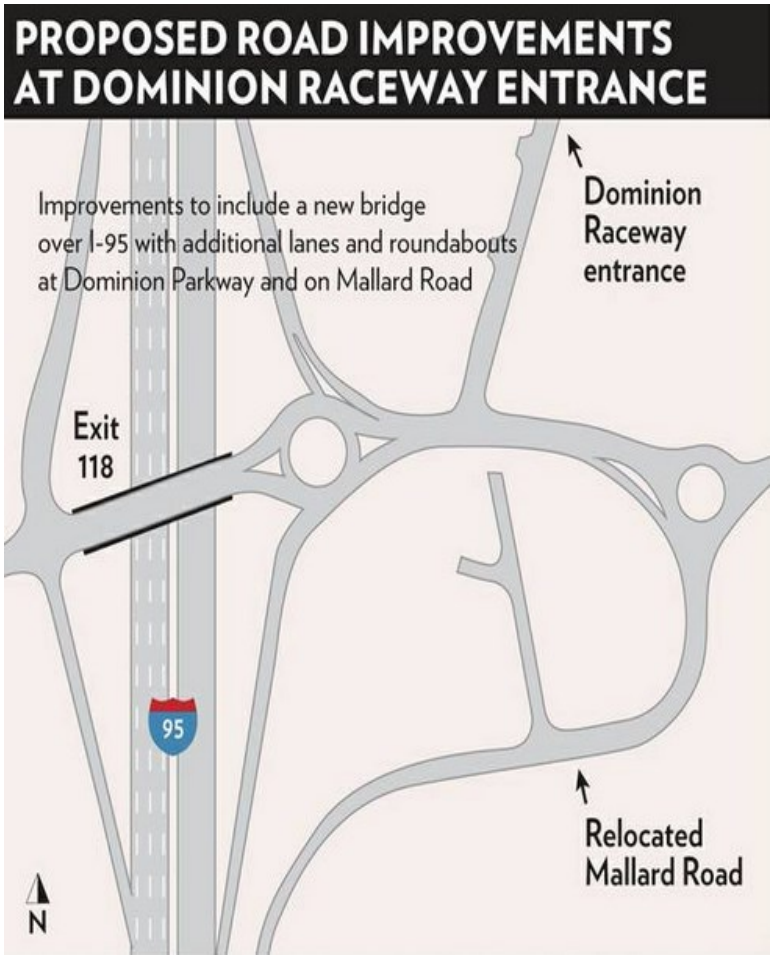


Image 17 : Proposed Road Improvements

Source: Free Lance Star

One of the biggest planning considerations for the future of Thornburg is the road improvements needed at the interstate interchange. Similar to many rural interstate interchanges, Exit 118 at Thornburg is a diamond interchange where the major interstate crosses a minor road. The diamond interchange uses less space than most interstate interchanges due to the lighter traffic amounts at the road junction. The anticipated future growth at Thornburg will increase vehicular traffic at the interchange. This increase in traffic will require certain improvements to the interchange and surrounding roads.

Transportation planners in Spotsylvania County have developed some changes that involve widening the Mudd Tavern Road Bridge and the creation of roundabouts. Image 17 illustrates these conceptual improvements at the interchange to mitigate traffic flow issues. These improvements are designed to eliminate left turns at the Dominion Raceway. Improvements to the current interchange or the creation of a new one will have direct impacts on the growth of the rural community.

Potential for Mass Transit

The position of Spotsylvania County between Washington D.C. and Richmond has caused development pressures in the County over the past two decades. Image 18 on the right shows the presence of Interstate 95 in the county that enables easy access to each of these metropolitan areas. The location of Thornburg along Interstate 95 creates potential opportunities for the community to grow. Thornburg has the potential to become a nodal development community with the possibility of future mass transit along Interstate 95 between Washington D.C. and Richmond. As previously mentioned, a nodal development is "a complete, compact, mixed-use community that includes places to live, work, learn, play, shop and access services" (Regional District of Nanaimo). Most nodal developments are centered around mass transit stops. Even though there is no mass transit along Interstate 95 at Thornburg, there is potential that the form of transportation could occur in the area over the next few decades .

Image 18 : Spotsylvania County's Strategic Location

Source: Spotsylvania County Economic Development Authority

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Appendices

Source: Spotsylvania County Planning Department

Technical Memorandum

To: Spotsylvania County Planning Department

From: RKG Associates, Inc.

Re: Fiscal and Economic Impact Model Assumptions

Date: July 2012

A. INTRODUCTION

The Scenario Builder Development Model is a dynamic tool that assesses the fiscal and economic impacts of proposed development projects. To provide Spotsylvania County with realistic, locally relevant outputs, the model accounts for numerous local market conditions including market performance (i.e. vacancy rates), market activity (i.e. captured retail expenditures by business type) and market consumption (i.e. school-aged children), among others. These factors are inherent in the estimated fiscal and economic impact calculations, and are what differentiates impacts by land use.

The following technical memorandum presents RKG Associates' methodology and findings that established the market assumptions used in the Scenario Builder Development Model. Simply put, this document provides information on why the assumptions are necessary and how the values included for these assumptions were calculated. While the model can be customized to override many of these assumptions, this effort ensures that the results from the Scenario Builder Development Model are relevant and unique to Spotsylvania County.

B. LAND USE DEFINITIONS

Defining the type of development is an important component of economic and fiscal modeling. Simply put, each development type causes a unique impact to revenue and expenditure levels for a jurisdiction. For example, jurisdictions assess lodging taxes that only affects hotels. Additionally, only residential uses have the potential to create additional demand for schools. These and other revenues/expenditures by development type can have very different impacts to the community. As such, the model differentiates impacts by different development types within residential, commercial, and mixed-use land uses to gauge the fiscal and economic impacts to the community more accurately.

The development types included in the Scenario Builder Development Model reflect uses allowed in Spotsylvania, including:

1. Residential

Detached Residential – Single-entry dwellings that do not share an external wall with another dwelling

Attached Residential – Single-entry dwellings that share an external wall. Townhomes and Duplexes are common forms of attached residential units.

Condominiums – Individually owned dwellings with a common entry point, contained in a single building or complex of buildings.

Apartments – Collectively owned dwellings with a common entry point, contained in a single building or complex of buildings.

2. Non-Residential

Regional Retail – Retail development that draws in populations from outside of the community. It typically has good access and visibility from major transportation corridors. An example is the Spotsylvania Mall, located directly off Exit 130 on Interstate 95.

Community Retail – Retail development where the primary market is Spotsylvania County residents. Examples of neighborhood retail include grocery stores, nail salons, barber shops, clothing stores, etc.

Restaurant – Restaurants have certain characteristics, such as sales per square foot, occupancy, etc., that often differ from other retail uses. Any known restaurant development should be modeled separately from community or regional retail.

Office – A commercial structure dedicated to business and professional services, typically with a single point of entry and greater privacy from the pedestrian traffic.

Industrial/Warehouse – Structures built to serve as assembly, research or storage space for the manufacturing and transporting of goods.

3. Mixed-Use

Mixed-use developments include more than one use on a single parcel of land and/or within a single structure. A common example of a mixed-use development is a multi-story building with ground floor commercial space and residential space above (Figure 1). The Scenario Builder Development Model has a separate category for mixed-use projects that allow the user to input each land use component separately. The model accommodates the following land uses to be part of a mixed-use scenario: condominiums, apartments, community retail, restaurants, and office.

C. MARKET PERFORMANCE

Figure 1

Source: Real Estate Information Network and RKG Associates, Inc.,

As mentioned in the Introduction, several market factors can influence the final fiscal and economic impacts of development. This section provides an overview of the market factors, including vacancy rates, sales per square foot, and captured retail expenditure rates, that were used in creation of the Scenario Builder Development Model.

1. Vacancy Rates

Vacancy rates influence the amount of sales taxes generated within a certain development. Simply put, the greater the amount of unoccupied space the less tax revenues that can be collected. The model calculates potential tax revenue based on the proposed occupancy levels. In order to assess office, industrial, and retail vacancy rates, the Consultant obtained the most recent quarterly *MarketBeat* reports for Spotsylvania County from Cushman & Wakefield*. When determining the default vacancy rates for each type of use within the model, the Consultant took into account the current vacancy rate, as well as trends from the past few years (Figure 2). The Consultant also conducted interviews with real estate professionals and brokers to get a sense of "on-the-ground" activity to corroborate the empirical data. Although it is not plausible for anyone to project the exact vacancy level each development type will experience into the future, this approach provides a reasonable and rational estimate of vacancy.

*Spotsylvania information can be found in the "Fredericksburg, VA" market reports. Cushman & Wakefield collaborates with Thalhimer in publication of the MarketBeat reports.

Cushman & Wakefield does not report on the hotel market. To estimate the default vacancy rates for hotels, the Consultant purchased data from Smith Travel Research (STR), a leading purveyor of hotel industry information. Specifically, the Consultant ordered the STR *Trend Report*, which includes the aggregated average vacancy rate for all hotels within Spotsylvania County. When determining the hotel vacancy rate to be used in the model, the Consultant took into account the current vacancy level reported from STR, as well as the addition of hotels that are currently under construction. New hotels will add additional supply to the area, therefore increasing vacancy levels of all hotels for a period until supply and demand equalize. In the case of hotel occupancy, the model also considers proposed projects that likely will generate additional demand. For example, the new soccer complex being developed in the County will add demand for hotel room nights during tournament season. It was found the demand generated from the Soccer Complex would increase the total room night demand by 1%. The vacancy estimates for the model were then adjusted accordingly.

Because restaurant spaces generally are build-to-suit, rather than speculative, the default vacancy rate for restaurants was set at 0%.

2. Sales Per Square Foot

The sales per square foot (sales/SF) of commercial development types also have a direct impact on the amount of tax revenue collected. The following bullet points outline how the sales/SF was calculated for each development type.

<u>*Retail*</u> – The sales/SF for retail uses was calculated by obtaining the most recent Taxable Sales by Business Classification report from the County's Finance Department. All retail related taxable sales within this report were summed and then divided by the actual retail square footage for retail land uses as reported in the County assessment database*. Because the Scenario Builder Development Model treats community retail and regional retail differently, certain assumptions were made about each. The Consultant used the percent difference in regional and community retail, as reported by the Urban Land Institute's *Dollars & Cents of Shopping Centers,* to adjust the County's taxable sales revenue for each category. Specifically, *Dollars & Cents of Shopping Centers* reported community retail sales/SF to be about 17% higher than regional retail sales/SF, and this percentage was applied accordingly. The model calculates sales/SF levels similarly for mixed-use retail and community retail.

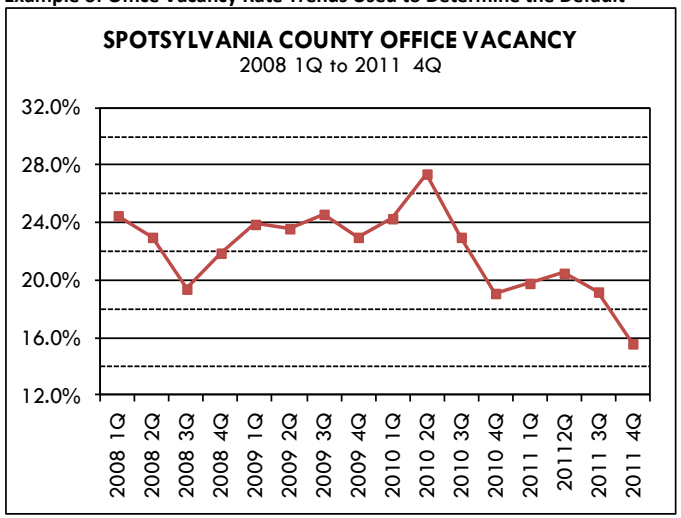
<u>*Restaurant*</u> – The restaurant sales/SF were taken by dividing the Food Services and Drinking Places revenue, as reported in the County's Taxable Sales by Business Classification report, by the total restaurant space in the County (obtained from the property assessment database).

<u>*Industrial*</u> – The industrial sales were taken in the same manner, using the manufacturing categories within the Taxable Sales by Business Classification report divided by the actual industrial square feet as calculated from the assessment database.

<u>*Hotel*</u> – The hotel Average Daily Rate (ADR) was calculated using the most recent ADR for all hotels within Spotsylvania County as reported in the Smith Travel Research *Trend Report*

Figure 2

Example of Office Vacancy Rate Trends Used to Determine the Default



Source: Cushman & Wakefield and RKG Associates, Inc., 2012

Default Vacancy Rates

Regional Retail – 10%
Community Retail – 15%
Restaurants – 0%
Hotel – 44%
Office – 20%
Mixed-Use – 15%
Industrial – 18%

*The County Assessment database was obtained from the Assessment Office. The building square footage of all parcels with a retail-related land use code was calculated for this analysis.

3. Retail Expenditure Captured from Residential Development

It is assumed each residential unit created will be occupied by an income-earning household. These new households will spend a certain amount of their income on retail within the County. In order to calculate the amount new households would spend on retail within the County, the Consultant first "backed-out" the average household income based on the assessed value of the home*.

It was assumed that, on average, residents spend 28% of their gross income on housing. This is an industry standard for financial lending institutions for conventional mortgages. It's important to note that this 28% includes not only the value of the home, but also mortgage interest rates, property taxes, home insurance, and Private Mortgage Insurance (PMI – usually applied when the down payment is less than 20% of the sales price). It is assumed the mortgages for home ownership are backed by the Federal Housing Administration (FHA). FHA loans require smaller down payments, and more and more buyers have been turning to the FHA since private lenders have tightened their requirements after the real estate collapse in 2008.

The Consultant used a variety of sources in order to determine the interest rates and other home buying costs. An example of the different costs, as well as the sources for this information, is included in Table 1. The most current data available from the time of this analysis (April 2012) was used. The model allows the user to enter in override values if information that is more current is available.

For apartment units, the model is calibrated to use the County's average rent rate of $999/month as the basis for income calculations (as noted by the 2010 Census).

Next, the Consultant obtained the total amount of income a household in Spotsylvania County spends on retail (42%) from Site to Do Business (STDB), a proprietary source of socioeconomic and retail information. Because consumers purchase goods away from their homes, a capture below 100% has to be applied. Based on national consumption information, the relative competitiveness of the Spotsylvania/Fredericksburg market and commuting patterns, the model uses a 60% capture rate. In other words, it was estimated that 60% of the total retail purchases made by a new household would be spent in Spotsylvania County. The model applies the 1% sales tax revenue (amount which is returned to the County by the State) to this amount to determine new retail sales taxes from residential units.

It should be noted the capture rate for the Lake Anna district was calculated differently. According to the 2010 Census, 31.9% of these units were reported as seasonal units. The capture rates for these seasonal units were conservatively estimated to be 10%, representing spending on dining and sundries in Spotsylvania County while in the unit. These seasonal users are typically only in the area 3 months of the year. In addition, many of the seasonal users bring purchases such as food and sundries with them and do not make as many local purchases. The full-time Lake Anna residential units were assumed to have the same capture rate as the other development districts (60%).

4. New Sales Generated by Retail Development

The opening of a new retail establishment in Spotsylvania County most likely will not result in 100% "new" sales tax revenue for the County. Spotsylvania County has a great variety of retail, especially along Route 3 (the location of the Spotsylvania Mall) and Route 1 (the location of the Southpoint retail shopping center). Residents currently frequent these and other existing establishments in the County for their retail needs. Unless a retail store was to open that offers products that cannot be found anywhere else in the County,

Table 1
Avg. Housheold Income Assumptions Example

Ownership Household	
Detached Home Value	$387,800
Down Payment [1]	$13,573
Mortgage Total	$374,227
Current Interest Rate [2]	4.0%
Annual Mortgage Cost	$21,368
Annual PMI [3]	$3,368.04
Real Estate Taxes [4]	$3,335.08
Insurance Cost	$871.00
Total Annual Cost	$28,942.28
Estimated Gross Income	$103,365.28

[1] Assumes 3.5% Downpayment, as required by FHA loans.
[2] Insurance rate from Liberty Mutual.
[3] PMI Calculation from Century 21.
[4] Taxes calculated using Spotsylvania Real Property tax rate ($0.86/$100 of assessed value)

*The assessed value calculations will be discussed in more detail in the Real Property Tax section later in the memo.

it is likely that only a portion of the sales generated from the retail development would be new sales to the County. The other sales generated by a new retail establishment would likely be pulling sales from already existing stores. This is commonly referred to in the retail real industry as "sales cannibalization."

To account for this phenomenon, the Consultant integrated a retail gravity model within the Scenario Builder Development Model framework, which adjusts the percentage of new sales to the County based on a series of factors that can influence the levels of new sales generation. These factors include:

Proximity to the Interstate – Retail that is located less than ½ mile from the Interstate was assumed to generate a higher amount of new sales than retail located further from the Interstate. Generally, locations near the Interstate will draw more people in from outside the community (particularly through traffic along I-95), as these sites generally have better visibility and easy access.

Type of Retail – Different types of retail were assumed to generate varying levels of new sales generation. For example, regional retail, such as malls, typically has a large trade area that will draw in new sales from outside the County. On the other hand, community retail primarily serves residents in the immediate area. There are typically less "new" sales being drawn into the County, as residents are shifting their purchases from an existing Spotsylvania retail establishment to the new retail development.

Current Retail Supply – The Consultant calculated the total retail square feet contained in each of the development district. The development districts that are generally under-supplied in retail were assumed to generate a greater percentage of new sales to the County. For example, a new restaurant in an area that does not have restaurants would likely encourage a certain amount of "new" meals to be had away from home. In other words, the close proximity of the new restaurant might encourage residents to eat out more than they typically would.

Each of these factors were given a weight and a score. The model assumptions for amount of new sales generated by different types of retail are shown in Table 2. It should be noted the new sales generation percentage is highest in Lake Anna. Currently, many residents leave the County and go to neighboring Louisa County for their retail goods. A new retail development in Lake Anna would likely draw a certain percentage of these sales back into Spotsylvania, thereby being "new" sales to the County.

D. FISCAL IMPACTS

The fiscal impact analysis measures the estimated changes to expenditures and revenues in Spotsylvania County resulting from the proposed development program. This analysis provides an estimate of incremental changes to revenues and expenditures directly attributable to the development program. As a result, the Consultant had to create a relationship between development and the local revenue and expenditure levels. This section provides more detail on the methodology used to create the assumptions on calibrating revenue and expenditure impacts within Scenario Builder Development Model.

Revenues

General Property Taxes – In order to estimate revenue collected from general property taxes, the Consultant first had to estimate the assessed value of new development. To do this, the Consultant utilized the property assessment database. The information from this database was organized by type (restaurants, hotel, office, etc.) and planning district boundary location (Primary Settlement, Rural, Jackson Gateway/Courthouse, Agriculture Forestal, Rural, and Lake Anna).

Analysis of the County's property assessment database revealed that development that has occurred in the past five years has higher overall and per square foot valuations than older development in the County. This is common in most communities, as new development often reflects increases in land and construction costs. The size of new residential developments also varies from older developments. For example, the average size of a detached single family home built in the past five years was 2,827 SF. In comparison, the average size of older homes built before 2002 were much smaller (1,615 SF). In an effort to be reflective of current market conditions, the default average assessed values in the Scenario Builder Development Model reflect this assumption.

As new development types are built into the future, the default values in districts without certain types of development will be replaced by actual values (to occur when conducting yearly updates of the model). It is important to note there are no "mixed-use" developments in Spotsylvania County upon which to base mixed-use assessed building values. To address this issue, the County staff and Consultant agreed to use average assessed values from the New Town mixed-use development, located in James City County, as the default mixed-use values in the Scenario Builder Development Model. This was done because it is envisioned mixed-use development in Spotsylvania County will have similar development intensity and quality of construction.

Based on the assessed values input into the model, the Scenario Builder Development Model simply applies this estimated assessed value to the real estate property tax rate ($0.86/$100 of assessed value) in order to obtain the total estimated collected general property tax revenue.

Personal Property Taxes – The personal property tax line item reflects the estimated revenue derived from automobile ownership in the County. To calculate this revenue, the Consultant applied local market averages to automobile ownership and cost. The value of the autos, as well as additional factors such as the car interest rate, and depreciation rate* were calculated and then applied to the median household income estimates (median household income estimates are discussed in more detail in the Market Performance section of this memo). Once the total value of automobiles was estimated, the personal property tax rate of $6.26 per $100 in value was applied. An example of the personal property calculations for a new apartment unit is shown in Table 3. It should be noted that the value of automobiles represents the total value of all vehicles for that unit. The 2009 American Community Survey estimates the average number of vehicles available per housing unit in Spotsylvania County to be 2.3 vehicles per unit.

Business Property Taxes – The model analyzes three business property taxes:

Furniture and Fixtures – This tax ($5.95/$100 in assessed value) is applied to businesses with furniture and other equipment (excluding software). To calculate the average cost per business, the Consultant compared the County's actual revenue collected from Furniture and Fixtures (obtained from the Finance Department) by the total commercial square footage from the property assessment database. This results in an average furniture and fixture revenue per square foot, which was then applied to the total square feet of commercial uses within the development scenario.

Heavy Construction Equipment – The model calculates the heavy construction equipment tax ($2.00/$100 in assessed value) only for those businesses that are specifically known to be new construction companies. Because the property assessment database does not specifically track construction land uses, the collected revenue for this tax is calculated on a per business basis, rather than on a per square foot basis. In other words, the actual collected heavy construction revenue was divided by the number of construction businesses in Spotsylvania in order to obtain the expected revenue per business. The model operator must manually enter information if there are construction businesses being proposed in the development scenario.

Machinery and Tools – This tax is applied only to manufacturing equipment ($2.50/$100 in assessed value). To calculate this revenue, the Consultant obtained the actual machinery and tools revenue (from the Finance Department) and normalized it over all manufacturing square feet, as noted by the property assessment database. The amount of revenue per square foot is then applied to any proposed manufacturing component of the development scenario.

Table 3
Example of Automobile Calculations for a New Rental Unit

Median Rent	$999
$ Spent on Rent/Year	$11,988
Total Household Income	$42,814
Renter Cost of Autos	$8,563
Car Interest Rate	0.0337
Cost of Autos/Month	$714
Value of Autos (no depriciation)	$32,001
Depriciation Rate	60%
Value of Autos (with depriciation)	**$12,801**

Source: Bankrate.com and RKG Associates, Inc., 2012

*The percent of income spent on automobiles, the interest rate and depreciation rate were all obtained from bankrate.com.

Business, Professional, and Occupational License (BPOL) – The BPOL tax is assessed to businesses based on the gross sales receipts. For the purposes of the model, office uses were assessed using the "Professionals" BPOL rate ($0.29/$100 in sales), community, mixed-use, and general retail uses were assessed using the "Retail Merchants" BPOL rate ($0.10/$100 in sales), and hotels were assessed using the "Rentals" BPOL rate ($0.18/$100 in sales). The total estimated sales (discussed in more detail in the previous Market Performance section of this memo) were then applied to the appropriate tax rate in order to determine the total BPOL revenues collected.

Sales and Use Taxes – The sale and use taxes were calculated for three main categories. They include:

General Sales Tax – The Consultant applied the 1% local share sales and use rate (of the overall 5% rate) to the "new" sales generated by the proposed development program. As mentioned, new retail sales are generated as part of the sales activity of new retail development as well as the estimated expenditures generated by new residential units.

Meals Tax – In addition to the general sales and tax, Spotsylvania levies a meals tax on all businesses that have prepared foods (4% tax rate). Similar to general sales and use tax revenues, meals tax revenues are calculated for both new restaurants proposed and the estimated restaurant spending from new residential development. It was assumed that new housing units would spend a certain amount of their income on eating out. The percent of household income spent on eating out (6%)* was multiplied by the meals tax rate in order to determine the meals tax revenue collected due to the addition of new housing units.

Lodging Tax – Spotsylvania County levies a tax of 5% the amount charged for the occupancy of any room or space. To determine the total estimated occupied hotel room nights, the model applies the Smith Travel Research hotel vacancy rate (44%) to the total number of hotel and motel rooms in the County to determine the total number of occupied rooms. The model then calculates total annual revenue using STR's average daily rate for Spotsylvania hotels and applies the County's lodging tax levy.

2. Expenditures

To calculate the expenditures to the County resulting from new development, the Consultant obtained the most recent actual expenditures from the Finance Department. Only those expenditures that would be directly attributable to new development were included. For example, the Joint Fleet Maintenance Facility expenditures do not fluctuate due to new development. As a result, this line item was not included in the model.

It is assumed that the County's expenditures reflect demand from both residences and businesses. In order to more accurately estimate expenditures by development type, it was necessary for the Consultant to separate out the costs the County would incur as a result of business operations and the costs due to new residential development.

The expenditure line items were placed into three categories: [1] residence initiated; [2] non-residence initiated; and [3] common impact. The residence-initiated items are those cost centers solely impacted by residential development (i.e. schools). Similarly, those costs created by non-residential development (i.e. the economic development opportunity fund) were identified. Finally, costs created regardless of development type (i.e. general government administration) are the common impact costs. For common impact cost, the share of cost was allocated based on the balance of value in the County between residential and non-residential properties.

For the non-residential expenditures, the model was normalized by building value. Simply put, the scale and fit-out of non-residential development varies greatly, making the use of total building size and total value difficult to implement evenly. However, utilizing the value of the structure creates a more consistent and reasonable distribution of cost impact for non-residential projects. Within the model, cost increment was calculated per $1,000 in assessed building value (existing commercial expenditures divided by the total existing commercial building assessed value). This ratio was then applied to the estimated assessed non-residential building values of the proposed development program.

*The percent of income spent on meals was based on STDB percent of restaurant demand as compared to total demand for retail and restaurant

The residential expenditures were calculated on a per capita basis. Specifically, the total residential assessed value was divided by the Census 2010 Spotsylvania population (122,397) to obtain the expenditures per-person. The expenditures per-person were then multiplied by the number of people expected to reside in either detached residential, attached residential, or multi-family (condominiums, apartments, etc.) units. This resulted in an estimate of total expenditures per new unit developed.

The information in Table 4 shows the incremental expenditure (by person for residential uses and by $1,000 of building value for commercial uses). Categories which have "$0.00" indicate that this budget line item is not impacted by the specified land use.

School expenditures were calculated separately. The Consultant applied the total ***local*** expenditures* (excluding state, federal, or other sources of funding) to the total school enrollment, obtained from Spotsylvania County Public Schools. The local expenditures per pupil were then applied to student population estimates, by housing type obtained from the Planning Department.

Table 4
Incremental Expenditures

Expenditure	Residential/ Person	Commercial/ $1,000 AV
General Gov Administration	$78.12	$1.05
Judicial Administration	$24.96	$0.33
Public Safety	$241.70	$3.24
General Services	$47.97	$0.64
Social Services	$127.21	$0.00
Health and Welfare	$7.72	$0.00
Parks, Recreation, and Culture	$55.58	$0.00
General County Debt	$47.59	$0.64
Non-Departmental	$3.23	$0.04
Capital Projects Fund	$34.30	$0.32
Code Compliance Fund	$7.42	$0.10
Transportation Fund	$1.79	$0.32
Economic Dev. Opp. Fund	$0.00	$0.03
Total	$677.61	$6.72

Source: Spotsylvania County Finance Department and RKG Associates, Inc., 2012

E. ECONOMIC IMPACTS

Economic Impacts are often used to quantify factors that contribute to the general economic health of the community. These factors include jobs, earnings, and "output" (additional economic activity and spending in a region), generated by new development. The economic impacts were measured using the RIMS II input-output multipliers obtained from the Bureau of Economic Analysis (BEA). RIMS II is a widely used and respected source for measuring economic impacts.

RIMS II provides a series of local indexes for measuring jobs, earnings, and outputs for 38 industries. The industries used to assess the economic impacts of the various development types in the Scenario Builder Development Model are shown in Table 5. To conduct this analysis, the Consultant used the latest data available (Year 2008). The BEA updates the indexes yearly and the Planning Department will need to download the latest RIMS II indexes when performing annual updates of the Scenario Builder Development Model.

The RIMS II data is for the Spotsylvania-Fredericksburg, Virginia market. The Bureau of Economic Analysis does not have separate indexes for the two municipalities. Conversations with BEA have indicated that these indexes should not be adjusted or manipulated to isolate Spotsylvania County specific impacts. The reason being is that economic markets do not operate in a vacuum. In other words, the political boundaries of an area do not set or determine the amount of economic activity that occurs. An example of this would be a shopper that has planned a shopping trip to retail establishments along Route 3. For new clothes, the shopper may stop at the Spotsylvania Mall. However, for lunch, the shopper may decide to drive less than a mile down the road for lunch at Wendy's, which is located in Fredericksburg.

Table 5
RIMS II - Industries Used for Each Land Use Type

Land Use Type	RIMS Equivalent Category
Regional Retail	Retail Trade
Community Retail	Retail Trade
Restaurants	Food Services and Drinking Places
Hotel	Accommodation
Mixed-Use	Retail Trade
Office	Professional, Scientific, and Technical Services
Industrial	Miscellaneous Manufacturing

Source: Bureau of Economic Analysis and RKG Associates, Inc., 2012

*Local expenditures/pupil were obtained from Revenue lines 341.0601 (School Operating Fund Transfer to General Fund) and 341.0601 (School Carryover Fund Transfer to General Operating Fund).

The jobs, earnings, and output methodologies for the Spotsylvania-Fredericksburg region are described below.

Jobs – The direct construction jobs, or construction jobs that are directly attributable to new development (those hired to construct the buildings), were calculated by applying the RIMS II Construction indexes to the estimated assessed value of the development.

The indirect jobs were also estimated as part of the economic impacts. Indirect jobs are defined by the BEA as "jobs held by persons who work for the producers of materials, equipment, and services that are used in a commercial enterprise's capital investment project, but who are not directly employed by the commercial enterprise." An example of an indirect job created from construction activity would be a steel worker who was needed to make the steel beams used in the new building, but was not hired to install this beam. A subset of indirect jobs is "induced jobs." Induced jobs are, "generated through the spending of households' incomes (salaries and wages) earned as part of the direct and indirect expenditures." For example, employees of a construction firm will spend their earnings on various items (housing, food, clothing, etc.). Since some of these items are produced in the region, the construction expenditures will generate additional rounds of expenditures in the region. The indirect and induced jobs were analyzed by applying the assessed value of developments to the indirect and induced construction jobs index.

The jobs created by operation of the various commercial uses were analyzed by applying the RIMS II jobs index to the sales generated by each development type. Likewise, the indirect and induced jobs created by operation of commercial developments were calculated by applying the associated indirect and induced indexes.

Earnings – Direct and indirect earnings were calculated in the same manner as the jobs impacts. The construction earnings indexes were applied to the estimated assessed value of development, and the earnings generated from operations were calculated by applying the appropriate earnings index to the estimated sales of the various development types.

Final Demand Output - This is a measure of the economic activity and spending in a region. Each time a dollar changes hands for products or services it increases the measure of output. The output includes earnings, spending, and activity generated from both products and labor. Economic output is typically referred to as the Gross National Product (GNP) at the national level.

The output was calculated for both construction and operation activity. The construction output was calculated by applying the assessed value of development to the construction output index, and the output that results from operation was calculated by applying the associated sales per square foot to the appropriate output index.

It should be noted that County staff has proposed to revise their staff reports and evaluation of new developments to only consider the capital facility impact and fiscal impacts in their analysis and recommendations. As mentioned, the economic impact model does not break-out Spotsylvania County specific impacts. Furthermore, the fiscal impact model already captures "spin-off" revenues, such as retail sales generated from new residential units, which would be directly attributable to Spotsylvania County. Lastly, there is no clear and measurable County policy related economic impacts. As such, the economic impacts will be presented, but will not be integrated into the staff's recommendations.

Appendix B: Economic Impact for Dominion Raceway
Source: www.fredericksburg.com

DRAFT

The Impact of the Proposed Dominion Raceway on the Spotsylvania County Economy

By

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Dwight Schar Faculty Chair and University Professor
Director, Center for Regional Analysis
George Mason University
December 2012

Executive Summary

The location of Dominion Raceway in Spotsylvania County will generate important new economic impacts. These economic impacts will be generated by the attraction of "new" spending in the County that would not have occurred in the absence of the Raceway's location in Spotsylvania County. These economic impacts will occur during the construction period from the combination of soft costs that include engineering, design, planning, management, legal services, and other administrators expenditures including permits, and hard costs that include site preparation, infrastructure, roads and parking, three race tracks, clubhouse and spectator facilities. The spending impact associated with these construction outlays would have a significant short-term impact on the County's economy.

The recurring outlays and spending associated with the operation of Dominion Raceway will generate a continuing annually flow of "new" monies into the local economy in the form of payroll disbursements, purchases of goods and services from local vendors and spending in support of on-site and off-site retail, and spending for restaurant and hospitality services by racers, crew members and spectators attracted to Dominion Raceway and its wide range of motor racing and other events scheduled over the year. This continuing spending will support local jobs, generate new wage income for residents of Spotsylvania County, support existing businesses and attract new businesses to Spotsylvania County, and strengthen the commercial tax base of the County with only nominal impact on the demand for county-provided services.

The economic benefits that will accrue to Spotsylvania County from the construction and operation of Dominion Raceway can be summarized as follows:

- Total spending associated with the construction of Dominion Raceway's planned development would generate $21.1 million in new spending over the construction period. With $1.72 being generated for each $1 in direct construction spending in Spotsylvania, the $21.1 million in Dominion Raceway's construction outlays would contribute $36.4 million to Spotsylvania's gross county product. It would also generate $9 million in new labor income to the benefit of workers residing in Spotsylvania County representing the equivalent of 227 year-round, full-time jobs during the construction period.

- The significance of these impacts to the Spotsylvania economy are seen by comparing this $36.4 million contribution from Dominion Raceway's construction to the County's projected economic growth in 2013—this new construction spending would be equivalent to 18.6 percent of all new economic activity projected for the County in 2013.

- Dominion Raceway would continue to generate economic impacts to the benefit of Spotsylvania County annually following the completion of construction: its annual operating outlays are estimated to total $2.3 million with $1.5 million representing payroll outlays. Annual visitors (ranging from 160,000 to 170,000 of which 90-95% would be non-Spotsylvania residents) would spend $4.05 million for retail, restaurant, and hospitality services at on-site commercial establishments (in addition to their spending within the Raceway facilities) located at Exit 118 or elsewhere in the nearby market area.

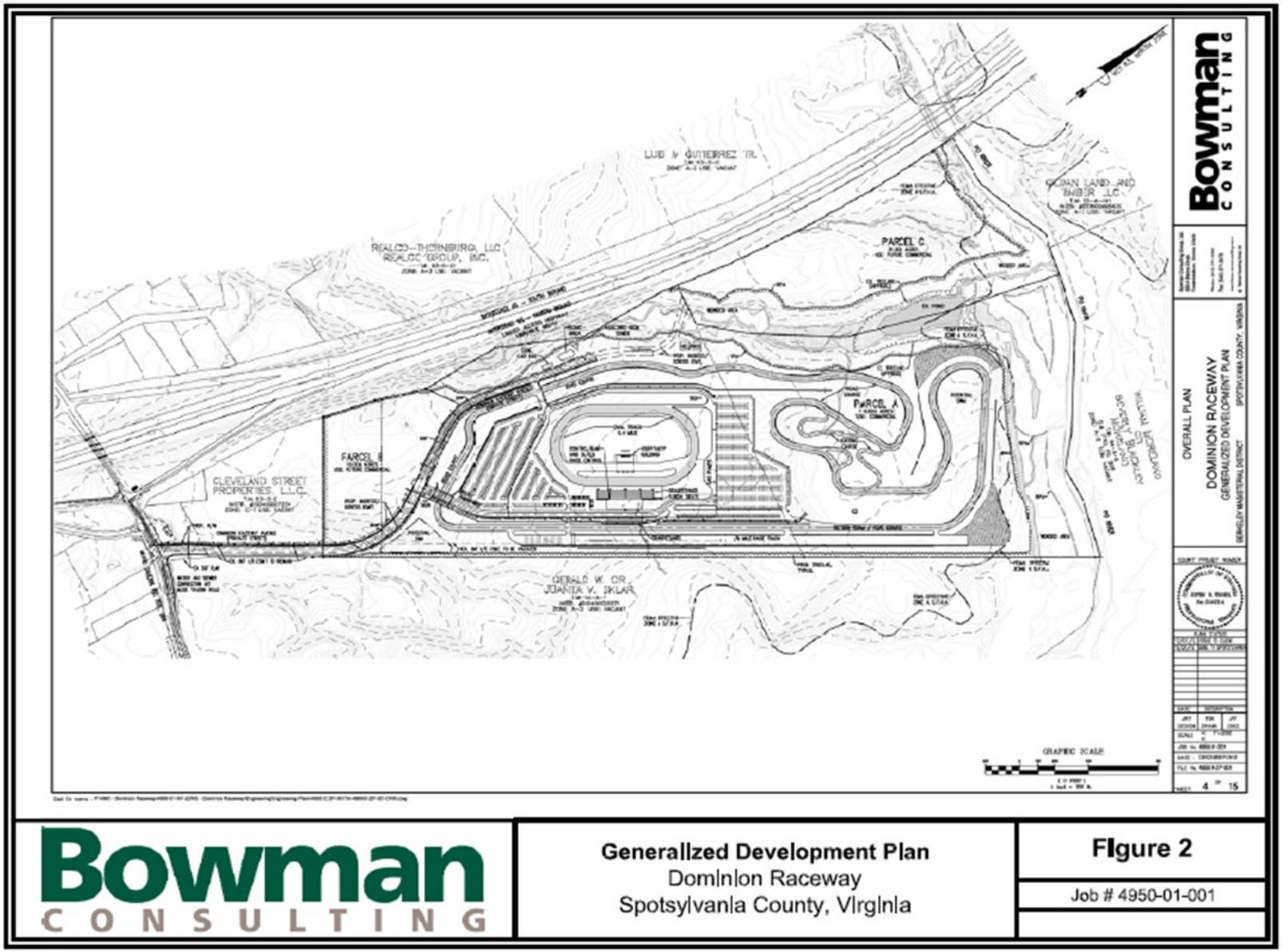
- Racers, crew members and spectators attracted by Dominion Raceway will generate demand for more than 10,000 hotel and motel room nights annually and their retail, restaurant and spending of lodging, along with spending to operate Dominion Raceway, will generate $10.1 million in new economic activity, as measured by gross county product, including $2.9 million in new labor income that will support a total of 72 new year-round, full-time equivalent jobs annually within Spotsylvania County.

- The new tax base represented by Dominion Raceway's land and building improvements and the local spending potential of the racers, crew and spectators attracted to the Raceway will generate a significant net fiscal benefit for Spotsylvania County.

The construction and operation of Dominion Raceway represents a significant contribution to Spotsylvania County's economy as measured by the new spending it will attract to the County, the new jobs and labor income it will support on site and off site, and the businesses, existing and new, that this new spending will support. The importance of this investment in the County's economy is the total spending power that it will attract to the County's economy—this is largely additive and will not duplicate or compete with existing businesses. The spectator and customer base that will be attracted to Dominion Raceway will be almost entirely new to the County and, as such, will represent a major new source of economic activity that will contribute to expanding the County's economy well beyond the economic impacts captured on-site as reported herein.

Appendix C: Dominion Speedway Site Plan

Source: www.fredericksburg.com



Appendix D: Undevelopable Parcels—Zoning

OBJECTID	Shape *	FID_Zonin	LAYER	FID_Parce	Acres
4	Polygon	176	ZON_A2	15	2.37012
5	Polygon	176	ZON_A2	21	0.609581
15	Polygon	156	ZON_A2	16	0.000395
16	Polygon	156	ZON_A2	28	8.046989
17	Polygon	156	ZON_A2	30	1.962596
18	Polygon	156	ZON_A2	31	9.984065
19	Polygon	540	ZON_A2	3	0.115073
20	Polygon	540	ZON_A2	22	5.378634
22	Polygon	540	ZON_A2	3	0.000258
24	Polygon	540	ZON_A2	22	0.003904
26	Polygon	176	ZON_A2	13	0.000023
					28.47164
8	Polygon	345	ZON_C2	18	1.379315
1	Polygon	54	ZON_C3	3	0.075238
2	Polygon	54	ZON_C3	22	1.131017
6	Polygon	2375	ZON_C3	52	4.214129
7	Polygon	51	ZON_C3	19	3.035069
9	Polygon	48	ZON_C3	7	0.359298
10	Polygon	48	ZON_C3	11	0.339714
11	Polygon	48	ZON_C3	16	5.797392
12	Polygon	48	ZON_C3	17	1.903601
13	Polygon	48	ZON_C3	27	2.283634
14	Polygon	**48**	ZON_C3	30	0.377369
21	Polygon	54	ZON_C3	3	0.000258
23	Polygon	54	ZON_C3	22	0.003904
					20.89994
3	Polygon	73	ZON_I1	13	0.935585
25	Polygon	73	ZON_I1	13	0.000023
					0.935608
Total					**50**

Source: Spotsylvania County GIS Department

Appendix E: Selected Parcels for Development – Zoning

Source: Spotsylvania County GIS Department

PIN	Address	Zoning	Area
76- 1 - 8B	5112 ORROCK LN	A2	1.490212
76- A - 59-	6013 MALLARD RD	A2	23.25422
76- 1 - 8-	0 ASSIGNED ON REQUEST	A2	14.84469
63- A - 19-	0 JEFFERSON DAVIS HWY	A2	40.64446
63- A - 91A	6554 S ROXBURY MILL RD	A2	1.268257
63- A - 99A	0 S ROXBURY MILL RD	A2	0.834559
63- 5 - C1-	0 S ROXBURY MILL RD	A2	44.95844
63- 5 - -C	6909 S ROXBURY MILL RD	A2	129.0142
Total			**256**
Undevelopable			**28**
Developable			**228**

PIN	Address	Zoning	Area
76- 2 - 12-	5061 ORROCK LN	I1	1.178565
76- 2 - 2-	5112 OGLE DR	I1	18.20137
63- A - 45-	0 ASSIGNED ON REQUEST	I1	31.84856
Total			**51**
Undevelopable			**1**
Developable			**50**

Appendix F: Selected Parcels for Development – Zoning

PIN	Address	Zoning	Area
63- 1 - -B	5225 MUDD TAVERN RD	C2	2.158915
63- A - 45B	0 ASSIGNED ON REQUEST	C3	1.952043
63- A - 50-	0 ASSIGNED ON REQUEST	C3	2.419173
63- A - 22B	6516 JEFFERSON DAVIS HWY	C3	1.487049
63- A - 44-	0 ASSIGNED ON REQUEST	C3	2.843761
63- A - 53-	5008 MUDD TAVERN RD	C3	0.979443
63- A - 52-	5010 MUDD TAVERN RD	C3	8.885893
63- A - 76-	5401 MUDD TAVERN RD	C3	1.157701
63- A - 45A	0 ASSIGNED ON REQUEST	C3	3.570454
63- A - 73-	5233 MUDD TAVERN RD	C3	0.93565
63- A - 44A	6117 MALLARD RD	C3	8.531846
63- A - 66-	5121 MUDD TAVERN RD	C3	10.63337
63- A - 69-	5209 MUDD TAVERN RD	C3	3.811736
63- 5 - -E	0 ASSIGNED ON REQUEST	C3	11.22841
63- A - 62-	5015 MUDD TAVERN RD	C3	1.426054
63- A - 43C	5122 MUDD TAVERN RD	C3	10.5609
63- A - 54-	5004 MUDD TAVERN RD	C3	13.96566
63- 1 - -A	0 MUDD TAVERN RD	C3	11.54539
63- A - 63-	5019 MUDD TAVERN RD	C3	0.811451
63- A - 70-	5211 MUDD TAVERN RD	C3	10.88431
63-12 - -C	0 ASSIGNED ON REQUEST	C3	3.195436
63- A - 41B	6237 JEFFERSON DAVIS HWY	C3	2.379655
63- A - 41-	0 JEFFERSON DAVIS HWY	C3	8.71742
63- A - 40-	0 JEFFERSON DAVIS HWY	C3	23.44029
63A 1 - 31-	0 ASSIGNED ON REQUEST	C3	0.43596
63-12 - -E	6242 JEFFERSON DAVIS HWY	C3	15.06848
63A 1 - 26-	0 ASSIGNED ON REQUEST	C3	0.478521
63A 1 - 33-	0 ASSIGNED ON REQUEST	C3	0.436141
63A 1 - 30-	0 ASSIGNED ON REQUEST	C3	0.43587
63A 1 - 29-	0 ASSIGNED ON REQUEST	C3	0.43578
63-12 - -D	0 ASSIGNED ON REQUEST	C3	7.273089
63A 1 - 27-	0 ASSIGNED ON REQUEST	C3	0.41483
63A 1 - 32-	0 ASSIGNED ON REQUEST	C3	0.436052
63A 1 - 25-	5312 MUDD TAVERN RD	C3	0.439219
63A 1 - 22-	5406 MUDD TAVERN RD	C3	0.432099
63- A - 41A	6241 JEFFERSON DAVIS HWY	C3	0.94253
63-13 - -A3	6370 JEFFERSON DAVIS HWY	C3	1.022443
63-12 - -B2	0 MORRIS RD	C3	3.120019
63A 1 - 23A	0 MUDD TAVERN RD	C3	0.278653
63-12 - -B1	0 MORRIS RD	C3	5.201209
63- A - 42-	0 MUDD TAVERN RD	C3	49.42234
63A 1 - 21-	0 ASSIGNED ON REQUEST	C3	0.559001
63A 1 - 20-	0 ASSIGNED ON REQUEST	C3	0.394429
63A 1 - 28-	0 ASSIGNED ON REQUEST	C3	0.448719
63A 1 - 23-	5400 MUDD TAVERN RD	C3	0.466561
Total			**236**
Undevelopable			**21**
Developable			**215**

Source: Spotsylvania County GIS Department

Appendix F: Undevelopable Parcels—Future Land Use

OBJECTID_	Shape *	DESCRIPTION	PIN	Acres
1	Polygon	COMMERCIAL	63- A - 76-	0.359298
2	Polygon	COMMERCIAL	63- A - 73-	0.339714
3	Polygon	COMMERCIAL	63- A - 66-	5.797782
4	Polygon	COMMERCIAL	63- A - 69-	1.9036
5	Polygon	COMMERCIAL	63- 1 - -B	1.118409
6	Polygon	COMMERCIAL	63- 5 - -E	3.035069
7	Polygon	COMMERCIAL	63- 1 - -A	2.21098
8	Polygon	COMMERCIAL	63- 5 - C1-	8.046994
9	Polygon	COMMERCIAL	63- A - 70-	2.340027
10	Polygon	COMMERCIAL	63- A - 42-	1.262065
18	Polygon	COMMERCIAL	63- A - 42-	0.000862
				26.4148
11	Polygon	EMPLOYMENT CENTERS	63- A - 22B	0.190569
12	Polygon	EMPLOYMENT CENTERS	63- A - 45-	0.935607
13	Polygon	EMPLOYMENT CENTERS	76- A - 59-	2.37012
14	Polygon	EMPLOYMENT CENTERS	76- 1 - 8-	0.609581
15	Polygon	EMPLOYMENT CENTERS	63- A - 19-	6.513555
16	Polygon	EMPLOYMENT CENTERS	63- 5 - -C	9.984637
17	Polygon	EMPLOYMENT CENTERS	63- A - 42-	2.95095
19	Polygon	EMPLOYMENT CENTERS	63- A - 42-	0.000862
				23.55588
Total				**50**

Source: Spotsylvania County GIS Department

Appendix G: Selected Parcels for Development—Future Land Use

Source: Spotsylvania County GIS Department

PIN	Address	FLU	Area
63- A - 45B	0 ASSIGNED ON REQUEST	C	1.952043
63- A - 50-	0 ASSIGNED ON REQUEST	C	2.419173
63- A - 53-	5008 MUDD TAVERN RD	C	0.979443
63- A - 76-	5401 MUDD TAVERN RD	C	1.157701
63- A - 45A	0 ASSIGNED ON REQUEST	C	3.570454
63- A - 73-	5233 MUDD TAVERN RD	C	0.93565
63- A - 66-	5121 MUDD TAVERN RD	C	10.63337
63- A - 69-	5209 MUDD TAVERN RD	C	3.811736
63- 1 - -B	5225 MUDD TAVERN RD	C	2.158915
63- 5 - -E	0 ASSIGNED ON REQUEST	C	11.22841
63- A - 62-	5015 MUDD TAVERN RD	C	1.426054
63- 1 - -A	0 MUDD TAVERN RD	C	11.54539
63- 5 - C1-	0 S ROXBURY MILL RD	C	44.95844
63- A - 63-	5019 MUDD TAVERN RD	C	0.811451
63- A - 70-	5211 MUDD TAVERN RD	C	10.88431
63A 1 - 26-	0 ASSIGNED ON REQUEST	C	0.478521
63A 1 - 25-	5312 MUDD TAVERN RD	C	0.439219
63A 1 - 22-	5406 MUDD TAVERN RD	C	0.432099
63-13 - -A3	6370 JEFFERSON DAVIS HWY	C	1.022443
63A 1 - 23A	0 MUDD TAVERN RD	C	0.278653
63A 1 - 21-	0 ASSIGNED ON REQUEST	C	0.559001
63A 1 - 23-	5400 MUDD TAVERN RD	C	0.466561
63- A - 52-	5010 MUDD TAVERN RD	C	8.885893
63- A - 54-	5004 MUDD TAVERN RD	C	13.96566
63- A - 41A	6241 JEFFERSON DAVIS HWY	C	0.94253
Total			**136**
Undevelopable			**26**
Developable			**110**

PIN	Address	FLU	Area
63- A - 43C	5122 MUDD TAVERN RD	EC	10.5609
63-12 - -E	6242 JEFFERSON DAVIS HWY	EC	15.06848
63- A - 42-	0 MUDD TAVERN RD	EC	49.42234
63- A - 22B	6516 JEFFERSON DAVIS HWY	EC	1.487049
63- A - 44-	0 ASSIGNED ON REQUEST	EC	2.843761
76- 2 - 12-	5061 ORROCK LN	EC	1.178565
76- 1 - 8B	5112 ORROCK LN	EC	1.490212
76- 2 - 2-	5112 OGLE DR	EC	18.20137
63- A - 45-	0 ASSIGNED ON REQUEST	EC	31.84856
63- A - 44A	6117 MALLARD RD	EC	8.531846
76- A - 59-	6013 MALLARD RD	EC	23.25422
76- 1 - 8-	0 ASSIGNED ON REQUEST	EC	14.84469
63- A - 19-	0 JEFFERSON DAVIS HWY	EC	40.64446
63- A - 91A	6554 S ROXBURY MILL RD	EC	1.268257
63- A - 99A	0 S ROXBURY MILL RD	EC	0.834559
63- 5 - -C	6909 S ROXBURY MILL RD	EC	129.0142
63-12 - -C	0 ASSIGNED ON REQUEST	EC	3.195436
63- A - 41B	6237 JEFFERSON DAVIS HWY	EC	2.379655
63- A - 41-	0 JEFFERSON DAVIS HWY	EC	8.71742
63- A - 40-	0 JEFFERSON DAVIS HWY	EC	23.44029
63A 1 - 31-	0 ASSIGNED ON REQUEST	EC	0.43596
63A 1 - 33-	0 ASSIGNED ON REQUEST	EC	0.436141
63A 1 - 30-	0 ASSIGNED ON REQUEST	EC	0.43587
63A 1 - 29-	0 ASSIGNED ON REQUEST	EC	0.43578
63-12 - -D	0 ASSIGNED ON REQUEST	EC	7.273089
63A 1 - 27-	0 ASSIGNED ON REQUEST	EC	0.41483
63A 1 - 32-	0 ASSIGNED ON REQUEST	EC	0.436052
63-12 - -B2	0 MORRIS RD	EC	3.120019
63-12 - -B1	0 MORRIS RD	EC	5.201209
63A 1 - 20-	0 ASSIGNED ON REQUEST	EC	0.394429
63A 1 - 28-	0 ASSIGNED ON REQUEST	EC	0.448719
Total			**407**
Undevelopable			**24**
Developable			**383**

Appendix H: Undevelopable Parcels—Village Center

PIN	Address	NewZone	Acres
63- A - 22E	6516 JEFFERSON DAVIS HWY	C3	0.190569
63- A - 76-	5401 MUDD TAVERN RD	C3	0.359298
63- A - 73-	5233 MUDD TAVERN RD	C3	0.339714
63- A - 66-	5121 MUDD TAVERN RD	C3	5.797782
63- A - 69-	5209 MUDD TAVERN RD	C3	1.9036
63- 1 - -B	5225 MUDD TAVERN RD	C3	1.379315
63- 5 - -E	0 ASSIGNED ON REQUEST	C3	3.035069
63- A - 19-	0 JEFFERSON DAVIS HWY	C3	6.513555
63- 1 - -A	0 MUDD TAVERN RD	C3	2.283634
63- 5 - C1-	0 S ROXBURY MILL RD	C3	8.046994
63- A - 70-	5211 MUDD TAVERN RD	C3	2.340027
			32.18956
63- A - 45-	0 ASSIGNED ON REQUEST	I1	0.935607
76- A - 59-	6013 MALLARD RD	I1	2.370121
76- 1 - 8-	0 ASSIGNED ON REQUEST	I1	0.609581
63- 5 - -C	6909 S ROXBURY MILL RD	I1	9.984637
			13.89995
63- A - 42-	0 MUDD TAVERN RD	VC	4.214129
			4.214129
Total			**50**

Source: Spotsylvania County GIS Department

Appendix I: Selected Parcels for Development — Village Center

PIN	Address	NewZone	Acres
63- A - 22B	6516 JEFFERSON DAVIS HWY	C3	1.487049
63- A - 76-	5401 MUDD TAVERN RD	C3	1.157701
63- A - 73-	5233 MUDD TAVERN RD	C3	0.93565
63- A - 66-	5121 MUDD TAVERN RD	C3	10.63337
63- A - 69-	5209 MUDD TAVERN RD	C3	3.811736
63- 1 - -B	5225 MUDD TAVERN RD	C3	2.158915
63- 5 - -E	0 ASSIGNED ON REQUEST	C3	11.22841
63- A - 62-	5015 MUDD TAVERN RD	C3	1.426054
63- A - 19-	0 JEFFERSON DAVIS HWY	C3	40.64446
63- A - 91A	6554 S ROXBURY MILL RD	C3	1.268257
63- A - 99A	0 S ROXBURY MILL RD	C3	0.834559
63- 1 - -A	0 MUDD TAVERN RD	C3	11.54539
63- 5 - C1-	0 S ROXBURY MILL RD	C3	44.95844
63- A - 63-	5019 MUDD TAVERN RD	C3	0.811451
63- A - 70-	5211 MUDD TAVERN RD	C3	10.88431
Total			**144**
Undevelopable			**32**
Developable			**112**

PIN	Address	NewZone	Acres
63- A - 45B	0 ASSIGNED ON REQUEST	I1	1.952043
63- A - 50-	0 ASSIGNED ON REQUEST	I1	2.419173
63- A - 53-	5008 MUDD TAVERN RD	I1	0.979443
63- A - 52-	5010 MUDD TAVERN RD	I1	8.885893
63- A - 45A	0 ASSIGNED ON REQUEST	I1	3.570454
76- 2 - 12-	5061 ORROCK LN	I1	1.178565
76- 1 - 8B	5112 ORROCK LN	I1	1.490212
76- 2 - 2-	5112 OGLE DR	I1	18.20137
63- A - 45-	0 ASSIGNED ON REQUEST	I1	31.84856
63- A - 44A	6117 MALLARD RD	I1	8.531846
76- A - 59-	6013 MALLARD RD	I1	23.25422
76- 1 - 8-	0 ASSIGNED ON REQUEST	I1	14.84469
63- A - 54-	5004 MUDD TAVERN RD	I1	13.96566
63- 5 - -C	6909 S ROXBURY MILL RD	I1	129.0142
Total			**260**
Undevelopable			**14**
Developable			**246**

Source: Spotsylvania County GIS Department

Appendix I: Selected Parcels for Development — Village Center

PIN	Address	NewZone	Acres
63-12 - -C	0 ASSIGNED ON REQUEST	MU3	3.195436
63-12 - -E	6242 JEFFERSON DAVIS HWY	MU3	15.06848
63-12 - -D	0 ASSIGNED ON REQUEST	MU3	7.273089
63-13 - -A3	6370 JEFFERSON DAVIS HWY	MU3	1.022443
63-12 - -B2	0 MORRIS RD	MU3	3.120019
63-12 - -B1	0 MORRIS RD	MU3	5.201209
Total			**35**
Undevelopable			**0**
Developable			**35**

PIN	Address	NewZone	Acres
63- A - 44-	0 ASSIGNED ON REQUEST	VC	2.843761
63- A - 43C	5122 MUDD TAVERN RD	VC	10.5609
63- A - 41B	6237 JEFFERSON DAVIS HWY	VC	2.379655
63- A - 41-	0 JEFFERSON DAVIS HWY	VC	8.71742
63- A - 40-	0 JEFFERSON DAVIS HWY	VC	23.44029
63A 1 - 31-	0 ASSIGNED ON REQUEST	VC	0.43596
63A 1 - 26-	0 ASSIGNED ON REQUEST	VC	0.478521
63A 1 - 33-	0 ASSIGNED ON REQUEST	VC	0.436141
63A 1 - 30-	0 ASSIGNED ON REQUEST	VC	0.43587
63A 1 - 29-	0 ASSIGNED ON REQUEST	VC	0.43578
63A 1 - 27-	0 ASSIGNED ON REQUEST	VC	0.41483
63A 1 - 32-	0 ASSIGNED ON REQUEST	VC	0.436052
63A 1 - 25-	5312 MUDD TAVERN RD	VC	0.439219
63A 1 - 22-	5406 MUDD TAVERN RD	VC	0.432099
63- A - 41A	6241 JEFFERSON DAVIS HWY	VC	0.94253
63A 1 - 23A	0 MUDD TAVERN RD	VC	0.278653
63- A - 42-	0 MUDD TAVERN RD	VC	49.42234
63A 1 - 21-	0 ASSIGNED ON REQUEST	VC	0.559001
63A 1 - 20-	0 ASSIGNED ON REQUEST	VC	0.394429
63A 1 - 28-	0 ASSIGNED ON REQUEST	VC	0.448719
63A 1 - 23-	5400 MUDD TAVERN RD	VC	0.466561
Total			**104**
Undevelopable			**4**
Developable			**100**

Source: Spotsylvania County GIS Department