



DRAFT Loudoun 2040 Comprehensive Plan

Version Date: May 7, 2018



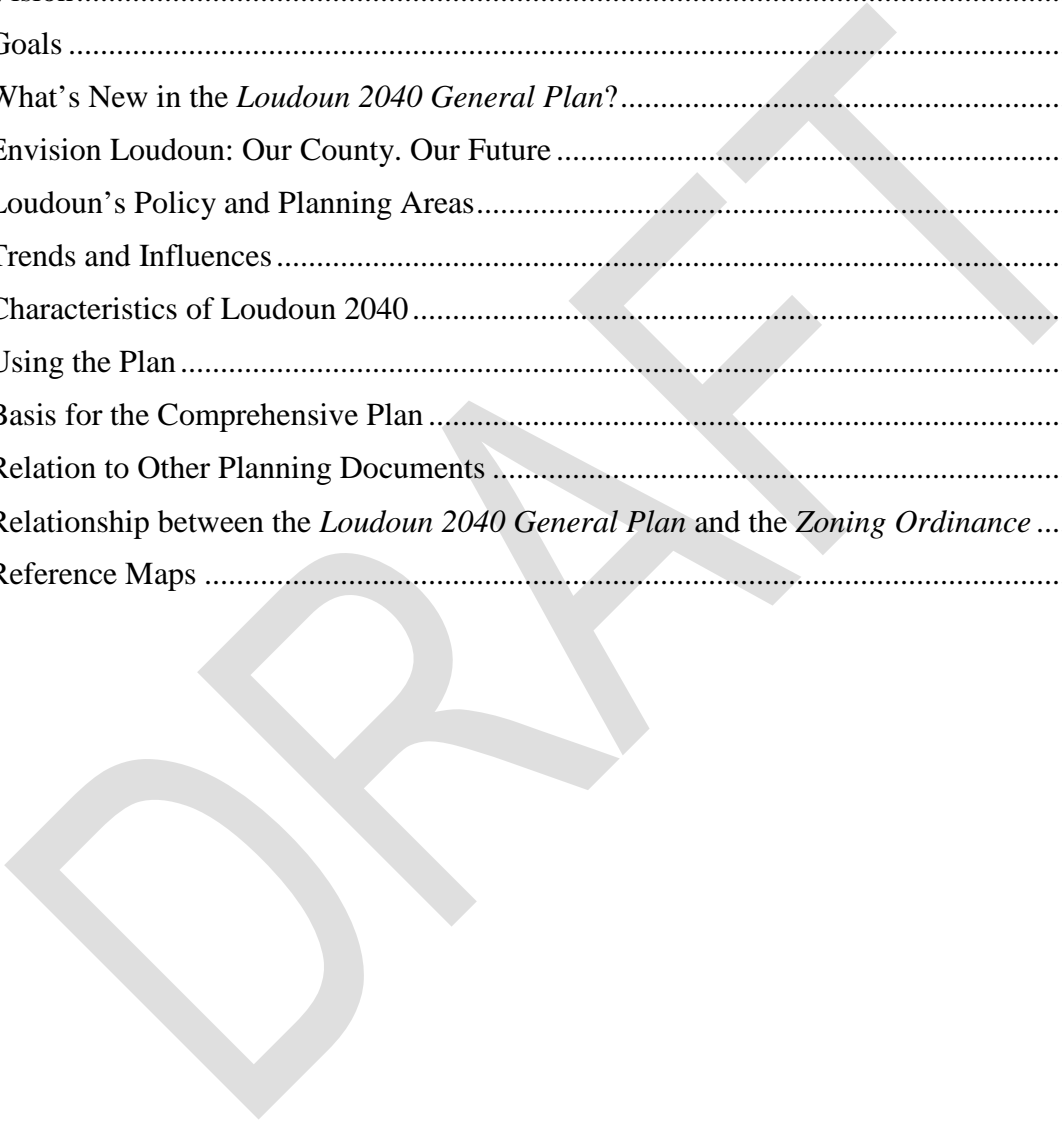
DRAFT Loudoun 2040 General Plan

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Chapter 1 - Introduction

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Chapter 1 - Introduction

Loudoun County's Comprehensive Plan, *Loudoun 2040*, includes the *General Plan* and the *Countywide Transportation Plan*. The *Loudoun 2040 General Plan* vision and goals encompass the County's desire to preserve the principles that have led to Loudoun's success, while also addressing trends and influences that will impact Loudoun's future.

Vision

Loudoun County continues to flourish as a prosperous and inclusive community with a well-deserved reputation for great places—natural and built, as well as, historic and new—in a variety of settings. The County will foster economic innovation, fiscal strength, and sustainability.

Goals

Make Great Places

Well-designed places providing a full spectrum of housing and employment options linked to supporting commercial, entertainment, educational, agricultural, and recreation activity.

Be an Economic Force

An attractive economic environment that builds on existing strengths and fosters new, innovative, and diverse business opportunities.

Bring People & Places Together

Efficient infrastructure networks that safely connect people to places within the community, to the region, and to the world.

Strengthen Natural and Historic Assets

A well-functioning system of green infrastructure preserving natural beauty, open spaces, and cultural assets to include agricultural land, natural, scenic, and historic resources.

Enhance Quality of Life

A community of diverse individuals united together to ensure that all residents enjoy a high quality of life through vibrant, fulfilling, and healthy active lifestyles, celebrating all that is unique to the County.

The *Loudoun 2040 General Plan* chapters include policies, strategies, and actions designed to achieve the stated vision and goals. For example, the Economic Development Chapter addresses how Loudoun can continue to be an economic force in the region, while the Environmental and Heritage Resources Chapter provides direction to ensure continued preservation and enhancement of the rich natural and historic assets that make Loudoun unique.

Loudoun 2040 sets forth the community-based vision and goals for Loudoun's future and serves as a Board-adopted policy document that will:

- ❖ Guide the future actions of our community in addressing the County’s most pressing challenges;
- ❖ Guide public decision-making related to public and private land development proposals;
- ❖ Serve as the foundation for planning for future service and facility needs;
- ❖ Coordinate planning efforts between Towns and adjacent jurisdictions; and
- ❖ Guide annual work plans for County Departments.

What’s New in the *Loudoun 2040 General Plan*?

Loudoun County has been successful in managing unprecedented growth through policies designed to preserve the environment, heritage resources, and the quality of life for the County’s residents. In addition to retaining many relevant and enduring policies that continue to serve Loudoun well, the *Loudoun 2040 General Plan* incorporates new tools to address the needs of the future.

Urban Policy Areas

The *Loudoun 2040 General Plan* establishes new Urban Policy Areas to support economic growth, offer a diversity of housing to meet changing housing needs, and allow for innovation and changing market demands. The Urban Policy Areas surrounding the Silver Line Metro Stations allow for higher density and intensity, transit-oriented mixed uses, and high-quality development to allow residents to live, work, and play in a vibrant urban environment. The Urban Policy Area along Harry Byrd Highway (Route 7) allows lower intensity than near the Metro Stations, walkable mixed-uses, and transit-oriented development to provide a more urban community with easy access to Route 7 and Sully Road (Route 28).

Economic Leadership

The *Loudoun 2040 General Plan* acknowledges that the economy has changed significantly since 2001 and includes new policies and strategies to continue Loudoun’s remarkable success as an economic leader in the region. Focus is placed on remaining a desirable location for targeted industries by designating mixed-use employment areas where the primary use would be employment, while also allowing higher density housing and other non-residential uses nearby, enabling people to live near their places of employment. The *Loudoun 2040 General Plan* also concentrates the majority of new office development adjacent to the future Metro Stations. Additionally, agriculture-based businesses are on the rise and focus is placed on preserving and enhancing this unique and valuable economic sector.

Natural and Heritage Resources

The gently rolling hills leading to the Blue Ridge Mountains to the west and the Potomac River to the north provide scenic viewsheds and recreational amenities for Loudoun County’s residents and visitors. Loudoun County has long recognized the importance of protecting the County’s unique network of natural and heritage resources and has adopted policies to ensure their preservation. The *Loudoun 2040 General Plan* emphasizes the need to improve this network through new

approaches to enhance publicly-accessible and high-quality open space and trails that will provide additional linkages to these resources throughout the County. Improving air and water quality is also given high priority, as the growing population in Loudoun and the region places new stresses on these vital resources.

Housing Choices and Diversity

An adequate supply of housing—varied in type and price, both rental and for-sale, in convenient locations—is a fundamental component of a complete, inclusive, and enduring community. Demand is increasing for new housing types and a quality urban lifestyle with affordability a high priority. The *Loudoun 2040 General Plan* seeks to address this demand by providing policies to encourage a greater diversity of housing types, including affordable and workforce housing, near jobs, schools, and transportation facilities. Policies, strategies, and actions seek realistic methods to provide appropriate incentives to increase workforce and affordable housing with new development.

Infill and Redevelopment

With a limited amount of land designated for new housing, the County is transitioning from a greenfield community to a developed community. The *Loudoun 2040 General Plan* responds to this transition by proposing increased residential densities for infill properties with a focus on promoting smaller lots and more attainable and diverse housing. Policies, strategies, and actions also encourage more flexible regulations, appropriate and realistic incentives for redevelopment of older non-residential areas, and exploring opportunities for adaptive reuse.

Envision Loudoun: Our County. Our Future

The *Loudoun 2040 Comprehensive Plan* was developed through the Envision Loudoun planning process, which brought people together from across the County to identify the community's desires for the future of Loudoun County. Envision Loudoun was a rare opportunity to plan for future growth, land use, transportation, natural and heritage resources, community facilities and amenities, economic development, and fiscal management. Approximately 2,500 people participated in Envision Loudoun, in person and online, and provided over 9,000 ideas for the County's future. The *Loudoun 2040 Comprehensive Plan* is an expression of the community's needs and desires for a vibrant, diverse, and dynamic community and serves as a guide for the future of Loudoun County.

Additional information regarding the Envision Loudoun Planning Process can be found in [a future Appendix].

Loudoun's Policy and Planning Areas

The framework for land planning in Loudoun County consists of four types of Policy Areas—Urban, Suburban, Transition, and Rural—and several smaller planning areas designated as Joint Land Management Areas and Rural Villages. These Areas represent distinct planning communities that warrant specific policies, strategies, and actions tailored to address the unique needs of each area.

Suburban Policy Area

The 46,000-acre Suburban Policy Area comprises the eastern third of the County and is where most of the residential and commercial growth has occurred since the 1960's. Route 28 and Loudoun County Parkway (Route 607) form the County's "data center alley," having evolved into an international center for technology, communications, and global data management. The area around Washington Dulles International Airport (IAD) is expected to continue to play a major economic role for Loudoun County as a key location for industrial and airport related business development. With limited undeveloped land remaining in the Suburban Policy Area for residential development, this Plan allows for an increased amount of mixed-use development and greater flexibility in development patterns to encourage more affordable and diverse housing options to meet changing market demands and provide employment opportunities.

Urban Policy Areas

The Urban Policy Areas encompass approximately 4,000 acres in areas around the Silver Line Metro Stations and the Route 7 and Route 28 interchange. The three Urban Policy Areas represent major growth opportunities for the County with mixed-use and transit-oriented land uses and development intensity not previously contemplated. The Urban Policy Areas around the Silver Line Metro Stations are intended to become complete communities that accommodate living, working, shopping, learning, and playing in close proximity to Metrorail. The Urban Policy Areas are designed for a high-quality public environment with accessible and connected spaces and a rich mix of uses that give a sense of place and distinctiveness. These areas will be urban communities with development types, patterns, and densities that will create jobs, grow the tax base, and be fiscally sustainable.

Rural Policy Area

The 230,000-acre Rural Policy Area comprises nearly two thirds of Loudoun's land area in the western portion of the County and contains twelve historic Rural Villages. This area is planned for limited residential development and supports a robust rural economy. Protection of the Rural Policy Area helps to ensure the preservation of farmland, natural and heritage resources, open space, and vistas that are vital aspects of Loudoun's identity.

Transition Policy Area

The Transition Policy Area is a 24,000-acre area along the western edge of the Suburban Policy Area and is intended to be a land use transition between the Suburban and Rural Policy Areas. The area is predominantly residential with some industrial spaces focused on quarry activity and energy infrastructure. Large amounts of open space, trails, and parks are encouraged to provide recreational opportunities for residents of the entire County and to provide a visual transition between the east and west.

Towns and Joint Land Management Areas

Loudoun County's seven towns exercise planning and zoning controls within their corporate limits. In addition to the four Policy Areas, the County has partnered with several of its towns to develop Joint Land Management Areas (JLMA) around the edges of the towns. A JLMA is a planning area where Loudoun and each respective town set the limits for municipal water and

sewer extension. These JLMA planning areas effectively serve as a growth boundary for each town and are intended to manage new growth and expansion outward from the towns.

Trends and Influences

The County has accommodated a high rate of growth over the past five decades by concentrating new development in the Suburban Policy Area where utilities and roadways can serve the population more efficiently. Accommodating the planned growth, while maintaining a rural landscape and agricultural economy in the West, is one of the reasons that Loudoun is recognized as one of the best counties in the United States to live, work, and play.

Loudoun will continue to be an attractive place for development given its geographic location in the Washington D.C. Metropolitan Area, high school system performance, and notable quality of life measures. The *Loudoun 2040 General Plan* acknowledges several key trends and influences that will affect the County's future.

Silver Line

The County's connection to the regional Metrorail network through the Silver Line extension will have significant impacts on Loudoun's future development potential and provide new residential and non-residential real estate products not previously available in Loudoun. The extension of the Silver Line represents a new chapter in Loudoun's future, creating the opportunity to develop vibrant, high density, mixed-use, urban environments, where people can live, work, and play in close proximity to regional transit.

Work-Life Balance

With a focus on the growing workforce, the business industry is recognizing that technology is fading the line between work and life. Many professionals seek a different type of work environment, one that is fluid and best achieved in attractive urban or mixed-use locations where a "live, work, play" environment is both convenient and productive.

New Development

The County's population has grown from 169,000 in 2000 to approximately 400,000 in 2018, more than doubling in size. In addition, Loudoun's reputation as America's "data center capital" and its proximity to the Washington Dulles International Airport and Washington, D.C. will continue to drive development within the County. These factors, as well as the extension of the Silver Line, positive economic conditions, and Loudoun's reputation for a high quality of life, indicate that the demand for residential and non-residential growth will continue. With limited land available for development in the Suburban Policy Area and the County's desire to protect the unique character of the Rural Policy Area, redevelopment and infill of existing sites or underutilized land with access to public infrastructure will be increasingly important. Balancing the need for new growth with the demands on public infrastructure, particularly transportation and schools, will also be a high priority.

New Housing Types

National trends show that smaller households, such as aging seniors, couples without children, and single persons, may demand different housing types, public services, and lifestyle options than

provided in the past. There is also a general trend toward more people living in multigenerational households, where extended family lives together. Multigenerational households may require different types of housing options, with more bedrooms, bigger common areas, accessory apartments, in-law suites, or other attributes that help accommodate the needs of multiple generations living together.

Affordable/Attainable Housing

As of 2017, Loudoun ranked number one in the country for the highest median household income for the tenth straight year, yet housing affordability and attainability remain a significant challenge in the County and the region. Limited housing supply and high demand presents difficulties for employers in attracting employees and contributes to workforce instability, especially in lower paying industries. This challenge also leads to long commutes from jobs to more affordable housing outside of Loudoun and the region, which causes increased congestion on area roadways.

Population Diversity

Between 2000 and 2016, the percentage of Loudoun's population identifying as Hispanic or Latino increased from 6.0 percent to 13.7 percent in the County. During the same time period, the percentage of people identifying as Asian grew from 5.6 percent to 18.7 percent. The percentage of residents identifying as Black or African American is also growing, though at a much slower rate, increasing from seven 7.0 percent to 7.7 percent. Overall, Loudoun's foreign-born population has increased from 11.3 percent in 2000 to 23.9 percent in 2016. This growth has led to greater diversity in service demands, expanded retail and entertainment opportunities, changes in housing needs, and overall expanded economic growth of the community.

Characteristics of Loudoun 2040

The *Loudoun 2040 General Plan* is designed to be strategic, easy-to-understand, overarching, and responsive. The Plan is designed to be functional, providing easily accessible and useful guidance for decision-makers and the public.

Strategic

The *Loudoun 2040 General Plan* is designed to address the future needs of the community in a well-planned and deliberate manner with economic feasibility a high priority. The Policies, Strategies, and Actions are intended to be fiscally sound and serve as a foundation for economic prosperity for the County.

Easy to Understand

The *Loudoun 2040 General Plan* is meant to be clear, concise, and easy to use. Illustrations, page format, and methods of conveying information are intended to provide a high level of functionality and accessibility to the general public.

Overarching

The *Loudoun 2040 General Plan* includes a broad vision and goals for Loudoun and serves as a bridge between numerous plans and functions within the County. Integration with other relevant County plans and policies is an essential component to ensure a cohesive strategy for meeting the future needs of the community. The *Loudoun 2040 General Plan* is designed to be sufficiently

comprehensive to ensure wide-spread implementation and instill confidence in its ability to realize the community's vision and goals.

Flexible

The ability to adapt to rapidly changing technologies, demographics, and markets is a crucial characteristic of the *Loudoun 2040 General Plan*. Accommodating opportunities for innovation and change, without losing sight of the County's vision and goals, provides a planning approach that can endure over time.

Using the Plan

The *Loudoun 2040 General Plan* begins with overarching vision and goals, sets forth policies for various topics, then focuses in to specific strategies and actions. These components are designed to be evaluated as a whole and individually to carry out the vision and goals.

The *Loudoun 2040 General Plan's* guidance is set out through:

- The Vision and Goals that provide overall guidance,
- Policy statements that provide the approach to decision-making for topics or issues to achieve the overall vision and goals,
- Strategies providing more focused, measurable guidance for decision-making on specific aspects of a topic or issue, and
- Actions that target specific steps to realize the vision and goals.

Basis for the Comprehensive Plan

The basis for the *Loudoun 2040 Comprehensive Plan* is rooted in the Code of Virginia §15.2-2223. The County's Planning Commission is responsible for preparing and recommending elements of the County's Comprehensive Plan to the Board of Supervisors, which adopts the Plan. Within statutory limitations afforded by the Dillon Rule, the County can manage development in accordance with the policies of its Comprehensive Plan.

Relation to Other Planning Documents

The *Loudoun 2040 Comprehensive Plan* serves as the "umbrella" document for the County's planning efforts and consists of the *Loudoun 2040 General Plan* and the *Loudoun 2040 Countywide Transportation Plan*. The *Loudoun 2040 Comprehensive Plan* supersedes the previous *Revised General Plan* (2001) and amendments thereto, specific area plans, strategic plans, and the *Revised Countywide Transportation Plan* (2010). The Comprehensive Plan provides guidance and policy for the County and is implemented through zoning ordinances, subdivision regulations, legislative processes for land development, service plans, construction permitting, the physical act of constructing facilities and infrastructure, and other planning documents and tools. Additional information regarding the relationship between the *Loudoun 2040 Comprehensive Plan* and other planning documents can be found in [a future Appendix].

As the County’s various built and natural landscapes evolve, additional detailed planning, such as small area plans, will become increasingly important to retaining the unique environments present in Loudoun County.

Relationship between the *Loudoun 2040 General Plan* and the *Zoning Ordinance*

The *Loudoun 2040 General Plan* sets forth the community-based vision for Loudoun’s future and is a policy document that provides guidance to the County’s decision makers regarding land development, capital improvements, and public programs. The County’s Zoning Ordinance actually establishes the rules governing the use of land. The Zoning Ordinance’s regulations specify permitted uses on properties, establish the density and intensity of development, and establish design parameters for developments. These regulations also provide “entitlements” or certain rights of property owners to develop their property.

Reference Maps

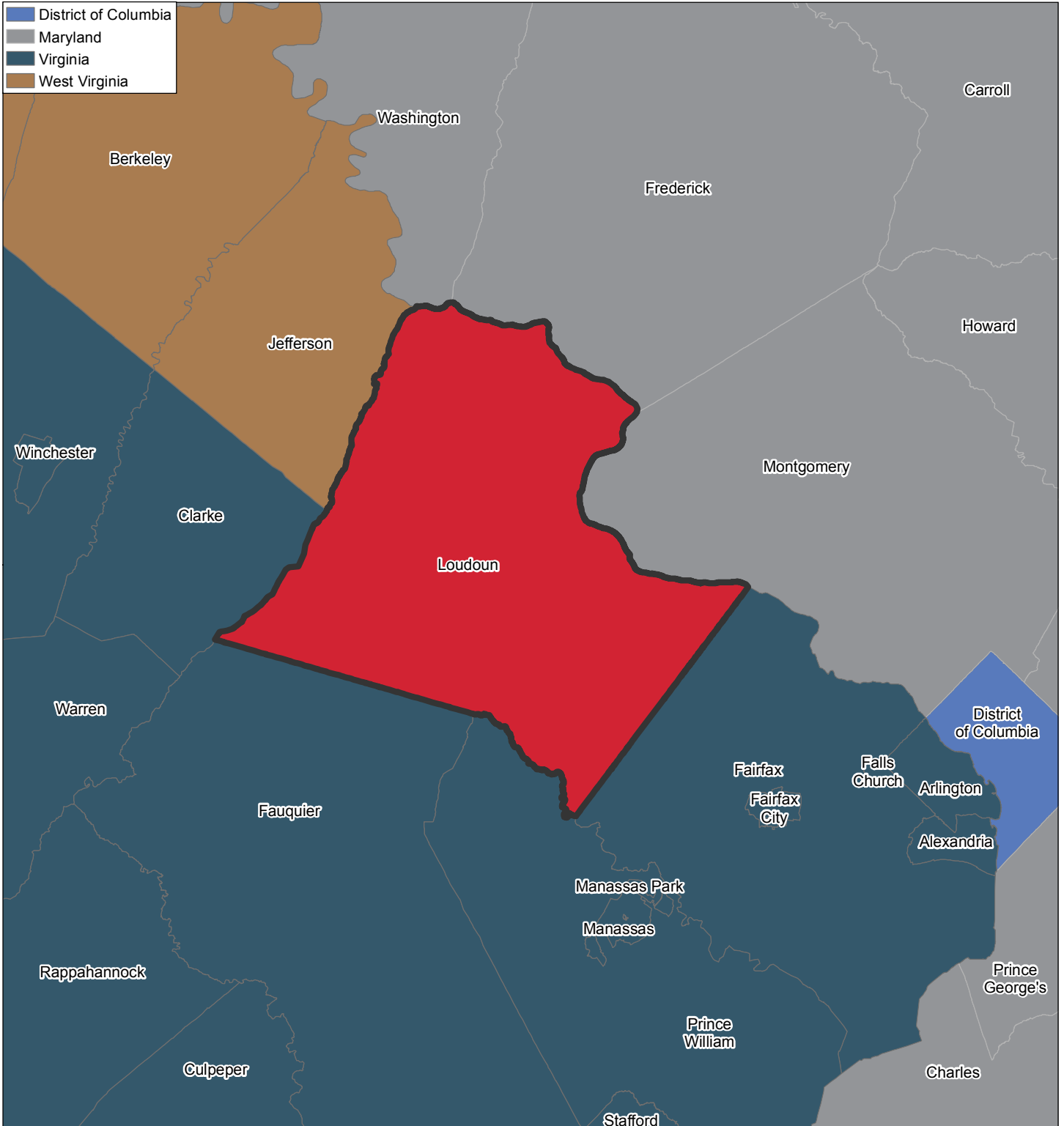
Loudoun County and Surrounding Area (Map #2018-153)

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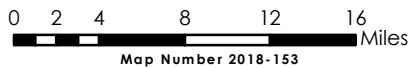
Loudoun County
**Loudoun County and
 Surrounding Area**
 2040 General Plan



- District of Columbia
- Maryland
- Virginia
- West Virginia



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Chapter 2 - Land Use

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Chapter 2 - Land Use

Vision

Loudoun will carry forth our successful land use and growth management policy while promoting the well-planned development of unique and appealing places providing a full spectrum of housing and employment options that are linked to supporting commercial, entertainment, educational, agricultural, and recreational activity.

Introduction

Loudoun County has accommodated a high rate of growth over the past decades by concentrating new development in the eastern portion of the County where utilities and roadways have been constructed to serve the population efficiently. Accommodating the planned growth while maintaining a rural landscape and agricultural economy in western Loudoun is one of the reasons that the County is recognized as one of the best counties in the United States to live, work, and play. Much of Loudoun's success is due to land use planning that has guided, managed, and directed growth to appropriate locations. Loudoun County's growth management strategy has comprised an approach that 1) focuses the location and intensity of development in eastern Loudoun and around towns, which maintains the agricultural character, pastoral landscapes, and natural resources of the County's rural areas; 2) uses service standards and development forecasting to plan the location and timing of investments in infrastructure, facilities and services; and 3) calculates a fair share contribution by new development towards associated capital facility impacts. This approach recognizes that more concentrated population centers better facilitate the provision of emergency response services, roads, utilities, and public facilities. Further, the location of such services and facilities often guides subsequent development patterns. By concentrating these services in the more developed areas of the county and appropriately scaling their availability and levels of service in the less developed areas, the County facilitates growth patterns that help achieve long-term land use and fiscal goals.

Loudoun will continue to be an attractive place for development given its geographic location, school system performance, and notable quality of life. However, new land use policies and approaches are needed to address a limited land supply, the County's connection to the regional Washington Metropolitan Area Transit Authority (WMATA) Metrorail network through the Silver Line extension in 2020, and the growing demand for new development options.

Priority Areas for New Growth and Development

Building upon the County's successful planning policy, the land use policies of the *Loudoun 2040 General Plan* (Plan) are largely organized by geographic Policy Areas that serve to prioritize areas for new growth and development based on the availability of existing and planned infrastructure and public facilities. Accordingly, this chapter describes the four Policy Areas that provide the geographic framework for the County's growth management and land use strategies. The Plan includes the Suburban Policy Area (SPA), Transition Policy Area (TPA), and Rural Policy Area (RPA) from the previous *Revised General Plan* and establishes new Urban Policy Areas (UPA) in eastern Loudoun County.

The UPA encompasses three areas—two areas around the Silver Line Metro stations, which are designated for the greatest intensity of development in Loudoun County, as well as an area around the Harry Byrd Highway (Route 7) and Sully Road (Route 28) interchange of significant but lesser intensity. All three areas represent major growth opportunities for the County and are planned to provide for walkable mixed-use and transit-oriented development that will more efficiently absorb much of the County’s anticipated growth, offer a diversity of housing to meet changing housing needs, and offer flexible land use policies to allow for innovation and changing market demands. The UPAs are intended to become complete communities that accommodate living, working, shopping, learning, and playing in dense urban environments that become centers of activity for the entire county.

The SPA continues to be planned for additional growth and development though at a lesser intensity than the Urban Policy Areas. However, the significant development of the SPA in recent decades has increasingly limited the amount of undeveloped land remaining for new development. This represents a significant juncture in the County’s planning and development history as development efforts will be forced to increasingly prioritize infill development on the few remaining vacant parcels in the SPA as well as the redevelopment and adaptive reuse of existing buildings.

The TPA continues to be planned as a land use transition between the Suburban and Rural Policy Areas. Accordingly, the TPA is predominantly residential, with limited commercial and industrial uses. The design of land uses in the TPA are intended to provide a visual transition between the east and west with areas of greater intensity taking on traditional village forms. Development throughout the area is characterized by significant amounts of open space, which helps limit the intensity of uses.

The RPA comprises nearly two thirds of Loudoun’s land area in the western portion of the County and contains twelve historic Rural Villages. This area is planned as an enduring rural landscape of working agricultural lands, rural economy uses, and limited residential development. Protection of the RPA helps to ensure the preservation of farmland, natural and heritage resources, open space, and vistas that are vital aspects of Loudoun’s identity.

Place Types

While the four Policy Areas described in this chapter provide the geographic foundation for the County’s growth management and land use strategies, the County’s policies require further refinement to ensure that they have an overall ability to adapt to the rapidly changing technologies, demographics, and markets currently affecting the County and its increasingly diverse community. Therefore, the County’s policies have been designed to be applied flexibly to accommodate opportunities for innovation and change without losing sight of the County’s vision and goals. This flexibility provides a planning approach that can endure, and key to this flexibility is the concept of “Place Types.”

A Place Type is a new, more flexible and comprehensive approach to land use planning. The approach differs from traditional land use planning in that it provides a way to shape the future of Loudoun by concentrating on context—the look and feel of places, their form and their character—

instead of focusing only on conventional land use categories and specific uses. A number of Place Type categories tailored to Loudoun define not only the basic expectations for permitted land uses for specific areas in the County, but also preferred development patterns, streetscapes, and design features that make places and environments visually interesting and functional for people.

Place Types allow for a wide variety of predominant and secondary uses to create distinct and “complete” residential neighborhoods, employment centers, open spaces, and other areas. By providing greater flexibility in development types and mixed uses, Place Types can also contribute to a livelier urban environment and allow for established areas to evolve and improve. Through the use of Place Types in the *Loudoun 2040 General Plan*, the County aims to achieve Loudoun’s vision for a prosperous and inclusive community consisting of great places in a variety of settings.

What Makes a Place?

Every place leaves an impression on the people who live there, work there, or visit for short or longer periods. This impression, something we usually refer to as a “sense of place,” is built from several aspects, including:

- The size and scale of the buildings and the spaces between them,
- The uses in the buildings (although these may change over time),
- The patterns of activity in the spaces between buildings,
- Views to and from the buildings and spaces, and
- Special details such as historic structures, attractive landscape elements, and public artwork.

All these elements help to define a place in our minds and give it a distinct identity. It is this human dimension of Place Types—they relate directly to the way we experience our environment—that makes them such a useful tool in describing the type of development desired in Loudoun County.

Using Place Types

The Place Types described in this chapter have been carefully chosen to reflect the built and natural character of the County. Each Place Type has been created around factors such as:

- General development pattern (e.g., clustered, separated uses, or mixed uses)
- Residential development density
- Non-residential development density
- Building heights and setbacks
- Block size and type (e.g. orthogonal or curvilinear)
- Configuration of public open space (e.g. streets, plazas, parks, etc.)
- Configuration of parking (e.g. on-street, surface lot, deck, etc.)

Collectively, the defined elements of each Place Type help to ensure that future development creates the desired character and function.

With Place Types, there is an equal emphasis on the use of land and/or buildings and design. This makes Place Types especially useful tools to guide future decisions regarding growth and development in each community, taking into account variable priorities such as: economic

development, land preservation, protection of natural and heritage resources, efficient transportation options, and the provision of public facilities and services.

Place Types are not meant to be synonymous with traditional use-based zoning districts; they are simply a direct way of connecting the day-to-day experiences and preferences of the community with the more specialized and technical world of land use planning. The *Loudoun 2040 General Plan*'s Place Types will be:

1. Used to identify and describe the present condition and environment of our community's places and the desired future for those areas;
2. Mapped similarly to a traditional future land use map and used to determine change; and
3. Linked to a future comprehensive Zoning Ordinance revision, which will create a new set of zoning districts and enhanced development standards that better align with the desired character of place.

Loudoun's Place Types have been primarily organized by Policy Area and reflect the unique form and character desired for each Area. Overviews of each of these Place Types can be found in the appropriate Policy Area section of this chapter. However, there are two Place Types that can be appropriately applied in all of the Policy Areas: 1) Parks and Recreation and 2) Special Activity. Overviews of these two Place Types are found on the following pages. Each Place Type overview includes a general description, lists of predominant and secondary uses, and guidelines for form and character.

Parks and Recreation



General Description:

Parks and Recreation areas provide dedicated space for active and passive activities throughout Loudoun County at both publicly and privately-owned facilities. Provided areas are safe and for all ages, interests, and abilities and will reinforce a sense of community identity. The purpose of this place type is to identify these important features that are a core component of Loudoun’s high quality of life. Residents and visitors will have the opportunity to recreate, improve health, and convene in nature.

Public parks and recreation facilities will be managed and improved over time per the Parks, Recreation, and Community Services Master Plan as well as the plans of the Northern Virginia Regional Park Authority to optimize use of facilities and parkland.

Predominant Uses:

- Public Parks (Active & Passive)

Secondary Uses:

- Private Parks
- Sports Fields
- Recreational Centers
- Golf Courses
- Natural Areas
- Public Facilities
- Sports Arena/Training Facility

Form and Character Guidelines:

| Use Pattern | Separate Uses |
|--|---------------------------|
| Res. Density | n/a |
| Nonres. FAR | n/a |
| Land Area Mix (R: Residential, NR: Non-residential, PC: Public/Civic) | R:0% NR:0 % PC:100% |
| Bldg. Height | n/a |
| Minimum Open Space | n/a |

Special Activity



General Description:

Special Activity areas include unique regional destinations for special activities, such as large conferences, sporting events, or corporate and professional trainings. These Special Activity areas may include some employment and retail uses that support the operation of the special activity and complement business development and retention by providing educational spaces and training opportunities. Desirable amenities being developed in these areas support a growing workforce in the County.

The kind of block structure and building setbacks appropriate for special activities varies with the specific use and context. Parking should be predominantly structured with accommodations for on street parking and limited surface lots.

Predominant Uses:

- Conference Center
- Sports Arena /Training Facility
- Regional Destination

Secondary Uses:

- Hotel
- Office
- Retail & Service Commercial
- Civic, Cultural, & Community
- Institutional
- Public Facilities

Form and Character Guidelines:

| | |
|---|---|
| Use Pattern | Separate or Vertically Mixed Uses |
| Res. Density | n/a |
| Total FAR | Up to 2.0 |
| FAR Mix (R: Residential, NR: Nonres, PC: Public/Civic) | R: 0% NR: 0-100% PC: 0-100% |
| Bldg. Height | No maximum |
| Minimum Open Space | Suburban: 30% of site Urban: 10% of site |

Quality Development

Introduction

Loudoun County has consistently focused on promoting a high quality of life for its residents by establishing standards that encourage high-quality developments. Quality Development is the term that this Plan will use to refer to a broad area of topics that are related to the desired visual and physical qualities of new development. These qualities include:

- Sensitive integration of the natural and built environments
- Context-sensitive site and building design that promotes compatibility between adjacent developments and land uses
- Well-designed architecture that promotes visual appeal and interest throughout the County
- Sustainable energy technology
- Pedestrian and bike-friendly environments that promote activity and connectivity in spaces between buildings and developments
- Accessible and connected parks and open spaces

By encouraging quality development, distinctive identities can be realized through the use of high-quality design, siting, landscaping, architecture, signage, sustainability, and other design elements. Loudoun County encourages compact patterns with an emphasis on high-quality design, walkability, and public spaces that can be integrated into the evolution of existing places and in the design of new developments.

Quality Development is a complex topic that touches upon many aspects of daily life. It helps define where and how we live, work, and play in the County. The vision for the *Loudoun 2040 General Plan* identifies quality of life and sustainability as key pieces of Loudoun County's future. The County has consistently focused on promoting a complementary mix of land uses and project designs that ensure the long-term sustainability, or environmental and economic health, of both the individual development and the broader community. To maintain and improve the quality of life in Loudoun County, this chapter presents Countywide policies that will allow the County to address future growth and change. More specific information on multimodal transportation, complete streets, infill development, and conservation is provided in the *Loudoun 2040 Countywide Transportation Plan*, the Infill and Redevelopment section of this chapter, and the Natural and Heritage Resources chapter of this Plan.

The *Revised General Plan* held over 70 pages of design guidelines. In order to streamline the presentation of these ideas, each Policy Area section of this Plan includes its own design guidelines, while other guidelines are featured in each chapter as call out boxes. Loudoun County's zoning regulations support quality development through a variety of interrelated provisions. Fundamentally, the lot and building standards applicable in each zoning district are intended to ensure the proportionality of new development to the surrounding community with the integration of open space as a design component in all geographic settings. The County's zoning regulations also enhance the quality of new development through requirements for minimum tree canopy, buffer landscaping and screening, and increased setbacks from major road corridors. In addition

to the Zoning Ordinance, Loudoun County has a history of accepting proffered design guidelines as a component of the rezoning or legislative application process to help ensure quality design of buildings, development sites, and civic/public spaces.

Sustainability

Sustainability is an integral component of Quality Development. Sustainability seeks to achieve economic development, social development, and environmental protection in a balanced manner. Many have defined sustainability as development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Over the last several decades, Loudoun County has infused sustainability into the community fabric in order to foster a high quality of life. The County will continue its leadership and infuse a sense of responsibility among all sectors of the community to take a more active role in sustainability.

Sustainable development calls for practices that are cost-effective, enhance human health and well-being, and protect and restore the environment. The County has developed and implemented the following programs and plans that demonstrate the County's commitment to a more sustainable community:

- [*Clean Waters Initiative*](#), which hosts educational and partner projects, from floating wetlands, to native tree planting, to rain gardens, to pasture and crop management, to stream protection.
- [*The Loudoun County Energy Efficiency and Conservation Program*](#), which provides leadership, guidance, education, and technical expertise to reduce energy consumption, improve energy efficiency, reduce energy costs, and facilitate energy conservation in County facilities.
- [*Energy Strategy 2009*](#), a 30-year road map of energy strategies for the Loudoun County government and community.
- [*Environmental Policy*](#), which provides outreach and guidance regarding pollution reductions set by the Total Maximum Daily Load (TMDL), which was established by the Environmental Protection Agency (EPA) for the Chesapeake Bay. Monitors environmental legislation and regulatory activity that may have an impact on Loudoun County operations.
- [*Stormwater Management Program*](#), which addresses the design, development, improvement, operation, inspection, maintenance, and oversight of the stormwater management system.
- [*Water and Wastewater Needs Assessment Implementation Work Plan*](#), the work plan built on the 2011 assessment by systematically developing relationships, policies, and procedures that were necessary to address identified water and wastewater issues.

From Fiscal Year (FY) 2010 to FY 2018, the County's Energy Usage at government facilities shifted from 56 percent Electric, 40 percent Natural Gas, 1 percent Oil, and 2 percent Propane to 75 percent Electric, 24 percent Natural Gas, and 1 percent Oil. As a result of rapid growth from FY 2010 to present, electricity usage almost doubled from 23,258,543 kilowatt hours (kWh) to 45,848,354 kWh. However, increases in natural gas usage have been minimal. The County

monitors inefficient energy sources at government facilities and eventually shifts to an alternative source of energy. As an example, Loudoun County converted Purcellville Library's oil HVAC system to electric and propane.

Energy use is the major human cause of greenhouse gases. The electricity sector is currently the largest emitter of greenhouse gases, followed by the transportation sector; industry, commercial, and residential fuel use; and agriculture. In 2007, the County Energy Strategy (CES) identified that if Loudoun County remained on a business-as-usual track with its countywide growth, then by 2040 the County would require 46 percent more energy to manage the expected growth, while accounting for some expected improvements in the efficiency of both existing structures and new construction. Over the same period, total greenhouse gas emissions would increase by 50 percent.

The County enforces the 2012 International Energy Conservation Code (IECC), the most current model code establishing the minimum design and construction requirements for energy efficiency. County policies have a goal of constructing County facilities to Leadership in Energy and Environmental Design (LEED) Silver, or equivalent standards, where it makes sense to do so. Green building rating systems allow a consistent metric for measuring site development and building performance. Also, rating systems raise the awareness of the environmental impacts of site development and buildings and help determine measures to minimize those impacts.

Principles

The following principles guide the Quality Development policies, strategies, and actions of the *Loudoun 2040 General Plan*:

- Make a great place through quality development that complements, strengthens, and benefits surrounding communities.
- Encourage a mix of complementary land uses and project designs that ensure the long-term sustainability, or environmental and economic health, of both the individual development and the broader community.
- Foster distinctive identities through the use of high quality design, siting, landscaping, architecture, signage, sustainability, and other design elements.
- Integrate land use and transportation policies to prioritize development first at the Metrorail Stations to provide the most compact and accessible development.

Policies, Strategies, and Actions

Unless otherwise specified, the following policies, strategies, and actions apply Countywide.

Policy I: Provide flexible design guidelines in all Policy Areas in the County and in priority areas of the County create more specific design guidelines that encourage innovation.

Strategy

- 1.1. Identify and prioritize areas in the County for more specific design guidelines.

Actions

- A. Develop a user-friendly, illustrative design handbook(s). Promote an overall sense of place through design elements that relate to block size, circulation and connectivity, streetscape and street sections, building form, placement (setbacks), orientation, articulation, Parks and Open Spaces, Public and Civic uses, landscaping, and sustainability.
- B. Create incentives that provide the opportunity to implement design guidelines.

Policy 2: Development must create a walkable pattern of compact development that is implemented by smaller blocks, shorter distances, inter-parcel connectivity, greater diversity of uses on the same street, and connected open spaces that facilitate interaction of people and offers a more affordable and convenient lifestyle.

Strategy

- 2.1. Ensure related County guidelines and regulations encourage this compact, walkable development pattern.

Action

- A. Update County regulations to support this compact, walkable development pattern.

Policy 3: Development must provide diverse environments and experiences.

Strategy

- 3.1. Ensure development considers its context and development potential by integrating uses and the natural environmental features from site to site.

Actions

- A. Develop flexible guidelines and regulations that support diverse environments and experiences.
- B. Create incentives to ensure a mix of environments and experiences within a development.

Policy 4: Space is designed to maximize pedestrian and bicyclist activity, comfort, and convenience.

Strategy

- 4.1. Development must ensure pedestrian and bicyclist connectivity and safety while pursuing high-quality design.

Actions

- A. Create guidelines and regulations that ensure bike lanes, shared spaces, and paths of travel.
- B. Create guidelines and regulations that ensure innovative traffic calming designs.

Policy 5: Development should encourage greater interaction between activity inside buildings and the public realm.

Strategy

- 5.1. Ensure that design guidelines emphasize the quality of experience in public spaces.

Action

- A. Develop eye-level design guidelines, regulatory features, and additional design elements that contribute to the quality of the human experience of space and the built environment.

Policy 6: Development with high-quality design and a mix of uses encourages longer stays in spaces and activity in order to create vibrant areas and create a sense of place.

Strategy

- 6.1. Inviting areas will have high-quality design elements that encourage longer stays which increase the vibrancy of areas such as public/civic gathering spaces, outdoor rooms, public art spaces, and passive/active recreation spaces.

Action

- A. Create guidelines that ensure the siting of public seating, art, landscaping, outdoor rooms, safety, and other innovative elements that maximize public life opportunities.

Policy 7: Encourage high-quality architectural, site, and landscape design in all development.

Strategy

- 7.1. General nonresidential/commercial design guidelines will encourage architectural creativity and diversity within the framework of the community's scale and massing.

Action

- A. Develop a user-friendly, illustrative design guideline handbook for nonresidential/commercial development in priority areas.

Strategy

- 7.2. Encourage the submission of site development and architectural guidelines for new developments, where applicable.

Policy 8: Encourage sustainability efforts throughout the County and within all sectors.

Strategy

- 8.1. Support sustainability practices within the Loudoun County Government.

Actions

- A. Continue to evaluate the energy demands of government buildings as well as transportation needs and develop plans for energy efficiency.
- B. All county-constructed facilities have a goal to be constructed to LEED Silver, or equivalent standards.
- C. Continue to evaluate all sustainability efforts.
- D. Support Loudoun Water in the expansion of the reclaimed water network.

Strategy

8.2. Support environmental practices for all sectors in Loudoun County.

Actions

- A. Update and implement the County Energy Strategy (CES) to reduce the impacts of climate change.
- B. Evaluate the energy demands of residential and non-residential buildings, including data centers as well as transportation needs and develop plans for energy efficiency.
- C. Encourage benchmarking the energy use of existing and planned County buildings to establish a baseline for energy demand estimates.
- D. Research and support opportunities for micro-grid energy and district energy systems.
- E. Incorporate green infrastructure and Best Management Practices (BMP) into County Energy Strategy.
- F. Encourage the use of Commercial Property Assessed Clean Energy (C-PACE) and research and support residential PACE program.

Strategy

8.3. Support sustainable economic practices.

Policy 9: Encourage sustainable development practices, including long-term water conservation, green building principles, sustainable site design, renewable energy, adaptive re-use of historic structures, and integrated energy management planning.

Strategy

9.1. Promote water conservation through innovative, cost-effective reuse systems, domestic water saving devices, and low impact development techniques, which integrate hydrologically functional designs with methods for preventing pollution and educational programs.

Actions

- A. Educate and encourage the harvesting of rainwater for non-potable use, such as landscape irrigation.
- B. Establish incentives for sustainable development.

Strategy

- 9.2. Promote the use of salvaged, recycled, or locally produced materials whenever possible.

Strategy

- 9.3. Evaluate the establishment of Eco-districts within the County.

Strategy

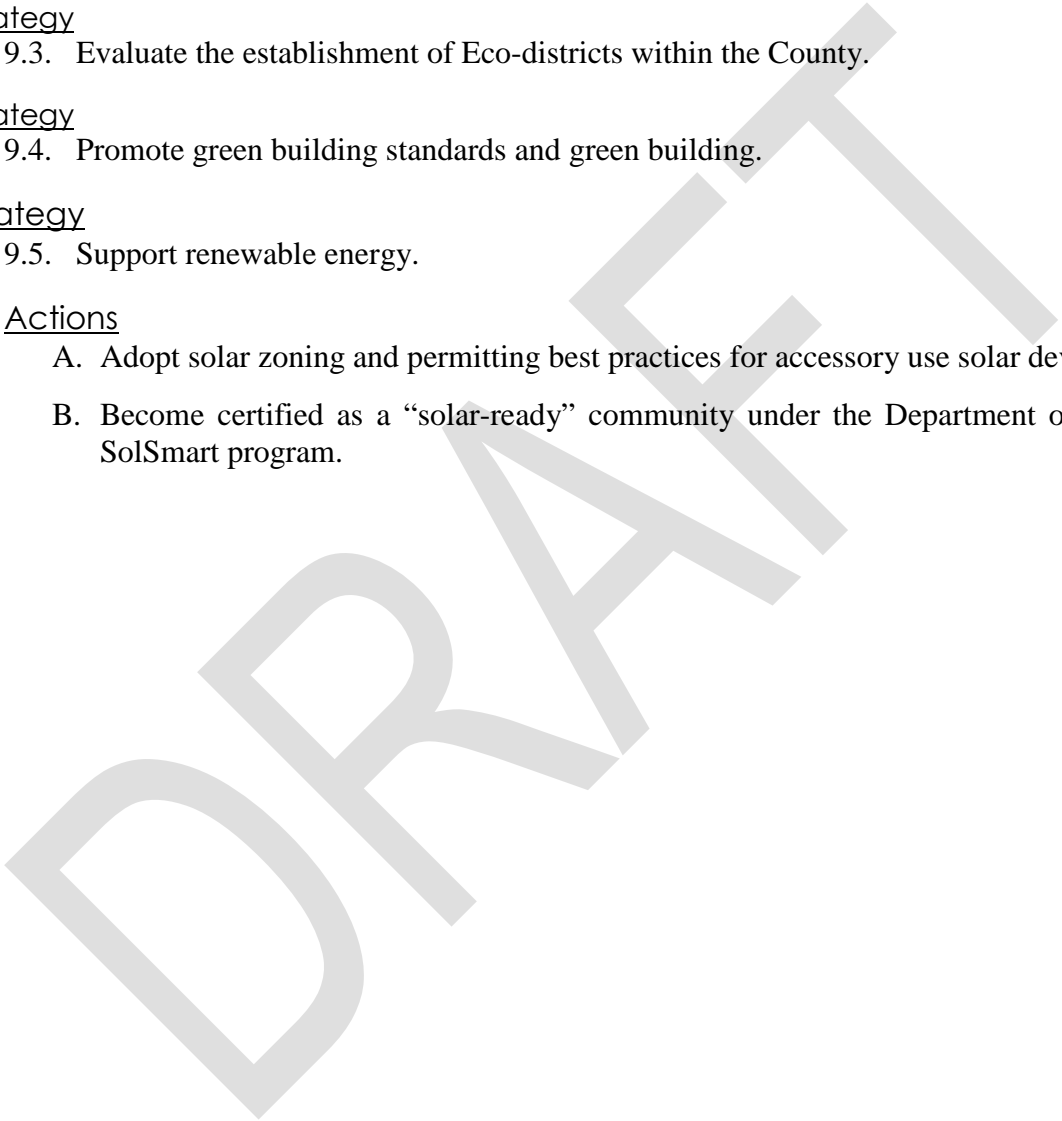
- 9.4. Promote green building standards and green building.

Strategy

- 9.5. Support renewable energy.

Actions

- A. Adopt solar zoning and permitting best practices for accessory use solar development.
- B. Become certified as a “solar-ready” community under the Department of Energy’s SolSmart program.



Infill and Redevelopment

Vision

A community where careful public investment in services, facilities, and growth management can maintain neighborhood vitality, revitalize underused areas, and facilitate complete, connected, and distinct communities.

Introduction

Loudoun County is a maturing community. For the last several decades, the approach to planning and zoning focused on managing and directing rapid suburban growth to primarily undeveloped land, or greenfield development, in eastern Loudoun County—areas designated for growth in the *Revised General Plan*. Today, much of eastern Loudoun County, known as the Suburban Policy Area (SPA), has been developed and there is a limited supply of land remaining for new greenfield development, creating new planning challenges and opportunities in this area.

Some existing neighborhoods and commercial and employment centers are aging, underutilized, and at risk for disinvestment and decline. Development efforts will begin shifting to a greater focus on redevelopment in aging areas, infill development on the few remaining vacant parcels, and adaptive reuse of existing buildings, complimented with revitalization initiatives as needed. These types of development bring unique challenges and opportunities that are inherently different from greenfield development. Since some future development will come in the form of beneficial redevelopment, infill, or adaptive reuse, while other areas of the County would benefit from revitalization, the following policies and implementation steps are intended to support these development types.

Opportunities

With redevelopment, infill development, and adaptive reuse comes opportunities. Redevelopment offers communities the opportunity to reimagine underutilized or underperforming sites, create unique places, and include amenities desired by residents. Infill development can maximize the use of public investments and existing infrastructure, create opportunities to achieve more cohesive development patterns, encourage reinvestment, and better connect neighboring developments. Adaptive reuse projects can support historic preservation goals, generate activity within vacant buildings and underutilized areas, and preserve iconic or prominent buildings exemplifying community character while maintaining compatibility with the surrounding neighborhood. Each can also provide opportunities to diversify housing stock. These projects result in upgrading or retrofitting older or substandard infrastructure for the site and surrounding area and generally increase the value of a property and contributions to the tax base. Projects within the County's developed areas should result in efficient extensions or connections of utilities between developed sites, improved levels of service and potential reduced user costs, and alleviated development pressure in areas planned for limited growth and not adequately served by infrastructure.

Revitalization Needs Emerging

Most of Loudoun County's suburban development is relatively new, but as Loudoun's communities continue to age, County policies and initiatives to support and enhance these neighborhoods and commercial centers will be increasingly important.

Revitalization in Potomac and Sterling

The Potomac and Sterling communities are two of the oldest and most diverse communities in Loudoun County. With neighborhood development beginning in the 1960s, the communities are mostly built-out. Housing stock has been in place for approximately 50 years and a need for revitalization has emerged. The 2007 recession also significantly affected Potomac and Sterling; the largest concentration of foreclosures and subsequent vacancies in the County occurred in these communities, compounding the area's challenges.

Recognizing the need for revitalization in Potomac and Sterling, the Loudoun County Department of Planning and Zoning undertook a community outreach project in 2008. During the outreach, residents identified needs and desires to improve community vitality through redevelopment, infill development, and adaptive reuse. They sought initiatives to help revitalize areas of the community. Community members expressed concerns that poor neighborhood maintenance created blight conditions and caused an increase in crime. Furthermore, residents worried that their neighborhoods lacked law enforcement personnel, neighborhood volunteer watch groups, and teen programming.

Progress Since Community Outreach

In recent years, the County undertook certain recommendations originating from the Potomac and Sterling Outreach. To address the foreclosure issue and the deterioration of housing, the County made considerable investment of Community Development Block Grants (CDBG), tax dollars, and Neighborhood Stabilization funds; provided grants to non-profit housing providers to purchase and renovate homes to sell to low and moderate income families; and provided direct loans and grants to qualified residents through several programs. The County also revised the Zoning Ordinance to address community aesthetics, began proactive code enforcement, and established a full service Eastern Loudoun Sheriff's Substation in Sterling Park.

Challenges

Redevelopment, infill development, and adaptive reuse projects also face particular challenges that are different from the challenges of greenfield development. Common challenges include:

- The County's land development regulations are generally designed to guide greenfield development and lack the flexibility needed to facilitate redevelopment or infill development projects.
- Redevelopment sites and adaptive reuse projects are often in need of infrastructure improvements and experience other fiscal challenges that result in costlier projects than greenfield development.
- Redevelopment sites are often owned or leased by multiple entities, making it difficult to craft a unified vision and project.

- Redevelopment projects may displace populations because market-provided affordable housing is demolished or rents and property taxes increase due to the new development.
- Potential opposition from the community is often one of the biggest challenges for redevelopment, infill development, and adaptive reuse projects.

Considering the complexity of challenges related to these projects, developing a community vision that anticipates redevelopment, infill development, and adaptive reuse projects is critical. The County should take a leading role in developing this community vision by identifying and prioritizing areas that would benefit from redevelopment and revitalization and conducting proactive planning efforts to establish this vision. In addition, the County should require developers to consider and include community input for infill projects. A community vision endorsed by the locality provides assurances to both developers and the community. It also identifies the locality's role in advancing such projects.

Principles

The following principles guide the redevelopment, infill, adaptive reuse, and revitalization policies, strategies, and actions of the *Loudoun 2040 General Plan*:

- Make a great place through quality redevelopment of aging areas, infill development, and adaptive reuse that complements, strengthens, and benefits surrounding communities.
- Support an enhanced quality of life and a strong sense of community where people feel connected to each other and to places that are expressions of community character.
- Encourage efficient use of land and maximize the use of existing infrastructure, public facilities, and community amenities.
- Foster redevelopment and revitalization of aging or underutilized commercial and employment areas.
- Foster infill development that is compatible with existing neighborhoods.



Addison McDonald residential development is an example of infill development in Brambleton. Two parcels, each with a residence, and totaling approximately 7 acres will be developed with 39 townhouses surrounding a village green and will be annexed into the neighboring Homeowners Association (HOA).



Lucketts Community Center. The County has adaptively reused several historic schools for community centers in rural villages, providing gathering places while protecting iconic buildings and community character.

Policies, Strategies, and Actions

Unless otherwise specified, the following policies, strategies, and actions apply countywide.

Policy I: Redevelopment, infill development, and adaptive reuse projects and revitalization initiatives will enhance quality of life and neighborhood character, fulfill community needs, and improve economic opportunities.

Strategy

- 1.1. Facilitate community engagement for redevelopment, infill development, adaptive reuse, and revitalization initiatives to build County and community support for future projects.

Actions

- A. Identify and prioritize areas for redevelopment, infill development, adaptive reuse, and revitalization, and create a common vision and objectives for these areas through a public process.

- B. Address redevelopment, infill development, adaptive reuse, and revitalization as part of community and small area plans.
- C. Identify methods for ensuring developers will follow through on commitments to communities that are products of a facilitated engagement process between the developer and the surrounding neighborhoods and developments.
- D. Evaluate the creation of overlay districts to encourage revitalization and convey community support and buy-in for investment in priority/targeted areas.

Strategy

- 1.2. Support projects that provide community amenities, fulfill community needs, and benefit the surrounding communities.

Actions

- A. Conduct analysis of local market demands to determine what is needed to foster successful redevelopment.
- B. Evaluate the appropriateness of mixed use development for projects through the small area plan process.
- C. Ensure projects increase and diversify housing opportunities when in conformance with other Plan policies.
- D. Develop strategies to address displacement and housing affordability when redevelopment occurs.
- E. Encourage annexation of residential projects into adjoining homeowners' associations (HOAs) to make the provision of amenities more economical.
- F. Develop criteria, such as site constraints, important resources, and community amenity gaps, to identify infill sites appropriate for use as park, civic, and open space rather than private development.
- G. Endorse the development of interim uses on underutilized properties that are compatible with the surrounding development pattern.

Redevelopment Guidelines

- 1. *Require redevelopment projects replace, at a minimum, market-provided affordable units lost through a redevelopment process.*
- 2. *Require the provision of comparable community amenities lost through redevelopment.*

Strategy

- 1.3. Enhance established residential communities specifically in need of revitalization and will not involve a redevelopment project.

Actions

- A. Identify and prioritize neighborhoods with an emerging need for revitalization and reinvestment, and work with these communities to identify needs and desires and build support for revitalization.
- B. Identify strategies to preserve and enhance a community's sense of place and social

- fabric.
- C. Identify, and include in the Capital Budget, capital facilities improvements necessary to support revitalization in targeted areas.
 - D. Identify and utilize funding sources for community revitalization strategies.
 - E. Educate the community about funding sources for home improvement and repair.
 - F. Provide incentives and resources for the provision of community amenities, such as pedestrian/bicycle facilities, sidewalks, traffic calming, street lighting, and bus stops, as well as cultural centers and community gathering places.
 - G. Develop incentives that encourage the private sector to improve retail and commercial establishments in targeted areas.
 - H. Provide resources for community-based initiatives, such as neighborhood volunteer watch groups and teen programming.

Strategy

- 1.4. Facilitate redevelopment, infill development, and adaptive reuse projects through technical assistance, an improved regulatory framework, and streamlined review processes.

Actions

- A. Provide general project guidance, such as best practices, tool kits, examples of “approvable” development types, and profiles of successful projects.
- B. Provide development process support, planning and zoning support services, and technical assistance for specific projects located within the priority areas for redevelopment identified on the Redevelopment Areas Map.
- C. Develop and maintain a redevelopment webpage with information and resources for residents and developers.
- D. Develop zoning regulations and design standards that acknowledge the need for flexibility, existing conditions and constraints, and previous development standards; allow for innovative design and emerging development types; and provide certainty and clear direction for developers.
- E. Develop incentive programs for projects located within the priority areas for redevelopment identified on the Redevelopment Areas Map and other qualifying projects such as an increase in permitted density where infrastructure is available, reduce fees, or expedite review processes.

Strategy

- 1.5. Incentivize redevelopment, infill, and adaptive reuse projects, and revitalization efforts in priority areas to be established by the County.

Actions

- A. Evaluate and implement the use of fiscal tools to incentivize redevelopment, such as tax increment financing (TIF), public improvement districts (PID), or utility upgrade financing.
- B. Evaluate entering into public-private-partnerships to initiate redevelopment and

adaptive reuse efforts and reduce development risks in priority areas.

- C. Direct public investment and resources to priority areas to facilitate redevelopment.
- D. Establish programs to assist in business retention, expansion, and recruitment when commercial redevelopment projects occur.

Strategy

- 1.6. Achieve unified site design, efficient use of existing infrastructure, and maximum land development potential through the consolidation of small, adjacent, underutilized properties.

Actions

- A. Facilitate redevelopment of multi-ownership sites through a planning process that engages owners and the larger community in the creation of a shared vision for the area.
- B. Create incentives for parcel assembly and funding opportunities for infrastructure improvements associated with redevelopment projects to alleviate private sector risk and costs.

Policy 2: Recognize adaptive reuse of existing unused or underutilized buildings as an opportunity to establish or reinforce a community's identity and sense of place.

Strategy

- 2.1. Support adaptive reuse projects that provide cultural activities and community gathering places.

Actions

- A. Use the Heritage Preservation Plan to guide the adaptive reuse of historic resources.
- B. Establish a collaborative program for adaptive reuse projects to foster entrepreneurship and encourage innovative ways to reuse buildings and sites.

Strategy

- 2.2. Prioritize adaptive reuse of existing buildings with historic significance or importance to a community over demolition.

Policy 3: Promote redevelopment and infill projects that balance compatibility and integration with new housing choices and innovative designs.

Strategy

- 3.1. Redevelopment and infill projects will be evaluated based on compatibility and the integration of the development within the context of the surrounding development patterns.

Actions

- A. Ensure redevelopment and infill development that is consistent with the Place Types land use structure and further the goals and objectives of the Plan.
- B. Ensure residential development on infill sites is designed to fit into the surrounding context.

Guidelines

Evaluate redevelopment and infill projects using the following criteria:

- a. Place type designation;
- b. Size of the subject parcel relative to surrounding parcels;
- c. Relationship to established development pattern;
- d. Compatibility of site design with or without buffering from adjoining properties;
- e. Transition to adjoining properties;
- f. Residential densities on adjacent parcels, projects, or land bays;
- g. Range of proposed housing types and choices;
- h. Intensity of proposed uses;
- i. Mix of uses provided;
- j. Building form and scale;
- k. Vehicle, bicycle, and pedestrian connectivity;
- l. Provision of community green spaces and other amenities;
- m. Protection of environmental resources and restoration of degraded resources on the site;
- n. Amount and location of open space and impervious surface;
- o. Adequate public facilities and services, transportation facilities, and infrastructure; and
- p. Effect of noise, light, and traffic generated on the site.

Urban Policy Areas

Vision

The Urban Policy Areas (UPA) are complete communities that accommodate living, working, shopping, learning, and playing in dense urban environments of walkable mixed-use and transit-oriented development, some of which have access to the Metrorail. These areas are a high-quality public environment with accessible and connected spaces, and a rich mix of uses that give a sense of place and distinctiveness. UPA communities are envisioned to support development types, patterns, and densities that will create jobs, grow the tax base, and be fiscally sustainable.

Introduction

The new UPAs are planned and designed to be strong, diverse regional activity centers and economic drivers. As such, UPAs will serve as leaders in innovation in the Washington D.C. Metropolitan Area and will provide economy-driving employment uses and urban living opportunities while balancing new development with the needs of Washington Dulles International Airport (IAD). The UPA entails areas around Route 7 as well as three Metrorail Stations: Innovation Center (in Fairfax County), Loudoun Gateway, and Ashburn (see reference map: Map #2018-150). The Route 7 area will focus on making a more walkable, connected community between One Loudoun and Dulles Town Center. The three Metrorail Stations are envisioned as transit-oriented communities with a dense urban core consisting of the greatest intensity of development in the County. These areas emphasize mixed-use development throughout and are the highest priority growth areas in the County. Due to their current suburban nature, the process of transitioning these areas to walkable communities may involve partial infill and redevelopment as described in the Infill and Redevelopment section of this chapter.

The UPA communities will provide a variety of housing choices that offer innovative options for families, empty-nesters, singles, and seniors across socioeconomic groups. They will be communities that are rich in amenities, offering dense mixed-use environments with a balance of business, commercial, and residential uses. Densities below those envisioned in the Place Types designated for the UPA may have an adverse impact on the County's long-term tax revenue generation potential and should be avoided unless they are demonstrated to be interim uses that can evolve to an ultimate desired use that aligns with the long-term vision of the Plan.

UPA communities include networks of green spaces such as the Broad Run Stream Valley Park and Trail, providing an amenity for residents while protecting valuable environmental resources. Characterized by the highest quality of design, the UPA is known for its livability, vibrant, active neighborhoods, and transportation systems.

All UPA communities will include transportation hubs that offer a wide array of transportation mode choices including walking, biking, driving, and transit. The UPA is a place where walking and bicycling can be convenient travel modes, diversity of use is nurtured, and public spaces are beautiful, safe, and accessible. Attractive grid-form street networks will prevent traffic congestion, maximize travel choices, and safely and efficiently move people throughout the area.

Ongoing collaboration with the Metropolitan Washington Airports Authority (MWAA) in the comprehensive planning of land within IAD and just outside its border to the north is essential to ensure maximum economic benefit to the County's new Loudoun Gateway Station. The County will continue its partnership with MWAA and explore mutually beneficial alternatives for realizing greater tax revenue while supporting airport operations. Regardless of the eventual land use pattern, the Loudoun Gateway Station is intended to develop as a walkable place with job opportunities, amenities, pocket parks, transit options, and nearby housing that respects neighboring IAD operations.

The UPA is an amenity-rich area with a vibrant sense of place that appeals to multiple generations of residents, workers and visitors aiming to be the region's best places for living, working, playing, and visiting.

Policies, Strategies, and Actions

Unless otherwise specified, the following policies, strategies, and actions apply only within the UPA.

Policy 1: Ensure walkable development and connectivity to the community throughout the UPA as it is important to foster the urban character.

Urban design characteristics of the UPAs will include:

- *Small blocks*
- *Tree-lined grid pattern of streets*
- *Building façades set at the back of the sidewalk*
- *Ground floor retail uses with transparent façades*
- *Distinctive public spaces*
- *Streetscapes and street furniture including public art, water features, and landscaping,*
- *Public plaza gathering places and spaces that promote culture and the arts*
- *Network of green space that accommodates passive and active recreational*

Strategy

- 1.1. Development designed to provide for a walkable mixed-use environment that supports multi-modal transportation choices and fosters substantial pedestrian activity within the half-mile area and to surrounding areas.



Strategy

- 1.2. Emphasize walkability in the half-mile buffer area by providing pedestrian and bicycle commuter connectivity to the core of the Metrorail stations and surrounding neighborhoods as well as enabling future connections from undeveloped parcels.

Strategy

- 1.3. Support a high level of pedestrian connectivity including connected street grid patterns with sidewalks, short block lengths, and connected trails and pathways providing connections to surrounding neighborhoods.

Strategy

- 1.4. The Ashburn and Loudoun Gateway Metrorail Stations will serve as transit and commuter hubs while providing an urban walkable environment. Development proposals provide a balance between the needs of commuters with the desire to create a walkable urban environment.

Strategy

- 1.5. Accommodate a long-term vision with an appropriate mix of residential and non-residential uses that fulfill daily and convenience needs of its residents and employees.

Actions

- A. Mixed-use neighborhoods accommodate infrastructure plans for near-term and long-term transit circulator service.
- B. Community facilities like schools, community centers, and libraries are located to allow as many residents as possible to be within a short walking distance.

Strategy

- 1.6. Single-story retail buildings conflict with the compact, pedestrian-oriented nature of UPA developments, are not appropriate, and should not be permitted greater than 2,000 square feet.

Strategy

- 1.7. Ensure that any drive-through retail uses are incorporated within mixed-use buildings.

Policy 2: Key element of the Urban Policy Area is a public realm that is multilayered within the development.

Strategy

- 2.1. Densities in the area are expected to sustain an urban development pattern with pedestrian activity.

Strategy

- 2.2. The County promotes concepts like outdoor dining, event space, street fairs, and public art within compact, walkable non-residential areas.



Action

- A. Accommodate walkable features and amenities like centralized activity areas such as shopping and dining areas with wide sidewalks, more narrow pedestrian-oriented streets, transit stops, and community gathering places (e.g., parks and plazas).

Policy 3: Provide a diverse mix of choices in all development.

Strategy

- 3.1. Accommodate office developments and/or high-employment generating uses that conform to the overall vision for a walkable urban development pattern.

Actions

- A. Create partnerships with universities and private sector companies to foster growth of an Innovation District at the Loudoun Gateway Station that supports workers and students in the advanced technology and science industries.

Strategy

- 3.2. Ensure that development within half-mile of the Loudoun Gateway Station reflect the station area's long-term vision of a global destination, activity center, and leader in innovation and entrepreneurship.

Design Guidelines

The Design Guidelines are to build upon our current high-quality development in a manner that allows innovative design and new responses to the market. While the Design Guidelines are not regulatory requirements, the County prefers that all future developments comply with these guidelines. The Design Guidelines do not supersede or otherwise limit the application of adopted zoning regulations, ordinances, building codes, or any other design standards or regulations administered by Loudoun County.

All applications for development in the UPA are expected to include project specific design guidelines, site plans, illustrative, landscape plans, building elevations, and other similar graphics

that demonstrate consistency with the UPA Design Guidelines and planning principles in this document.

When using the guidelines make sure to analyze the impact a potential development may have on the landscape, considering not only appearance, but practical considerations such as proximity to utilities, community amenities, jobs, and housing to maximize the use of existing infrastructure and limit travel distances. Development should contribute to creating unique places within the Urban Policy Area by working with existing topography and site features, responding to the local context, and reinforcing the compact walkable character, rather than simply attempting to place suburban design onto the urban landscape. Unless otherwise specified, the following guidelines apply only to UPA.

Building Orientation and Setbacks

Buildings, particularly along urban-type streets and “main streets” in the UPA should have common design strategies that promote walkability, accessibility and activity in the ‘outdoor room’ or ‘outdoor hallway’ between streets and buildings.

1. Locate buildings at the front property line or at the minimum required setback to create a strong pedestrian pathway framed by adequate spaces for sidewalks, plantings, street furnishings, and lighting along buildings. Where additional setback is necessary, that area can be used to create a plaza, pocket parks or public gathering spaces adjacent to the street, incorporating activity space, outdoor seating, landscape features or water features for example.
2. Design grade level entrances providing direct access to building entrances from sidewalks and streets.
3. Make primary entrances to buildings visible from the street and sidewalk.
4. Create primary entrances for pedestrians that are easily identified and accessible with as direct a path as possible to transit amenities.
5. Maintain at least one entrance from the public way at retail and restaurant establishments.

The goals of the UPA Design Guidelines are to:

- Promote accessibility and establish links to transit
- Promote walkability
- Encourage human activity between buildings and streets
- Establish human scale of buildings at street level (first floor of a multi-story building)
- Create visually interesting and compatible buildings and site designs that use building forms, materials, fenestration, repetition, rhythm, color and architectural variety resulting in delightful blends of form, volumes, textures and colors in the various neighborhoods
- Create inviting spaces for varied activities
- Create a sense of place and uniqueness.

6. Incorporate transitions from the sidewalk to the front door such as landscaping, overhead cover (canopies, awnings or trellises) and/or porches at individual entrances to businesses and residences.
7. Comply with Americans with Disabilities Act (ADA), Universal Design and International WELL Building Institute guidelines at primary pedestrian entrances. Alternate approaches for persons with mobility limitations (such as a ramp next to the main path to the primary entry) should not be necessary.
8. Incorporate passageways or alleys into mid-block developments, particularly on long blocks, that facilitate safe pedestrian movement through the depth of the block to the front of the next parallel block. Ensure that pedestrians do not have to walk the circumference of a block in order to access the middle of the next parallel block or alley or parking behind the block.
9. Activate use of mid-block passageways or alleys so that they are visually interesting, functional, well-lit, and safe spaces.



Building Design and Façades

Addressing architectural features of buildings is an important component of creating the ‘sense of place’ that the County desired for the UPA, particularly with respect to the denser and more intensely used areas.

1. Incorporate different façade treatments such as forms, textures, colors, materials, and distinctive architectural features that add visual distinctiveness throughout the Policy Area while building consistency in their application within individual developments to create uniqueness and identifiable character of each new development.
2. Add scale and interest to the building façade by articulated massing. Blank or long expansive walls with no detail or variation in form, color, texture, openings or material are undesirable, particularly in activity centers and along pedestrian pathways or linkages.
3. Use of architectural features, enhanced materials, fenestration, planting, lighting, and signage should contribute to a more pedestrian friendly streetscape.

4. Reinforce the existing façade rhythm along the street with architectural elements, landscaping, signage, street lighting and street furnishings.
5. Include overhead architectural features, such as awnings, canopies, trellises or cornice treatments that provide identifiable entries, shade, and reduce heat gain.
6. Contribute to visual interest, human activity along streets and neighborhood safety by providing pedestrian scaled windows and fenestrations at the street level that act as pathways to activity inside buildings and “eyes on the street”.
7. For ground floor retail, restaurants, and professional office uses within mixed-use environments, along main streets, and other activity centers, devote 65 percent to 75 percent (minimum) of the façade to pedestrian entrances and pedestrian-level display windows.

Sidewalks, Streets Trees, and Plantings

Sidewalks, in conjunction with street design and building placement, support ease of pedestrian movement and link people from their homes to community amenities such as parks, public spaces, retail and commercial areas, transit stops, nodes, landmarks and the Metrorail stations. Sidewalks also enrich the quality of the public realm by providing appropriate connections and street furnishings in the public right of way. Sidewalks create the basis for the concept of the ‘outdoor rooms’ and ‘outdoor hallways’ which support human activity at planned centers and along linkages.

Planting street trees and ground cover plantings has proven over time and across urban development to improve the human experience between building and streets. Along with creating inviting spaces, comfort for human activity, and positive impacts to the natural environment, street trees and ground level plantings contribute greatly to the visual appeal of building façades and outdoor spaces.

1. Create a continuous and predominantly straight sidewalk to support two-way pedestrian traffic with enough space for streetscape amenities such as street furnishings, street trees, ground cover plantings areas, street lighting, signage, and utilities.
2. Create amenities that act as a buffer between pedestrians and moving vehicles by the use of landscape and street furniture (benches, newspaper racks, pedestrian information kiosks, bicycle racks, bus shelters, and pedestrian lighting, etc.).
3. Use street furnishings to create a consistent rhythm (i.e., consistent height of light standards or consistent shade pattern of trees) and encourage the activity and use of the sidewalk area between buildings and streets as an outdoor room.
4. Incorporate closely planted shade-producing street trees to encourage pedestrian activity along streets and promote comfort in the outdoor activity spaces. They may be interspersed with existing or proposed street trees. Select native trees and plantings with low maintenance requirements. Plant outdoor spaces with ground cover, low-growing

vegetation or permeable materials that accommodate both pedestrian movement and car door swings where on street parking is designed and planned.

Street Furnishings and Lighting

Street furnishings and lighting should be designed to strengthen the pedestrian experience and encourage outdoor use and activity in activity centers and spaces between buildings and streets. These amenities that are located in the ‘outdoor room’ should also serve to create neighborhood identity and visual coherence with the use of building and street lighting.

1. Provide usable space in the sidewalk areas which should include street furnishings such as benches, trash cans, kiosks, street gardens, bike racks, outdoor sitting spaces, and public art.
2. Provide adequate lighting levels to safely light the pedestrian path.
3. Use adequate, uniform, human-scaled and glare-free lighting to avoid uneven light distribution, harsh shadows, and light spillage.
4. Use poles, standards, fixtures and lighting types that achieve “dark sky” compliant goals and objectives such as lighting when necessary, reducing glare, use of energy efficient lighting systems, lighting enough to promote safety and security, and considers ecological impacts to the natural environment and humans.

On-street Parking

On-street parking provides numerous benefits in urban environments such as reducing the need for parking decks and parking lots, buffering pedestrians and moving vehicle traffic, vehicle traffic calming and providing parking near community amenities, businesses and retail uses shaping the outdoor “rooms”.

1. Provide parallel or angled on-street parking wherever possible.
2. Eliminate street parking within pedestrian crossings.
3. Create traffic calming along streets designed for low speeds.

Public Spaces

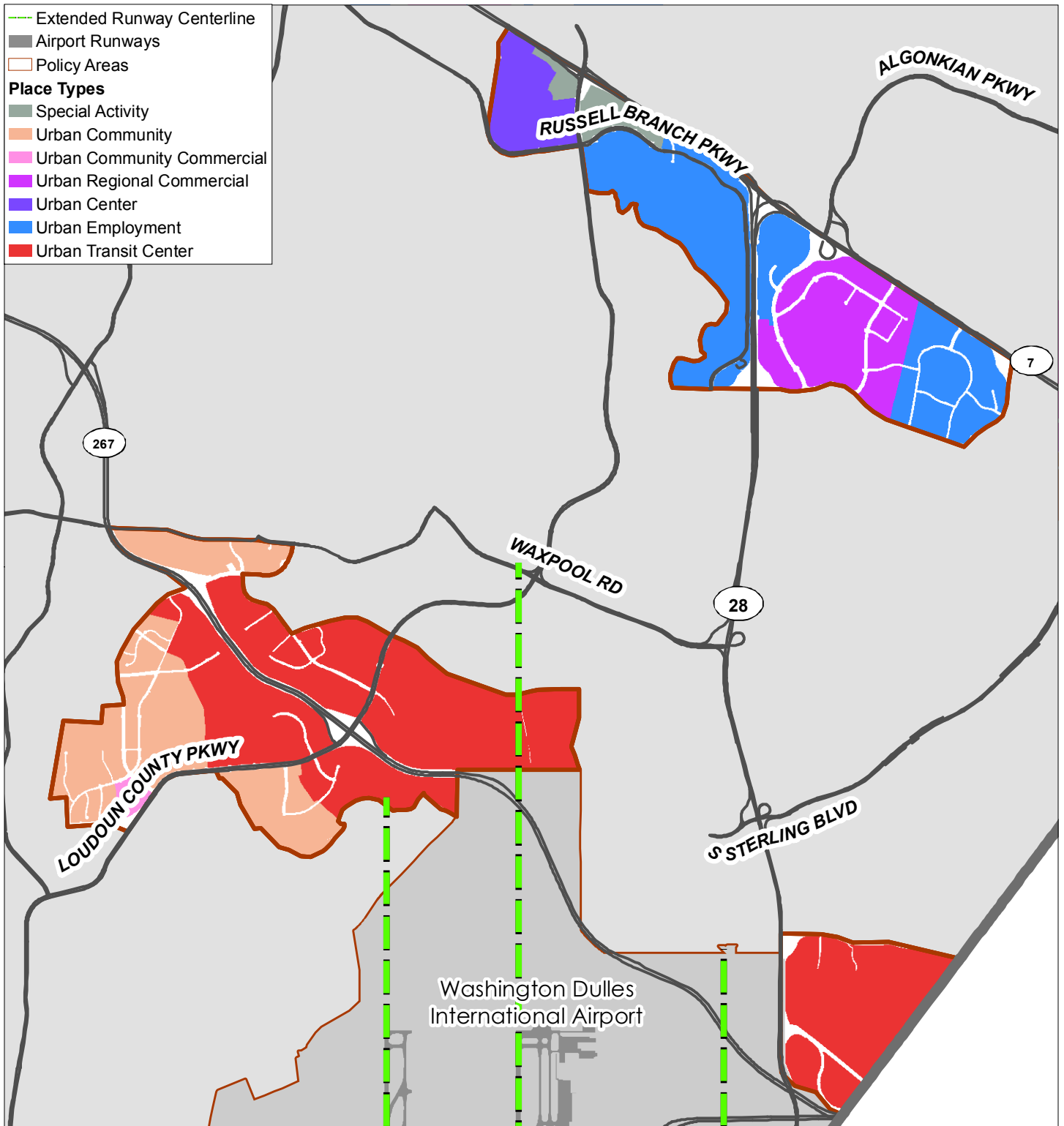
Public spaces are areas that serve as centers for human activity which could be a destination, a space to pass through, or a linkage. These spaces should provide a focal point for gathering, communicate community or neighborhood identity, and help make for complete neighborhoods. These spaces could include plazas, promenades, courtyards, park spaces that are landscaped and/or hardscaped, and should include trees and ground cover vegetation to create inviting spaces for activity and gathering.

1. Orient buildings so that public spaces receive sunlight as well as provision for high quality, safe, night lighting.
2. Balance sunlight accessibility with shade producing trees and overhead cover.

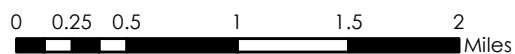
3. Provide a variety of on-site features to maximize use and enjoyment of public spaces, including but not limited to:
 - Water features / public art
 - Outdoor furnishings
 - Vegetative ground cover, gardens and shade tree plantings/reforestation
 - Use of stormwater management (SWM) best practice features to create open spaces
 - Open spaces for gathering large groups of people
 - Variety of ground cover materials such as permeable and impermeable surfaces as well as natural ground cover

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Loudoun County
Urban Policy
Areas Place Types
 2040 General Plan



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Map Number 2018-150

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Urban Community



General Description:

Urban Community areas provide opportunities to develop either “pocket neighborhoods” that can take advantage of small infill parcels near traditional suburban neighborhoods or high-density walkable urban neighborhoods, depending on the context of their location. They encourage social connections and a unique neighborhood because of their natural, safe, and nurturing environment. They provide opportunities for a mix of housing types that meets the housing needs for all ages, abilities, and socioeconomic groups. The small-lot patio homes, townhomes, duplexes, quadruplexes, and multifamily residences are designed to fit within or adjacent to a traditional single-family style neighborhood. Accessory Residential Units are to include apartments in the principal structure and over a garage or other outbuilding approved by the County. Small scale office, retail and service uses should be integrated into the neighborhood.

Neighborhood designs typically include alleyways and paths to encourage pedestrian activity. Development should be in short blocks with homes developed along the front of the lot or with shallow setbacks. Parking should be accommodated on the street or in alleys.

Predominant Uses:

- Single Family Attached Residential
- Multi-Family Residential

Secondary Uses:

- Single Family Detached Residential
- Office
- Retail & Service Commercial
- Active Adult Retirement Communities
- Civic, Cultural, & Community
- Public Facilities
- Accessory Residential Units

Form and Character Guidelines:

| | |
|--|---------------------------------|
| Use Pattern | Separate Uses |
| Res. Density | 8-24 du / acre |
| Nonres. FAR | Up to 1.0 |
| Land Area Mix (R: Residential, NR: Nonresidential, PC: Public/Civic) | R: 90-100% NR: 0-10% PC: 0%+ |
| Bldg. Height | Up to 4 stories |
| Minimum Open Space | 10% of site |

Urban Employment



General Description:

Urban Employment areas provide opportunities for a broad array of employment uses within an urban style environment with the intent of providing gathering spaces and opportunities for synergies among businesses. This will not only allow for sustainable employment options that can adopt to economic trends but will also be attractive to changing workforce preferences. These offer prime locations for startups and established businesses that do not produce noise, air, and traffic impacts and do not require outdoor storage.

Developments can be supported by limited first floor retail and multi-family intended for housing workers. It is desirable for buildings in this place type to have short to medium setbacks and varying block sizes. Parking should be predominantly structured with accommodations for on street parking and limited surface lots.

Predominant Uses:

- Office
- Flex Space
- Light Production

Secondary Uses:

- Retail & Service Commercial
- Data Centers
- Hotel
- Civic, Cultural, & Community
- Multi-Family Residential
- Institutional
- Public Facilities
- Research and Development

Form and Character Guidelines:

| | |
|---|---|
| Use Pattern | Separate or Vertically Mixed Uses |
| Res. Density | 8-24 du / acre |
| Total FAR | Up to 2.0 FAR |
| FAR Mix (R: Residential, NR: Nonres, PC: Public/Civic) | R: 0-80% NR: 20-100% PC: 0%+ |
| Bldg. Height | Up to 8 stories |
| Minimum Open Space | Suburban: 30% of site Urban: 10% of site |

Urban Community Commercial



General Description:

Urban Community Commercial developments provide opportunities for larger format retail commercial establishments and smaller commercial establishments within a “main street” style environment. These developments should be designed to provide access to adjacent neighborhoods and to patrons living in the larger Loudoun community. They commercial, public facilities, and recreational amenities that are responsive to resident and consumer preferences. This place type encompasses a wide array of commercial designs that create a unique sense of place and complement surrounding developments.

The larger of these developments require mid to long blocks and medium setbacks. Parking should be predominantly structured with accommodations for on street parking and limited surface lots.

Predominant Uses:

- Retail & Service Commercial
- Office

Secondary Uses:

- Civic, Cultural, & Community
- Multi-Family Residential
- Hotel
- Institutional
- Public Facilities

Form and Character Guidelines:

| | |
|---|-----------------------------------|
| Use Pattern | Separate or Vertically Mixed Uses |
| Res. Density | 8-24 du / acre |
| Total FAR | Up to 1.0 FAR |
| FAR Mix (R: Residential, NR: Nonres, PC: Public/Civic) | R: 0-80% NR: 15-95% PC: 5%+ |
| Bldg. Height | Up to 5 stories |
| Minimum Open Space | 10% of site |

Urban Regional Commercial



General Description:

Urban Regional Commercial developments are opportunities for large format commercial uses, like malls and clusters of big box retail outlets. To support the growing workforce with desirable amenities, retail establishments, and entertainment opportunities, over time, these developments should be redeveloped to encourage maximum use of land and to vertically integrate a mix of uses on the site.

When the uses are separated, mid to long blocks and medium setbacks with structured parking are appropriate. When uses are vertically mixed, short-sized blocks with shallow setbacks and structured and on street parking are appropriate.

Predominant Uses:

- Retail & Service Commercial
- Office
- Entertainment Commercial
- Multi-Family Residential

Secondary Uses:

- Hotel
- Single Family Attached Residential
- Civic, Cultural, & Community
- Institutional
- Public Facilities

Form and Character Guidelines:

| Use Pattern | Separate Uses | Vertically Mixed Uses |
|---|-----------------------------------|-----------------------------------|
| Res. Density | 8-24 du / acre | 8-24 du / acre |
| Total FAR | n/a | Up to 2.0 FAR |
| FAR Mix (R: Residential, NR: Nonres, PC: Public/Civic) | n/a | R: 0-80% NR: 15-95% PC: 5%+ |
| Land Area Mix (R: Residential, NR: Nonres, PC: Public/Civic) | R: 0-50% NR: 45-95% PC: 5%+ | n/a |
| Nonres. FAR | Up to 2.0 | n/a |
| Bldg. Height | Up to 8 stories | Up to 8 stories |
| Open Space | 10% of site | 10% of site |

Urban Center



General Description:

Urban Center areas provide opportunities responsive to resident and consumer preferences for a mix of uses arranged in a pedestrian-friendly urban form that create a unique sense of place and complement surrounding development. Gathering places that provide a sense of identity to communities where people can make and reinforce social connections are throughout the development. Accessory Residential Units are to include apartments in the principal structure and over a garage or other outbuilding approved by the County.

Streets in this category are typically interconnected and multi-modal with parking located behind buildings. These centers are locations for regional commercial and entertainment destinations. Short blocks with shallow setbacks with structured and on street parking.

Predominant Uses:

- Retail & Service Commercial
- Office
- Entertainment Commercial
- Multi-Family Residential
- Institutional

Secondary Uses:

- Single Family Attached Residential
- Civic, Cultural, & Community
- Accessory Residential Units
- Active Adult Retirement Communities
- Public Facilities
- Hotel

Form and Character Guidelines:

| Use Pattern | Separate Uses | Vertically Mixed Uses |
|---|-----------------------------------|-----------------------------------|
| Res. Density | 8-24 du / acre | 8-24 du / acre |
| Total FAR | n/a | Up to 2.0 FAR |
| FAR Mix (R: Residential, NR: Nonres, PC: Public/Civic) | n/a | R: 0-80% NR: 15-95% PC: 5%+ |
| Land Area Mix (R: Residential, NR: Nonres, PC: Public/Civic) | R: 0-50% NR: 45-95% PC: 5%+ | n/a |
| Nonres. FAR | Up to 2.0 | n/a |
| Bldg. Height | Up to 8 stories | Up to 8 stories |
| Minimum Open Space | 10% of site | 10% of site |

Urban Transit Center



General Description:

Urban Transit Center areas take advantage of proximity to transit to provide opportunities for denser urban development and a host of economic, entertainment, and community activities. The area serves as gateway to the county from the region and a major destination in its own right.

Buildings are located on small blocks with streets designed to encourage pedestrian activity. Storefronts line many streets with residences and offices up above. Roofs may hold resident or public amenities. Buildings typically extend to the lot line or have shallow setbacks. Parking is satisfied using on-street, structured, or shared parking.

Predominant Uses:

- Multi-Family Residential
- Office
- Retail & Service Commercial

Secondary Uses:

- Retail & Service Commercial
- Public Facilities
- Sports Arena/Training Facility
- Entertainment Commercial
- Conference Center
- Full Service Hotel
- Institutional
- Civic, Cultural, & Community

Form and Character Guidelines:

| Location | Within 1/4 mile of a transit station | Outside a 1/4 mile from a transit station |
|--|--------------------------------------|---|
| Use Pattern | Vertically Mixed Uses | Vertically Mixed Uses |
| Res. Density | 32-125 du / acre | 24-48 du / acre |
| Total FAR | Up to 6.0 FAR | Up to 4.0 FAR |
| FAR Mix (R: Residential, NR: Nonres, PC: Public/Civic) | R: 0-80% NR: 15-95% PC: 5%+ | R: 0-80% NR: 15-95% PC: 5%+ |
| Bldg. Height | No maximum | No maximum |
| Minimum Open Space | 10% of site | 10% of site |

Suburban Policy Area

Vision

The Suburban Policy Area (SPA) contains self-sustaining communities that offer a mix of residential, commercial, and employment uses; a full complement of public services and facilities; amenities that support a high quality of life; and a design that incorporates a holistic approach to preserving and improving community character through compatible development.

Introduction

The 46,000-acre SPA is located in the easternmost portion of the County, in close proximity to the job centers and activity areas located east of Loudoun. The Suburban Policy Area is defined on the north by the Potomac River and on the south by Braddock Road. Its eastern edge is the Fairfax County line, and its western edge begins at the Potomac River and follows a southerly path along the Goose Creek just east of Leesburg, the Goose Creek and Beaverdam Reservoirs, and a combination of property lines, roads, power line easements, and Washington Dulles International Airport's 65 Ldn (day-night average noise level) noise contours. The earliest planned development occurred within the Potomac and Sterling communities during the 1960s signaling the beginning of the transformation of eastern Loudoun County from farmland with a centuries old rural heritage to the suburban area that it is today.

The SPA is designated as one of the growth areas of the County and has accommodated most of the residential and commercial development over the past decades due to the presence of central water and sewer utilities and an expanded road network. Two major events helped to open the SPA to residential development: 1) the construction of Washington Dulles International Airport, and 2) the construction of a major sewer line that accommodated the airport and improvements to Route 7 and Route 28.



Route 7 and Route 28 have evolved into critical transportation corridors that are contributing to Loudoun County's reputation as an international center for technology, communications and global data management sectors. Given its connection to Dulles International Airport, Route 28 continues to play a major economic role for Loudoun County as a key location for on-going development. The County is committed to the continuing growth of and need for an economically vibrant Route 28 Transportation Improvement District, both for the District's contribution to the transportation improvements to Route 28 and to the economy of the County. Additionally, the SPA surrounds three Urban Policy Areas—two near the Silver Line Metro Stations and one in the vicinity of the Route 7 and Route 28 interchange—that will include new dense, urban, transit-oriented types of development.

Land Use

The SPA consists of a mix of commercial areas and neighborhoods that provide a broad range of quality environments. The commercial areas of the SPA are focused areas for employment uses within a variety of commercial and workplace environments, including traditional office and industrial parks, mixed use employment centers, and commercial centers.

Residential neighborhoods in the eastern corner of the County were built between 1960 and 1990, while neighborhoods built in the western area of the SPA were built in the early 1990s or later. The older neighborhoods commonly reflect the housing styles and neighborhood designs that were prominent in the era they were developed and provide a more limited mix of housing types (primarily single-family) while relying on neighborhood commercial developments located on major roads like Route 7 for easy access to amenities. The master planned developments west of Route 28 include a variety of housing types organized around neighborhood centers designed as the focal point of the community and provide easy access to daily needs. Parks, greenways, and open space frame developments and link neighborhood residents to nature, neighborhood destinations, and beyond in both the western and eastern neighborhoods.



Influences and Opportunities

The County will focus efforts on fostering and maintaining community identity within the SPA and its communities. The SPA is not and should not be one homogenous area. Many existing neighborhoods in Eastern Loudoun are becoming increasingly diverse, bringing a new set of expectations and attitudes to these communities. As new development continues in this area, the roads are becoming increasingly congested. Today, with a growing acceptance of alternative means of travel and rising energy costs, the lack of transit access and safe pedestrian connections is a mounting concern. Continuing the County's goal to create communities with unique community visions would help identify and strengthen the creation of distinct places within the SPA, ensure that they are well designed and serviced and that they provide diverse and stimulating social, cultural, recreational and livable environments for their residents. Policies below address ways to improve livability through: 1) protecting and enhancing elements of Natural and Heritage Resources, including open space and pedestrian connections; 2) ensuring compatible and complementary infill development; and 3) revitalizing existing neighborhoods in a way that protects and enhances our existing communities. The concept of creating Community Plans is one that offers tremendous potential to ensure that the vision of the SPA is fully achieved and to guide the remaining build-out of each area.

Rapid growth in the County, with the majority occurring in the SPA, has put development pressure on allowing additional development outside of the SPA. Today there is little undeveloped land remaining in the SPA as most land has already been developed or is approved for development. With limited developable land in this area, the County is at a juncture in its planning efforts for greenfield development. Redevelopment and infill will soon begin to play an increasing role in development decisions within the SPA which will mark a significant shift in the county’s planning and development activities. Because much of the SPA is currently developed, most new projects will be smaller in scope and need to be evaluated based on how they can be integrated into the surrounding community. As the primary location for suburban-scale residential and nonresidential development, the manner of growth and redevelopment in the SPA is of vital importance.

Growth and Demand

The demographic, market and land use trends of the past decades have led to greater demand for mixed-use and urban environments. National trends show that changes in typical households (for example millennials, seniors, empty nesters) may demand different housing types, public services, and lifestyle options than provided in the past. To attract top talent, many employers are focusing on employee satisfaction when considering locations and designs of office space. Employers in professional services, technology, and innovation sectors are shifting away from traditional suburban offices towards urban “live, work, play” environments to enhance quality of life. While the County previously established an overall land-development strategy that encouraged compact, mixed-use development providing people with the opportunity to live, work, recreate, and shop in a pedestrian-friendly environment, the development that has occurred in Loudoun has largely remained single-use and automobile-oriented.



Loudoun continues to be an attractive place for residential development given its geographic location in the region, school system performance, and notable quality of life measures. Demand for residential product will need to meet a wide variety of preferences, driven by attractiveness for families, young adults forming new households, and downsizing occurring in the Baby

Boomer generation. Demand for non-residential development will be driven by the addition of new households, the County’s assets, infrastructure, and the County’s technology sector. Retail users will follow new residential development, seeking locations that offer accessibility and visibility to an expanding customer base. Other employers seeking office and industrial space will locate in areas that serve their target needs.

The County previously designated land along its primary transportation corridors for “Keynote Employment” areas to provide locations for corporate campus style office development; however, suburban-style office development has stagnated to an extent that it is no longer considered a

significant economic contributor to the County or a sustainable land use pattern. It is expected that mixed-use developments, such as One Loudoun or those proposed near the future Silver Line Metro Stations, will be the most attractive environments for retail and office uses in the coming years. To provide alternative means of addressing office development and land uses along Route 7, Loudoun County Parkway, and Route 28, this Plan replaces the “Keynote Employment” planned land use designation with a number of mixed-use designations. To continue to maximize the commercial development potential within the Route 28 corridor, the Suburban Employment and Suburban Light Industrial place type designations offer planned land uses that reflect the full economic potential of properties and provide employment settings that reflect the kind of environments sought by business users.

In addition, changes in technology over the past decade have contributed to the escalated development of data centers within the County. To date, there are approximately seventeen million square feet of data center facilities completed, under construction, or planned. Future demand for data centers will need to be accommodated in places that have access to utilities, including electricity, water, and fiber. The supply of industrial and flex space is being outpaced by demand, resulting in low vacancy rates. As available greenfield sites in eastern Loudoun County become more limited, preservation of key tracts for targeted employment uses will be critical to ensure future economic growth.

Overall, the County’s approach is to ensure that future development is complementary to the existing development pattern of the SPA while supporting the necessary flexibility in form and use that will be needed to create vibrant mixed-use environments. As each new development is absorbed into the SPA’s built environment, it will be viewed in the context of its larger community with an emphasis placed on the character of the development and how it contributes to the needs and overall identity of the SPA and Loudoun County.

Community Character

Community character is the aggregate of features and traits that form the individual nature and uniqueness of a community. It includes the constructed and natural landmarks and surroundings that cause someone to identify with a particular place or community. This character is shaped by natural, cultural, societal, historic, and economic forces.

Policies, Strategies and Actions

Unless otherwise specified, the following policies, strategies, and actions apply only within the SPA.

Policy I: Foster community identity within the Suburban Policy Area.

Strategy

- 1.1. Build upon and enhance the sense of place in the Suburban Policy Area and its communities.

Actions

- A. Update the County's adopted Small Area Plans and create new Community Plans and other appropriate plans which address the particular needs and guide the remaining build-out and/or redevelopment of specific areas within the Suburban Policy Area.
- B. Establish design principles for individual communities within the Suburban Policy Area which ensure a high quality of development and redevelopment is achieved.
- C. Ensure development and redevelopment proposals conform to the applicable Development Guidelines of this plan.

Strategy

- 1.2. Enable residents to become more involved in their neighborhoods.

Actions

- A. Develop a public outreach program to educate neighborhood residents regarding County programs available to them.
- B. Expand civic outreach to involve underserved individuals.
- C. Support citizen organizations in their efforts to improve their communities.
- D. Foster the development of community partnerships to improve community character, maintenance and safety.
- E. Invest in programs that allow residents to formulate and assume stewardship of neighborhood values, standards, and goals.

Strategy

- 1.3. Ensure the compatibility of new development within the Suburban Policy Area with the existing development pattern which surrounds it.

Action

- A. Evaluate the appropriateness of a proposed use or development with the surrounding community.

Strategy

- 1.4. Promote the design and development of Suburban Policy Area communities as walkable and interconnected places.

Actions

- A. The County, in collaboration with other governmental agencies and the private sector, will ensure through a variety of measures that all public spaces in residential and commercial areas are accessible by pedestrians.
- B. Retail and office development proposals should combine open and civic space in features such as pedestrian promenades and plazas, public art, entrance features, linear parks and trails, outdoor seating, lawns and greens, and similar design features that invite pedestrian activity.

- C. Require convenient access by foot and bicycle for residential, office, institutional, civic, and retail areas in the Suburban Policy Area.
- D. The *Loudoun 2040 Countywide Transportation Plan* will provide additional transportation policy direction for the transportation network (walkability, multimodal, connectivity) in the Suburban Policy Area.

Policy 2: Create environments where individuals can work, live, and have convenient access to services, shops, and recreation.

Strategy

- 2.1. Allow a mix of uses or uses that complement and complete existing communities.

Actions

- A. Provide incentives for redevelopment, infill development and adaptive reuse projects that will enhance quality of life and neighborhood character, fulfill community needs, and improve economic opportunities (see Infill and Redevelopment).
- B. Allow new multi-family residential units to be located within existing commercial centers, both retail and employment, to bring housing to Employment areas and allow for more walkable, mixed use communities
- C. Promote residential and office uses above first floor retail.
- D. Allow flexibility in the development phasing for mixed-use projects while establishing a build-out relationship between the residential and non-residential components that ensures a mix of uses is achieved and to best balance the fiscal costs and benefits of the project.
- E. Promote high quality site and building design, landscape design and buffering in employment areas that reflect their function as a gateway to the Urban Areas and location along major vehicular thoroughfares (see Quality Development).
- F. Accommodate transit infrastructure in Employment Areas (see *Loudoun 2040 Countywide Transportation Plan*).



Employment areas include the following Place Types:

Mixed Employment, Light Industrial, Regional and Community Commercial.

Ensure that development in Employment areas include:

Detailed concept plans, landscape plans and illustrative elevations to demonstrate their design and compatibility.

- G. Ensure pedestrian and bicycle connectivity to surrounding networks and transit nodes within employment areas.

Policy 3: Support the Route 28 Highway Transportation Improvement District, established by the State as a means of providing additional local revenue to pay for improvements to Route 28.

Strategy

- 3.1. Ensure protection of the Route 28 Tax District as an important economic key of attracting major national and international corporations, and ensuring the long-term viability of Dulles Airport

Actions

- A. Continue the non-residential policy to limit residential development in the Route 28 Tax District to the three (3) Mixed Employment Centers that are strategically located to capture high-quality and high-density Office, thereby catalyzing the office development potential while having an overall positive impact to the County’s Route 28 Tax District debt obligations.
- B. Once the County’s financial obligation to the Tax District is met, identify specific areas within the Tax District where the County could consider residential development on a case by case basis that results in a net positive impact to the County.

Design Guidelines

The Design Guidelines are to build upon our current high quality development in a manner that allows innovative design and new responses to the market. While the Design Guidelines are not regulatory requirements, the County’s prefers that all future developments comply with these guidelines. The Design Guidelines do not supersede or otherwise limit the application of adopted zoning regulations, ordinances, building codes, or any other design standards or regulations administered by Loudoun County.

When using the guidelines make sure to analyze the impact a potential development may have on the urbanizing landscape, considering not only appearance, but practical considerations such as proximity and quality of connections to community amenities, jobs, and housing to maximize the use of existing infrastructure and limit travel distances. Development should contribute to creating unique places within the

Suburban Policy Area by working with existing topography and site features, responding to the local context, and reinforcing the regional character. Sustainability requires maximum

The goals of the SPA Design Guidelines are to:

- Create visually interesting and compatible buildings and site designs that use building forms, materials, fenestration, repetition, rhythm, color and architectural variety resulting in delightful blends of form, volumes, textures and colors in the various neighborhoods
- Create inviting spaces for varied activity
- Create a sense of place and uniqueness

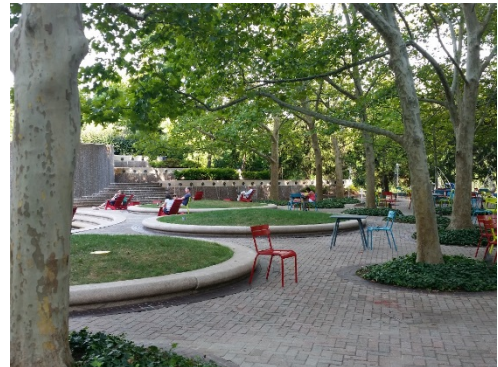
consideration for using the landscape for benefits such as solar heat gain or shelter from wind, as well as building designs which incorporate energy efficient and green building technologies. Dense areas of buildings should contribute to a hospitable microclimate. Development should locate close to the road and avoid isolating itself on the site in order to “maximize presentation.” The bulk of the design should be appropriate to the function of the development. Unless otherwise specified, the following guidelines apply only within the SPA:

Development Criteria:

1. Ensure that the use contributes to and complements the existing development pattern;
2. Consider innovative uses that contribute to the surrounding community;
3. Provide consistency with the desired form, character and land uses of the underlying Place Type;
4. Differences between the height, scale, bulk, setback from the street, or other physical features of the proposed development and existing development in the immediate area;
5. Presence and quality of a spatial or physical transition between uses;
6. Availability of adequate roads, services and infrastructure; and
7. Relationship and incorporation of existing Natural and Heritage resources.

Building Orientation and Setbacks

1. All development should include a site design that is compact and makes buildings the prominent feature of the site as viewed from adjoining/adjacent roads, especially along major thoroughfares. Site design and development should strive to minimize site disturbance and minimize removal of existing, viable vegetation.
2. It is desirable to have civic, open spaces, green spaces, and vegetation to separate parking lots from buildings and areas for human activity. Civic spaces and green spaces are encouraged to have public art enhancements.



Building Design and Façades

1. Buildings within larger multi-building developments should exhibit a unity of design through the use of similar elements such as rooflines, exterior materials, facade treatments, window/fenestration arrangements, sign location, and architectural styles and details.
2. Large freestanding stores, retail centers, commercial centers, and restaurants should be encouraged to provide usable outdoor civic or public spaces.
3. Required drainage and stormwater management facilities, such as holding basins, drainage swales, and culverts should be incorporated as features into the site design of the project,

to the extent possible. Natural drainage features should be conserved to the greatest extent possible, minimizing impervious facilities to the extent technically feasible.

4. Building massing and walls should be varied to break down the scale of large buildings and commercial/retail centers. Long, flat facades are strongly discouraged. It is desirable that building facades should incorporate wall relief, recesses, off-sets, angular forms, or other features to avoid presenting a "blank side" to neighboring properties.
5. Pitched, mansard, and other distinctive roof forms are strongly encouraged.
6. Rooftop mechanical equipment should be screened. Preferably, screening should be incorporated into the roof form. Ground mounted mechanical equipment should be screened.
7. Buildings should incorporate covered entrances to provide weather protection for shoppers and create a pedestrian-oriented environment.

Sidewalks, Streets Trees, and Plantings

1. Large parking areas should be landscaped with trees and shrubs throughout to reduce the visual impact, provide shade, and reduce the heat island effect or heat absorption of the parking area.
2. The street frontage of development should be landscaped with trees to help create a green edge on both sides of the street.
3. Existing environmental features such as natural topography, hedgerows, mature trees, and berms should be integrated into the landscape plan for non-residential centers, when feasible.
4. Non-residential buildings and parking areas should be sufficiently screened and buffered from adjoining residential areas by distance, transitional uses, landscaping, and/or natural vegetation to mitigate the effects of noise, lighting, and traffic on the surrounding residences.
5. Residential areas should be buffered from adjacent non-residential uses by trees, fences, and hedges.
6. Sidewalks should be provided to all development to accommodate benches, bikes, strollers, trees, and planters.

Street Furnishings and Lighting

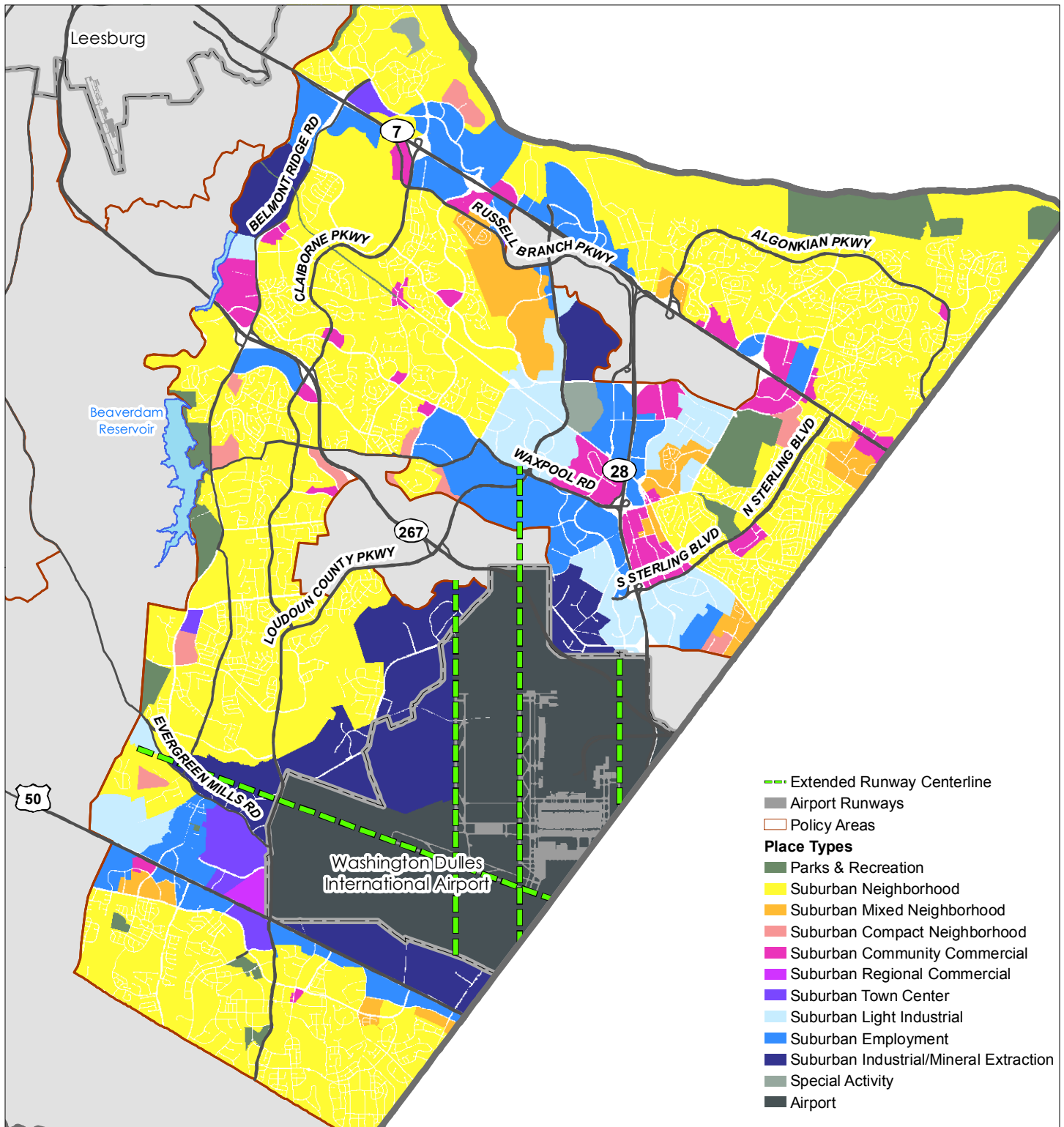
1. Provide usable space and amenities when planning sidewalks which should include street furnishings such as benches, trash cans, kiosks, street gardens, bike racks, outdoor sitting spaces, and public art.
2. Signs for development should be developed as an integral part of the overall design. A unified graphic design scheme is strongly encouraged that is in conformance with an appropriate regulatory framework.

3. Site and building lighting should reduce glare and spillage of light onto adjoining properties and streets. Fixtures should be attractive site elements that are compatible with the architecture of the development.
4. Both lighting and signs should be designed for pedestrians, bicyclists, and vehicles.

Parking, Circulation, and Loading

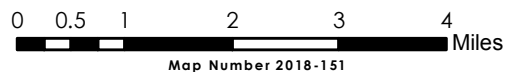
1. All development should strive to create inter-parcel connectivity for pedestrian and vehicular circulation to increase pedestrian activity and decrease vehicular traffic on roadways necessitated by broken inter-parcel connections.
2. Pedestrian traffic, internal to non-residential centers, should be provided with a safe travel route from the parking area to the building with a demarcated pathway and clear directional signage. Trees and other plantings should be provided along the walkway.
3. Parking areas should be visually screened from adjacent streets and residential areas by heavy landscaping, depressing the parking area, and/or by constructing earthen berms.
4. All loading and storage areas must comply with Zoning Ordinance regulations and must be screened from adjacent residential areas by earthen berms, masonry walls, permanent wooden fencing, or dense landscaping.

Loudoun County
Suburban Policy
Area Place Types
 2040 General Plan



- Extended Runway Centerline
- Airport Runways
- Policy Areas
- Place Types**
- Parks & Recreation
- Suburban Neighborhood
- Suburban Mixed Neighborhood
- Suburban Compact Neighborhood
- Suburban Community Commercial
- Suburban Regional Commercial
- Suburban Town Center
- Suburban Light Industrial
- Suburban Employment
- Suburban Industrial/Mineral Extraction
- Special Activity
- Airport

Loudoun County IS NOT LIABLE for any use of or reliance upon this map or any information contained herein. While reasonable efforts have been made to obtain accurate data, the County makes no warranty, expressed or implied, as to its accuracy, completeness, or fitness for use of any purpose.



Suburban Neighborhood



General Description:

Suburban Neighborhood areas include Loudoun’s premier master planned neighborhoods arranged on medium to large lots. Streets in this category are typically arranged in a curvilinear pattern with low to medium network connectivity. Development should be in medium to longer sized blocks with homes set back from the street and parking accommodated by individual driveways and garages. Accessory Residential Units are to include apartments in the principal structure and over a garage or other outbuilding approved by the County. Retail and service uses serve the immediate or routine shopping needs of the immediate neighborhood (grocery, drycleaners, etc.).

Predominant Uses:

- Single Family Detached Residential
- Single Family Attached Residential
- Civic, Cultural, & Community

Secondary Uses:

- Office
- Retail & Service Commercial
- Public Facilities
- Active Adult Retirement Communities
- Multi-Family Residential
- Accessory Residential Units

| Form and Character Guidelines: | |
|--|---------------------------------|
| Use Pattern | Separate Uses |
| Res. Density | 1-6 du / acre |
| Nonres. FAR | Up to 1.0 |
| Land Area Mix (R: Residential, NR: Nonresidential, PC: Public/Civic) | R: 80-90% NR: 0-10% PC: 10%+ |
| Bldg. Height | Up to 3 stories |
| Minimum Open Space | 30% of site |

Suburban Mixed Neighborhood



General Description:

Suburban Mixed Neighborhood areas provide opportunities for a variety of housing types designed in compact developments. Accessory Residential Units are to include apartments in the principal structure and over a garage or other outbuilding approved by the County. Streets in this area are typically hierarchical with moderate network connectivity. Sidewalks and other pedestrian amenities are common in these developments. It is desirable for buildings to have a shallow to medium set back from the street. Areas of this place type should include some parks, trails, or small public plazas, with some open space integrated into individual site plans.

Development block size may vary, with homes set back slightly from the street and parking accommodated on the street or in alleys. Retail and service uses serve the immediate or routine shopping needs of the immediate neighborhood (grocery, drycleaners, etc.).

Predominant Uses:

- Single-Family Attached
- Multi-Family Residential
- Single Family Detached Residential

Secondary Uses:

- Office
- Retail & Service Commercial
- Active Adult Retirement Communities
- Civic, Cultural, & Community
- Public Facilities
- Accessory Residential Units

| Form and Character Guidelines: | |
|---|---------------------------------|
| Use Pattern | Separate Uses |
| Res. Density | 6-16 du / acre |
| Nonres. FAR | Up to 1.0 |
| Land Area Mix (R: Residential, NR: Nonresidential, PC: Public/Civic) | R: 80-90% NR: 0-10% PC: 10%+ |
| Bldg. Height | Up to 4 stories |
| Minimum Open Space | 30% of Site |

Suburban Compact Neighborhood



General Description:

Suburban Compact Neighborhood areas provide opportunities to develop compact neighborhoods that can take advantage of small infill parcels near traditional suburban neighborhoods or high-density walkable urban neighborhoods, depending on the context of their location. They provide opportunities for a mix of housing types including small-lot patio homes, townhomes, duplexes, and multifamily residences that are designed to fit within or adjacent to a traditional style neighborhoods. Accessory Residential Units are to include apartments in the principal structure and over a garage or other outbuilding approved by the County. Small scale office, retail and service uses should be integrated into the neighborhood.

Neighborhood designs typically include alleyways and paths to encourage pedestrian activity. Development should be in short blocks with homes developed along the front of the lot or with shallow setbacks. Parking should be accommodated on the street or in alleys.

Predominant Uses:

- Single Family Attached Residential
- Single Family Detached Residential
- Multi-Family Residential

Secondary Uses:

- Office
- Retail & Service Commercial
- Active Adult Retirement Communities
- Civic, Cultural, & Community
- Public Facilities
- Accessory Residential Units

Form and Character Guidelines:

| | |
|--|---------------------------------|
| Use Pattern | Separate Uses |
| Res. Density | 8-24 du / acre |
| Nonres. FAR | Up to 1.0 |
| Land Area Mix (R: Residential, NR: Nonresidential, PC: Public/Civic) | R: 90-100% NR: 0-10% PC: 0%+ |
| Bldg. Height | Up to 4 stories |
| Minimum Open Space | 10% of site |

Suburban Light Industrial



General Description:

Suburban Light Industrial areas provide opportunities for production, flex space, and warehousing uses that do not require outdoor storage and do not emit odors, noise, or vibrations. These areas are generally more compatible with residential uses than heavy manufacturing because they are less hazardous and have limited impacts on surrounding uses.

It is desirable for buildings in this place type to have medium to deep setbacks and larger block sizes. Surface parking is acceptable. Although there is no civic or recreation space expected, there should still be open space on the site for use of customers and employees.

Predominant Uses:

- Light Production
- Warehousing
- Contractor
- Data Centers
- Flex Space

Secondary Uses:

- Office
- Research & Development
- Retail & Service Commercial
- Institutional
- Civic, Cultural & Community
- Public Facilities

Form and Character Guidelines:

| | | |
|---|------------------|---------|
| Use Pattern | Separate Uses | |
| Res. Density | n/a | |
| Nonres. FAR | Up to 0.6 FAR | |
| Land Area Mix (R: Residential, NR: Nonresidential, PC: Public/Civic) | R: 0% PC: 0%+ | NR:100% |
| Bldg. Height | Up to 4 stories | |
| Minimum Open Space | 30% of site | |

Suburban Employment



General Description:

Suburban Employment areas provide opportunities for a broad array of employment uses within an urban style environment with the intent of providing gathering spaces and opportunities for synergies among businesses. These offer prime locations for startup and established businesses that do not produce noise, air, and traffic impacts and do not require outdoor storage. Developments can be supported by limited first floor retail and multi-family intended for housing workers.

It is desirable for buildings in this place type to have short to medium setbacks and varying block sizes. Parking should be predominantly structured with accommodations for on street parking and limited surface lots.

Predominant Uses:

- Office
- Flex Space
- Light Production

Secondary Uses:

- Research & Development
- Retail & Service Commercial
- Hotel
- Data Centers
- Civic, Cultural, & Community
- Public Facilities
- Multi-Family Residential
- Institutional

Form and Character Guidelines:

| | |
|---|-----------------------------------|
| Use Pattern | Separate or Vertically Mixed Uses |
| Res. Density | 8-24 du / acre |
| Total FAR | Up to 2.0 FAR |
| FAR Mix (R: Residential, NR: Nonres, PC: Public/Civic) | R: 0-80% NR: 20-100% PC: 0%+ |
| Bldg. Height | Up to 8 stories |
| Minimum Open Space | 30% of the site |

Suburban Industrial/Mineral Extraction



General Description:

Suburban Industrial areas consist primarily of one or two story buildings used for warehousing, data centers, or manufacturing. Streets in this district are typically designed to enhance freight ingress and egress. This place type also includes mineral extraction areas that typically consist of quarries and mines. Both heavy industry and mineral extraction are incompatible with residential uses due to the prevalence of outdoor storage and the emissions of noise, odor, and vibrations generated from the use. These uses should be protected from residential uses to maintain their commercial viability.

These uses require medium to long blocks and larger setbacks from the street. Parking can be accommodated on surface lots.

Predominant Uses:

- General and Heavy Manufacturing and Assembly
- Warehousing
- Data Centers
- Fleet & Equipment Sales & Service
- Research and Development
- Outdoor Storage
- Public Utilities
- Quarry
- Outdoor Manufacturing

Secondary Uses:

- Office
- Retail & Service Commercial
- Flex Space
- Light Production
- Public Facilities

| Form and Character Guidelines: | |
|---|-----------------------------|
| Use Pattern | Separate Uses |
| Res. Density | n/a |
| Nonres. FAR | Up to 0.6 FAR |
| Land Area Mix (R: Residential, NR: Nonres, PC: Public/Civic) | R:0% NR: 100% PC: 0%+ |
| Bldg. Height | Up to 4 stories |
| Minimum Open Space | 30% of site |

Suburban Community Commercial



General Description:

Suburban Community Commercial developments provide opportunities for larger format retail commercial establishments and smaller commercial establishments within a “main street” style environment. These developments should be designed to provide access to adjacent neighborhoods and to patrons living in the larger Loudoun community. The predominant uses are community-serving retail commercial and “big box” commercial. This place type encompasses a wide array of commercial designs.

The larger of these developments require long blocks and deep setbacks. Parking may be accommodated on the street, in surface lots, or in parking decks depending on specific needs. Multi-family residential can be introduced into the design of a Suburban Community Commercial development to create a small scale walkable community centered around a commercial retail core.

Predominant Uses:

- Retail & Service Commercial

Secondary Uses:

- Office
- Civic, Cultural, & Community
- Multi-Family Residential
- Hotel
- Institutional
- Public Facilities

Form and Character Guidelines:

| | |
|---|-----------------------------------|
| Use Pattern | Separate or Vertically Mixed Uses |
| Res. Density | 8-24 du / acre |
| Total FAR | Up to 1.0 FAR |
| FAR Mix (R: Residential, NR: Nonres, PC: Public/Civic) | R: 0-80% NR: 15-95% PC: 5%+ |
| Bldg. Height | Up to 5 stories |
| Minimum Open Space | 10% of site |

Suburban Regional Commercial



General Description:

Suburban Regional Commercial developments are opportunities for large format commercial uses, like malls and clusters of big box retail outlets. When the uses are separated, long blocks and deep setbacks with surface parking lots are appropriate. Over time, these developments should be redeveloped to encourage maximum use of land and to vertically integrate a mix of uses on the site. Multi-family residential can be introduced into the design of a Suburban Regional Commercial development to create a vibrant walkable mixed-use community. When uses are vertically mixed, medium-sized blocks with shallow setbacks and mid-block parking are appropriate.

Predominant Uses:

- Retail & Service Commercial
- Office
- Entertainment Commercial

Secondary Uses:

- Hotel
- Multi-Family Residential
- Single Family Attached Residential
- Civic, Cultural, & Community
- Institutional
- Public Facilities

Form and Character Guidelines:

| Use Pattern | Separate Uses | Vertically Mixed Uses |
|--|-----------------------------------|-----------------------------------|
| Res. Density | 8-24 du / acre | 8-24 du / acre |
| Total FAR | n/a | Up to 2.0 FAR |
| FAR Mix (R: Residential, NR: Nonres, PC: Public/Civic) | n/a | R: 0-80% NR: 15-95% PC: 5%+ |
| Land Area Mix (R: Residential, NR: Nonres, PC: Public/Civic) | R: 0-50% NR: 45-95% PC: 5%+ | n/a |
| Nonres. FAR | Up to 2.0 | n/a |
| Bldg. Height | Up to 8 stories | Up to 8 stories |
| Open Space | 10% of site | 10% of site |

Suburban Town Center



General Description:

Suburban Town Center areas provide opportunities for a mix of uses arranged in a pedestrian-friendly urban form to include commercial, entertainment, cultural, and recreational amenities that are responsive to resident and consumer preferences. Accessory Residential Units are to include apartments in the principal structure and over a garage or other outbuilding approved by the County.

Streets in this category are typically interconnected and multi-modal with parking located behind buildings. These centers are locations for regional commercial and entertainment destinations. Short blocks with shallow setbacks and either mid-block or on-street parking are appropriate.

Predominant Uses:

- Retail & Service Commercial
- Office
- Entertainment Commercial
- Multi-Family Residential
- Institutional

Secondary Uses:

- Small-Lot Single Family Residential
- Active Adult Retirement Communities
- Civic, Cultural, & Community
- Accessory Residential Units
- Public Facilities
- Hotel

Form and Character Guidelines:

| Use Pattern | Separate Uses | Vertically Mixed Uses |
|---|-----------------------------------|-----------------------------------|
| Res. Density | 8-24 du / acre | 8-24 du / acre |
| Total FAR | n/a | Up to 2.0 FAR |
| FAR Mix (R: Residential, NR: Nonres, PC: Public/Civic) | n/a | R: 0-80% NR: 15-95% PC: 5%+ |
| Land Area Mix (R: Residential, NR: Nonres, PC: Public/Civic) | R: 0-50% NR: 45-95% PC: 5%+ | n/a |
| Nonres. FAR | Up to 2.0 | n/a |
| Bldg. Height | Up to 8 stories | Up to 8 stories |
| Minimum Open Space | 10% of site | 10% of site |

Transition Policy Area

Vision

The Transition Policy Area (TPA) is a visually distinct area, providing expansive open space and recreational opportunities and accommodating a development pattern that promotes environmental protection, housing diversity, quality design, and economic growth.

Introduction

The TPA is a Policy Area intended to provide a visual and spatial transition between the suburban development in the eastern part of the County and rural development in the west. The *Loudoun 2040 General Plan* implements “visual and spatial transition” by supporting: 1) a community defined by areas of substantial open space dominating the landscape, 2) a built environment that is at a scale that protects the area’s rural character and the natural and cultural resources, and 3) a range of uses that support the needs of residents and the County goals beyond the typical rural uses. The TPA extends over an area of 24,000 acres¹, constituting 7.1 percent of Loudoun County’s total area of 333,558 acres.

The TPA is predominantly residential; however, there are areas suited for industrial development with available roads and infrastructure; as well as public facilities, which benefit from available land, infrastructure, and proximity to the suburban population.

Between 1991 and 2001, the geographic area of what is now the TPA went through four iterations:

- *In 1991, the area consisted of three suburban development phases with ultimate development expected to occur by 1995.*
- *In 1993, the Dulles South Area Management Plan added Upper Broad Run to the Dulles South suburban area at densities between 3 and 6 units per acre and added the Upper and Lower Foley and Lower Bull Run areas at densities between 1 and 3 units per acre.*
- *In 1997, the Dulles South Plan reestablished a suburban phasing boundary west of Northstar Boulevard, designated Rural Policy Area until the County chose to expand the Suburban area.*
- *In 2001, the TPA became a policy area in the Revised General Plan to serve as a buffer between the Suburban and Rural Policy Areas. Six subareas of the TPA were established, each with density and open space requirements.*

¹ Includes 937 acres of land designated Rural Policy Area in previous plans.

In 2017, there were approximately 5,600 residential units, parks, schools, and commercial development on 16,600 acres in the TPA and 6,170 acres available for development.

In the TPA, watershed protection extends over significant lengths of the Goose Creek and the Beaverdam Reservoir, which are sources of drinking water. Conservation easements and proffers provide the 300-foot setback adjoining Goose Creek. Loudoun Water owns the land surrounding Beaverdam Reservoir while the County and NOVA Parks own parkland adjacent to the reservoir.

Trends and Influences

Communities and other subdivisions that did not exist in 2001, such as Red Cedar, Evergreen, and Green Mill Preserve, and that were developed with a village concept, have created a relatively continuous area of low-density projects and open space along the western edge of the TPA. Of the 24,000 acres in the TPA, only 6,200 acres are available for development. However, some of the properties do not have good access to roadways and/or are significantly limited due to steep slopes and other environmental features. Much of the existing residential development in the TPA looks the same as subdivisions in the Suburban Policy Area, with the exception of additional areas of open space. This failure to achieve housing diversity, which detracts from affordability, as well as the appearance and desired character of the TPA, is addressed through revised village and commercial design concepts and a wider range of housing. The demand for suburban-type residential units is expected to continue throughout the County. The TPA is expected to accommodate a limited amount of that demand by offering targeted areas of higher density housing in closer proximity to services and amenities. In 2005, the County decided to extend central utilities to the TPA, which allows a range of uses and a more compact, efficient land use pattern. Since 2005, the TPA has been a source of land for numerous schools and parks. Such facilities are well situated and anticipate serving both TPA and SPA residents.

Due to good east/west access and available infrastructure, the area along the Sycolin Road (Route 625) and Dulles Greenway (Route 267) corridor is conducive to employment uses. These uses help to balance the fiscal cost of residential development and provide for needed light industrial land that is limited in the Suburban Policy Area.

The lower intensity development in the TPA has been accommodated for the most part by the existing road network. However, the current road network offers limited capacity and few links to major thoroughfares. Most of the traffic from the TPA must use John Mosby Highway (Route 50) to travel east. Continuing work on planned road improvements in the area such as Northstar Boulevard (Route 659 Relocated), Sycolin Road (Route 625), Gum Spring Road (Route 659) and Braddock Road (Route 620) increases traffic capacity. Ryan Road (Route 772), Creighton Road (Route 774), and Shreveport Drive (Route 621 Relocated) offer easterly connections that move traffic without adding to volume on Route 50.

Development Principles

The policies, strategies, and actions outlined in this Section implement the following principles:

1. A visual and spatial transition will be maintained between the Suburban Policy Area and the Rural Policy Area.

2. Open space will be the predominant visual element and create a contiguous network of green spaces, accommodating trails and recreational uses. Development will locate on areas of the site that afford the least disruption of natural views of the rural landscape from adjacent properties and roads.
3. Water resources of the Occoquan, Beaverdam, and Goose Creek Reservoirs and the area's river and stream corridors will be protected.
4. New development will be compatible with adjacent existing development by minimizing visibility from other properties, providing appropriate transitions and developing at a compatible scale and intensity.
5. New development will be directed where essential services and infrastructure are in place or planned.
6. New development will appropriately address its impacts on services and facilities.
7. New development will provide accessible open space networks providing trails and passive recreation uses that connect communities and retain the environmental function of the open space.
8. New residential development will provide for a variety of housing and lot sizes, and unit types to support affordable/workforce housing.

Policies, Strategies, and Actions

Unless otherwise specified, the following policies, strategies, and actions apply only within the TPA.

Policy I: Ensure that the Transition Policy Area provides a visual transition between the Suburban Policy Area and the Rural Policy Area, using compact development concepts, substantial open space, and low profile construction to minimize visual intrusion into the natural environment.

Strategies

- 1.1 Accommodate residential and non-residential uses in locations identified on the Transition Policy Area Place Types Map and consistent with the assigned Place Types that support:
 - i. Clustering development to preserve the majority of the land in open space,
 - ii. Retaining views of the natural landscape,
 - iii. Integrating natural and heritage resources into the design of built space,
 - iv. Protecting and enhancing river and stream corridors, and
 - v. Screening adjacent development and roadways with appropriate landscaping and transitions.
- 1.2 Promote community design that provides more unique and innovative residential communities as opposed to typical single-family subdivision with large lots.

Actions

- A. Encourage a variety of housing within individual developments by permitting small and large lot single-family detached units, duplexes, semi-detached units, accessory

units, townhouses, and other housing types that expand affordability opportunities and support the lifestyle preferences of a diverse community.

- B. Modify the Rural and Countryside Village Zoning District standards to accommodate Mixed-use Commercial Centers and the Transition Village development option to expand housing diversity and improve commercial viability.
- C. Require new development to connect to Loudoun Water's central water and wastewater systems and encourage existing development to connect to central water and wastewater facilities.
- D. Continue to define the TPA by six subareas to protect and expand the existing development pattern as identified on the Transition Policy Area Place Types Map.

Policy 2: Offer safe and accessible parks and recreation opportunities that provide diverse activities for all ages, interests, and abilities.

Strategy

- 2.1 Provide a network of protected open space that maintains natural and heritage resources and reinforces the TPA's unique character.

Actions

- A. Develop a Master Plan for parks, open space, and trails in the TPA that: 1) builds on and links current planned trails and park areas, and 2) places greater emphasis on quality, connected, usable, and publicly accessible open space.
- B. Protect the drinking water resources of the Occoquan, Beaverdam, and Goose Creek Reservoirs with natural buffers, improved stormwater management, and other means.
- C. Retain 50 percent open space throughout the TPA, and seek to reserve publicly usable, accessible, and interconnected open space.
- D. Establish programs and regulatory mechanisms to increase publicly accessible open space, consistent with County facilities plans, through easements, land dedications, and purchase.
- E. Require Open Space Plans with individual development applications to illustrate proposed use, public accessibility, resource protection, and connection with other open space.

Policy 3: Non-residential uses will define the Transition Policy Area as a unique planning area and include a range of uses that are compatible with desired development patterns and the rural landscape.

Strategy

- 3.1 Provide for strategic development of commercial, employment, and public uses in areas specified on the Place Type Map that are compatible with desired residential development patterns and the character of the TPA.

Actions

- A. Require Industrial uses to:
 - i. Be located in locations consistent with the Place Type Map,
 - ii. Be visually compatible within a rural environment,
 - iii. Minimize the effects of noise, vibration, and odor,
 - iv. Have access to adequate infrastructure,
 - v. Integrate visually into the natural environment, and
 - vi. Enhance water quality protection when near key water supply reservoirs.
- B. Continue to protect the extractive industry (Bull Run and Luck Stone quarries) by maintaining a quarry notification overlay zoning district.
- C. Establish regulations that ensure new development does not hinder the operation of quarries.

Design Guidelines

The Design Guidelines are to build upon our current development in a manner that allows innovative design and new responses to the market. While the Design Guidelines are not regulatory requirements, the County prefers that all future developments comply with these guidelines. The Design Guidelines do not supersede or otherwise limit the application of adopted zoning regulations, ordinances, building codes, or any other design standards or regulations administered by Loudoun County.

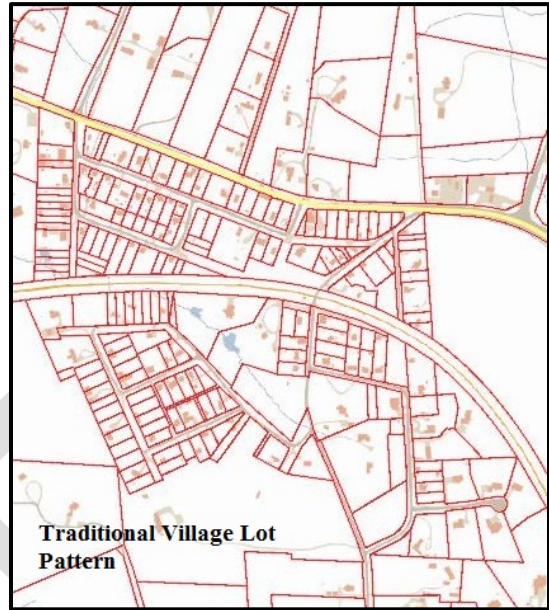
When using the guidelines make sure to analyze the impact that a potential development may have on the landscape, considering not only appearance, but practical considerations such as proximity to utilities, community amenities, jobs, and housing to maximize the use of existing infrastructure and limit travel distances. Development should contribute to creating unique places within the TPA by working with existing topography and site features, responding to the local context, and reinforcing the landscape's character, rather than simply attempting to place suburban design onto the rural landscape. Sustainability requires maximum consideration for using the landscape for benefits such as solar heat gain or shelter from wind. It is realistic and necessary to treat buildings as objects in the landscape and give due attention to their form. Avoid bulky designs by breaking down the mass into smaller elements that follow natural contours. Unless otherwise specified, the following guidelines apply only within the TPA:

1. Designate a minimum of 50 percent of any development as open space that integrates buildings and parking into the existing natural landscape and provides useable space that is accessible to residents and/or the public:
 - a. Perimeter open space may be the predominant component of the 50 percent open space requirement,
 - b. Distribute community greens, playgrounds, and gathering spaces within the development,
 - c. Link open space within the development with pedestrian and bicycle networks to surrounding neighborhoods,

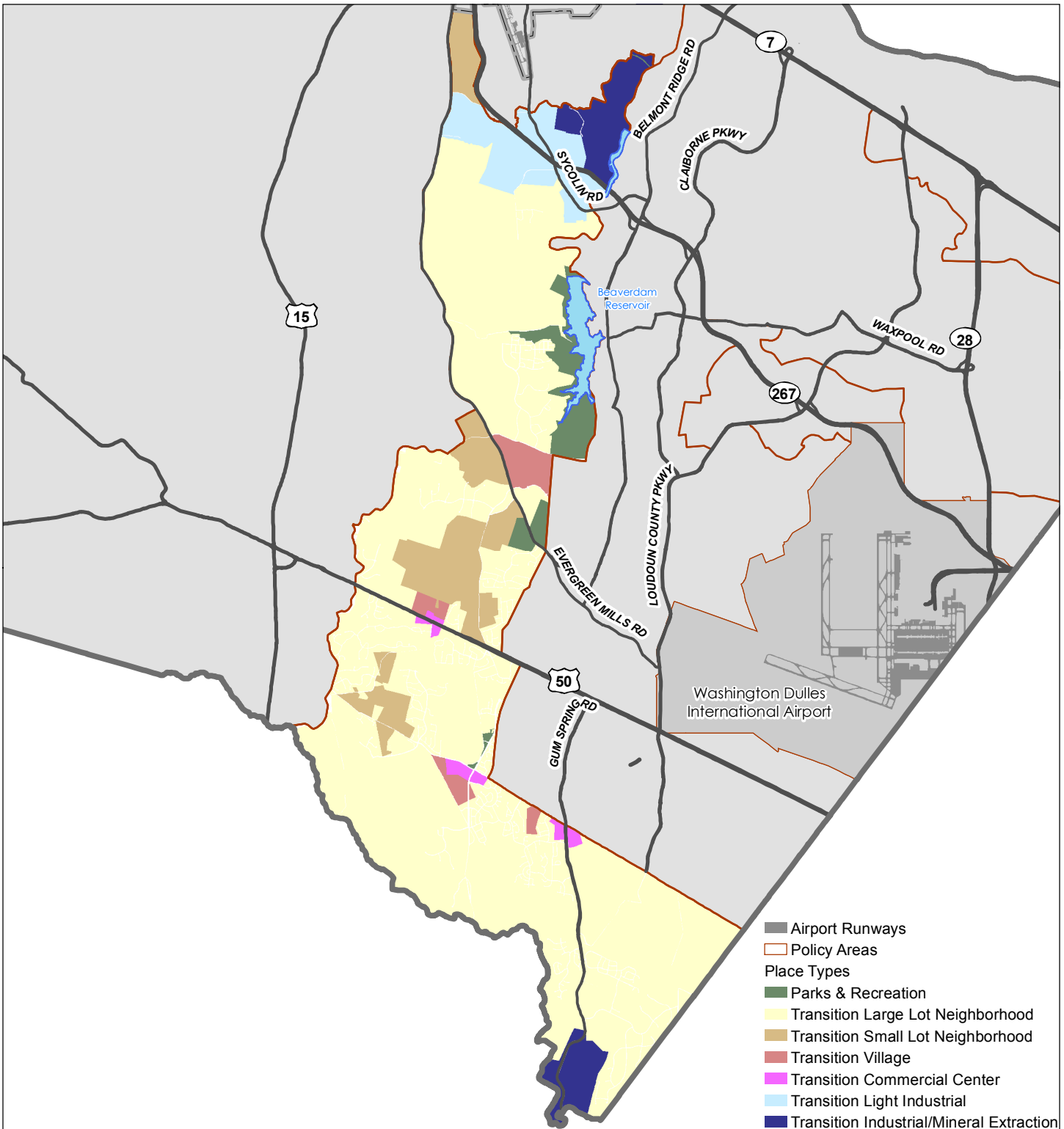
- d. Link the open space to natural and heritage resources, unique site features, and open space in other communities,
 - e. Locate athletic fields along collector roads and visually screen the fields from adjoining residences although trails and sidewalks should provide a connection with the neighborhood, and
 - f. Locate low intensity parks that emphasize undisturbed open space in high-visibility areas or in conjunction with schools, churches, and neighborhood commercial centers where they can serve as a buffer for adjoining homes.
2. Ensure that open space within developments creates or enhances the following:
 - a. The 300-foot buffer and 200-foot transitional area along the Bull Run in the Upper Foley, Lower Foley and Lower Bull Run subareas,
 - b. The 300-foot buffer and 1,000-foot voluntary open space area along the Goose Creek, Goose Creek Reservoir, and Beaverdam Reservoir in the Lower Sycolin and Middle Goose subareas,
 - c. A contiguous network of green spaces to supplement the natural and heritage resources connecting communities and natural resource areas, and
 - d. A public trail and park network to destinations throughout the area.
 3. Locate development on areas of the site that afford the least disruption of views of the rural landscape.
 4. Protect the historic context of nearby archaeological and historic sites and along scenic byway corridors.
 5. In all development, provide trails and sidewalks that connect to adjacent neighborhoods and other destinations within and outside the project.
 6. Ensure that Residential Clusters proposed in Transition Neighborhoods are small in scale and number of units, supporting typically 5 to 25 residential units, to reflect a traditional hamlet scale with multiple clusters separated by open space areas and featuring:
 - a. A variety of lot sizes with no minimum lot size requirement,
 - b. A predominantly single-family detached residential development pattern,
 - c. A network of publicly accessible trails and pedestrian sidewalks linking communities and amenities, and
 - d. A network of tree-lined streets constructed at minimum required widths to merge into the open landscape and slow traffic.
 7. Ensure that housing diversity and affordability are components of larger and higher density developments, such as Transition Small Lot Neighborhoods, Transition Village

Neighborhoods, and Transition Commercial Center Place Types, by including a mixture of housing types and accessory apartments and a range of lot sizes and configurations.

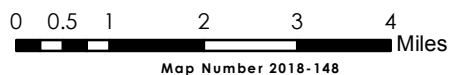
8. Include varying densities in villages with higher densities generally in close proximity to community green, civic use, or small-scale retail uses.
9. Implement diversity in housing size, unit types, lot sizes, and lot pattern along each street frontage and in the same blocks to reflect traditional villages.
10. Include pedestrian features, landscaping, short blocks, few dead ends, and traffic calming features on village streets.
11. Orient and locate buildings close to the street.
12. Address parking in villages through a combination of on-street and off-street choices designed and located to minimize their visual impact.
13. Develop employment uses at a scale that minimizes their intrusion into the rural and natural landscape and their impact on surrounding roads and communities by:
 - a. Screening all outdoor storage and equipment parking areas from adjoining properties and roads,
 - b. Minimizing the number of entrances from major collector or arterial roads;
 - c. Ensuring adequate road and infrastructure capacity,
 - d. Avoiding large expanses of blank building surfaces by using articulation, fenestration and façade treatments, especially when the facades are visible from public roads, and
 - e. Separating heavy industry uses from residences by locating less-intensive uses adjacent to residential uses or using natural or manmade barriers between the uses.



Loudoun County
Transition Policy
Area Place Types
 2040 General Plan



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Transition Large Lot Neighborhood



General Description:

Transition Large Lot Neighborhood continues the existing pattern of low-density residential neighborhoods within the Transition Area, with both estate lots and clustered patterns that preserve a large portion of land as open space for recreational and agricultural use. The open space should partially conceal views of the new residential development from perimeter roadways and adjacent development and protect natural and cultural resources. Predominant uses are clustered small lot residential, larger conservation or estate lots and open space. Schools and other public facilities will continue to be part of the community pattern. Agriculture and related uses are encouraged. Neighborhoods should offer a variety of house styles and sizes and similarly a variety of lot sizes and configurations.

Predominant Uses:

- Large Lot Residential
- Clustered Residential Subdivision
- Accessory Residential Units

Secondary Uses:

- Civic, Cultural, & Community
- Agriculture
- Agricultural Supportive Businesses
- Equine Facilities
- Agritourism
- Institutional
- Public Facilities

Form and Character Guidelines:

| Use Pattern | Separate Uses | |
|--|--------------------|------------|
| Target Residential Density | Lower Sycolin | 1 du/10 ac |
| | Middle Goose Creek | 1 du/10 ac |
| | Lower Bull Run | 1 du/3 ac |
| | Upper Broad Run | 1 du/1 ac |
| | Upper Foley | 1 du/3 ac |
| | Lower Foley | 1 du/3 ac |
| Nonresidential FAR | Up to 0.25 | |
| Land Area Mix (R: Residential, NR: Nonresidential, PC: Public/Civic) | R: 90-100% | NR: 0-10% |
| | PC: 0%+ | |
| Bldg. Height | Up to 3 Stories | |
| Minimum Open Space | 50% of project | |

Transition Small Lot Neighborhood



General Description:

Transition Small Lot Neighborhoods include residential neighborhoods arranged a village or cluster arrangement that includes a focal point such as a civic use, park, green or small commercial center. The predominant use is single family detached units, and some mix of single family detached and attached housing in larger projects. The lot pattern within each community should exhibit a recognizable diversity in lot size and configuration, a variety of house sizes and styles, and a mix of housing types along each street frontage and within each block. Open space and natural vegetation are the dominant visual features and provide public and private trails, passive and active recreation and significant perimeter and environmental buffers.

Predominant Uses:

- Single Family Detached Residential
- Single Family Attached Residential

Secondary Uses:

- Civic, Cultural, & Community
- Agriculture
- Agricultural Supportive Businesses
- Equine Facilities
- Institutional
- Live/Work Units
- Accessory Residential Units
- Public Facilities

Form and Character Guidelines:

| Use Pattern | Separate Uses |
|---|------------------------------------|
| Target Residential Density | Up to 1 du / acre |
| Non-residential FAR | Up to 0.25 |
| Land Area Mix (R: Residential, NR: Nonresidential, PC: Public/Civic) | R: 90-100% NR: 0-10% PC: 0%+ |
| Bldg. Height | Up to 3 stories |
| Minimum Open Space | 50% of project |

Transition Village



General Description:

Transition Villages include a variety of residential options arranged in a compact pattern of interconnected streets intended to provide a walkable community with more diverse housing options intermingled throughout the project. The Transition Village is close to Transition Commercial Centers and should be designed to create an integrated mixed use community. The village concept should be built around a focal point such as a civic use, park, green, the limited commercial uses supported within the Village, or the adjacent Commercial Center. The predominant use is single family detached units, but attached single-family housing is desirable along with small scale multi-family buildings and accessory housing. The lot pattern within each community should exhibit a recognizable diversity in lot size and configuration and different units should be mixed along each street frontage and within each block. Open space and natural vegetation are the dominant visual features and should be crossed by trails, passive and active recreation and significant perimeter and environmental buffers. Nonresidential uses at a compatible scale are appropriate to create a village focal point or core in larger communities.

Predominant Uses:

- Single Family Detached Residential
- Single Family Attached Residential
- Multi-Family Residential

Secondary Uses:

- Active Adult Retirement Communities
- Civic, Cultural, & Community
- Accessory Residential Units
- Live/Work Units
- Retail & Service Commercial
- Public Facilities

Form and Character Guidelines:

| | |
|---|---------------------------------|
| Use Pattern | Separate Uses |
| Target Residential Density | Up to 4 du / acre |
| Non-residential FAR | Up to 0.25 |
| Land Area Mix (R: Residential, NR: Nonresidential, PC: Public/Civic) | R: 90-100% NR: 0-10% PC: 0%+ |
| Bldg. Height | Up to 3 stories |
| Minimum Open Space | 50% of project |

Transition Commercial Center



General Description:

Transition Commercial Centers are located on specific sites identified on the Place Types map and are proximate to Village Neighborhoods. The centers should provide for the daily needs of the community and this may include a combination of grocery stores, pharmacies and civic uses as well as smaller retailers, restaurants, and service providers. The centers also serve commuters on major roads and should, therefore, include two distinct areas; one for a pedestrian activity and the other for conventional automobile-oriented shopping. Other desired features include second-story uses, pedestrian connections to adjacent neighborhoods, extensive landscaping, particularly at the perimeter, and outdoor activity space on sidewalks and greens.

Predominant Uses:

- Retail & Service Commercial
- Civic, Cultural, & Community

Secondary Uses:

- Multi-Family Residential
- Single Family Attached Residential
- Office
- Accessory Residential Units
- Entertainment Commercial
- Public Facilities

Form and Character Guidelines:

| Use Pattern | Vertically Mixed Uses | Separate Uses |
|--|------------------------------------|------------------------------------|
| Residential Density | 4 du/ac | 4 du/ac |
| Nonres. FAR | n/a | Up to 0.6 |
| Land Area Mix (R: Residential, NR: Nonresidential, PC: Public/Civic) | n/a | R: 0-60% NR: 40-100% PC: 0%+ |
| Total FAR | Up to 0.6 | n/a |
| FAR Mix (R: Residential, NR: Nonresidential, PC: Public/Civic) | R: 0-60% NR: 40-100% PC: 0%+ | n/a |
| Bldg. Height | Up to 3 stories | Up to 3 stories |
| Minimum Open Space | 30% of project | 30% of project |

Transition Light Industrial



General Description:

Light Industrial areas provide opportunities for industrial, flex space, and data center uses that do not require significant outdoor storage and do not emit odors, noise, or vibrations. All industrial uses should be low profile and completely screened from roads and adjacent development. Predominant uses are data centers, contractor establishments and small-scale assembly or production. Retail and service uses, incorporated into industrial buildings should support the needs of employees and should not be designed or signed to market to drive by traffic. Open space that creates effective visual buffers and environmental protection on the site will be preferred. Trails and other recreational opportunities are encouraged particularly where they can connect to other existing or planned trails or destinations.

Form and Character Guidelines:

| | |
|---|--|
| Use Pattern | Separate Uses |
| Res. Density | n/a |
| Nonres. FAR | Up to 0.6 |
| Land Area Mix (R: Residential, NR: Nonresidential, PC: Public/Civic) | R: 0% NR: 100% PC: 0%+ |
| Bldg. Height | Up to 4 stories |
| Minimum Open Space | Transition: 50% of site Suburban: 20% of site |

Predominant Uses:

- Light production
- Data Centers
- Flex Space
- Contractor

Secondary Uses:

- Institutional
- Civic, Cultural, & Community
- Public Facilities
- Retail & Service Commercial

Transition Industrial/Mineral Extraction



General Description:

As a primary industry, mineral extraction should be supported and protected as long as the quarries remain viable. Such uses should be protected from residential uses. Predominant uses are quarries, large-scale public facilities and complementary manufacturing operations.

Predominant Uses:

- General Manufacturing and Assembly
- Data Centers
- Research and Development
- Outdoor Storage
- Public Facilities
- Quarry

Secondary Uses:

- Office
- Institutional
- Outdoor Manufacturing

Form and Character Guidelines:

| | | |
|---|--------------------------------|--------------------------------------|
| Use Pattern | Separate Uses | |
| Res. Density | n/a | |
| Nonres. FAR | Up to 0.6 FAR | |
| Land Area Mix (R: Residential, NR: Nonres, PC: Public/Civic) RET: Retail | R: 0% PC: 0%+ | NR: 100% Ret: 0-10% |
| Bldg. Height | Up to 4 stories | |
| Minimum Open Space | 50% of site | |

Rural Policy Area

Vision

The Rural Policy Area (RPA) is an enduring rural landscape that is characterized by a unique composite of natural and man-made environments, rural economy uses, working agricultural lands, open space, and a limited residential base, all of which provide a high quality of life.

Introduction

The RPA occupies the western half of the County and is the largest of the County's Policy Areas. It encompasses approximately 230,000 acres, representing about 67 percent of the County's total land area. The RPA is comprised of a unique blend of pastoral landscapes, working farms, forested areas, mountains, and wildlife habitats. The RPA encompasses six of the County's seven incorporated Towns, 12 existing Rural Villages, and numerous smaller crossroad communities. As of April 1, 2017, the population of the RPA is approximately 40,400 people, representing approximately 10 percent of the County's total population.

The RPA is divided into two areas—the Rural North and the Rural South. Each of these distinct geographic areas (see Rural Policy Area and Village Map) has different base residential densities in response to their dominant rural land use and development patterns. The Rural North (geographically defined as north of Goose Creek and the North Fork of Goose Creek to the County border with Montgomery, Frederick, and Washington Counties, Maryland; Jefferson County, West Virginia; and Clarke County, Virginia) is characterized by a mix of smaller lots that are interspersed with larger parcels that are still in agricultural use. The Rural North, proximate to the Towns within the Route 7 Corridor, has the highest concentration of residential development and a more developed paved roadway network with easy access to commuter routes. Additionally, the Route 15 corridor, both north and south of the Town of Leesburg, has experienced substantial residential growth since the Board adopted the *Revised General Plan* in 2001. The Rural South (defined generally as south of Goose Creek and the North Fork of Goose Creek to the County border with Clarke, Fauquier, and Prince William Counties, Virginia) is characterized by an existing large lot pattern and represents the center of Loudoun's prominent equine industry. The Rural South contains a number of large working farms that are accessed by a network of mostly unpaved rural roads. The Rural South contains Loudoun County's largest amount of permanently protected land that is held under voluntary conservation easements. Both the Rural North and Rural South are marked by a scattering of Rural Villages and small crossroad communities, which provide limited retail and commercial services to rural residents and visitors.

The RPA is home to a centuries old farming community that shaped the physical landscape and the social and economic fabric of Loudoun. However, over the past 30 years, as portions of the County and the region have become more urbanized, western Loudoun has faced increased challenges related to demographic changes, land use, economics, and transportation improvements, which have facilitated and enabled the conversion of land for rural residential subdivisions at an increasing rate as residents seek an alternative to urban life. The adoption of the *Revised General Plan* in 2001 and the accompanying down-zoning of the majority of the land

in western Loudoun in 2003 and in 2006, marked a dramatic turn in the County’s effort to limit residential development in the RPA and established an approach for land preservation tied to the creation of a viable rural economy and the clustering of homes to preserve the rural character of the land. This Plan carries this approach forward.

Rural Residential

A variety of residential development options exist within the Rural Policy Area, including conventional subdivision, spin-off lots, and rural clusters which permit different densities. Among the existing subdivision options, rural clusters remain the preferred residential development pattern in the RPA because these designs better preserve the natural features and open character of the land by tightly grouping homes on smaller lots so that a majority of the land is available for rural economy uses, agriculture, and/or open space. The concentration of homes in a rural cluster also minimize the amount of roads, clearing and grading, and the overall footprint of development in comparison to a conventional by-right subdivision which require placement of homes on a uniform size lot dispersed over an entire property.



Between 2000 and 2016, 5,653 residential units have been built in the RPA. The “build out” analysis for the RPA, which reflects conditions as of July 1, 2016, indicates 91,000 acres of land is uncommitted to development projects, and this results in the potential for up to 11,643 residential units under current policy and entitlements. The acreage calculation includes parcels that are partially or fully developable and excludes floodplain, conservation easements, mountainside, and steep slope, which do not have development potential. The forecasted development from 2016 to 2040 in the RPA is 7,500 residential units based on current trends and the base density allowed by current zoning, which leaves approximately 4,000 residential units to be developed after 2040. The 2040 forecasts and the ultimate residential buildout for the RPA may be much lower than projected above if property owners continue to retain and preserve large areas of land for agricultural, equine activities, open space, and rural economy uses. Other efforts by the County and/or land trusts to establish additional conservation easements will further limit the residential potential allowed by current zoning.

Rural Economy

The County’s land development approach for the RPA is to limit residential development so that land will remain available for the continued operation, expansion, and establishment of agricultural and rural economy uses that preserve the rural character of the landscape and support the County’s environmental goals. Loudoun’s rural economy has grown to become a collection of business uses that currently include crop and livestock production, forestry, horticulture and specialty farm

products, farm markets and wayside stands, the equine industry, orchards, vineyards, farm wineries, cideries, and breweries, hospitality services such as farm-to-table restaurants, rural resorts, bed and breakfasts, country inns, banquet/event facilities, private camps and parks, and other similar uses which are dependent on the rural land base for its agricultural productivity, scenic quality, and rural character to derive income to sustain business activities. The importance of these business to the Loudoun County has led to the implementation of a business development plan for the County's rural economy that aims to double the growth of the County's rural economic sectors within the next decade.

The 2012 Federal Census of Agriculture identified 1,396 farms in Loudoun County (gross income of \$1,000 or more) with a total of approximately 135,000 acres of farmland in production. Over half of these farms (824) were less than fifty acres in size and a quarter of the farms (301) were between fifty and one-hundred and seventy-nine acres. These numbers are slightly down from 2007 when the County identified 1,427 farms with a total of 142,452



acres of farmland in production. This illustrates a number of changes: 1) a shift in the type of farming in the County as land and operational costs continue to rise, 2) the subdivision of larger farms into residential lots, and 3) the decline in the number of farmers. In response to market trends, many farmers in the County have shifted to the direct marketing of agricultural products to consumers through either on-farm sales and/or farmers markets to increase profitability. These specialty farms tend to be smaller in size than traditional farms that produce row crops or raise livestock. These farms include a number of pick-your-own farms which may have fruits, vegetables, flowers, Christmas trees, and other farm-grown products available to the public. A number of farms have also implemented Community Supported Agriculture (CSA) programs where people buy a subscription from a farmer to receive a weekly share of local seasonal produce, meats and other products (depending on the farmer's offerings).

The equine industry is a major component of the rural economy. Loudoun County leads the state in the number of horses, and the equine industry is the County's largest agricultural employer providing thousands of jobs associated with the care of these animals and the operation of barns and stables. The Virginia Tech Equine Center is located north of Leesburg, with Morven Park, Glenwood Park, and Oatlands providing regional venues for horse events. Other smaller stables are scattered throughout the County, which provide private lessons, boarding, trail rides and camps as well as host smaller events.

Loudoun County has the highest concentration of wineries in Virginia, with over 45 wineries and 738 acres in vineyards as of 2017. Loudoun County has been marketed as 'DC's Wine Country',

though it also has the highest number of breweries in the state. The County has a total of 25 breweries, six of which are farm breweries located within the RPA. Black Hops Farm, located near Lucketts, is the site of the region's first hops processing center and Virginia's first dedicated malting operation. As of 2017, there are 10 hops yards in the County with 16 acres in production, and there are two growers cultivating 140 acres of malting grain for the production of beer and distilled spirits. Farm wineries, breweries and cideries that grow their own products maintain significant amounts of land in agricultural use which protects the rural character of the RPA.

The RPA is home to a number of hospitality and tourism businesses which provide thousands of jobs and contribute millions of dollars to the local economy through visitor spending on restaurants, retail goods, lodging, and the hosting of weddings and events. County-sponsored events such as the Spring and Fall Farm Tours, Stable Tours, Wine Trail, Ale Trail and Artisan Trail allow visitors to enjoy self-guided driving tours which support local growers, producers and artisans. Numerous community events such as the Bluemont and Waterford fairs draw thousands of residents and visitors to western Loudoun annually. Heritage tourism is also an important contributor to the County's economy, which include the Journey Through Hallowed Ground National Heritage Area and National Scenic Byway, the Waterford National Historic Landmark District, Balls Bluff Battlefield and National Cemetery, Morven Park, Oatlands, Aldie Mill as well as other historic sites, museums and battlefields. Like many of Loudoun's other rural business uses, these hospitality and tourism businesses rely on the natural, scenic, and rural character of the RPA to attract visitors.

Farmland Preservation and Protection

To support the rural economy and ensure that agriculture continues as a long-term use in the RPA, the County will continue to develop and support voluntary participation in programs that provide assistance and reduced tax burdens to land owners. Such programs and measures as the Land Use Valuation program, the Agricultural and Forestal District Program, the Purchase of Development Rights, the Transfer of Development Rights, and public/private conservation easements will be used to encourage land-owners to use their land to expand the rural economy rather than to convert it to residential use. These programs also assist in the protection of the RPA's unique manmade and natural environment which directly benefit the rural economy.

While the County's Land Use Valuation Program and the Agricultural and Forestal District Program support keeping land in production or open space, they are voluntary programs which do not provide assurances that land will be preserved in perpetuity. The only means of preserving agricultural land and open space permanently is through the establishment of conservation easements on individual properties which restrict residential and non-agricultural uses. Currently over 70,000 acres are preserved through conservation easement in the County, the vast majority of these easement are held by private land trusts. The County should commit to supporting efforts to increase the total acreage of land held in conservation easements as part of an overall land use strategy to further reduce density in the RPA and ensure that farmland and open space are available in perpetuity for future generations. The County may consider implementation of the Purchase of Developments Right program and/or public/private partnerships with existing land trusts to leverage efforts and funding to support the recordation of additional conservation easements.

Future of Rural Strategy

Loudoun County and its citizens continue to recognize the importance of maintaining and preserving the farming and equine heritage, cultural and natural resources, open space, and scenic beauty of the RPA as a fundamental component of the County's identity, which contributes to the overall economic vitality of the County and quality of life of its residents. The County's current growth management approach, which is being carried forward in this Plan, has been successful in limiting residential growth and sustaining the rural economy. This approach has contributed to the County's economic success through attracting businesses, residents, and visitors while maintaining the character of the RPA. The strength of the agricultural sector and the rural economy is a critical component of supporting the economic development and fiscal policy goals of the County. In the future, development pressures and the incremental loss of productive agricultural land to residential development will require continued monitoring by the County to maintain the RPA's unique character.

Policies, Strategies, and Actions

Unless otherwise specified, the following policies, strategies, and actions apply only within the RPA.

Land Use & Development

Policy 1: The RPA's land use pattern builds upon natural, cultural, heritage, and agricultural resources in order to provide character-defining features of the rural landscape.

Strategy

- 1.1. Support uses that protect, preserve, and enhance natural areas and open space, retain farmland and the vitality of the rural economy, and foster a high quality of rural life for residents.

Actions

- A. Incentivize the consolidation of underutilized or undeveloped small lots into larger parcels for agricultural and rural economy uses.
- B. Use public funds to create public and private conservation easements in order to reduce the land that is available for residential development and to provide land owners with financial options to support working farms, rural economy uses, and/or stewardship of the land.

Rural Residential

Policy 2: Limit residential development to protect the land resource for agricultural operations, rural economy uses, and open space uses; minimize traffic impacts; and reduce the demand for additional public facilities and services.

Strategy

- 2.1. Where residential development does occur in the RPA, it should be designed in a clustered pattern that preserves the rural character, works with the land form to preserve

and protect natural features, and conserves land for agriculture, rural economy uses, passive recreation, and open space.

Action

- A. Establish subdivision regulations and design standards that improve the design of clustered residential development.

Rural Economy

Policy 3: Agricultural and rural business uses that are compatible with the predominant land use pattern will be developed in a manner that is consistent with the County's growth management, economic, and environmental goals.

Strategy

- 3.1. Ensure compatibility of rural economy uses through the evaluation of the scale, use, intensity, and design (site and building) of development proposals in comparison with the dominant rural character and adjacent uses.

Actions

- A. Adopt zoning regulations and development standards for rural economy uses. Such regulations and standards will address traffic capacity limits, safe and adequate road access, number of employees, site design standards (i.e., land disturbance, buffering, use intensity, siting, and architectural features), and public health, safety, and welfare.
- B. Allow the establishment and/or expansion of existing commercial, industrial, and institutional uses by Special Exception if the use and/or expansion is: 1) small in scale and compatible with the rural character, 2) preserves ridgetops, natural resources, farmland, and open space, and 3) meets applicable zoning regulations and development standards.
- C. Non-agricultural commercial uses may be permitted by Special Exception if the use is compatible in scale and intensity with the agricultural and rural character of the area, pose no threat to public health, safety and welfare and helps to preserve farmland and open space and continues agricultural operations.

Strategy

- 3.2. Promote the retention and development of rural business uses that sustain and support the County's agricultural and equine industries.

Actions

- A. Adopt zoning regulations and development standards that include new types of rural business and agricultural uses, permit flexibility for the sale of farm products, and promote rural tourism, hospitality uses, and similar kinds of rural business uses that are compatible with the character of the RPA.
- B. Develop zoning standards to permit a variety of residential unit types and accessory apartments for seasonal farm laborers and year round tenant housing to support the rural economy.
- C. Develop County parks with trail networks, cross country courses, and equestrian riding rings or other equestrian-related features.

- D. Develop a publicly accessible multi-use trail network (pedestrian, bicycle, and equestrian) to link private and public lands in the RPA in partnership with nonprofit entities, land owners, and developers of rural properties.

Strategy

- 3.3. Promote and expand agricultural enterprises and the rural economy, and attract rural entrepreneurs to locate in Loudoun.

Actions

- A. Promote rural business sectors and community events to support rural tourism, showcase the rural economy, and strengthen the economic vitality of rural businesses, villages, and towns.
- B. Develop a coordinated service approach to assist rural landowners in the review and development of proposals to maintain agricultural operations, preserve the agricultural potential of farmland, institute farm and rural business plans, and assist in filing applications, which support agriculture, agricultural activities, and the rural economy.
- C. Retain the Rural Economic Development Council (REDC) as an advocacy and advisory committee on initiatives, programs, and policies that affect the economic growth and development of rural Loudoun County.
- D. Support public education and job training in agriculture-based careers to ensure a stable agricultural work force.

Strategy

- 3.4. Maintain the Land Use Assessment Program to provide property tax relief to retain and support agriculture, horticulture, forestry, and open space as critical components of the RPA.

Actions

- A. Regularly review, update, and amend the Use Value Assessment program and other voluntary agricultural programs (such as Agricultural and Forestal Districts) to strengthen the rural economy, preserve the rural character, and maintain the viability of farming.
- B. Develop additional incentives to retain and encourage agricultural enterprises and support land preservation.

Strategy

- 3.5. Promote and encourage the preservation, rehabilitation, and repurposing of farm buildings and structures to maintain infrastructure for future agricultural enterprises and rural economy uses. Where possible, rural business uses should locate in existing agricultural and historic structures.

Action

- A. Adopt zoning regulations and development standards to facilitate the use of existing agricultural and historic structures.

Strategy

- 3.6. Support and increase farming activities and maintain a resilient food network for local consumption.

Actions

- A. Promote community supported agriculture (CSA); the direct sale of farm products between farmers and local consumers including farmers markets, local restaurants and retailers; and the establishment of a permanent year-round indoor farmers market in the eastern portion of the County.
- B. Facilitate effective distribution and assist in the marketing of locally grown products.

Strategy

- 3.7. Protect farming and farmers from nuisance complaints in accordance with the Virginia Code provisions of the Right to Farm Act.

Actions

- A. Develop zoning regulations and design standards that protect the right to farm.
- B. Provide educational programs about farming practices and activities to reduce potential conflicts associated with the proximity of agriculture to nonagricultural uses.

Design Guidelines

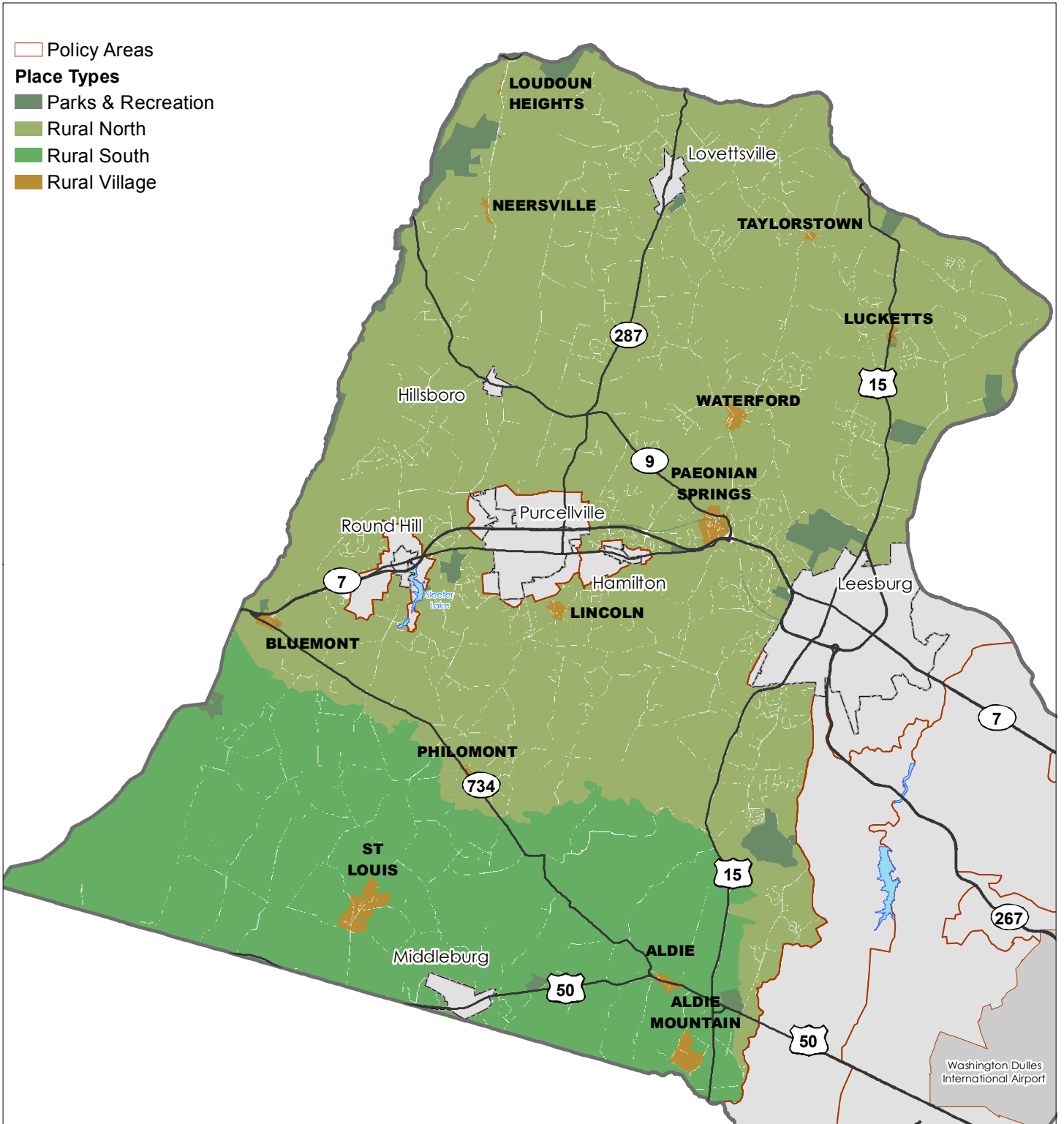
The Design Guidelines are to build upon our current high quality development in a manner that allows innovative design and new responses to the market. While the Design Guidelines are not regulatory requirements, the County's prefers that all future developments comply with these guidelines. The Design Guidelines do not supersede or otherwise limit the application of adopted zoning regulations, ordinances, building codes, or any other design standards or regulations administered by Loudoun County.

When using the guidelines make sure to analyze the impact a potential development may have on the landscape, considering not only appearance, but practical considerations such as proximity to roads, utilities, and community amenities to maximize the use of existing infrastructure and limit travel distances. Development should contribute to creating unique places within the Rural Policy Area by working with existing topography and site features, responding to the local context, and reinforcing the landscape's character, rather than simply attempting to place suburban design onto the rural landscape. Sustainability requires maximum consideration for using the landscape for benefits such as solar heat gain or shelter from wind when siting buildings. It is imperative that buildings and structures are treated as objects in the rural landscape and give due attention to their location and form to ensure they blend with the topography, protect viewsheds, and reflect the historic pattern of development in the RPA. Unless otherwise specified, the following guidelines apply to only within the RPA.

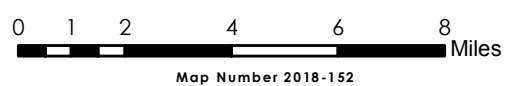
1. Avoid locating development on ridge lines or hill tops to retain the rural character of the landscape and protect significant viewsheds.

2. Site development to preserve existing land forms and minimize significant alterations to the topography while incorporating natural features, trees, hedgerows and other vegetation into the design to provide visual buffers between parcels.
3. Locate development within the landscape to minimize visibility from roadways and other properties.
4. Provide trail connections when feasible to link private and public lands in the RPA as part of a multi-use trail network.
5. Rural Cluster subdivisions are a land development design that compactly groups homes on lots as small as a quarter acre in a traditional community pattern while preserving large tracts of land for open space, agricultural production, and/or rural economy uses to preserve natural features and the rural character. When developing Rural Cluster subdivisions in the RPA:
 - a. Use existing topography, hedgerows, mature woodlands, and other site features to influence the location of the clusters to maintain the rural and scenic quality of the landscape.
 - b. Vary lot sizes and setbacks to provide a compact cluster of building lots and maximize open space.
 - c. Cluster development to retain large areas of agricultural soils for farming.
 - d. Encourage the use of shared water and wastewater systems to serve cluster developments to protect water resources.
6. Develop rural economy and rural business uses to blend with the natural landscape.

Loudoun County
Rural Policy Area
Place Types
 2040 General Plan



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Rural North



General Description:

The Rural North consists of pastoral and forested landscapes that serve mostly agricultural and agricultural supportive uses with limited residential. The area allows for complementary agricultural, rural business, and tourism uses that comprise Loudoun’s rural economy. This category also includes low density, large-lot residential subdivisions that are compatible with the surrounding pastoral character, and clustered subdivisions that group smaller residential lots while retaining large lots for open space, agricultural production and/or rural economy uses. Public utilities are not provided, but shared water and wastewater systems are encouraged for cluster developments and rural economy uses. Minimum lot sizes are dependent upon land use and the development option chosen. All development applications should incorporate natural and heritage resources while preserving important viewsheds that contribute to the rural landscape.

Predominant Uses:

- Agriculture
- Agricultural Supportive Businesses
- Equine Facilities
- Rural Economy

Secondary Uses:

- Large Lot Residential
- Clustered Residential Subdivision
- Accessory Residential Units
- Agritourism
- Rural/heritage tourism
- Public Facilities
- Civic, Cultural & Community
- Institutional

Form and Character Guidelines:

| | |
|--------------------|--|
| Use Pattern | Separate Uses |
| Res. Density | 1 du / 20 acres min |
| Cluster Option | 1 du / 5 acres min |
| Bldg. Height | Up to 2 Stories |
| Minimum Open Space | 70% of site for clustered subdivisions |

Southern Rural



General Description:

The purpose of the Rural South area is to provide an area that contains mostly agricultural and equine uses, and allow for complementary rural economy uses. This category includes very low density residential with homes located on large lots that are compatible with the surrounding pastoral character and clustered subdivisions that group smaller residential lots while retaining large lots for open space, agricultural production, and/ or rural economy uses. Public utilities are not provided, but shared water and wastewater systems are encouraged for cluster developments and rural economy uses. Minimum lot sizes are dependent upon land use and the development option chosen. All development applications should maintain the distinctive rural character through the incorporation of natural and heritage resources and the preservation of important viewsheds.

Predominant Uses:

- Agriculture
- Agricultural Supportive Businesses
- Equine Facilities
- Rural Economy

Secondary Uses:

- Large Lot Residential
- Clustered Residential Subdivision
- Agritourism
- Rural/heritage tourism
- Accessory Residential Units
- Public Facilities
- Civic, Cultural & Community
- Institutional

Form and Character Guidelines:

| | |
|--------------------|--|
| Use Pattern | Separate Uses |
| Res. Density | 1 du / 40 acres min |
| Cluster Option | 1 du / 15 acres min |
| Bldg. Height | Up to 2 Stories |
| Minimum Open Space | 70% of site for clustered subdivisions |

Rural Villages

Vision

Rural Villages are important historic settlements that possess significant heritage, cultural, social, and economic assets that contribute to the character of the Rural Policy Area.

Introduction

The County recognizes the Rural Villages as important features of the RPA that possess unique scenic and historic resources, act as gathering places for citizens, provide services to the surrounding community, and support rural tourism. Many of the Villages were established during the 18th and 19th centuries, in areas located around historic mills, railroad depots, or major crossroads that later developed as commercial and mercantile business centers that served the surrounding farming communities.

The Rural Villages have gradually developed over a number of years and feature a variety of

building setbacks, types, and styles as well as streetscapes that reflect the historic growth and character of the individual villages. The Rural Villages are dominated by residential dwellings with some commercial structures that have upper floor apartments and offices. Small scale, non-residential uses, such as country stores, restaurants, antique shops, and other retail establishments that meet local needs and support tourism, are located within the Rural Villages. In addition, numerous civic uses, such as churches, post offices, community centers, fire and rescue stations, and schools, are also located within the Rural Villages.

The County’s land development approach for the Rural Villages is to limit new residential, business, and commercial activities to uses that are compatible with the historic development patterns, community character, and visual identity of the individual villages. By encouraging compact, new residential and non-residential development within the Villages, these policies complement the County’s efforts to preserve open space and maintain the character of the rural landscape. Although limited new development is anticipated in the Villages, new development should not pose a threat to public health or safety. Only three of the existing Rural Villages—Aldie, St. Louis and Waterford—are currently served by public community wastewater systems, and Aldie is the only village that is served by a private water company. The remainder of the properties located within the Rural Villages are currently served by individual water wells and septic sewage systems (i.e., conventional drainfields, alternative systems, etc.), which limit the potential scale and intensity of development. Additionally, a number of the Rural Villages are bisected by major roadways that experience high volumes of commuter traffic and impact the

| Rural Villages | |
|-----------------|------------------|
| Aldie | Neersville |
| Aldie Mountain | Paeonian Springs |
| Bluemont | Philomont |
| Lincoln | St. Louis |
| Loudoun Heights | Taylorstown |
| Lucketts | Waterford |

quality of life of residents. With careful planning and growth management, the Rural Villages will maintain their scenic and historic character, as well as their social and economic viability.

Policies, Strategies, and Actions

Unless otherwise specified, the following policies, strategies, and actions apply only within the Rural Villages.

Policy I: New development and uses in Rural Villages must be compatible with the historic development pattern, community character, visual identity, intensity, and scale of the individual villages and enhance the quality of life for residents.

Strategy

- 1.1. Encourage the retention and development of a variety of compatible residential and commercial uses that enhance the attractiveness and vitality of the Rural Villages.

Actions

- A. Develop small area plans and master plans for the Rural Villages to support community goals and address issues related to land use and zoning, economic development, natural and historic resources, community facilities and services, water and wastewater, and transportation to maintain the character of the villages.
- B. Develop zoning regulations, design standards and guidelines to achieve compatible building and street design to ensure that quality development occurs within the Rural Villages.
- C. Clearly differentiate entrances into the villages from surrounding areas through appropriate street design, landscaping, and building placement.
- D. Incorporate traffic calming measures where appropriate to reduce vehicle speeds and provide a pedestrian-friendly environment within the Rural Villages.
- E. Retain existing Rural Commercial (RC) zoning and consider new zoning regulations and development standards for commercial uses in the Rural Villages which are compatible with the settlement patterns and neighborhood scale.
- F. Develop criteria to evaluate Rural Villages to determine if their current designation is warranted and amend the Comprehensive Plan and Zoning Ordinance as appropriate.
- G. Develop criteria for evaluating other crossroads communities in the RPA for designation as Rural Villages and amend the Comprehensive Plan and Zoning Ordinance as appropriate.

Strategy

- 1.2. Preserve the character of the villages and their historic structures and sites through the rehabilitation and adaptive reuse of existing buildings.

Actions

- A. Promote and support building maintenance and improvements to preserve the

existing building stock and the character of the villages.

- B. Establish and expand the County Historic Zoning Districts for the Rural Villages.

Strategy

- 1.3. Higher than existing residential densities within the Rural Villages will be supported when the design of the project reinforces the character, development pattern, and identity of the village. Conventional, suburban forms of development are not appropriate in or contiguous to Rural Villages.

Action

- A. Adopt zoning regulations and design standards to encourage traditional housing on smaller lots, allow accessory apartments attached to single-family residential units, and allow residential units above commercial/retail uses within the Rural Villages to provide housing options.

Strategy

- 1.4. Business and commercial uses in the Rural Villages should be small scale, compatible with existing development, meet local community needs and support rural tourism.

Action

- A. Adopt zoning regulations, design standards and performance criteria that are specific to the types of small-scale, community-related commercial uses that the County encourages within the Rural Villages.

Design Guidelines

The Design Guidelines are to build upon our current high quality development in a manner that allows innovative design and new responses to the market. While the Design Guidelines are not regulatory requirements, the County's prefers that all future developments in the Rural Villages comply with these guidelines. The Design Guidelines do not supersede or otherwise limit the application of adopted zoning regulations, ordinances, building codes, or any other design standards or regulations administered by Loudoun County.

When using the guidelines make sure to analyze the impact potential development may have on the Rural Village and surrounding landscape, considering not only appearance, but practical considerations such as road and street access, siting of buildings and parking, safe and adequate water and wastewater, community amenities, jobs, and housing to assess compatibility. Development should contribute to the unique character of the Rural Villages to integrate and blend with existing development patterns and building styles.

Many properties within the Rural Villages of Aldie, Bluemont, Lincoln, Taylorstown and Waterford are located within County Historic and Cultural Conservation Districts which are zoning overlays which regulate the appearance of properties through architectural design guidelines. Any alterations, additions, demolition or relocation of an existing structure or any new construction within the conservation districts requires approval from the County's Historic District Review Committee. The goal of the architectural review processes is to ensure the historic, architectural, and landscape characteristics that are unique to the villages are protected, preserved

and enhanced for future generations. While the remainder of the Rural Villages do not have historic district zoning overlays, the County's policies also support compatible development and the retention of the unique character of the individual villages. Public water and wastewater facilities are encouraged to provide services to the villages. The following design guidelines apply to development within the Rural Villages.

1. New development should reinforce the existing pattern of streets/roads in the Rural Villages.
2. The streetscape of Rural Villages should incorporate sidewalks, crosswalks, lighting, landscaping and other street amenities which enhance the pedestrian experience and contribute to the visual quality of the village.
3. Incorporate and retain existing trees and other site vegetation, especially when these features form a visual edge defining the streetscape or space between properties.
4. New buildings will be oriented on their site to maintain the existing street pattern, street design, and relationship to other buildings to reinforce the historic development pattern of the village.
5. The scale, size, massing, and design of new buildings will adopt building forms and architectural styles related to the individual character of the village.
6. Where the footprint of a new building is larger than existing buildings, reduce the perceived mass by dividing the building into smaller pieces with varying wall planes and rooflines. Design new commercial development to conform with the storefront configuration of existing historic examples, when no local precedent exists look to other examples in the villages to inform new construction.
7. Site parking, mechanical units and other site features in locations which diminish their visual impact from the street.

Rural Village



General Description:

Rural Village consist of small, pedestrian-scaled rural communities that are compact in comparison to its surrounding agricultural landscape. These villages are designed around a small residential and/or commercial core that provide for the daily needs of village residents, surrounding rural residents, and visitors. The 12 Rural Villages have their own unique character linked to their historic development pattern and location within the County.

Predominant Uses:

- Single Family Detached Residential
- Retail & Service Commercial

Secondary Uses:

- Office
- Live/work units
- Civic, Cultural, & Community
- Rural/heritage tourism
- Rural Economy
- Accessory Residential Units
- Public Facilities

Form and Character Guidelines:

| | |
|--------------------|-----------------------------------|
| Use Pattern | Separate or Vertically Mixed Uses |
| Res. Density | 1 du / 1 acres min |
| Res. / Nonres. Mix | 60-80% / 20-40% |
| Bldg. Height | Up to 2 Stories |

Towns and JLMAs

Vision

The western Towns will continue to be hubs of economic and cultural activity in western Loudoun.

Introduction

The seven incorporated Towns in Loudoun County offer a window to the County's past and are a key component of Loudoun's unique character today. All have existed as independent incorporated entities for more than a century, first as agricultural business centers, providing markets for farm products and the necessary goods and services for rural residents. While still influenced by their agricultural tradition, the Towns play a larger economic and cultural role that includes retail and service-based businesses, educational opportunities, medical centers, and industrial centers.

The Joint Land Management Areas (JLMA), in place since 1991, intend to accommodate the outward expansion of the Towns. The JLMAs have specific zoning regulations that offer a range of densities, design guidelines, and utility requirements. While Round Hill, Purcellville, and Hamilton have seen extensive development in the JLMA, such development has not always reflected the design and historic character of the Towns. Lovettsville, Middleburg, and Hillsboro chose not to have a JLMA because of utility constraints, concerns about growth, or a desire to concentrate inside their existing limits. Leesburg's JLMA has developed in the manner recommended by Town and County plans and has a distinct suburban pattern.

Trends and Influences

General

Loudoun County's longstanding goal is for the Towns to extend their boundaries to accommodate new development in the JLMA areas that reflects the character of the Towns through street layout, building diversity, and density; however, this has not come to fruition. While the Towns have extended utilities, most intend to limit annexation for fiscal reasons.

Most Towns support retaining and adding public facilities and have expressed concerns for the loss of existing schools and facilities. A number of comments spoke to the desire for trail connections between Towns, connecting the Washington and Old Dominion (W&OD) Trail to Franklin Park and Round Hill as well as a connection between the Chesapeake and Ohio (C&O) Canal Trail in Brunswick, Maryland, and the W&OD Trail. Round Hill is also exploring its proximity to the Appalachian Trail as an economic development opportunity and considering connections between Franklin Park and the Town's park at Sleeter Lake.

Hamilton

Hamilton's population has not increased over the last decade, though, the existing JLMA around Hamilton and the adjacent RPA along the north side of its boundaries have developed with residential uses. Hamilton has extended utilities outside of its boundaries and has water facilities in the JLMA but does not foresee expansion of the JLMA. The existing school and school support facilities on the western edge of the JLMA serve to separate the community from Purcellville.

Hillsboro

Hillsboro annexed adjacent properties that were previously split by the Hillsboro/County boundary; however, beyond these additions there are no plans to expand the boundaries. Large open space easements, along with sensitive environmental areas, create a natural greenbelt around Hillsboro. Heavy traffic on Charles Town Pike (Route 9) affects the community, which continues to seek ways to mitigate these affects.

Leesburg

Leesburg is unique by virtue of its geographic location and size, as well as its larger institutional role as the County seat. By its location, it functions and appears to be more of an urban extension of suburban eastern Loudoun with higher intensity development and a significantly larger commercial sector than other towns. Between 2001 and 2016, Leesburg added 5.5 million square feet of retail, commercial, office, and institutional development and approximately 4,300 residential units. On the south, west, and north sides of Leesburg there is no JLMA; instead, policies support a half-mile wide greenbelt and a “hard edge” adjacent to the Town.

JLMA land uses reflect Leesburg’s Comprehensive Plan and no major changes to land use are foreseen in the JLMA. Leesburg’s focus is on transportation improvements in the bypass corridor and continued economic activity in the downtown area. Leesburg does provide utilities to the JLMA. Completion of Crosstrail Boulevard (Route 653 Relocated) could significantly increase development interest in the JLMA east and south of Leesburg, but the loss of several tracts of land to residential development may limit additional industrial potential.

Residential development is planned in the JLMA area north of Harry Byrd Highway (Route 7). The area is subject to Virginia Code Section 15.2-2303.4, which constrains the County’s ability to accept capital facility proffers to reduce the fiscal impact of new residential development. Chapter 6: Fiscal Management and Public Facilities, details the means of mitigating the impact of new residential development.

Lovettsville

Lovettsville continues to focus on development inside its existing boundaries and prefers a “hard edge” between its boundaries and the surrounding rural landscape. Lovettsville has made significant investments in streetscape improvements and trails. Commercial development has also occurred at the Town Center and along East Broad Way (Route 673). The amount of available land inside Lovettsville’s boundaries is significantly smaller than it was in 2001 but several large tracts are developer-owned. While utilities extend outside Lovettsville’s boundaries for health and public facilities, there is no desire to expand, partially due to the responsibility Lovettsville would have to assume for maintenance of the local roads if its population exceeds 3,500 residents. Lovettsville supports continued cooperation on transportation and public facilities, with a strong interest in trail connections to a County system that connects the C&O Canal and W&OD trails.

Middleburg

Middleburg prefers to maintain a “hard edge” between its boundaries and the surrounding rural landscape, rather than add a JLMA. Middleburg desires to retain policies that support ongoing projects and programs, such as streetscape improvements, and to continue cooperation with the

County related to transportation and traffic calming. Issues of concern for Middleburg include retaining the rural character of John Mosby Highway east of the Town, increased traffic, retention of school facilities, and the loss of community center space.

Purcellville

Population growth projections for Purcellville indicate that the population could increase by approximately 5,000 people by 2040, which could equate to as many as 1,780 new homes in the area. Employment may increase by over 5,000 jobs during this time. This growth may increase the need for transportation improvements, such as the Harry Byrd Highway (Route 7 Bypass) interchange at Hillsboro Road (Route 690) and the Route 7 Bypass/Berlin Turnpike (Route 287) intersection. Purcellville supports trail connections, particularly between the W&OD Trail and Franklin Park. As Purcellville considers potential future growth, issues of concern include limiting residential density and discouraging low-revenue uses, such as parking lots, storage, and warehousing.

Round Hill

Growth potential within Round Hill's boundaries is very limited with a projected buildout of only 20 additional residences. In contrast, the JLMA around Round Hill has experienced the addition of 1,200 new homes and approximately 3,000 residents over a 16-year period. Approximately 400 additional homes can be built in the JLMA. As development in the JLMA increases, Round Hill's ability to balance revenue and costs will be a significant consideration in annexing these residences into Round Hill's boundaries. The Town continues to seek commercial gateways at the east and west entrances to Town and is constrained downtown by the lack of space. Continued maintenance of the local roads by the Virginia Department of Transportation (VDOT) is also a growth consideration, should Round Hill wish to increase the size of its boundaries through annexation.

There is a desire to expand public-use facilities and provide the community with additional amenities, such as a daycare, senior center, and community center. Round Hill also has an opportunity to become an Appalachian Trail community by taking advantage of its proximity to Bear's Den and Blackburn trail stops.

Policies, Strategies, and Actions

Unless otherwise specified, the following policies, strategies, and actions apply only within the Towns and JLMAs.

Policy I: The County will support conservation of historical and cultural resources in and around the Towns to preserve the identity of each Town distinct from the surrounding rural area.

Strategy

- 1.1 Encourage new development to locate within the Towns before moving into the JLMAs or surrounding area.

Actions

- A. Encourage the maintenance, improvement, or adaptive re-use of existing building stock in a manner that supports social and economic diversity within the community.

- B. Promote the commercial areas within the Towns as the preferred location of retail and service businesses, office development, and major civic uses.
- C. Work with the Towns to enhance their economic base and maintain viable commercial areas through marketing, capital investments, and business attraction.

Strategy

- 1.2 Encourage community-design concepts with new development in the JLMA that extends the existing and planned development patterns of the Towns.

Actions

- A. Coordinate with the Towns on planning and development in areas surrounding the Towns by undertaking joint planning efforts in the JLMAs, referring to Town and County policies applicable to development applications, and offering technical support.
- B. Implement a greenbelt around the Towns or their JLMAs through conservation design efforts, preservation of natural resources, and location of passive and active parks to help maintain the distinct character of each Town.
- C. Encourage annexation by the Towns when water and sewer extend into a JLMA.
- D. Support the Towns in negotiations with VDOT and other relevant agencies for safety improvements and traffic calming, particularly along Route 50, Route 7, Route 9, and Route 287 in proximity to the Towns, and other changes in roads and/or transportation services that are consistent with both the Town's and the County's development goals and priorities.
- E. Assess the effectiveness of the JLMA approach and associated zoning to protecting town character or maintaining a "hard edge" between the town and the rural area.

Strategy

- 1.3 Continue to recognize the Towns as the preferred location of public facilities in western Loudoun County when land is available for development.

Action

- A. Encourage the continued use and enhancement of existing public facilities located in the Towns and JLMAs and seek to maintain existing community-based schools as an important social and economic component of the communities.
- B. Cooperate with the Town Councils of those communities providing local law enforcement to ensure a coordinated enforcement strategy within the Town JLMAs.
- C. Support development of sidewalks and recreational, multi-use, and equine trails connecting the Towns to each other, to regional trail networks such as the W&OD and C&O Canal, and to area destinations.

Development Guidelines

Unless otherwise specified, the following guidelines apply only within the JLMA.

1. Support the preservation and protection of historic, cultural, and environmental resources in and around the Town.
2. Support development of distinct “gateways” into each community and protect rural view sheds leading into the towns.
3. Protect scenic views along roads leading into the Towns through measures such as revised State Road Improvement Standards; scenic or conservation easements; the creation of historic corridor overlay zoning; and development setbacks.
4. Encourage a variety of housing types and commercial development that are consistent with applicable Town and County policies, are compatible with the existing communities, and extend in a contiguous, rational and convenient manner from the Towns.
5. Encourage residential communities in the JLMA to exhibit:
 - a. A variety of lot sizes and, where permitted, a variety of unit types,
 - b. A street network without cul-de-sacs and P-loop streets with numerous connections to existing streets,
 - c. An interconnected block pattern with compact lots, shallow front and side-yard setbacks, and small block sizes,
 - d. Sidewalks along all streets, providing access to the town or neighborhood center, public buildings, parks, and other destinations,
 - e. A compatible mix of complementary residential and non-residential uses such as home-occupation businesses, churches, and schools,
 - f. Parks, squares, or greens that provide a combination of natural and passive open spaces throughout the development, and
 - g. A central public focal point consisting of any combination of a park (village green); a public facility such as a church or community center; natural features; or neighborhood commercial uses.

Reference Maps

Policy Areas (Map #2018-155)

Priority Commercial Redevelopment Areas (Map #2018-156)

Urban Policy Areas Place Types (Map #2018-150)

Suburban Policy Area Place Types (Map #2018-151)

Transition Policy Area Place Types (Map #2018-148)

Rural Policy Area Place Types (Map #2018-152)

Conservation Easements in Rural Policy Area in 2018 (Map #2018-146)

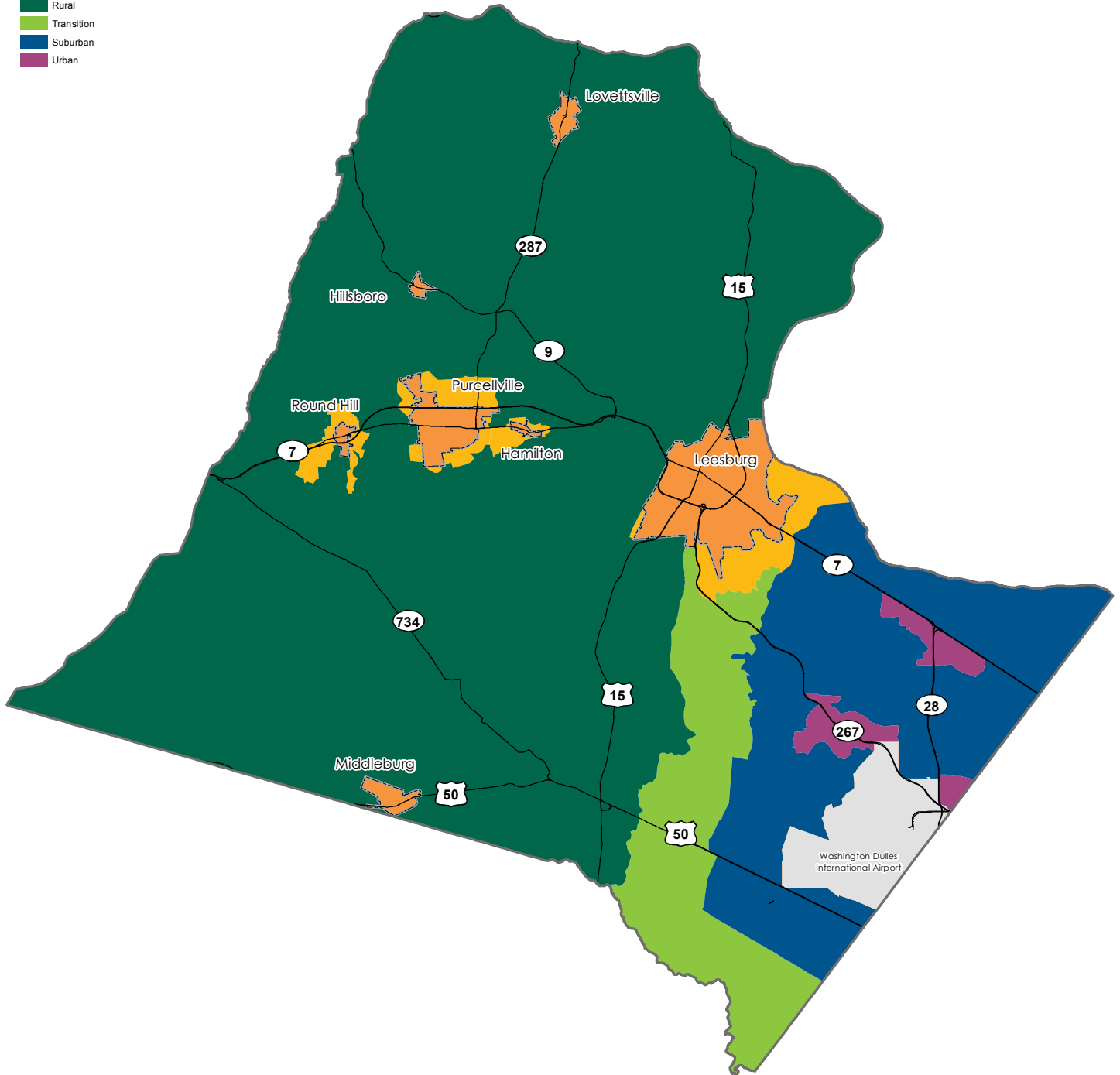
JLMA Boundaries (Map #2018-149)

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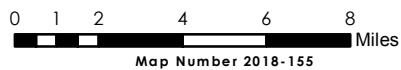
Loudoun County
Policy Areas
2040 General Plan



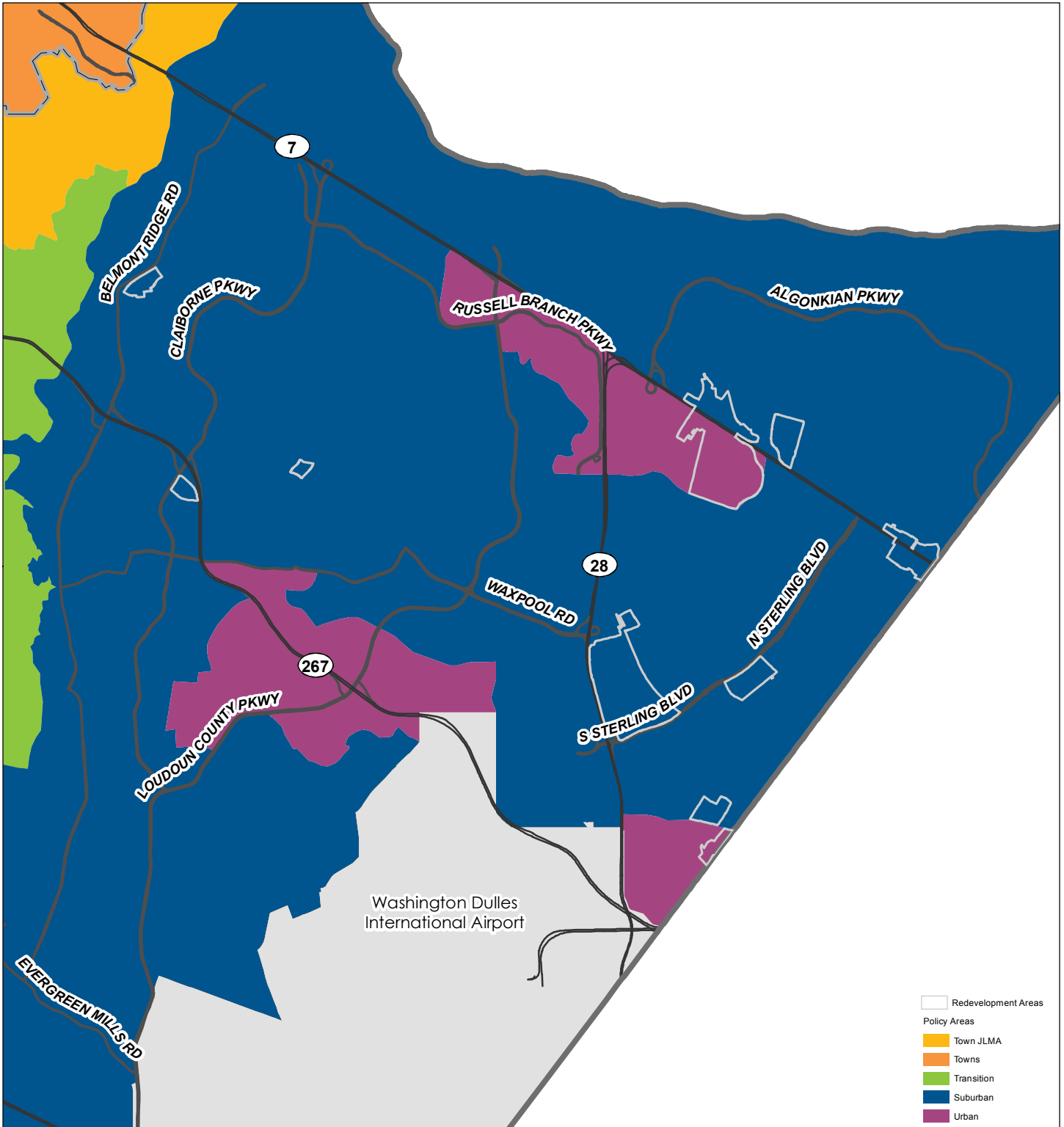
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- Towns
- Rural
- Transition
- Suburban
- Urban



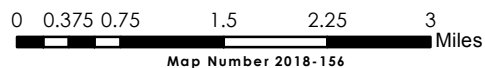
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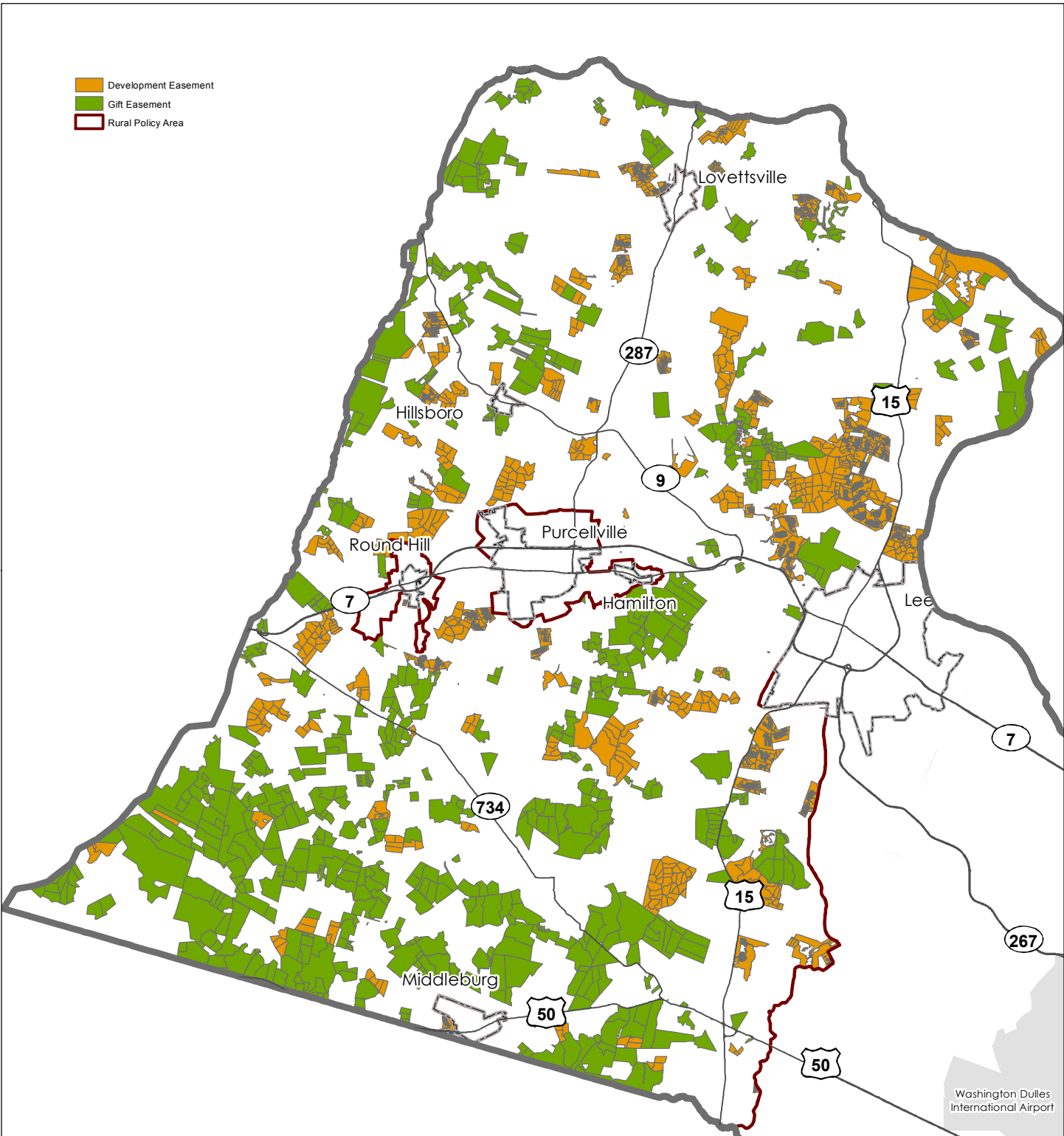
Loudoun County
**Priority Commercial
 Redevelopment Areas**
 2040 General Plan



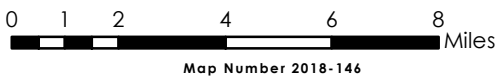
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Loudoun County
**Conservation Easements
in Rural Policy Area in 2018**
2040 General Plan

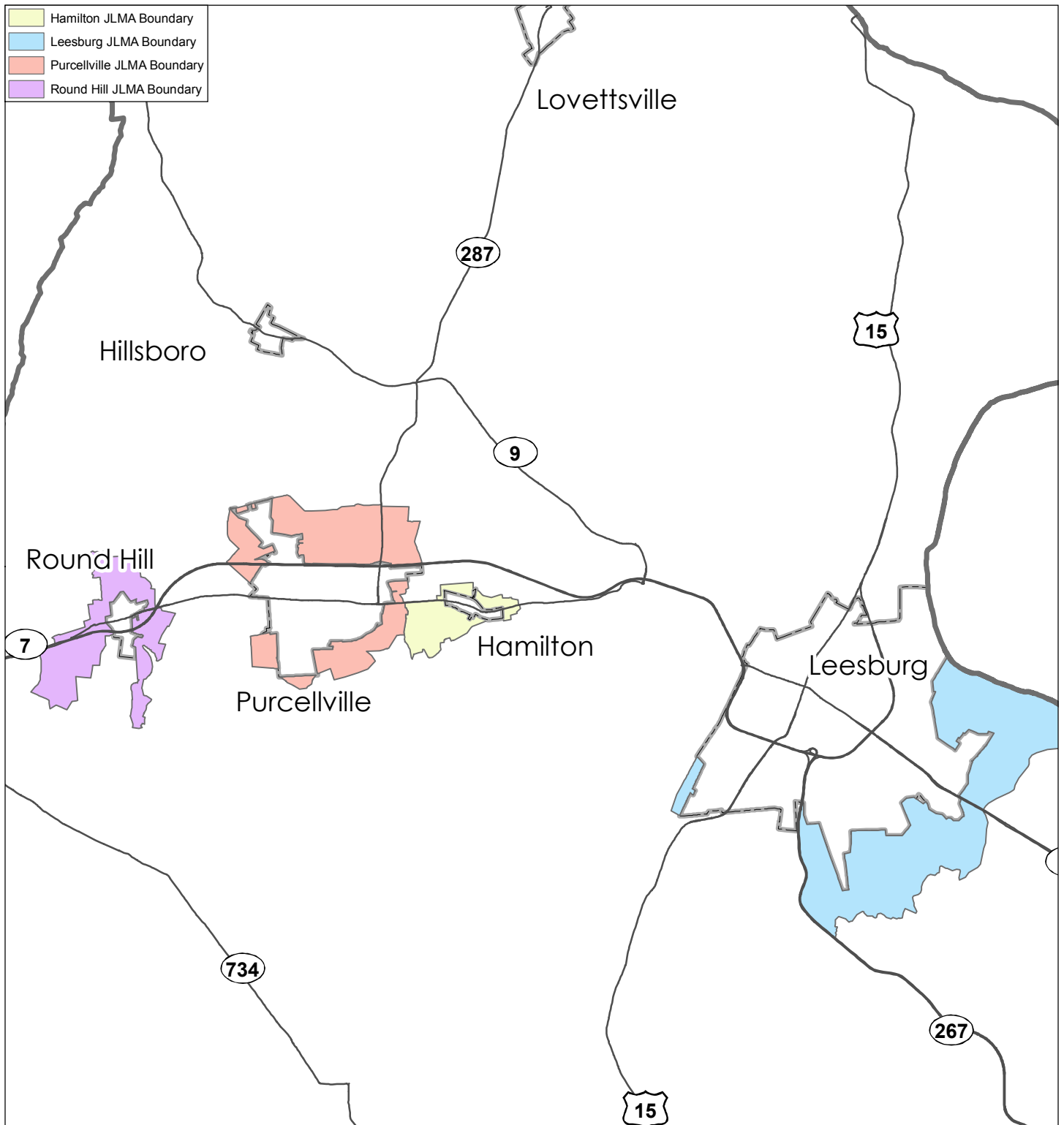


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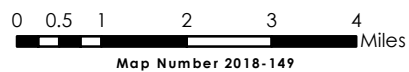


JLMA Boundaries

2040 General Plan



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Chapter 3 - Green Infrastructure: Environmental, Natural, and Heritage Resources

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Chapter 3 -

Green Infrastructure: Environmental, Natural, and Heritage Resources

Vision

Protect and enhance the County's natural and heritage resources, which are fundamental to the health, safety, welfare, and enjoyment of current and future generations.

Introduction

Abundant natural and heritage resources define Loudoun County's unique sense of place. Natural and heritage resources include the Potomac River edge, major rivers, stream corridors, floodplains, wetlands, steep slopes, ridges and mountainsides, forested and vegetative landscapes, limestone geology areas, farmlands, soil resources, important plant and habitats, historic and archaeological sites, scenic areas and corridors, designated heritage areas, battlefields, historic cemeteries, and cultural landscapes. Also of importance to the health, safety, and welfare of Loudoun residents are those elements that are complementary to the natural and heritage resources, such as air quality, aural environment, and the beauty of the night sky. Natural and heritage resources are tangible assets that make the County an appealing place to live, work, play, and learn while contributing directly and indirectly to Loudoun's economy.

This chapter provides the guidance for the protection of natural and heritage resources in conjunction with the development and redevelopment of the County. The protection and integration of natural and heritage resources are important not only as County assets but to protect the safety, health, and welfare of Loudoun residents and should be a primary consideration in the development of a site. Although many of the County's best preserved natural and heritage resources are located within the Rural Policy Area, important resources have been identified in all parts of the County and are, in many cases, critical to the character of individual communities both east and west. The County has a history of protecting and preserving these important resources through policies, regulatory measures, land acquisition, and educational programs. The protection of these resources will not only provide environmental and heritage benefits but will enable residents to experience the natural environment within the context of the built environment. The protection of these resources is interrelated, creating a network of environmental and heritage resources. For instance, the protection and preservation of existing forest cover adjacent to a stream will help to filter pollutants from entering the stream and provide for streambank stabilization, while also improving air quality, conserving energy, creating wildlife corridors, and protecting archaeological resources.

Updating and adopting zoning regulations and development standards to implement the objectives

of this chapter will be important for protecting the health, safety, and welfare of Loudoun residents as well as preserving natural and heritage resources for the enjoyment of future generations.

Principles

Protect and enhance natural and heritage resources by considering the following:

- Conservation – Careful management of natural features within the built environment.
- Preservation – Retaining and protecting natural and heritage resources.
- Restoration/Recapture – Enhancing natural and heritage resources wherever possible.
- Education – Communicating the importance of natural and heritage resources.

Policies, strategies, and actions outlined in this chapter provide the County with the tools to address and achieve these principles.

Topics

Water Resources

River and Stream Corridor Resources (RSCRs) comprise the County's largest natural ecosystem supporting air quality, water quality, and biological diversity. In the event that the floodplain and adjacent steep slopes are less than 100 feet beyond either stream bank, a 100-foot minimum stream buffer will protect the river and stream corridor. The buffers help to maintain stream bank stabilization, temperature moderation, flood control, and aquatic habitat as well as filter nutrients and sediments from upland disturbances. Because rivers and streams and their associated floodplains are dynamic, the buffers help to ensure that development adjacent to the floodplain today will not be in the floodplain in the future. The 50-foot management buffer can be reduced if it can be shown that a reduction does not adversely impact the floodplain, adjacent steep slopes, wetlands, and riparian forests of the river and stream corridor.

River and Stream Corridor Resources (RSCRs) consist of rivers and streams that drain 100 acres or more, associated 100-year floodplains, adjacent steep slopes, and a 50-foot management buffer surrounding the floodplains and adjacent steep slopes. The 50-foot management buffer protects the other RSCR elements from upland disturbances and adjacent development.

The County has two Scenic Rivers—Goose Creek and Catoctin Creek (from Waterford to the Potomac River). These scenic rivers are an important part of the County's river and stream corridor system. The County also seeks to preserve the Potomac River shoreline.

Major water resource issues for the County include ensuring an adequate supply of drinking water, protecting groundwater and surface water from contamination and pollution, and preventing the degradation of water quality in the watersheds.

Impaired Streams

Many stream segments across the County have been designated as “impaired” by the Virginia Department of Environmental Quality (DEQ). In 2009, the County conducted an assessment of streams within all the County’s watersheds. The County assessment indicated impairments in over 75 percent of County streams. One tool used by the County to help restore these degraded waters is the Total Maximum Daily Load (TMDL) program, which is defined by Section 303(d) of the Clean Water Act (CWA). The TMDL represents the amount of a pollutant that a waterway can assimilate and still maintain its health. The TMDL identifies the responsible pollutant and the suspected cause and source of the pollutant. Based on the results of the TMDL, DEQ may require the County to develop and implement a TMDL Action Plan to reduce pollutants. If required, actions may include stormwater pollutant reduction and mitigation projects, such as stormwater infrastructure retrofits, reforestation, stream restoration, and/or riparian plantings. Additionally, Loudoun County is located within the Chesapeake Bay Watershed and is currently subject to the Chesapeake Bay Total Maximum Daily Load (TMDL) and the Chesapeake Bay Watershed Implementation Plan (WIP), which requires state jurisdictions within the watershed, including Virginia, to meet sediment, phosphorus, and nitrogen reduction goals by 2025.

Since 2001, the County has completed several efforts regarding water resources, such as water quality monitoring, the 2009 County Stream Assessment, Strategic Watershed Management Solutions, the Chesapeake Bay Watershed Implementation Plan, the Comprehensive Watershed Management Plan, the Upper Broad Run Watershed Management Pilot Project, and the Countywide Floodplain Remapping of February 17, 2017.

Due to the length of the TMDL process and the number of impairments in the County, it may take decades before certain water quality restoration efforts achieve positive results. Additionally, given the anticipated rate of development within the County, many areas will likely have entitlements prior to the development of the local TMDL Action Plans. Therefore, a proactive approach towards water quality efforts will help to avoid costly and time-consuming processes to restore water quality to the required standards after development is completed. Actions and cooperation by all sectors including County Government, land developers, and property owners are needed to effectively control and meet required pollution standards to protect water resources.

Watershed Management Planning

The 2008 *Comprehensive Watershed Management Plan* (CWMP), provided a preliminary classification of the County’s 161 subwatersheds into categories of “improve,” “mitigate and maintain,” and “preserve.” The CWMP recommends approximately 90 specific watershed management activities, some of which the County has already implemented.

The CWMP recommended a watershed management plan pilot project as the next step to achieving Loudoun County's goal of effective management of the County's water resources. The watershed management planning process is intended to address the many mandates that the County must meet in each individual watershed. These include the requirements of the National Pollutant Discharge Elimination System (NPDES), Municipal Separate Storm Sewer System (MS4) permit, watershed-specific TMDLs, and the Bay TMDL. The County developed the Upper Broad Run Watershed Management Pilot Project (UBRWMPP) in 2013-2014. The UBRWMPP assessed the current conditions within the watershed, developed watershed management practices that could be implemented to make progress toward TMDL or other pollutant removal goals for the Upper Broad Run watershed, and projected future conditions with and without the implementation of suggested watershed management measures. Lessons learned from the pilot project can be applied to the remaining County watersheds.

Surface and Groundwater Resources

Groundwater supply is important as it is the primary drinking water source for residents of the western Towns and rural areas. Loudoun Water provides drinking water from Goose Creek Reservoir and Fairfax County. The western Towns provide water from wells, and Purcellville augments this with surface water from the J. T. Hirst Reservoir. As of 2018, there are over 15,000 private groundwater wells, mostly in western Loudoun. In developed areas an increase in impervious land cover contributes to diminishing groundwater capacity and stream degradation, as rainwater that was once filtered through the soil to replenish groundwater is now kept above ground artificially, due to the lack of natural infiltration recharging the groundwater, and carried via culverts and stormwater pipes directly to local streams.

Geologic and Soil Resources

Physiographic provinces are determined based on geology and landforms.

The eastern half of Loudoun County is located in the Piedmont physiographic province, and the western half is in the Blue Ridge physiographic province. The Bull Run fault, coincident with the eastern edge of the Catoctin Mountain, forms the boundary line between the two provinces. Soils and geologic information are important tools used in the development of land, predicting potential impacts on erosion, water quality and quantity, and failing slopes, as well as insight into mitigating post-development problems.

Limestone

An area of approximately 18,000 acres (approximately 5.5% of the County) that lies north of Leesburg and east of Catoctin Mountain is characterized as karst terrain. Karst terrain refers to areas where the underlying limestone and other carbonate rocks have been dissolved over time by naturally-occurring, mildly acidic water, creating a landscape characterized by underground cavities, sinkholes, and springs. These areas are susceptible to increased cavity collapse, ground slippage, groundwater pollution, and threats to the stability of foundations and structures. On February 17, 2010, the Board of Supervisors (Board) adopted amendments to the Zoning Ordinance that established the Limestone Overlay District (LOD), which regulates development

in limestone geology areas.

Prime Agricultural Soils

Prime agricultural soils are soils that are best suited for conventional agricultural use. These soils account for approximately 19 percent of Loudoun County’s soils and are usually found in areas that are nearly level to gently sloping, well drained, and with access to water sources. Loudoun’s remaining best agricultural soils are generally located in the Rural Policy Area. Because the County has emphasized the rural economy as an important part of its overall economic health, prime farmland and agricultural soils are especially valuable. Once this land-based resource is lost, it cannot be reclaimed. Prime agricultural soils are well-drained, generally found on mildly sloping terrain, have a good drainfield potential, and are often seen as desirable for residential development. Since the establishment of the Loudoun County Agricultural and Forestal District Program in 1979, over 43,000 acres are enrolled within 23 Agricultural and Forestal Districts (AFDs)¹ throughout the County.

Mountainside and Steep Slopes

Steep slopes and moderately steep slopes occupy an area of approximately 53,000 acres (approximately 16% of the County). Moderately steep slopes are areas with a 15 percent to 25 percent grade (identified by Slope Class D on Loudoun County soil maps). Steep slopes refer to more environmentally critical slopes of greater than 25 percent (identified by Slope Class E on

Loudoun County soil maps). Improper use and disturbance can trigger increased erosion, building failure, road failure, downstream flooding, and other hazards. In 1993, the County decided that the protection of steep slope areas beyond just the mountainous portions of the County are important and developed Steep Slope



standards within the Zoning Ordinance. Since the adoption of the Steep Slope standards, several revisions have occurred, resulting in greater flexibility in the standards.

Mountains create an environment that contributes to the scenic character of rural Loudoun County. Mountainsides contain headwaters to many of the County’s streams and are identified as a critical groundwater recharge area for Western Loudoun County. The County’s hills and mountains contribute to Loudoun’s beauty and are valued by residents, visitors, and rural businesses. They

¹ As of September 25, 2017

are also highly sensitive to land disturbance and development. In addition to the destruction of prime viewsheds, uncontrolled land disturbance within these areas can cause major soil slippage, debris flows, or landslides. Disturbances that can initiate these land surface failures include removal of trees and vegetation; cutting, filling, or blasting of the soil and bedrock; and altering the soil moisture content by excessive groundwater withdrawal or changing surface water runoff. The Zoning Ordinance regulates these areas through the Mountainside Development Overlay District (MDOD). The MDOD contains land use restrictions and performance standards to minimize the destruction of individual resources and the disturbance of the ecological balance of these resources. The boundaries of the MDOD are based on a range of both technical and aesthetic factors. Mountainside areas are divided into three areas depending on the elevation and the types of resources present as determined by weighted analytical criteria (Somewhat Sensitive, Sensitive, and Highly Sensitive). Policies in this Plan also encourage mountainside areas to be placed under permanent open space easement. Updates to the MDOD are included as an action step to bring the Zoning Ordinance and the Plan guidance into alignment.

Forest, Trees, and Vegetation

Loudoun County has some of the state's best hardwood stands for lumber and veneer production. Working forests in rural areas contain valuable stands of hardwood timber, while trees and forest resources in the more urban portions of the County help to make them attractive places in which to live, work, and visit. The County's forests and trees also improve air and water quality, offer important habitat for birds, small mammals, and other wildlife, and provide buffers between communities. Forests and trees conserve energy by providing shade



Shumard Oak at Algonkian Park

and evaporative cooling through transpiration. They also reduce wind speed and redirect airflow, reduce stormwater runoff and soil erosion, and can increase real property values. Riparian forests along streams provide the greatest single protection of water quality by filtering pollutants from stormwater runoff, decreasing stream bank erosion, and maintaining the physical, chemical, and biological condition of the stream environment.

The County supports the incorporation of existing tree cover into required buffers as well as the control and removal of invasive species. The utilization of existing vegetation to meet requirements for the screening of uses and within required landscape buffers is preferred over the removal and planting of new vegetation. Action steps call for the submittal of a Tree Cover Inventory as part of development applications to evaluate existing tree cover and identify areas

worthy of preservation. Forest resources are also protected through Agricultural and Forestal Districts, easements, and other voluntary means, as well as through the implementation of the MDOD, LOD, and Steep Slope Standards in the Zoning Ordinance.

Historic and Archaeological Resources

The cultural heritage of the County is reflected in its remaining rural, historic landscapes, road networks, historic structures, and archaeological sites. Identifying these resources and preserving them through reuse and conservation is critical for the retention of the County's distinct character. Most of these elements will remain in private ownership and can be preserved through private stewardship, protective buffers, donation of open space easements, County historic district zoning standards, resource survey, mapping, and site design. A number of incentive-based programs can also be used, including state and federal tax credit programs.

Since 1972, Loudoun County has protected its unique historic assets through the designation of local historic districts. There are six County-administered Historic and Cultural Conservation Districts: Aldie, Bluemont, Goose Creek, Oatlands, Taylorstown, and Waterford and two County-administered Historic Site Districts: Welbourne and the Broad Run Toll House properties. The County has also designated a Historic Roadways District, the Beaverdam Historic Roadways District, which comprises a network of 32 rural roads. In addition, the incorporated Towns of Leesburg, Middleburg, and Purcellville administer local historic districts through their zoning ordinances. There are also five National Historic Landmarks in the County, including Balls Bluff Battlefield, Dodona Manor, Oatlands Plantation, Oak Hill, and Waterford. Nearly 7,000 individual historic structures and archaeological sites have been identified through surveys in the County to date. The County has 88 sites listed in the National Register of Historic Places. The County last conducted a comprehensive architectural resource survey in 2004, however, an analysis of the number of heritage resources that may have been impacted or lost in the interim has not been conducted. The County's inventory of heritage resources is constantly being expanded as property owners, developers, and preservation organizations document and record new resources.



Oatlands Plantation

Most of the County-initiated comprehensive survey work was completed in the early 2000's, such as the Post-Civil War structure survey (2003) and an African American Sites survey (2004). The

County also conducted surveys in 2016 for the Ball's Bluff Battlefield Expansion Project and a Rural Schools Survey. The County and State database of surveyed resources is largely augmented through the Phase 1 archaeological and historic resources surveys that are required with legislative and preliminary subdivision applications, as well as private property owners requesting listing in the National Register of Historic Places.

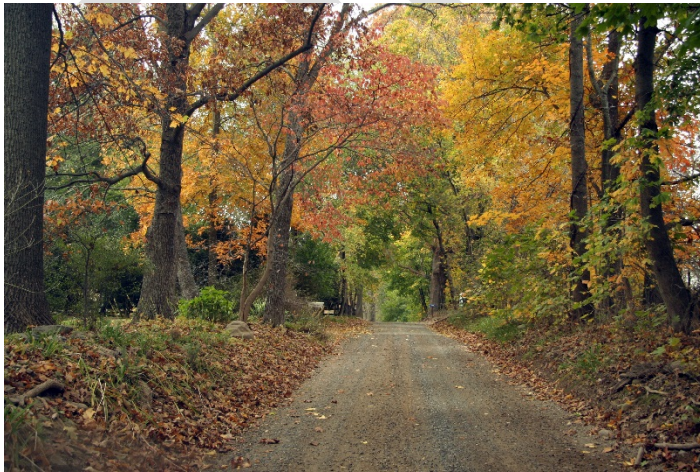


Archaeological Investigations at Lansdowne

The Board adopted the Heritage Preservation Plan (HPP) on December 15, 2003, and a subsequent amendment to the HPP on February 9, 2009. The creation of a Heritage Commission (HC) is the principal mechanism for implementing many of the recommendations in the HPP. The Board created the HC on February 14, 2011. The HC provides expertise and a range of public and private sector experience to heritage issues. Since the adoption of the HPP in 2003, the County has recognized the need to focus attention on heritage resources associated with historically marginalized communities in the County. Because African American communities and Native American communities are not well represented in the historic, written record, the County recognizes the importance of archaeological resources, oral histories, historic settlements, cemeteries, burial grounds, and places of worship to understand, preserve, and interpret the lives and contributions of these Loudoun residents. Development applications will be evaluated using both the HPP and this Plan.

Cultural Landscapes

Cultural landscapes include heritage areas and corridors, scenic byways and waterways, battlefields, and historic cemeteries. There are several roadways within the County that are



designated as Virginia Byways. Goose Creek and a portion of Catoctin Creek are designated as State Scenic Rivers. In 2002 the County established the Beaverdam Creek Historic Roadways District to protect a cultural landscape that has changed little since Loudoun County's formation in 1757. A nationally recognized heritage area, *The Journey Through Hallowed Ground*, as well as a state-designated heritage area, the *Mosby Heritage Area*, fall within the

boundaries of Loudoun County. *The Journey Through Hallowed Ground* follows Route 15/20 from Gettysburg in Pennsylvania (a designated National Byway), through Loudoun County, to Monticello in Charlottesville, Virginia. In February, 2008, the Board passed a resolution in support of the Heritage Area, and the County is a partner with *The Journey Through Hallowed Ground* project. The *Mosby Heritage Area*, formed in 1995, represents the cultural landscape and landmarks of three centuries of our nation's history. The *Mosby Heritage Area* encompasses parts of five counties including all of Loudoun County.



Catoctin Creek
Photo Credit: James Hanna

Plant and Wildlife Habitats

Plants and animals play an important role in nature's lifecycle and its ecosystems. For wildlife habitats, large contiguous parcels of natural open space are preferable to more numerous but disconnected and smaller areas. The creation of a larger network helps ensure the viability of the habitat.

While many high-quality plant and animal habitats have already been lost or altered due to land development, the County still has a number of unique and natural habitat areas. The largest contiguous areas of forest and naturally vegetated land are on mountainsides, steep slopes, and along stream channels. These areas play a key role in preserving the abundance and diversity of the County's remaining plant and wildlife resources. The integrated approach to preserving natural and heritage resources is intended to help prevent habitat fragmentation, while enhancing ecological connections with larger areas. The County strives to protect, preserve, and create large-scale plant and wildlife habitats that overlap with other important resources and resource systems. The County will also protect habitat for rare, threatened, and endangered plant and animal species in accordance with the Federal Endangered Species Act. Action steps call for legislative development applications that have the likelihood of



Heron Rookery adjacent to Broad Run

one or more natural heritage resources² to conduct a species assessment and develop a plan for impact avoidance in cases where the presence of the species is identified.

Complementary Elements

Complementary elements consist of elements that are not directly a part of the land-based environmental and heritage resources but complement them. They include air quality, aural environment and lighting, and the night sky.

Air Quality

Loudoun's air quality is threatened by air pollution from automobile and aircraft emissions, removal of forest cover, heating furnaces, and power plants. In order to meet the federal goals of the Clean Air Act, the County offers an integrated land use approach that protects air quality by planning development in locations that are close to major transportation facilities and transit nodes, limiting gross densities in the Rural and Transition Policy Areas, and promoting and implementing alternative modes of transportation. Loudoun is included in the United States Environmental Protection Agency's (EPA's) Washington DC nonattainment area for meeting national standards for air contaminants. The County has an active role on the Metropolitan Washington Air Quality Committee (MWAQC) and the National Capital Region Transportation Planning Board (TPB).

Aural Environment

Efforts to protect existing and future residents from increased levels of environmental noise have focused primarily on airport noise surrounding Washington Dulles International Airport (IAD) and Leesburg Executive Airport. The Airport Noise Impact Overlay District imposes development restrictions within specified areas to protect existing and future residents as well as maintains the economic viability of these important transportation and economic development resources. Future Airport Noise Corridor studies could lead to updates to the noise contours surrounding IAD.

The County also has policies to protect noise-sensitive uses adjacent to major roadways, calling for appropriate noise mitigation measures to be incorporated into the overall project design when Noise Abatement Criteria (NAC) Hourly A-Weighted Sound Levels are approached or exceeded.

Lighting and the Night Sky

The beauty of the County's night sky is an asset that should be protected from excessive and improper lighting. Artificial lighting is intended to be minimized and light pollution reduced while maintaining the primary purpose of light for public safety and visibility. Action steps call for updating lighting standards that promote quality and energy-efficient lighting and preserve the natural beauty of the night skies.

² Natural heritage resources include rare, threatened, and endangered plant and animal species; exemplary natural communities, habitats, and ecosystems; and other natural features of the County.

Influences and Opportunities

As the County continues to experience growth, the opportunities and challenges to preserve and conserve natural and heritage resources will increase. A proactive approach to water quality could help to avoid costly and time-consuming processes to restore water quality as part of TMDL Action Plans. Through watershed management plans, the County has the opportunity to identify those areas that will help to improve water quality in areas where it is most needed. The County also has the opportunity to document efforts to promote sustainability, environmental stewardship, and protect the environment. The County should continue to support and build upon work that has already begun and consider the development of a sustainability plan or an annual report highlighting work that is being done. The Board can use this report to identify future goals. Essential to the preservation of heritage resources and cultural landscapes is proactive survey and evaluation of these resources as provided in the HPP.

Policies, Strategies, and Actions

Unless otherwise specified, the following policies, strategies, and actions apply Countywide.

Natural and Heritage Resources

Policy I: Provide protection for natural and heritage resources.

Strategy

- 1.1. Support mechanisms to further the goals of conservation, preservation, restoration/recapture, and education to protect the health, safety, and welfare of Loudoun residents.

Actions

- A. Maintain a map of natural and heritage resources as part of an integrated system and contiguous network of natural and passive open spaces and active recreational sites.
- B. Identify those properties that are not conducive to development due to sensitive environmental, cultural, and historical characteristics, and promote their purchase through various programs (such as a PDR/TDR program, land trusts, etc.).
- C. Adopt zoning regulations and development standards that implement a Conservation Design or similar process applicable to land development.

- D. Update the *Facilities Standards Manual*, the *Land Subdivision and Development Ordinance*, and other development standards to implement the natural and heritage policies in this Plan.
- E. Consider establishing a PDR/TDR program that protects agricultural, natural, historic, and scenic resources.
- F. Use the Conservation Design process, Use Value Assessment Program, Agricultural and Forestal Districts, the PDR/TDR program, public-private partnerships, and other regulatory and incentive-based efforts for the preservation, conservation, restoration, and management of the County's natural and heritage resources. Explore and implement additional incentive-based approaches.
- G. Retain conservation easements as a tool to protect open space areas in subdivisions and to ensure long-term maintenance and protection of the area. Such easements will be recorded as part of the subdivision process and include public access where appropriate.
- H. Direct public investment and resources toward completing a natural and heritage resource network and recapturing natural and heritage resources in developed areas.
- I. Ensure that development proposals that impact one or more natural and heritage resources offset impacts by enhancing and/or recapturing natural and heritage resources elsewhere onsite.
- J. Ensure that development proposals create links to adjacent natural and heritage resources to create an integrated network.

Purchase of Development Rights (PDR), Transfer of Development Rights (TDR), and Conservation Easements are tools that are available to the County to protect and preserve open space, farms, and natural and heritage resources in perpetuity, allowing landowners to retain ownership of their property, while maximizing the economic value of the land.

Strategy

- 1.2. Promote private, state, and federal conservation programs and their allocated resources to advance conservation programs within the County through public and private means such as grants, voluntary easements, and dedications.

Action

- A. Study and if feasible aid in the establishment of a public-private conservation foundation to facilitate communication, grants, easements, education and partnership opportunities to accomplish the goals of conservation and the protection of natural and

heritage resources.

Strategy

- 1.3. Act as a leader and educator in environmental design to achieve and sustain a high-quality built environment.

Action

- A. Provide incentives for innovation and good design and collaborative public-private-community partnerships for program implementation including provisions for awards of certificates of excellence in environmental design for the public and private sectors.

Strategy

- 1.4 Link natural and heritage resources to create opportunities for open space corridors for the enjoyment of current and future generations.

Action

- A. Encourage protection of the following priority open space areas through conservation easements acquired by the County or others, participation in the Open Space Preservation Program, development clustering, and other means:
 - Key green infrastructure features not already protected from development by conservation easements or regulation,
 - Rural areas immediately adjacent to the Towns, JLMAs, and Villages that help form greenbelts and gateway buffers,
 - Areas adjacent to the Potomac, Catoctin, Bull Run, Goose Creek, and Broad Run floodplains to protect water quality,
 - Properties on the State or National Registers of Historic Places and within local historic districts,
 - Corridors and sites identified for trails and parks provided they permit the construction of such facilities, and
 - Other areas of local natural, historic, or cultural significance including designated scenic rivers and roads.

River and Stream Corridor Resources

Policy 2: The County will protect natural ecosystems, restore water quality, serve Loudoun’s population, and support the built environment through healthy surface and groundwater resources.

Strategy

- 2.1. Establish and maintain a healthy river and stream corridor ecosystem that meets desired water quality standards, protecting from the damages of soil erosion and flooding while promoting biological diversity.

Actions

- A. Amend zoning regulations and development standards, including but not limited to the Floodplain Overlay District (FOD) and Scenic Creek Valley Buffer sections, to address the objectives of the RSCR policies. Zoning regulations and development standards will establish performance standards and best management practice requirements to ensure the health and biological integrity of the river and stream corridors and minimize adverse impacts.
- B. Develop and implement a watershed management plan for each watershed, establishing development guidelines and performance standards to protect water quality. The County will follow the recommendations of the 2008 *Comprehensive Watershed Management Plan*.
- C. Develop appropriate standards and regulations to protect natural streams from the harmful effects of increased stormwater volume, velocity, and pollutant loads resulting from development.
- D. Protect the headwaters of the Catoctin and Goose Creeks by establishing appropriate regulations for Catoctin Mountain, Shorthill Mountain, and the Blue Ridge Mountains to limit diversions of water from the headwaters and to prevent stream pollution.
- E. Encourage stormwater Best Management Practices on-site or as close to the area being treated as possible to prevent increased nutrient and sediment runoff.
- F. Establish incentives and/or a funding program for reforestation, stormwater management (SWM)/BMP projects, and SWM/BMP retrofits.
- G. Support the retrofitting of older stormwater systems and the rehabilitation of degraded areas to enhance pollution removal capabilities and create open space amenities.
- H. Promote the use of low-impact development to replicate natural hydrologic patterns and alleviate the strain on centralized systems.
- I. Support and incentivize reforestation for degraded forested areas in upper stream reaches that do not include Major Floodplain and promote natural regeneration within the limits of the Major Floodplain to mitigate the loss of native canopy coverage as a result of construction.
- J. Maintain standards for activities that propose pollution sources such as the storing and dispensing of petroleum products, chemical storage, and sale or transfer of potential contaminants.
- K. Maintain a working relationship with the Federal Insurance Administration of the Federal Emergency Management Agency (FEMA) for continued participation in the National Flood Insurance Program (NFIP). The County will also maintain its current status as a Cooperating Technical Partner (CTP) in FEMA's Flood Map

Modernization program.

- L. Work with the incorporated Towns to establish overall water quality goals and specific standards for individual streams and river and stream corridors, consistent with County RSCR objectives and policies.
- M. Coordinate with the Metropolitan Washington Airport Authority regarding water quality protection within the Broad Run watershed.
- N. Promote and encourage community programs, such as the “Adopt-A-Stream” program, in order to keep river and stream corridors free of litter and debris and as a means of promoting public awareness of the County’s river and stream corridors.
- O. Support the interstate 2014 Chesapeake Bay Watershed Agreement, a watershed partnership signed by the governors of Virginia, Maryland, West Virginia, Delaware, New York, and Pennsylvania, as well as the District of Columbia and the United States Environmental Protection Agency (EPA). The County supports Virginia’s action towards meeting the Chesapeake Bay Total Maximum Daily Load (TMDL) and watershed implementation plans.
- P. Support the mitigation of stream and wetland impacts and the creation of stream and wetland mitigation banks within Loudoun County to improve water quality in Loudoun.
- Q. Maintain the County’s Predictive Wetland Model and require submittal of digital wetland delineations in conjunction with land development applications in order to develop a reliable wetlands inventory and map of wetland areas.

Strategy

- 2.2. Establish River and Stream Corridor Resource (RSCR) buffers to promote river and stream health (streambank/streambed stability, temperature moderation, nutrient removal, sediment removal, flood control, and aquatic food and habitat).

Action

- A. Develop and use incentives to encourage property-owners to establish and maintain a 100-foot minimum riparian stream buffer.

Permitted Uses in the RSCR

Permitted uses within the RSCR are intended to support or enhance the biological integrity and health of the river and stream corridor. These uses are intended to have minimal adverse effects on natural and heritage resources. Development of such uses requires mitigating impacts while complementing the hydrologic processes of the river and stream corridors including flood protection and water quality. New uses should be limited to:

- a. Road crossings, rail crossings, bridges, and drive-way crossings
- b. Public water and sewer
- c. Local and regional stormwater management facilities within the minor floodplain river and stream corridor resource only (subject to best management practice requirements)
- d. Public lakes and ponds (subject to best management practice requirements)
- e. Public water supply reservoirs
- f. Historic and archaeological sites
- g. Paths and trails – including footpaths, biking or hiking paths, and horse trails (of a permeable material only)
- h. Passive recreation – limited to hiking, biking, horseback riding, picnicking, camping, climbing, hunting, fishing, and wildlife viewing
- i. Active recreation within the minor floodplain river and stream corridor resource only
- j. Agricultural activities, but not structures – including crop planting and harvesting and grazing (subject to appropriate best management practice requirements)
- k. Silviculture – as required to care for forests and not commercial forestry (limited to forest preservation and tree planting, limited tree clearing and clearing of invasive species, tree trimming and pruning, and removal of individual trees (subject to appropriate best management practice requirements)
- l. Planting native vegetation (subject to appropriate best management practice requirements)
- m. Conservation – including stream restoration projects, wetland mitigation banks, facilities and activities; Adopt-A-Stream programs; scientific, nature, and archaeological studies; and educational programs

| | | |
|--|--|--|
| <p><i>A 100-foot minimum stream buffer protects rivers and streams when floodplains and adjacent steep slope areas do not extend beyond either bank by 100 feet. The RSCR 50-foot management buffer protects the other elements of the RSCR from upland disturbances and adjacent development. The RSCR 50-foot management buffer will not be added to the 100-foot minimum stream buffer.</i></p> | <p><i>The RSCR 50-foot management buffer can be reduced if the developer shows that such a reduction does not adversely impact the other elements of the RSCR and that the subject property meets and maintains performance standards and criteria developed as part of the implementation of the RSCR policies.</i></p> | <p><i>Conservation Design techniques will protect and preserve river and stream segments draining less than 100 acres and wetlands that are not part of the RSCR.</i></p> <p><i>Picture placeholder.</i></p> |
|--|--|--|

Strategy

- 2.3. Protect and enhance impaired streams and their tributaries to improve water quality and provide ecological benefits while also providing opportunities for passive recreation.

Actions

- A. Encourage the implementation of enhanced pollutant control measures and watershed management strategies such as: downspout disconnection; tree planting/reforestation, especially within riparian areas; storm drain marking; stream restoration; wetland creation; adding best management practices (BMPs); enhanced stormwater management ponds; enhanced pollution/erosion control measures; coordination and outreach with the Virginia Department of Transportation (VDOT) and owners associations on use of sand and anti-ice materials in snow removal/road clearing operations; and stormwater pond water quality enhancements.
- B. Actively participate in regional water quality initiatives to protect and improve water quality.
- C. Comply with the Virginia General Permit for stormwater discharges from small, municipal, separate storm sewer systems (MS-4 General Permit).
- D. Prepare and implement TMDL Action Plans, as necessary to meet TMDL requirements. The Action Plans, designed to improve the County's surface water quality may include working with other entities, such as the Loudoun Soil and Water Conservation District (LSWCD) and Virginia Cooperative Extension-Loudoun (VCE-Loudoun).
- E. Collaborate with the Department of Environmental Quality on any pollution impairment issues within streams and support volunteer water quality monitoring efforts and coordination of these efforts with federal, state, and local water quality data collection.

Surface Water Resources

Strategy

- 2.4. Protect rivers and public drinking water reservoirs to ensure a clean, safe, and adequate supply of drinking water.

Actions

- A. Protect lands that are critical to the quality of key water supplies through easement, fee simple acquisition, regulatory measures, or other sufficient measures. Restore filtration and erosion control functions through the re-naturalization of these areas.
- B. Develop and implement a watershed overlay district for all public water supply reservoir watersheds, establishing more stringent development guidelines and

performance standards to protect water quality.

- C. Develop and implement a Potomac River shoreline management plan and seek to coordinate this effort with adjacent jurisdictions (local, state, and regional organizations, advisory boards, and citizen groups). This Plan should include:
 - i. The boundaries of the study area,
 - ii. A comprehensive natural resources inventory,
 - iii. Policy recommendations for river corridor management and protection,
 - iv. A process for integrating the participating groups, and
 - v. A plan for acquiring and managing open space corridors along the Potomac River.
- D. Establish appropriate standards and land uses to protect drinking water supplies.
- E. Develop a community-based Source Water Protection Plan in cooperation with Loudoun Water.

| | | |
|--|--|--|
| <p><i>Protect public water supply reservoirs, Scenic Rivers, the Potomac River, and the Bull Run by providing a 300-foot no-build buffer or the other elements of the RSCR, whichever is greater. As an important regional water source and supplier to the Occoquan Reservoir, the Bull Run will have an additional 200-foot transitional buffer beyond the no-build buffer. The RSCR performance standards, best management practice requirements, and list of permitted uses will apply to the no-build and transitional buffer, except adjacent to existing or planned drinking water reservoirs where stormwater management facilities are not permitted.</i></p> | <p><i>The limits of the 300-foot no-build buffer for reservoirs is based on their projected high water mark where expansion is proposed.</i></p> | <p><i>A distance of 1,000 feet from the Beaverdam and Goose Creek reservoirs is designated as a priority open space area for the voluntary creation of a greenbelt. This voluntary greenbelt extends 1,000 feet beyond the 300-foot no-build buffer established to protect water supply reservoirs. This greenbelt will be created through various mechanisms such as land donations, conservation easements, purchase of development rights, and other land conservation mechanisms. Such additions will be considered as fulfilling open space requirements.</i></p> |
| | <p><i>Picture place holder.</i></p> | |

Groundwater Resources

Strategy

- 2.5. Preserve and protect groundwater quantity and quality.

Actions

- A. Develop and implement a comprehensive groundwater protection strategy to ensure adequate water supply.
- B. Initiate and maintain a comprehensive pollution management program to protect groundwater resources.
- C. Local wellhead protection plans will be taken into consideration during review of development applications to maintain drinking water quality and protect groundwater from contamination.
- D. Limit the installation of additional wells and limit the number of additional households and irrigation systems that are dependent on wells through water conservation efforts and through the use of communal and/or central water systems where feasible and as approved by Loudoun Water.
- E. Assess the recharge and consumption rates for groundwater in each watershed by analyzing data from groundwater level monitoring and stream flow measurements. If negative impacts are detected, the information will be presented to the Board of Supervisors for appropriate action.
- F. Provide education to homeowners on the use and consumption of groundwater for areas of the County that are not connected to the central water supply.

Soils and Geologic Resources

Policy 3: Preserve and protect the County's soils, unique geologic characteristics, farmland, steep slopes, mountainsides, and ridgelines recognizing their sensitivity to land disturbance and development as well as their contribution to healthy ecosystems and the quality of life valued by residents and visitors.

Limestone Geology Areas

Strategy

- 3.1. Protect limestone geology areas susceptible to sinkholes, cavity collapse, ground slippage, pollution, and other hazards.

Actions

- A. Maintain performance standards for lands within areas underlain by limestone.
- B. Identify pollution sources and establish appropriate standards for reducing pollution

in areas underlain by limestone.

- C. Monitor groundwater and surface water in areas underlain by limestone, and if monitoring recognizes negative impacts, present the information to the Board of Supervisors for appropriate action.

| | | |
|--|--|--|
| <i>Establish development standards for areas underlain by limestone, including minimum setback distances from sinkholes, rock outcrops, and other Karst features due to the potential for environmental damage and to ensure public health and safety.</i> | <i>Picture placeholder.</i> | <i>In areas underlain by limestone, the County prefers communal water and wastewater systems for new development, unless the developer/property owner demonstrates to the County that other types of systems would achieve the same or superior performance standards.</i> |
| | <i>Limit development within areas underlain by limestone to avoid development in areas of identified Karst features.</i> | |

Prime Agricultural Soils

Strategy

- 3.2. Preserve and protect prime farmland and agricultural soils, recognizing their importance to the overall economic health of the rural economy.

Action

- A. Develop a public education program that will focus on communicating advantages associated with private protection of Prime Agricultural Soils.

Steep Slopes, Moderately Steep Slopes and Mountainside Areas

Strategy

- 3.3. Protect steep slopes, ridgelines, and mountainside areas against destabilization, erosion, building and/or road failure, downstream flooding, and other hazards and to maintain the scenic and rural nature of these areas.

Actions

- A. Manage development in mountainside areas using performance standards and regulations to minimize negative environmental impacts; minimize land disturbance; protect the ridgelines; maintain woodlands, plant, and wildlife habitats; and preserve natural features and rural character as requirements for approval of the location of proposed development.
- B. Protect ridgelines so that structures blend naturally into the mountain landscape through updates to the Mountainside Development Overlay District or the development of a Ridgeline Protection Overlay District.
- C. Review and amend zoning regulations and development standards to ensure consistency with the objectives of the mountainside area policies.
- D. Establish performance standards for unavoidable development on questionable soils as defined by the International Building Code.

All subdivisions of three lots or more require a Special Exception in Sensitive and Highly Sensitive defined areas.

Prohibit land disturbance on naturally occurring slopes with a grade of more than 25 percent and/or with the soil Slope Class of E, with limited exceptions, such as access easements to existing lots where no other access is possible. Apply performance standards to protect soils, vegetation, and other environmental features in areas where these exceptions are permitted or are allowed by Special Exception.

Preserve forests and indigenous vegetation on steep slopes (greater than 25 percent). On moderately steep slopes (15 to 25 percent grade), clearing is limited to only essential clearing that is necessary for home construction, road construction, and utility installation. Agricultural activities, excluding structures, may be allowed on steep slope areas provided that a County-approved Forest Management Plan or Farm Management Plan, whichever is applicable, is implemented.

Use special performance standards to protect slopes with grades from 15 to 25 percent and/or with the soil Slope Class of D. These standards will include best management practices and locational clearances for clearing and grading. The County will establish incentives to locate development outside of these areas.

Picture placeholder.

Forests, Trees, and Vegetation

Policy 4: Preserve, protect, and manage Loudoun County’s forests and trees for current and future use and enjoyment, recognizing these resources provide many benefits, such as improving air and water quality; offering important habitat for birds, small mammals and other wildlife; providing buffers between communities; conserving energy; reducing wind speed and redirecting airflow; and reducing stormwater runoff and soil erosion.

Strategy

- 4.1. Preserve, protect, and manage forest resources for their economic and environmental benefits.

Actions

- A. Require applicants to submit a Tree Cover Inventory as part of all development applications and, where applicable, require applicants to submit a Tree Conservation Plan for designated Tree Conservation Areas; such Tree Conservation Plan should demonstrate a management strategy that ensures the long-term sustainability of these designated areas and address the removal and monitoring of invasive woody vegetation and insects.
- B. Incentivize and encourage the preservation of existing trees within required landscape buffer areas and for screening of uses.
- C. Require the removal of invasive plant species during the development process.
- D. Develop and adopt a Tree Preservation Ordinance.
- E. Inventory and map trees and indigenous vegetative resources to be preserved or managed in accordance with County standards and create and maintain a database of these resources to include, but not be limited to, old growth forests, significant tree stands, specimen trees, heritage trees, and State or National Champion trees.

Strategy

- 4.2. Promote tree planting and preservation as a means to reduce the heat island effect, manage stormwater run-off, and improve water quality, air quality, and wildlife habitat.

Actions

- A. Prioritize the planting of indigenous vegetation, specifically along those corridors that provide connections to other natural and heritage resources.
- B. Develop Countywide goals and objectives for the creation, maintenance, and preservation of the County’s tree canopy.

Historic, Archaeologic, and Scenic Resources

Policy 5: Loudoun County's distinctive cultural landscapes are comprised of scenic and heritage resources, which include Scenic Rivers and Byways, historic buildings, archaeological sites, battlefields, and historic cemeteries. These resources are foundational elements of the County's changing landscape that together tell the story of the formation and settlement of the County. The County will protect and enhance these resources, recognizing them as relevant, character-defining elements of both the natural and built environments.

Strategy

- 5.1. Preserve cultural and scenic character through conservation and preservation of designated heritage areas, battlefields, cemeteries, scenic corridors, Scenic Rivers, the Potomac River, significant geological features, archaeological sites, historic structures and their settings. Convey the benefit of these resources to the public through public education in collaboration with private landowners and preservation organizations.

Actions

- A. Evaluate land development applications within the context of this Plan as well as those more specific policies contained in the Heritage Preservation Plan.
- B. Evaluate the Heritage Preservation Plan every five years and update if necessary.
- C. Require an archaeological and historic resources survey for all development applications. This survey must include a plan for recordation of identified resources and measures for preservation, mitigation, and adaptive reuse. The County will maintain a repository for artifacts recovered from required surveys; such artifacts will be used for research and public education purposes.
- D. Evaluate the historic or archaeological value of inventoried resources based on criteria set forth in the Secretary of the Interior's Standards, which include historic context and site integrity. The County will evaluate resources for consideration for State and National Registers. The County will update its cultural resource inventory through the land development process and County-sponsored historic surveys.
- E. Identify, through survey and community outreach, locally important historic and archaeological resources that meet criteria for listing on the County Heritage Register as outlined in the Heritage Preservation Plan.
- F. Identify, delineate, and map historic cemeteries, burial grounds, and graves to ensure they are protected from destruction or neglect. Ensure that adequate buffers are provided around these sites to protect them during the development process.
- G. Identify African American and Native American cultural resources to fill voids in the County's database of heritage resources and create policies and programs that protect,

preserve, and interpret these resources for the benefit of County residents.

- H. Maintain the County’s database by using the inventory of cultural resources as a dynamic body of data to be reevaluated as needed.
- I. Conduct a staff assessment to determine historic significance prior to issuing a demolition permit for a structure that is 50 years old or older.
- J. Work with local communities to protect and enhance the character of cultural landscapes and historically significant sites through the designation of County Historic and Cultural Conservation Districts.
- K. Preserve and protect significant cultural and scenic resources from development impacts by promoting private or public acquisition, easements, and the use of PDR/TDR programs.
- L. Where consistent with the applicable provisions of the Virginia Code Section 15.2-2303, applicants may provide cash contributions to the County for the enhancement and/or improvement of historic features within Loudoun to fulfill the open space guidelines if the County agrees to or requests the exchange.
- M. Prioritize the adaptive reuse of historic structures that are of local, regional, or national significance as the primary method of preserving the County’s diverse collection of historic architecture within the framework of sustainable development.
- N. Amend zoning regulations and development standards to ensure the viability of adaptive reuse, particularly in the County’s villages where the ability to reuse historic structures is vital to the historic character and vitality of these communities.
- O. Prepare and implement corridor management plans, including identifying and defining viewsheds for the County’s Scenic Rivers in order to protect their natural and scenic quality.
- P. The County does not permit diversion of Scenic Rivers under any circumstances.

A viewshed analysis for a Scenic River typically involves looking at both the view from the resource itself as well as the view towards the resource.

Natural Heritage Resources

Policy 6: Preserve, protect, and create a network of privately and publicly protected open space, favoring large contiguous areas over smaller disconnected areas, maintaining green infrastructure assets, preventing habitat fragmentation, and reinforcing the unique character of the diverse communities in the County.

Strategy

- 6.1. Conserve and protect natural heritage resources including rare, threatened, and endangered plant and animal species; exemplary natural communities, habitats, and

ecosystems; and other natural features of the County.

Actions

- A. Utilize open space requirements, passive recreation, nature preserves, incentives, and regulations to protect areas of natural biodiversity and rare, threatened, and endangered plant and animal species, and plant communities to foster the implementation of the Federal Endangered Species Act and the Virginia Wildlife Action Plan.
- B. Development applications will identify Loudoun County's natural heritage resources through coordination with the Virginia Department of Conservation and Recreation (VDCR) – Division of Natural Heritage and the Virginia Department of Game and Inland Fisheries (VDGIF). For those development applications that have a likely presence of one or more natural heritage resource, the County will require the applicant to conduct a species assessment. In cases where the presence of the species is identified, the County will require the applicant to develop and submit a plan for impact avoidance.
- C. Ensure that the study of natural heritage resources is conducted by qualified research organizations such as the VDCR and VDGIF, and develop implementation strategies for the preservation of identified natural heritage resources.

Wildlife Habitats

Strategy

- 6.2. Conserve and protect wildlife habitats, wildlife travel corridors, and access to streams and water sources through the preservation of natural resources such as indigenous vegetation, forest cover, woodlands, floodplains, streams and stream corridors, wetlands, and undeveloped areas associated with steep slopes.

Actions

- A. Ensure that new development, redevelopment, and infill development incorporates indigenous vegetation into the landscape design.
- B. Promote and support the establishment of public and private nature preserves throughout the County as part of the protection of natural and heritage resources.

Complementary Elements

Policy 7: The County promotes healthy air and low levels of noise and light pollution as essential elements for current and future residents.

Air Quality

Strategy

- 7.1. Preserve and protect air quality.

Action

- A. Comply with the requirements of the Federal Clean Air Act Amendments of 1990 through support of the State Implementation Plan (SIP).

Aural Environment

Strategy

- 7.2. Continue to support the Washington Dulles International and Leesburg Executive Airports by continued and complete prohibition of new residential and other noise sensitive land uses from the areas located within the Ldn 65 and higher aircraft noise contours for both airports and by requiring non-noise sensitive land uses within these noise impact areas.

Actions

- A. Continue to work with the Metropolitan Washington Airports Authority to refine airport operations and routes at Washington Dulles International Airport to minimize the effects on noise sensitive uses.
- B. Prohibit residential encroachment into the existing areas designated as within the Ldn 65 or higher aircraft noise contours to ensure that residential development will not create pressure for reductions in the intensity of service or prohibit the expansion of service at the airport.
- C. Continue to enforce and update with the most current information, as appropriate, the Airport Noise Impact Overlay District included as part of the Loudoun County Zoning Ordinance.

The Airport Noise Impact Area (ANIA) consists of three (3) components or aircraft noise contours:

- (i) Within the Ldn 65 or higher*
- (ii) Between the Ldn 60-65*
- (iii) Outside of but within one mile of the Ldn 60*

Lighting

Strategy

- 7.2. Prevent light pollution.

Action

- A. Update lighting standards to achieve the following:
 - i. Promote the use of lighting for convenience and safety without the nuisance associated with light pollution,
 - ii. Promote a glare-free environment through proper lighting performance standards to improve visibility and enhance public safety,
 - iii. Promote appropriate lighting standards to conserve energy,
 - iv. Develop appropriate lighting standards to prohibit unnecessary and intrusive light trespass that detracts from the beauty and view of the night sky, and
 - v. Promote Dark Sky standards to prevent light pollution.

Reference Maps

Natural Resources (Map #2018-141)

River and Stream Corridor Resources (Map #2018-142)

Watersheds (Map #2018-143)

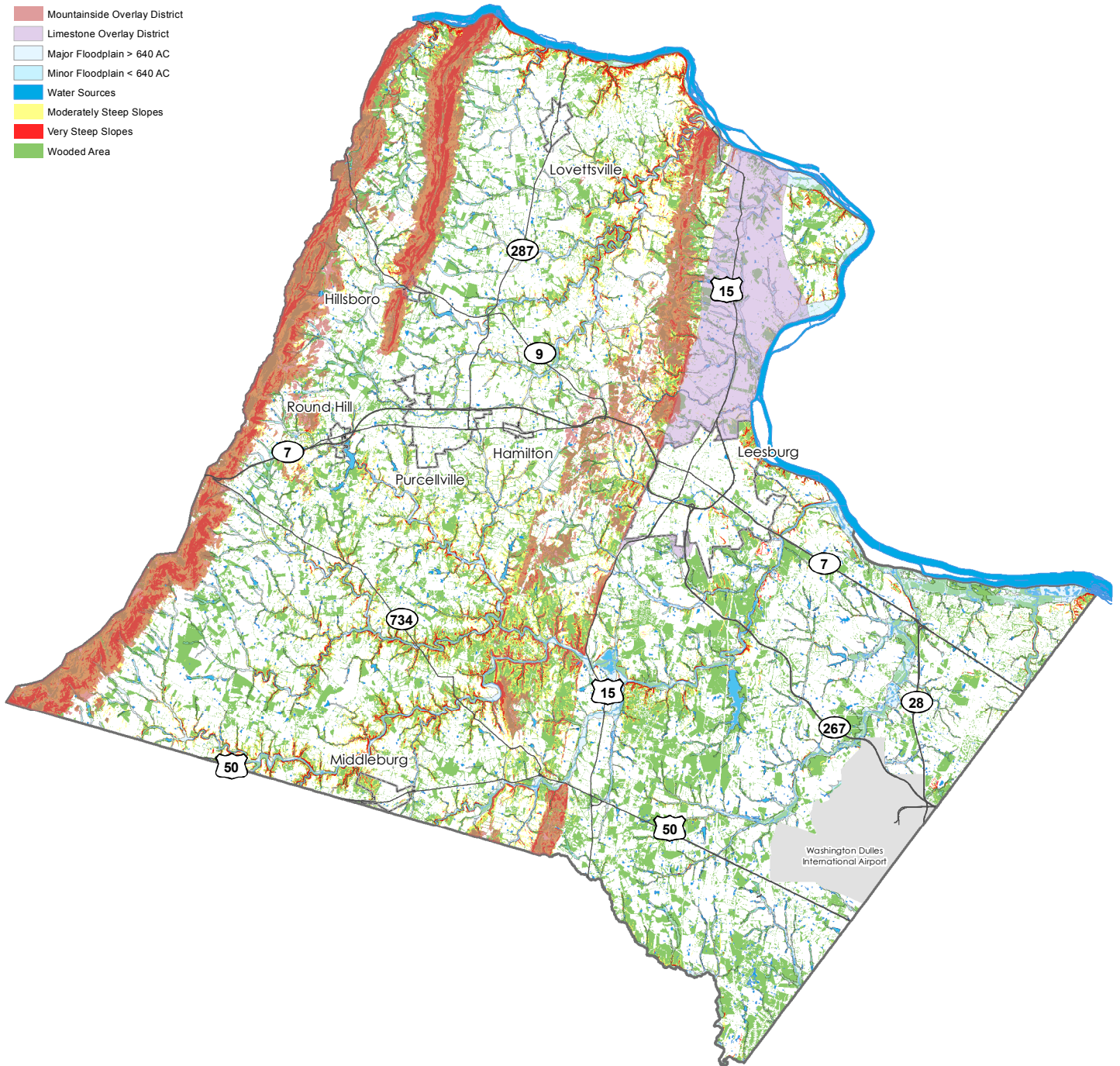
Historic Districts (Map #2018-144)

Airport Impact Overlay District (Map #2018-145)

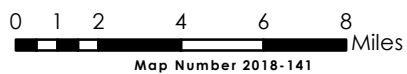
Loudoun County
Natural Resources
 2040 General Plan



- Mountainside Overlay District
- Limestone Overlay District
- Major Floodplain > 640 AC
- Minor Floodplain < 640 AC
- Water Sources
- Moderately Steep Slopes
- Very Steep Slopes
- Wooded Area



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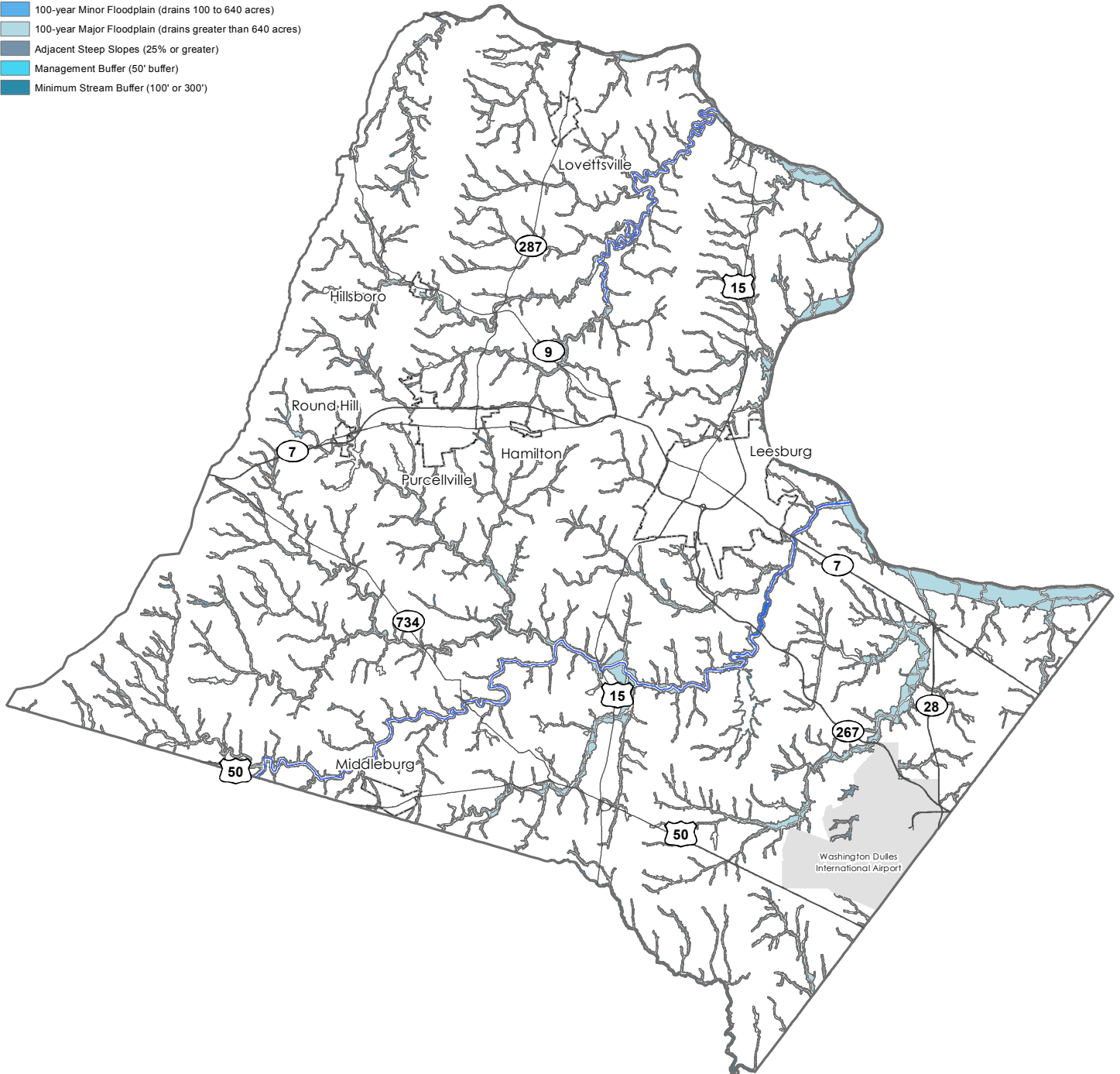


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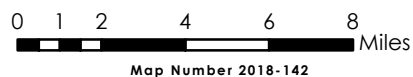
Loudoun County
**River and Stream
 Corridor Resources**
 2040 General Plan



- Scenic Rivers
- 100-year Minor Floodplain (drains 100 to 640 acres)
- 100-year Major Floodplain (drains greater than 640 acres)
- Adjacent Steep Slopes (25% or greater)
- Management Buffer (50' buffer)
- Minimum Stream Buffer (100' or 300')

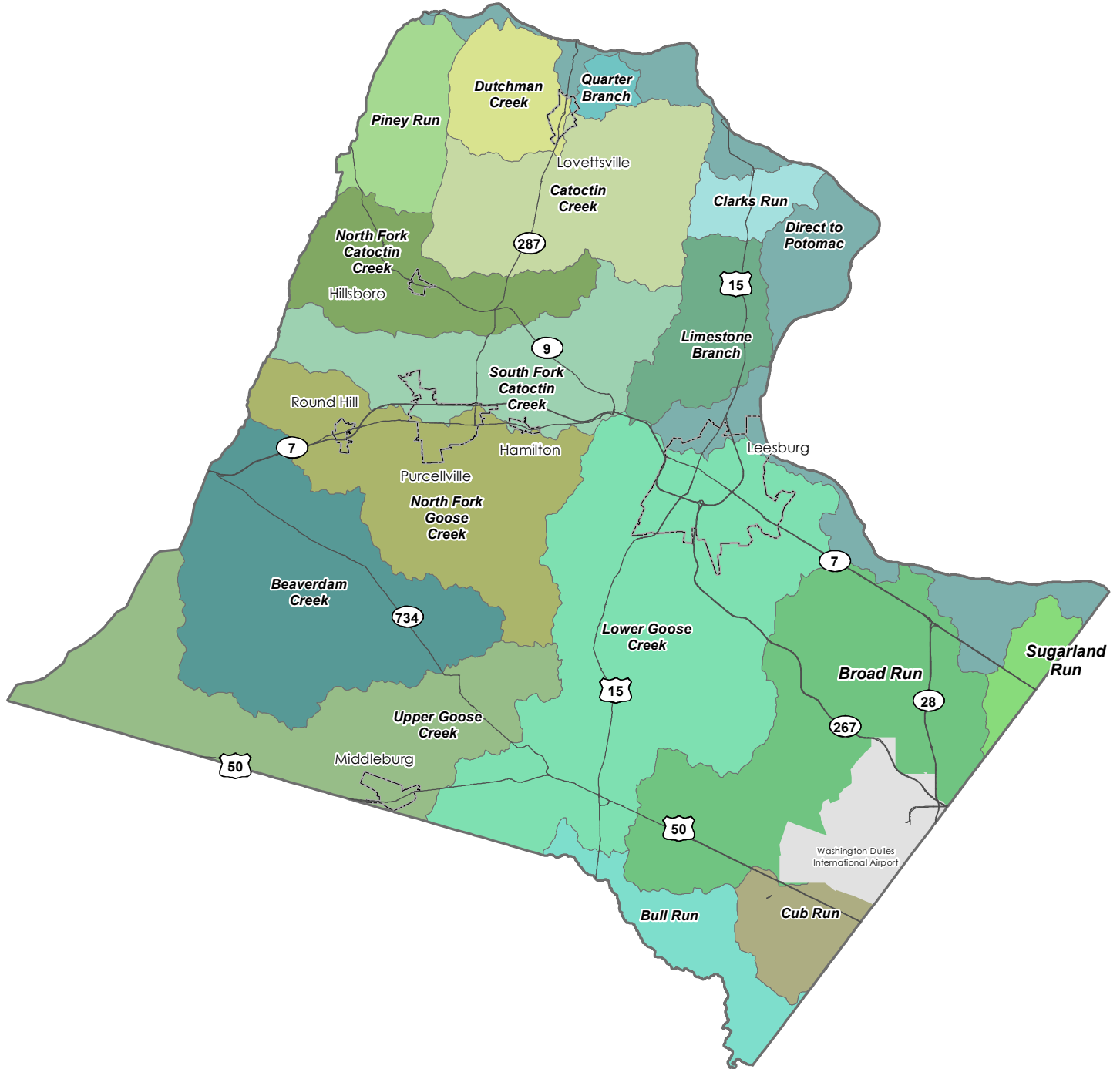


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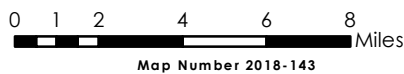


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Watersheds



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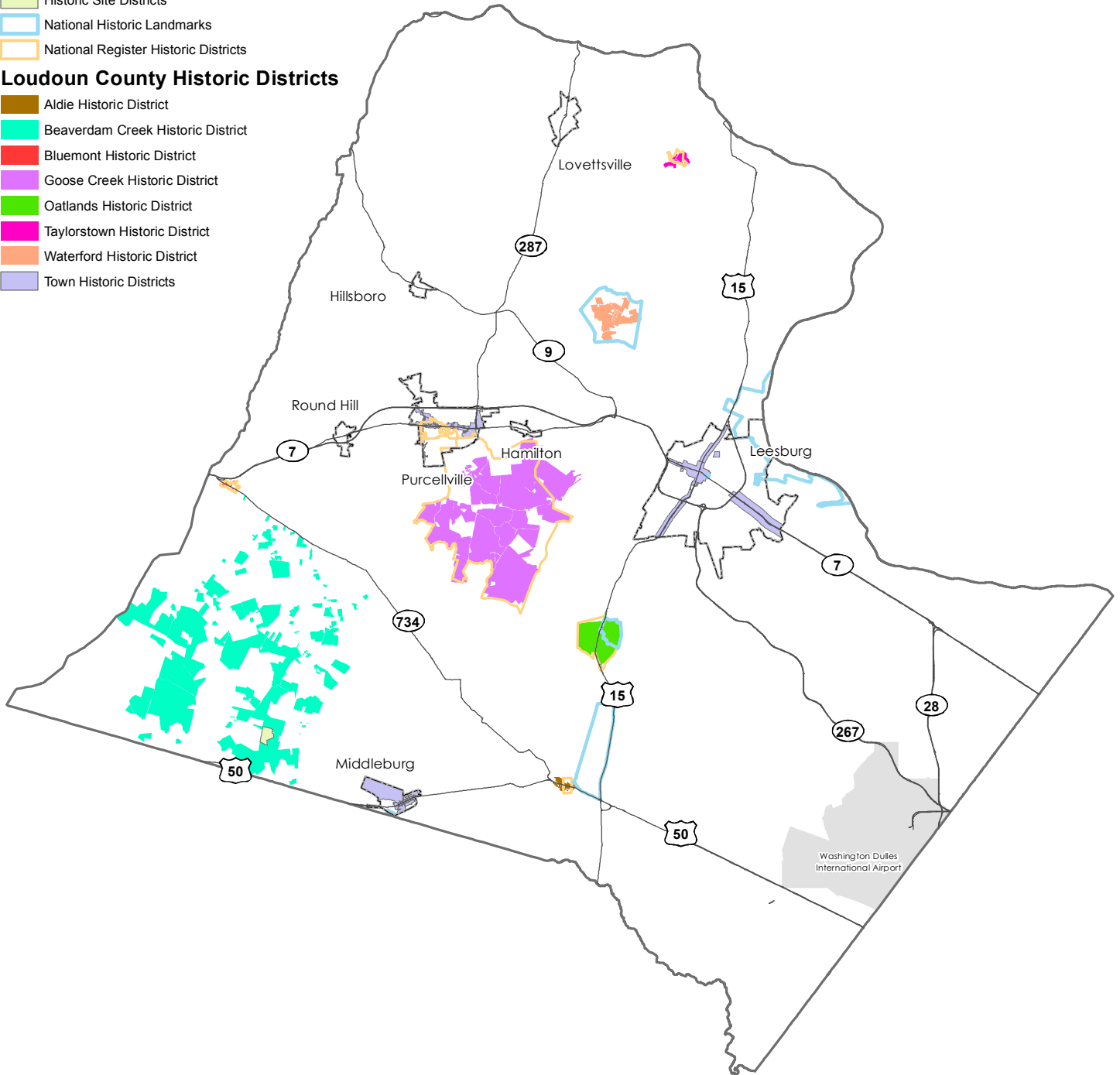
Loudoun County
Historic Districts
 2040 General Plan



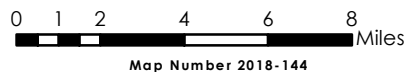
- Historic Site Districts
- National Historic Landmarks
- National Register Historic Districts

Loudoun County Historic Districts

- Aldie Historic District
- Beaverdam Creek Historic District
- Bluemont Historic District
- Goose Creek Historic District
- Oatlands Historic District
- Taylorstown Historic District
- Waterford Historic District
- Town Historic Districts

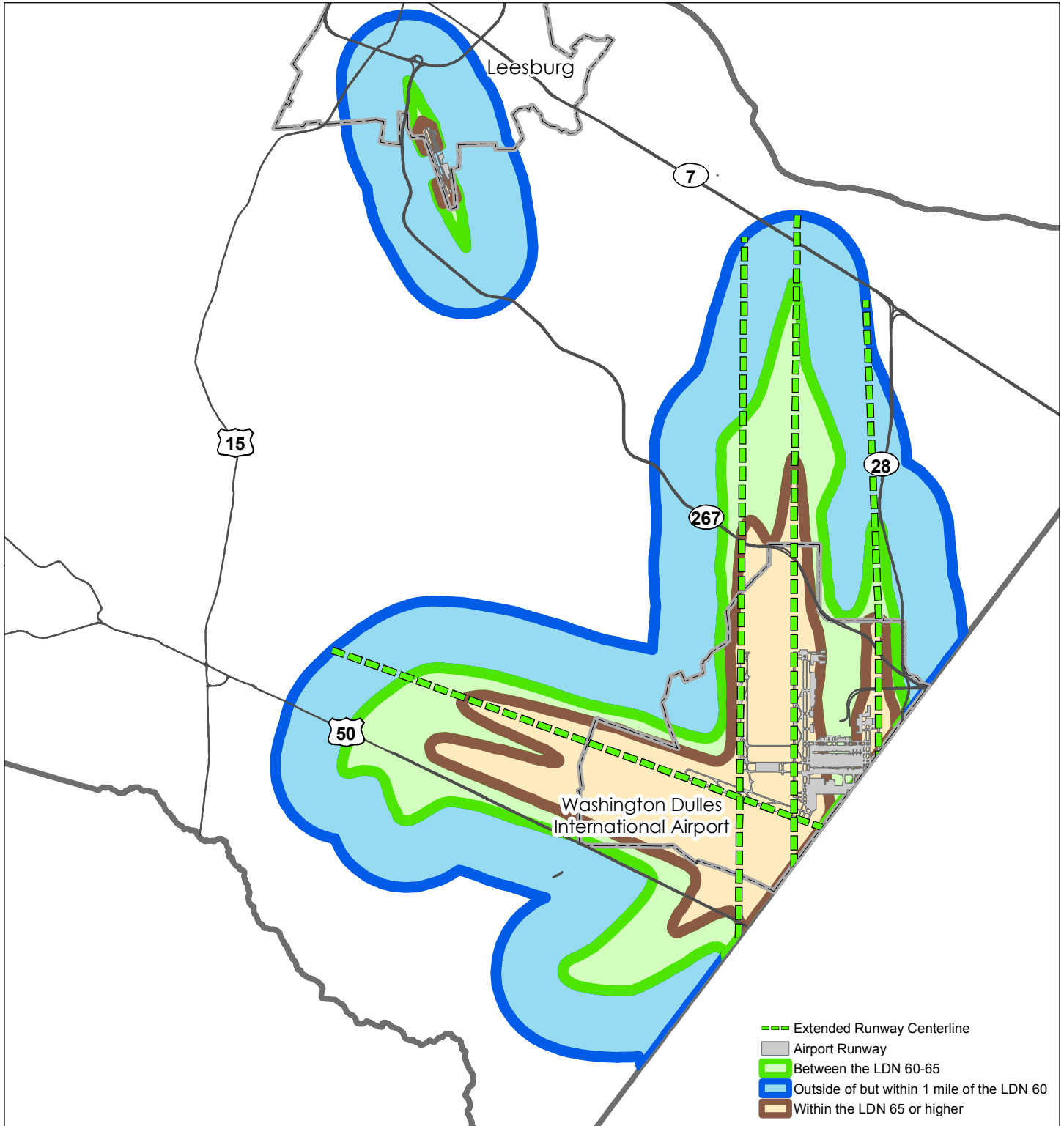


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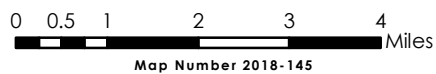


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Loudoun County
**Airport Impact
 Overlay District**
 2040 General Plan



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Chapter 4 - Housing

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Chapter 4 - Housing

Vision

Provide housing options—for all people who want to work and live in Loudoun County—that can accommodate a variety of lifestyles, households, ages, cultures, market preferences, incomes, and special needs.

Introduction

During much of the first two decades of the 21st century, Loudoun County was the fifth fastest growing county in the country. Over this time period, the convenient access to Washington, D.C. and the scenic qualities of Loudoun, coupled with strong demand for residential development, led to the development of Loudoun's high-quality neighborhoods. The County primarily accommodated this growth in the eastern portion of the County where the market forces for new development have been strongest, mainly due to the area's proximity to Washington Dulles International Airport and Washington, D.C. and the availability of central water and sewer. This development has resulted in a shrinking supply of available land for further residential growth, yet there remains strong market demand for housing in Loudoun County.

Under these circumstances, there is a shortage of housing supply available to accommodate new residents, unless new opportunities for housing development are created to meet the demand. As demand for housing increases, the supply of housing remains constant, and the available land for residential development decreases, competition for the available housing supply causes housing prices to escalate. These market forces have resulted in Loudoun containing some of the most highly valued residential communities in the region and have also resulted in pricing many people out of the County's housing market. In addition, recent national trends show that personal housing preferences are changing for many demographic groups leading to demand for more diverse housing types and lifestyle options.

All of this presents challenges in achieving the County's vision of providing a full spectrum of housing to support our community. An adequate supply of housing—varied in type and price, both rental and for-sale, and in convenient locations—is a fundamental ingredient of a complete, inclusive, and enduring community. The creation of sustainable housing requires that the pattern of residential development—its design, density, location, cost, and performance—benefit the residents and community now and over time.

Reaching this vision requires a multi-prong approach that will require coordination between the government, private sector, and overall community. This approach affirms policies, actions, and programs that are successful and sets forth new and innovative strategies and a commitment to implement them.

Trends and Influences

Over the planning horizon, Loudoun has many challenges to overcome in order to meet its goal of providing a range of housing choices. In the public input sessions during development of the Plan, residents correctly identified that young people, the workforce, persons with disabilities, and older

adults are increasingly struggling to afford available housing options in Loudoun. In addition, the changing population will require certain accommodations in the types of housing products developed, such as accessible buildings for older adults and persons with disabilities. Loudoun must also consider the longevity of its existing affordable housing stock against growing demands.

High Cost of Living and Housing

Loudoun’s housing market has not met the housing needs of all members of the community and an affordability gap exists. Housing currently being constructed is outside the affordability range of households earning up to 100 percent of the Washington Metropolitan Area Median Income (AMI).

Median Home Sales Price, 2015

| | Existing | New | AMI Needed |
|------------------------|-----------|-----------|--------------|
| All Types | \$417,000 | \$560,241 | 126% to 169% |
| Single-Family Detached | \$552,000 | \$690,469 | 167% to 209% |
| Single-Family Attached | \$377,500 | \$480,000 | 114% to 145% |
| Multi-Family | \$250,000 | \$356,389 | 76% to 108% |

Source: 2016 Envision Loudoun Foundations Report

Being “cost burdened” is a term used for households that spend 30 percent or more of their total monthly household income on housing. The term does not consider other costs that affect the cost of living in the areas such as transportation costs. The high cost of housing is an ongoing issue in Loudoun due to the growing number of cost burdened households. The greater the percentage of income that households have to spend on housing, the less income that is available to spend on the other goods and services needed to live in the County.

Need for workforce housing addressing housing diversity and affordability is critical for a continued and strong future economy for Loudoun County. Housing types, availability, and cost are among the deciding factors that corporations, companies, and organizations use to determine where to locate. Housing availability and cost in particular enable companies to attract and retain their employees. They are less likely to locate in a community where finding housing is a substantial issue for their employees. This causes workforce instability, especially in lower paying industries, and leads to long commutes from jobs to more affordable housing outside of Loudoun, increasing congestion on roadways.

As of 2016, about 56 percent of Loudoun’s workforce resides in the County, while the other 44 percent commute into the County daily. Of these in-commuters, many work in relatively low-wage industries such as Construction, Transportation & Utilities, and Leisure & Hospitality. Lower-wage employment sectors are growing, so the rate of in-commuting may increase if Loudoun does not have housing to accommodate the workers. This could contribute additional pressure to the regional transportation systems. In addition, the current lack of transit-accessible affordable housing has been cited as a detriment to winning new corporate office prospects. Other employers,

particularly in service-oriented industries and the public sector, have difficulty recruiting and retaining employees.

Limited Supply of Available Land for Residential Growth

Loudoun County grew significantly between 2000 and 2016. The population and number of housing units have more than doubled, while commercial space nearly doubled. Residences built during this time are located on the western edge of the Suburban Policy Area and in parts of the Transition Policy Area. There have also been new homes built in the Towns and along James Monroe Highway (Route 15). Much of Loudoun County's residential land, particularly land in the Suburban and Transition Policy Areas, is either developed or approved for development.

Housing Demand and Inventory

The County has undertaken two studies to project the future market demand for new housing units. In February 2017, the George Mason University (GMU) Center for Regional Analysis completed the Housing Needs Assessment (Link: <https://www.loudoun.gov/documentcenter/view/127559>). The purpose of the Housing Needs Assessment was to assess the County's current and future housing needs based on economic and demographic forces.

In January 2018, Kimley-Horn completed a Market Analysis as part of the Envision Loudoun effort (Link: <https://www.loudoun.gov/DocumentCenter/View/131399>). Both studies confirmed that the demand for new residential development will remain high

According to U.S. Census data from 1956 through the end of 2017, the nation's average quarterly vacancy rate was 1.6 percent for the residential sales market and 7.4 percent for the residential rental market. The 2017 George Mason University Housing Needs Assessment found that the vacancy rate for all housing units in Loudoun County was 4.3 percent in 2014, and the rental vacancy rate was 2.3 percent in 2014, including both multi-family apartments and single-family detached and attached homes. Both the overall vacancy rate and the rental vacancy rate in Loudoun County were among the lowest of the comparable jurisdictions in the Washington D.C. Metropolitan Area. By comparison, the 2012-2016 American Community Survey estimates for vacancy rates by tenure in Loudoun County were 1 percent for owner-occupied units and 4 percent for rental units. The County's low vacancy rates in the rental and sales markets indicate that demand exceeds the supply of housing units.

Changes in Typical Households

Demand is growing for diverse housing types to address the needs of changing households. Millennials tend to have a greater preference for vibrant, walkable communities where they can live, work, and play. The aging Baby Boomer generation (born between 1946 and 1964) creates a need to provide a range of senior housing opportunities. Multigenerational housing choices are also gaining popularity across the country in the form of large houses with multiple kitchens, houses with main floor bedrooms and bathrooms, or houses with an accessory dwelling unit.

Housing Impacts on Government Services & Units Affordable by Design

Development of new housing attracts new residents, directly or indirectly, and with new residents comes increased demand for public services such as law enforcement, fire protection, emergency

medical services, and education. To implement these services, the County has developed Capital Intensity Factors (CIF) to estimate the anticipated per unit costs of new residential development to construct needed capital facilities. (Refer to www.loudoun.gov/cif)

Where allowed by State Code, the County expects development entities of residential projects to mitigate these impacts of the development; this is typically done with contributions to capital facilities formalized in proffer statements. Since market conditions dictate the sales price of housing units, a developer absorbs the cost of the capital facility contribution in each unit's sales price, which reduces a development entity's profit. For Affordable Dwelling Units (ADU) provided pursuant to Article 7 of the Zoning Ordinance, the County absorbs the capital facility impacts generated by that housing unit type by crediting the developer the costs for each affordable dwelling unit's impacts.

Since the CIF is based on unit type and not unit size and development entities intend to maximize profit margins, an incentive to develop smaller or modest sized housing is typically not present. Instead, these two factors influence the construction of larger, higher value residential housing units that are affordable to households within incomes greater than 100 percent AMI. Identifying these influences provides the County an opportunity to address the issues that could enable or incentivize development of smaller, modest sized houses to occur within the market, which would be more affordable by design.

Policies, Strategies, and Actions

Unless otherwise specified, the following policies, strategies, and actions apply Countywide.

Policy 1: Increase the amount and diversity of housing unit types, sizes, and prices and promote innovative designs throughout Loudoun County that are desirable and attainable to all income levels.

Strategies

- 1.1. Ensure that housing for special needs populations is integrated within existing and planned communities.
- 1.2. Provide for diverse housing options for older adults (55+).
- 1.3. Support mixed-use development projects that provide a continuum of housing types and prices as well as commercial uses such as retail, entertainment, and offices in a walkable environment.
- 1.4. Ensure that infill and redevelopment projects provide a continuum of housing types and prices in areas with existing infrastructure and services.
- 1.5. Focus County programs on the unmet housing needs of households earning up to 100 percent of the Washington Metropolitan Area Median Income (AMI).
- 1.6. Ensure that development proposals include a residential component that includes housing for households with incomes at or below 50 percent of AMI.

- 1.7. Ensure that housing that is developed to fulfill unmet housing needs is served by public utilities and located near existing or planned employment opportunities, public facilities and services, transit, and other amenities.
- 1.8. Encourage and provide regulatory flexibility for the use of existing, planned, and/or zoned non-residential land to address unmet housing needs provided that such development includes a mix of residential, commercial, and employment uses.
- 1.9. Enable market innovation to address housing diversity in a manner that is compatible with the surrounding neighborhood character.

Actions

- A. Develop effective incentives that enable development to provide units to meet unmet housing needs to include housing for households with incomes at or below 30 percent of AMI, which is the area of greatest need and includes older adults on fixed incomes, persons with disabilities, and workers in low-wage occupations.
- B. Strengthen regulations, to the greatest extent that the State Code allows, to require the development of affordable housing.
- C. Strengthen regulations, to the greatest extent that State Code allows, to maximize diversity in housing types, prices, numbers, and locations that is interspersed within neighborhoods, communities, and throughout the County as part of new development and the number of units in the provision of affordable housing.
- D. Revise building and development standards so the design of residential units and neighborhoods meets the physical needs of aging adults and persons with disabilities (e.g., universal design and accessible units).
- E. Amend the Zoning Ordinance to expand the number of districts where manufactured housing, accessory units, and alternative housing types are allowed (e.g., small lot and innovative housing types, micro-units).
- F. Amend the Zoning Ordinance to incentivize affordable housing development.
- G. Ensure affordable units are provided in residential developments that contain 20 or more dwelling units and have a density that exceeds one dwelling unit per acre.
- H. Examine and estimate unmet housing needs and evaluate housing programs for their effectiveness in addressing those needs every five years.
- I. Develop an affordable housing strategic plan that more specifically identifies strategies, actions, programs, and best practices to address the County's current and future unmet housing needs. Research and implement effective incentives, such as appropriate density increases for the provision of affordable housing and the off-set of capital facilities contributions, and evaluate successful housing programs in other jurisdictions to determine the resources needed to foster a continuum of housing affordability for workers in Loudoun.

Policy 2: Preserve existing affordable housing stock levels and ensure housing remains safe and habitable.

Strategies

- 2.1. Leverage public and private resources to address housing needs in Loudoun County.
- 2.2. Preserve affordable housing that is currently provided by the market and integrate it into redevelopment projects.

Actions

- A. Provide programs that bring existing affordable housing in need of indoor plumbing, operational septic and water systems, and major system repair (e.g., new roofs or heating and cooling systems) up to safe and livable conditions.
- B. Implement housing programs that address the maintenance, preservation, and improvement of existing affordable housing stock.
- C. Create a dedicated revenue stream for affordable housing development.
- D. Develop a rent subsidy program to address the housing needs of extremely low-income or vulnerable households including older adults on fixed incomes and persons with disabilities.
- E. Use public and private partnerships, programs, tools, and incentives to address unmet housing needs and increase the County's capacity to compete for federal and state assistance.
- F. Provide technical assistance to the Towns to assist them in establishing and maintaining programs that provide affordable housing.
- G. Work in partnership with nonprofit, public, and private entities that are committed to the provision of a wide range of housing opportunities by offering technical and financial assistance such as direct loans, gap financing, revolving loans, credits, and grants.
- H. Create a Housing Authority that would develop new affordable housing, rehabilitate housing, and revitalize community infrastructure.
- I. Encourage the Economic Development Authority to exercise its authority to assist with property acquisition, tax exempt bond financing, and leverage gap financing, and stimulate cooperative partnerships toward the preservation and production of housing to address unmet needs.
- J. Consider the use of County-owned property to offset the costs to nonprofit, public, and private sector entities to fulfill unmet housing needs and primarily target 1) special needs populations and/or 2) households earning less than 50 percent of AMI.
- K. When purchasing real property, consider buying properties that can be developed to fulfill unmet housing needs in addition to the primary public use.

- L. Expand the employer-assisted housing program to help meet the private sector's workforce housing needs.

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Chapter 5 - Economic Development

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Chapter 5 - Economic Development

Vision

A diverse and globally competitive Loudoun Economy.

Introduction

Loudoun County has emerged as a leading hub of economic activity in the Metropolitan Washington, D.C. area. Growth remains constant in technology sectors such as aerospace, cybersecurity, and data centers. The federal government continues to fuel employment for almost one-third of the County’s rapidly expanding population. Additionally, agriculture-based businesses are on the rise due to Loudoun’s renewed focus on value-added agricultural products. Start-ups and corporations that span all of these burgeoning industries are thriving due to Loudoun’s location in the region, proximity to the Washington Dulles International Airport, highly-educated workforce, and business-friendly government.

Loudoun’s sustained economic growth generates significant local tax revenue from businesses that supports quality schools, parks, public facilities, infrastructure, and low residential tax rates. These assets help create a high quality of life for the County’s residents, workers, and visitors. Successful economic development helps build a strong community, and meaningful economic development policy is one important step towards that aim. The list of accolades for Loudoun’s economy is long, however there are eight “number ones” that stand out above the rest:

Figure 1. Eight Ways Loudoun County, Virginia is No. 1



Sources: U.S. Census, WTOP, MWCOG, SmartAsset, USDA, Loudoun County

Two major economic drivers have helped Loudoun achieve these successes—Washington Dulles International Airport and the world-class digital fiber network—and one additional driver is on the

horizon with the Metrorail expansion to Ashburn. Non-residential forecasts identify that short-term growth will be led by data center development, which is a strong revenue source for the General Fund; for every dollar in services Loudoun County provides for data centers, it receives back more than \$9.50 in tax revenue. However, mid to long-term forecasts show data center construction slowing as land and resources become scarce. **Diversifying** the economic base, **creating** desirable places to attract new corporate headquarters, **investing** in the skill set of local workforce, **marketing** the County on a global scale, and **promoting** Loudoun as a tourism destination will help maintain a strong community for many years.

Background

In 2000, the Board of Supervisors adopted *The Community's Plan for a Thriving and Sustainable Economy*, which was intended as a guiding strategy in the County's *Revised General Plan* for five to ten years.

This fundamental economic development strategy identified five goals for the Loudoun community: 1) foster a prosperous and diverse business environment, 2) create a globally recognized economy, 3) maintain sound fiscal health, 4) develop an innovative rural economy, and 5) become a world-class visitor's destination. It also identified Loudoun's competitive advantages:

- Washington Dulles International Airport
- Location in the D.C. Metropolitan Area
- Qualified workforce skilled in advanced industries
- Quality of life
- Infrastructure that enables access to the region
- Greenfield land zoned for commercial development

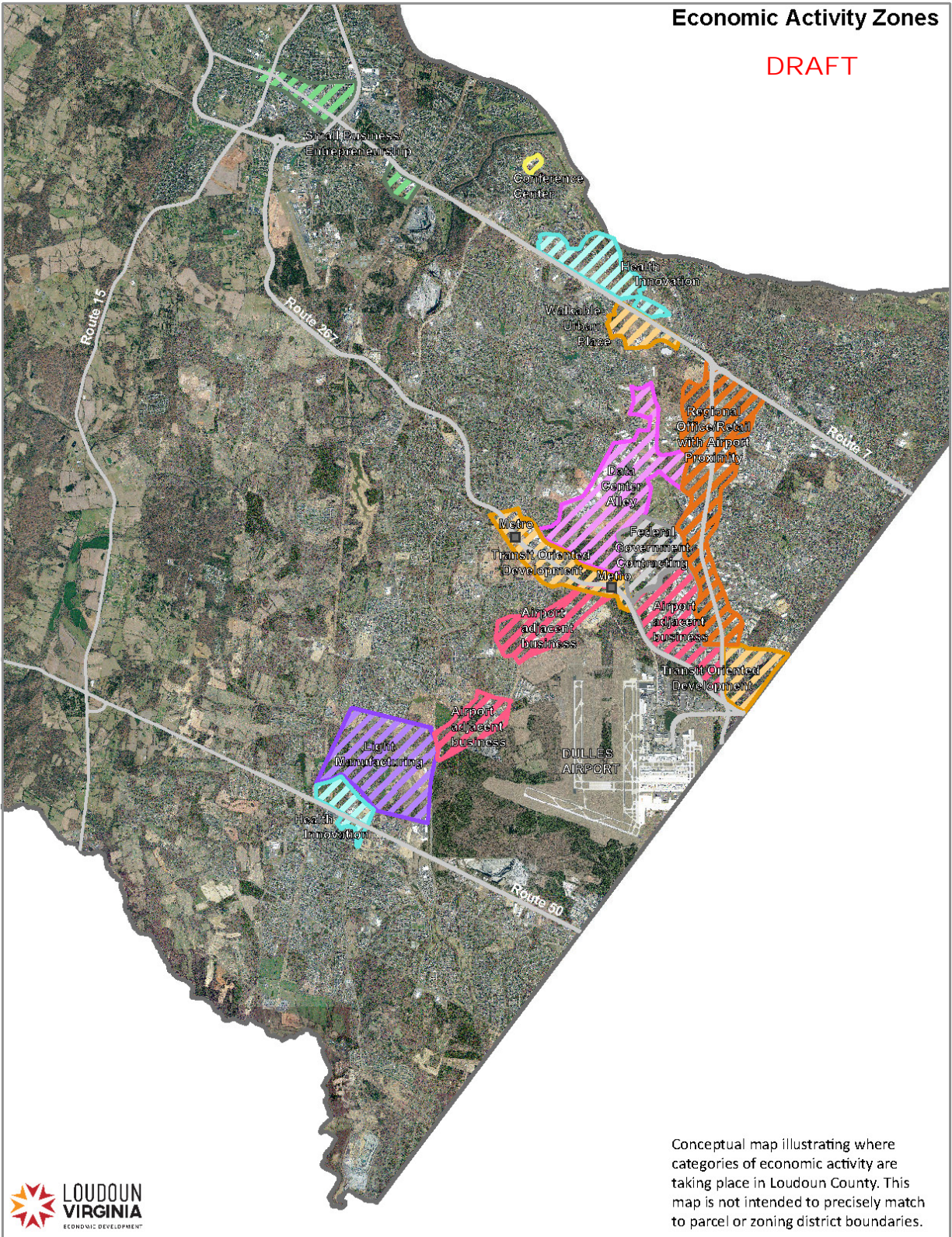
The County has since completed additional strategic economic planning efforts including a Targeted Cluster Strategy in 2008 (updated in 2012 and 2017) that helped identify emerging opportunities, and a specialized Rural Economy Business Development Strategy in 2013.

Targeted Cluster Strategy

The County utilizes a cluster and overlay approach for economic development. The approach is based on industries that are more concentrated in Loudoun relative to the state/nation, and industries that are adding firms because of Loudoun's strengths and opportunities. The County's current targeted clusters and overlays are: data centers, information & communications technology, federal government contracting, aerospace & defense, aviation & transportation, health, innovation & technology, and agriculture & related businesses.

Areas of the eastern portion of the County where some of these targeted clusters and other business ecosystems have emerged are represented in the following graphic. Agriculture and related businesses are predominately in the western portion of the County, which is not shown on the map.

Figure 2. Geographic Economic Activity Zones



Trends and Influences

As part of the *Loudoun 2040 General Plan* process, the County reevaluated its economic advantages, challenges, and opportunities based on existing local market conditions. Additionally, macro trends were analyzed that will impact economic development in the areas of workforce, globalization, digitization, tourism, and demographics.

Local Opportunities and Challenges

The information and communications technology cluster, which includes data centers, remains a strong local competitive advantage. Northern Virginia has an exceptionally high concentration of tech talent, as measured by the number of civilian employed persons in computer and mathematical occupations—more than Seattle and comparable to that in the entire San Francisco/Silicon Valley area. Out of the cities and counties in Northern Virginia, Loudoun County has the highest concentration of people employed in computer and mathematical occupations (U.S. Census, 2016). Other economic development advantages include: 1) Washington Dulles International Airport and future Metrorail stations, 2) business-friendly local regulations and services, 3) highly-educated workforce and top-notch schools, 4) farms and agritourism, 5) affluent and culturally diverse residents, and 6) exceptional quality of life.

Despite the high concentration of tech workers in the region, talent attraction is still one of the biggest challenges that existing and potential Loudoun businesses face. The emerging workforce desires walkable urban places with a mix of amenities and housing types. A recent survey by the County's Nighttime Economy Advisory Committee (NEAC) found that millennials want 1) special events, 2) arts, cultural, and entertainment districts, 3) attainable and desirable housing, 4) mixed-use and walkability, and 5) multimodal transportation alternatives (NEAC Survey, 2016). Lack of housing options and traffic congestion for commuting has also been cited by many business leaders as a challenge for employee recruitment (Department of Economic Development Business Community Interviews, 2017).

Workforce

As of 2017, the number of Americans on unemployment rolls has dropped to a 17-year low, which indicates the labor market nationwide is tightening and companies are facing challenges recruiting skilled workers (U.S. Bureau of Labor Statistics, 2016). Some best management practices for economic development organizations to help address the expected talent shortage include: conducting a workforce sustainability study, collaborating with regional educational institutions, and developing industry-specific online portals for jobs.

Loudoun County is home to seven institutions of higher education providing undergraduate, graduate, and continuing education opportunities. Local universities and colleges have partnered with local businesses and organizations to provide places for business ideas to incubate and grow, expand research and development opportunities, and provide targeted educational training opportunities. This continued collaboration strengthens the partnerships among government, business, universities, and public schools to ensure continued development of Loudoun's highly skilled workforce.

As part of an international strategy, attracting immigrants to the workforce helps ensure a steady flow of skilled and unskilled workers. Loudoun County is well on its way to diversifying its local employment base, as one out of every four residents are foreign-born (U.S. Census, 2014).

Globalization

The County's economic development strategies need to be prepared for the global economy. One in five American jobs are tied to international trade, and 95 percent of consumers—three-quarters of the world's purchasing power—is found outside United States borders (The Trade Partnership, 2015). Locally, the percentage of Loudoun's gross domestic product devoted to exports (9.9%) is top five for the Greater Washington area. Loudoun is also top five in Greater Washington for numbers of jobs in foreign establishments (Brookings, 2014).

Best practices for increasing foreign direct investment, attracting international companies, and recruiting international workforce are straight-forward: devote full-time staff to international trade missions and developing leads and recruiting abroad. Furthermore, globalization is no longer confined to the coastal cities, so the future domestic workforce (students) should be prepared early by emphasizing foreign studies and learning different languages.

Digitization

Digitization of the local government development process is becoming widely accepted, which helps businesses start and expand easier and faster. Electronic plan submittals, business license portals, and online permit or entitlement tracking increase accountability and provide more certainty for the business community.

The continual shift to digital information, communication, and transactions results in steady demand for data storage infrastructure and information technology workers. Loudoun is thriving in both business areas as 30 percent of the world's physical data center buildings are in Loudoun County, and the concentration of employees in information technology as it relates to total County employment is stronger than the information technology cluster in the states of Maryland and Virginia combined.

Tourism

Tourism and economic development are inextricably linked, as visitors to desirable destinations become repeat visitors, which can lead to relocation, entrance into the workforce, and potentially moving or starting a business. Loudoun is uniquely situated in the D.C. region due to its thriving rural economy in the western half of the County that also supports regional tourism.

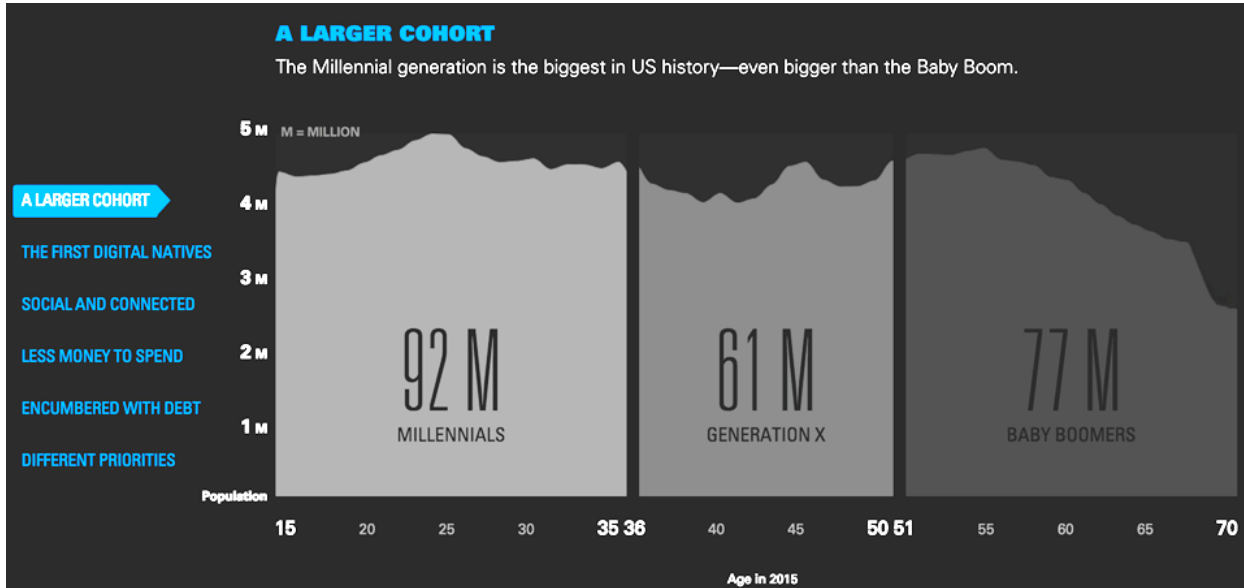
Best management practices for aligning economic and tourism development include using consistent "destination" branding across multiple lines of government, building recognition for year-round activities, and identifying the local community as a progressive tourism destination in marketing materials to business prospects.

Demographics

The up and coming generation entering the workforce, often referred to as millennials, will be the biggest cohort in United States history (Business Insider, 2015). The demographic shift will bring changes in consumer spending, office amenities needed to attract workforce, housing preferences,

and political ideologies. In general, millennials are unique because of technological aptitude and reliance, propensity towards tolerance, and high educational attainment (Pew Research, 2015).

Figure 3. Population Comparison of Recent Generations



Source: *Business Insider*, 2015

Most innovative companies looking to attract the next generation of workers are seeking “urban” places for their expansion or relocation efforts because they cluster offices, retail, entertainment, cultural attractions, services, and housing options in close proximity. The emerging workforce desires this amenity-rich environment and expects transportation options such as walking, biking, or transit for commuting or consuming daily goods and services. Transit-oriented on-Metro developments in Northern Virginia have seen remarkable growth, and Loudoun County is poised to capture this trend with the opening of three new Metro Stations.

Policies, Strategies, and Actions

The following policies, strategies, and actions respond to economic trends and opportunities that will impact Loudoun, with a focus on maintaining a strong and diverse local economy, capitalizing on our Silver Line Metro Stations, and responding effectively to our next generation of workforce. Unless otherwise specified, the following policies, strategies, and actions apply Countywide.

Policy I: Diversify the economy by strengthening targeted industry clusters.

Strategies

- 1.1. Attract new businesses in key industries so that the global competitive advantage of Loudoun is strengthened in the targeted industry clusters.
- 1.2. Proactively retain businesses that may be considering leaving Loudoun by helping with relocation or expansion efforts.
- 1.3. Catalyze start-ups and entrepreneurial growth by providing quality resources.

- 1.4. Continue the close working relationship with the Metropolitan Washington Airport Authority (MWAA) to sustain economic growth at and around the Washington International Dulles Airport.
- 1.5. Continue to support the Washington Dulles International and Leesburg Executive Airports by continued and complete prohibition of new residential and other noise sensitive land uses from the areas located within the Ldn 65 and higher aircraft noise contours for both airports and by requiring non-noise sensitive land uses within these noise impact areas.
- 1.6. Expand international business relationships and foreign direct investment.

Actions

- A. Embed staffing resources in each cluster/overlay to attract or expand businesses using industry expertise, relationships, and earned reputation.
- B. Use marketing and research to create promotional materials, conduct market analysis, assist with site selection, and provide ombudsman services.
- C. Provide assistance with the regulatory process and streamline when possible using electronic plan submittals and online portals to get clients to market more quickly, provided all public safety, health, and welfare regulations are met.
- D. Create mechanisms for the rural economy to maintain its status as a regional agricultural leader and local advantage.
- E. Reserve adequate amounts of developable commercially-zoned land for cluster growth.
- F. Strategically use economic incentives as needed for attraction and retention.

Policy 2: Create desirable places in key corridors and employment centers.

Strategies

- 2.1. Ensure that the design and infrastructure of key economic corridors and employment centers creates desirable places for workers, businesses, residents, and visitors.
- 2.2. Support development projects near the Ashburn and Innovation Metro stations that provide a continuum of housing types, retail, entertainment, and employment options in a walkable environment (e.g., walkable urban places).
- 2.3. Be flexible, customer-focused, timely, and open to interpretation in review and approval of commercial or mixed-use projects to keep pace with business innovations and reduce time to market.
- 2.4. Encourage multimodal infrastructure design, especially within biking distance of Metro Stations and near other employment and major hotel centers, which minimizes impact to development potential of land.
- 2.5. Support a diversity of available commercial products when planning land use to improve attraction of a multifaceted business base.

- 2.6. Accommodate all types of critical infrastructure when planning for transportation—complete streets, power, water, and fiber.

Actions

- A. Establish State-endorsed “Technology Zones” for the encouragement of new and expanding technology businesses that enable reduction of user and permit fees, local tax incentives, special zoning treatment, and exemption from local ordinances.¹
- B. Streamline the process for amending the Comprehensive Plan to allow for flexible and timely responses to evolving market conditions and technological innovation and to reduce project time to market.
- C. Periodically update the County’s Zoning Ordinance to keep pace with innovation in the marketplace.
- D. Extend support to the Towns to plan for enhancing the economic base.

Policy 3: Invest in the skilled workforce needed for continued economic growth.

Strategies

- 3.1. Support continual growth of the workforce through recruitment assistance, training, and placement programs.
- 3.2. Proactively attract workforce, develop existing pipeline, and explore ways to increase access to qualified job applicants in targeted clusters.
- 3.3. Cultivate partnerships with schools, colleges, and businesses to link all levels of education (including K-12) to targeted industry needs.
- 3.4. Develop housing programs to create a continuum of housing types that are attainable and desirable to all levels of the workforce.

Actions

- A. Collaborate with community and academic partners on connecting people to careers, expanding “learn by doing” programs, securing funding sources for training, and developing vocational training and industry certification and degree programs.
- B. Actively engage local businesses to determine workforce challenges and needed skills.
- C. Incentivize construction of attainable workforce housing using density bonuses, fee waivers, revolving loans, or assistance with required infrastructure.
- D. Consider using the Economic Development Authority for property acquisition to bank land for public-private partnerships on workforce housing projects.

¹ Code of Virginia § 58.1-3850. Creation of local technology zones.

Policy 4: Market the County as a world-class business ecosystem.

Strategies

- 4.1. Market the County as a world-class place to do business using a variety of tools and communication platforms.
- 4.2. Promote gender and ethnic diversity of the local business community.
- 4.3. Market Washington Dulles International Airport as a destination portal to a diverse Loudoun economy.

Actions

- A. Tailor messaging to decision makers and influencers who play a role in starting, expanding, or relocating businesses (e.g., owners, executives, site selectors, or brokers).
- B. Post and respond on the County's economic development website and social media channels in a timely fashion to maintain credibility.
- C. Maintain economic development brands for custom professional-grade collateral.

Policy 5: Support the promotion and development of Loudoun County as a tourism destination.

Strategies

- 5.1. Collaborate with Visit Loudoun to support the development and enhancement of tourism and hospitality infrastructure, including hotels, bed and breakfasts, event facilities, and cultural attractions.
- 5.2. Encourage and support tourism destination development and marketing.

Actions

- A. Establish State-endorsed "Tourism Zones" that enable the County to be eligible for gap financing from the State for tourism-related development projects.²
- B. Refresh online content and optimize for search engines regularly, translate into multiple languages, and focus design to reflect Loudoun's unique personality and strengths.

²Code of Virginia § 58.1-3851. Creation of local tourism zones.

Chapter 6 - Fiscal Management & Public Infrastructure

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Chapter 6 - Fiscal Management & Public Infrastructure

Vision

County residents will benefit from high quality, efficient, and environmentally sensitive infrastructure systems supporting County growth management goals and providing innovative services to the community.

Introduction

Sustained growth since 2000 required Loudoun County to meet a significant demand for new public facilities, such as Parks and Recreation, Fire and Rescue, and Schools. The County has maintained a reputation for quality facilities and services and exceptional fiscal management. Loudoun County's success lies in establishing a close connection between land use and fiscal planning. Similarly, managing utilities, principally sewer and water, has had a direct influence in where new development occurs. Consistent policies and close collaboration with Loudoun Water has allowed the County to maintain an urban growth boundary and to subsequently focus other investments in roads and public facilities in eastern Loudoun. Loudoun Water's strategy for a long-term water supply and its investment in high-quality water and sewer treatment has provided the County with a strong basis for growth decisions.

This Plan does not address the fiscal management and operational priorities of the companies and authorities that are independent of the County but operate key utilities serving Loudoun County. Nonetheless, the cooperative relationship between the County Board of Supervisors (Board), Loudoun Water, the Virginia Department of Health (VDH), and others continues to ensure a close connection between infrastructure and land use planning.

Fiscal Planning and Budgeting

Loudoun County's fiscal planning and budgeting strategy is innovative for local government. It involves the integration of land use planning, fiscal management, and facilities planning. The County's fiscal program requires the Board to adopt a ten-year Capital Needs Assessment (CNA) every two years after public hearing and recommendation by the Planning Commission and a six-year Capital Improvement Program (CIP) annually during the Board's annual budget deliberations. The annual CIP funding plan and budget then align annual capital expenditures with County fiscal policy.

Since the 1990s, the County's fiscal management strategy has evolved, enabling the County to anticipate and accommodate a consistently high volume of service and facility demand. This strategy helps ensure that Loudoun County retains a high quality of life and an economic balance that allows an affordable tax rate. The Board established Loudoun County's Fiscal Impact Committee (Committee) in 1992. This advisory committee reviews assumptions about future growth and capital facility needs. The Committee provides recommendations to the Board on four key documents that the County uses to coordinate land use and financial planning: 1) Long-range forecasts and demographic, economic, and financial information included in the Fiscal Impact

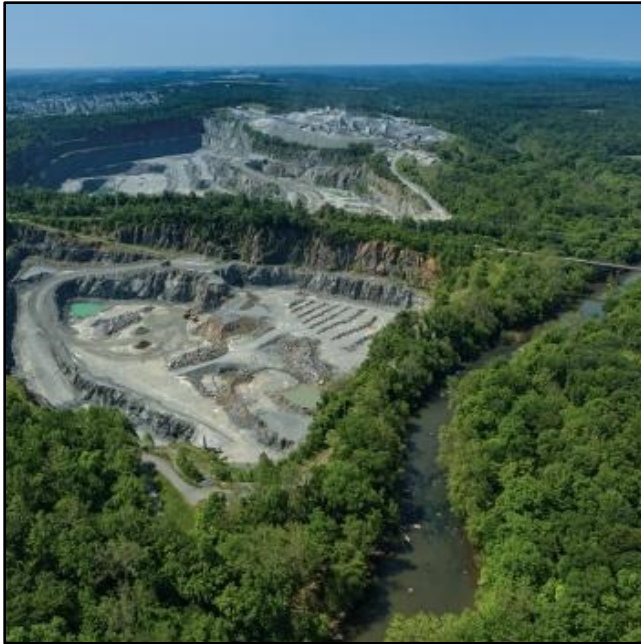
Committee Guidelines, 2) Capital Facility Standards, 3) Capital Needs Assessment (CNA), and (4) Capital Intensity Factors (CIF).

Topics

Public Facilities

The County’s fiscal management strategy enables the County to anticipate and accommodate the impacts of increased demand for public services and facilities. To provide funding for public facilities, careful forecasting of development, including its location, type, and timing, generates anticipated facility needs. Projecting capital needs associated with new development establishes expected impacts on public facilities, as well as the anticipated fair share contributions to mitigate those impacts during the development process.

Utilities & Infrastructure



By 2040, Loudoun Water's customers may require up to 90 million gallons of drinking water every day. This would represent a 40 million gallon per day increase from the customer demand in 2017. Loudoun Water’s Potomac Water Supply Program is an innovative solution to the County’s long-term water supply needs. It involves withdrawing river water when flows and quality are acceptable and storing the water in retired rock quarries, initially storing at least one billion gallons of water and ultimately more than 8 billion gallons of water in quarries. The Trap Rock Water Treatment Facility draws from quarries and ensures the highest quality drinking water. The plant is expandable and scalable to meet the future demand. Strategies and actions address the

need for active water quality protection around the quarry reservoirs because of the close proximity of other development. Loudoun Water cooperates with the County by aligning their service plans with the County’s land use policies to the extent that Loudoun Water’s central service area aligns with the County’s Urban, Suburban, and Transition Policy Areas. This prevents expansion into the Rural Policy Area. The County also works with and relies on Loudoun Water to resolve health issues in rural communities and to operate shared systems where they are permitted by County land use policy.

The County operates the County Landfill and provides recycling opportunities for the residents and businesses. Landfill operations are fee supported. The County also offers recycling drop-off centers, household hazardous waste collection events, collection of seven materials for recycling or diversion at the landfill, and educational programs.

Electrical and Communication services are provided under the purview of State and Federal agencies. This limits the County’s ability to mitigate certain impacts. For example, the County

regulates the location of electrical substations but not the transmission lines to and from the substations. Similarly, the County may review the location of cell towers and monopoles for impacts on surrounding properties but cannot prescribe locations and therefore cannot require broadband or communication service in underserved areas. The County does, however, work with the providers to encourage improved service and locations; therefore, policies are included to provide consistent direction to the providers.

Open Space Assets

Open space assets as defined in this chapter include greenways and trails and open space easements. These assets make up much of the County's network of green infrastructure and may be held in private or public ownership or a combination thereof. The County and individual property owners manage these elements through the regulation of protective buffers, donation of open space easements, Purchase of Development Rights (PDR), Transfer of Development Rights (TDR), and performance standards. There are over 70,000 acres of land, equating to approximately 21 percent of the County, protected in private conservation easements and another 3,600 acres of land owned and managed by Homeowners Associations (HOA).

The Board established the PDR Program in 2000 as a tool to protect Loudoun County's open space and its cultural, natural, and agricultural resources. The PDR Program financially compensates willing landowners for not developing their land; a landowner enters into an agreement to sell the development potential of qualifying property to the County while maintaining the right to continue to own and use the property. However, funding of the program was eliminated in 2004. Another tool available is TDR, in which development potential for a property targeted for preservation is applied to a property in an area of the County suitable for development. TDR is available during rezonings to gain higher density on properties suitable for development. Both PDR and TDR are voluntary programs in Virginia.

The Use Value Assessment program and County-designated Agricultural and Forestal Districts are tools used to protect forests and agricultural soils. The AFD limits subdivisions to large, farmable acreages (typically 20-40 acres) and prohibits cluster subdivisions. The Use Value Assessment Program provides tax relief to landowners to protect farmland for future agricultural use and historic and scenic resources protection for the economic and cultural benefits derived from its preservation. However, these tools do not protect the land in perpetuity.

Trends and Influences

In addition to the impact of a growing community, the increased diversity of the population is generating expectations for a wider range of facilities. At the same time, less land is available for public facilities. County standards for facilities like libraries have to be more flexible and recognize the need to retain existing facilities particularly where they play an integral role in the character and activity of the community.

In recent years, the County has benefited from a more balanced development pattern of both residential and commercial uses that has led to affordable real property tax rates, and a more diversified revenue structure. The data center industry, which provides a high level of revenue to the County, appears poised for continued future growth as more companies opt for cloud information technology (IT) services. The increasing number of data centers has brought with it a

growing number of smaller electrical substations, which have a significant visual impact on the surrounding community. Other employment sectors such as light or flex industrial, retail, and medical services are experiencing growth. The County's rural economy is hampered by the lack of a comprehensive broadband network available to all residents and businesses.

Urban development patterns along the Silver Line and in other mixed-use centers call for new public facility designs that match the new development pattern and minimize land requirements. The County's major long-term financial investment in public transit will rely on quickly realizing high value development within the Silver Line corridor. Multi-story schools, shared space in mixed-use buildings, and an overall more compact footprint are necessary with the urban walkable communities. As the County urbanizes and more fully utilizes its suburban land base, it will have to rely on the natural resources and preservation of open space to minimize the increased runoff and pollution.

As part of its strategic planning efforts on growth management, the County will be expanding discussion of net impacts, including capital needs and costs, of individual projects on Countywide infrastructure. The impact of a rezoning application on the local transportation network and public facilities, what the application is or is not doing to mitigate the impact, and what facilities exist and/or are funded to serve the subject property and surrounding area will be considered during the development review process. State legislation has put additional constraints on local authority to accept capital facilities proffers, which could renew the need for alternative means of mitigating development impacts. Additionally, the County is developing an analysis model to assist with evaluating the fiscal impact of future development.

Policies, Strategies, and Actions

Unless otherwise specified, the following policies, strategies, and actions apply Countywide.

Public Facilities

Policy I: Provide public facilities to meet identified needs.

Strategy

- 1.1 Use the CNA Program to plan and coordinate facility needs and location criteria to ensure adequate dispersal and timely availability of County facilities.

Actions

- A. Expedite the approval of public facilities by establishing performance standards that would eliminate the need for legislative review.
- B. Support the School Board acquisition of needed sites through the fiscal planning and land development processes.
- C. Co-locate public safety and other facilities whenever it will improve service efficiencies.
- D. Design school-related open space and athletic fields and make them available for joint use by Parks, Recreation, and Community Services (PRCS) and other facilities such as libraries and community centers.

- E. Evaluate Commission Permit applications for County facilities on the character and extent of the maximum development potential of the site in order to permit future expansion and colocation without requiring additional Commission approval under Code of Virginia Section 15.2-2232.
- F. Combine public open space and parks with public and civic buildings, community centers, town centers, and other gathering places and include amenities such as seating areas, public art, playgrounds, and gardens, etc.
- G. Design public facilities to be quality examples of architectural design and sustainable construction and to be a defining feature of the community.
- H. Design new public facilities to be functional and efficient, to reflect the physical character of the adjacent community, and to maximize the broader social and cultural role the facility can play in the community.

Strategy

- 1.2 Support continued use of existing public facilities through ongoing capital asset replacement, renovation, and modernization, particularly where facilities play an important role in social and economic activity of the local community or are historically significant.

Action

- A. Improve existing County facilities through maintenance and modernization of facilities to meet current resource demands and customer needs; for example, improve library space for collaborative, hands-on learning (Maker spaces) with computer labs and large, multi-purpose rooms to meet the growing community demand for spaces to host community events.

Strategy

- 1.3 Strategically locate facilities where they can serve the community efficiently and effectively.

Actions

- A. Locate new facilities on sites that can accommodate future expansions and colocation with other compatible facilities.
- B. Locate Fire and Rescue and Sheriff's facilities in accordance with adopted response time goals and at the most strategic point in a proposed service area.
- C. Locate libraries and other high traffic uses in highly visible, accessible locations with adequate automobile and pedestrian access; examples of such locations include mixed-use centers, towns, and villages.
- D. Integrate housing and other facilities for special population groups in the Urban, Suburban, and Transition Policy Areas, Towns, and JLMAs to provide ease of access to associated commercial services, jobs, and amenities.
- E. Link new facilities to adjacent neighborhoods by sidewalks, greenways, and trails.

- F. Locate new public facilities in western Loudoun in close proximity to the Towns and JLMAs when land is available and locations can meet response time and other service standards.
- G. Continue to make the Town of Leesburg the principal location of County Government offices and the County seat.
- H. Establish and maintain effective levels of public open space in all residential and mixed-use communities.
- I. Investigate collocating County facilities with complementary nonprofit, commercial and residential uses that would create a mutually beneficial relationship; for example, locate schools with affordable housing projects to maximize access to afterschool and other programs that would benefit households.

Strategy

- 1.4 Encourage partnerships that contribute toward significant, meaningful, shared public facilities.

Actions

- A. Support and encourage partnerships that develop sustainable housing for special populations, including the elderly, the mentally and physically handicapped, low income persons, and the homeless.
- B. Support NOVA Parks and others in acquiring land and developing facilities such as the Potomac Heritage Trail and the Appalachian Trail, extending the Washington and Old Dominion Trail to Bluemont, and preserving the Ball's Bluff Battlefield.
- C. Work with the United States Department of the Interior, the Conservation Management Institute, the Virginia Department of Historic Resources, NOVA Parks, and the incorporated Towns to define and recommend areas for open-space preservation and development of a trail network that links the County's natural, historic, and recreational resources.
- D. Work with homeowner and other property owner associations to encourage greater public access to association open space and facilities.
- E. In subdivision plans for hamlets, villages and clusters in the Rural Policy Area, include a plan outlining the proposed use of associated open space and suitability for rural economy uses.
- F. Coordinate recreation-planning efforts with the Towns to prevent duplication of services.
- G. Identify and leverage opportunities with the private sector to provide public facilities.

Open Space

Policy 2: Retain the County's unique combination of urban, suburban, and rural communities by using useable open space to protect natural resources and habitat, to create a network of high-quality active and passive recreation spaces, and to delineate our built environments.

Strategy

- 2.1 Use contiguous linear parks, connected trails, and natural open space corridors to improve public access to open space, encourage healthy lifestyles, and link destinations throughout the County.

Actions

- A. Develop a Master Plan for parks, open space, and trails that builds on and encourages links to current planned trails and park areas, places greater emphasis on quality, connected, publicly usable, and accessible open space and identifies desired locations and connections of future trails and parks to facilitate acquisition and development.
- B. Establish programs and regulatory mechanisms to increase publicly accessible open space through easements, land dedications, and purchase; ensure that such programs and mechanisms are consistent with County facilities plans.
- C. Ensure that new developments extend identified trails and greenways into and through their projects during the development review process with the intent of creating a seamless network of public trails that is consistent with the County Master Plan.
- D. Establish and maintain useable levels of public open space in all residential and mixed-use communities.
- E. Increase the number of access points to key trail systems from adjacent neighborhoods and destinations.
- F. Seek through public purchase, proffer, donation, or third-party open-space easement, the preservation of greenways and the development of trails. Continue the Open Space Preservation Program, to the extent permitted by Virginia Code Section 15.2-2303, linking the loss of open space from low density residential land use to the provision of open space easements or funds towards the purchase of open space easements that provide publicly accessible and useable open space as follows:
 - i. In the Suburban Policy Area, residential neighborhoods or land bays proposing densities less than 4.0 dwelling units per acre should be associated with voluntary participation in the Open Space Preservation Program providing:
 - The equivalent of 50 percent public open space, consisting of on-site open space required by development regulations and additional on or off-site open space, or
 - An equivalent cash contribution towards the Open Space Preservation Program.

- ii. In the Urban Policy Area, residential neighborhoods or land bays proposing densities less than 12.0 or over 24 dwelling units per acre should be associated with voluntary participation in the Open Space Preservation Program providing:
 - a. The equivalent of 50 percent open space consisting of on-site open space required by the Zoning Ordinance and additional on or off-site open space, or
 - b. An equivalent cash contribution towards the Open Space Preservation Program.
 - iii. Link modifications reducing on-site open space, buffer, or landscaping requirements with the provision of an equivalent amount of open space or an equivalent cash contribution towards the Open Space Preservation Program.
 - iv. Use open space easements or funding provided through the Open Space Preservation Program by projects in the Suburban Policy Area to extend existing public trails and provide active and passive parks unless otherwise directed by the Board.
- G. Institute a program whereby the County acquires or facilitates acquisition of conservation easements by others by providing other assistance such as a revolving loan program to reduce or defer the landowner cost of establishing conservation easements. The program should emphasize protecting the priority open space areas that are identified in this Plan and are not otherwise protected.
- H. Encourage protection of the following priority open space areas through conservation easements acquired by the County or others, participation in the Open Space Preservation Program, development common areas (HOA and Property Owners Association areas), and other means:
 - i. Key green infrastructure features not already protected from development by conservation easements or regulation,
 - ii. Rural areas immediately adjacent to the Towns, JLMAs, and Villages that help form greenbelts and gateway buffers,
 - iii. Areas adjacent to the Potomac, Catoctin, Bull Run, Goose Creek, and Broad Run floodplains, to protect water quality,
 - iv. Properties on the State or National Registers of Historic Places and within local historic districts,
 - v. Corridors and sites identified for trails and parks and additions to existing parks provided they permit the construction of such facilities, and
 - vi. Other areas of local natural, historic, or cultural significance including designated scenic rivers and roads.
- I. Amend the development regulations as needed to permit: a percentage of the open space required on an individual site to be met through off-site permanent open space

that creates a more useable, desirable, or environmentally significant open space that is conveniently accessible to the same community.

- J. Implement a local density transfer program as authorized by Virginia Code Sections 15.2-2316.1 and 15.2-2316.2 to protect open space.

Public Utilities

Sewer and Water

Policy 3: The County will work with Loudoun Water, the Health Department, and Town officials to ensure timely provision of central, municipal, shared, or on-site sewer and water in accord with the land use policies of this Plan.

Strategy

- 3.1 Implement strategies to resolve sewer and water issues in existing communities.

Actions

- A. Identify and implement appropriate solutions such as upgrading or replacing failing systems, and where appropriate, installing shared systems.
 - i. Encourage communities or residences in the Urban, Suburban, Urban, Transition, and Joint Land Management Areas to connect to a nearby central or municipal water or sewer system where there is a potential public health risk.
 - ii. Examine ways to assist in extending sewer lines into existing communities or residences once development has brought trunk sewers to the edges of these communities.
 - iii. Provide incentives to those communities or residences required to hook to a nearby central or municipal water or sewer system where there is a potential public health risk.
- B. Pursue funding sources to rehabilitate homes that currently lack adequate sewer and water systems.
- C. Encourage clustering development away from water supply reservoirs and water supply sources.

Strategy

- 3.2 Define specific service areas for utility systems to protect the viability of County land use goals.

Actions

- A. Establish the geographic limits of utility service and the capacity of the service, and ensure adequate environmental safeguards with a Commission Permit application prior to locating a utility system outside of existing service boundaries.

- B. Protect water and wastewater treatment system lines that cross land outside a water or sewer service area by permanent easements along the line prohibiting any connection outside the service area.

Strategy

- 3.3 Prohibit the use of any system that fails to provide safe, environmentally sound water supply and wastewater treatment.

Actions

- A. Permit pump-and-haul operations only as a last resort and temporary wastewater disposal method to address a proven, public health emergency.
- B. Evaluate development proposals to ensure availability of a safe and adequate potable water supply and sewage treatment capacity in accordance with the land use policies of this Plan.
- C. Construct new central wastewater and water lines and facilities in a manner that causes the least environmental risk and visual disruption.

Suburban & Transition Policy Areas – Central Sewer and Water

Strategy

- 3.4 Loudoun Water will continue to be responsible for the provision of public water and sewer service in the Urban, Suburban, and Transition Policy Areas.

Actions

- A. Collaborate with Loudoun Water to ensure safe and adequate long-term water supply and wastewater treatment systems to meet County development goals.
- B. Facilitate development and efficient operation of quarries as water supply reservoirs and protect reservoirs by establishing no-build buffers, watershed protection measures, or equivalent protection.
- C. Collaborate with Loudoun Water to use the Beaverdam and Goose Creek water supply reservoirs for safe, compatible public recreation.
- D. Support expansion of Loudoun Water’s reclaimed water network.
- E. Implement a pollution prevention and mitigation program to protect and improve the County’s surface water quality.

Strategy

- 3.5 Require all new development in the Urban, Suburban, and Transition Policy Areas to connect to Loudoun Water’s central water supply and wastewater treatment systems.

Actions

- A. Encourage existing residences and communities served by on-site or shared facilities to hook into central water or sewer facilities when such facilities become available.

- B. Encourage and assist existing communities or residences to hook to a nearby public water or sewer system if on-site water supply or waste treatment capability has deteriorated to a point where there is a potential public health risk.

Rural Policy Area – On site and Shared Systems

Strategy

- 3.6 Protect the rural character of western Loudoun by linking development to the ability of the area to accommodate on-site or shared water and wastewater systems.

Actions

- A. Prohibit extension of central water and wastewater service into the Rural Policy Area.
- B. Support the Safe Drinking Water Act and institute a wellhead protection program to ensure adequate water quality.
- C. Discourage the use of groundwater for nonagricultural irrigation and other nonessential purposes.
- D. Recommend monitoring groundwater and surface water in the Limestone Overlay Zoning District and report any negative changes to the Board for appropriate action.
- E. Maintain oversight of siting, design, installation, and maintenance of conventional, alternative, and alternative discharging on-site sewage disposal systems.
- F. Implement an inspection and maintenance program for conventional on-site sewage disposal systems.

Strategy

- 3.7 Collaborate with Loudoun Water and the Health Department to identify viable alternative wastewater treatment methods to septic and drainfield-based systems, including shared treatment plants and on-site treatment to support clustered residential development.

Actions

- A. Implement wastewater treatment and disposal standards for alternative systems that protect water quality.
- B. Allow Loudoun Water-approved shared water and wastewater systems in the Rural Policy Area:
 - i. To serve rural economy uses and residential clusters as defined in this Plan,
 - ii. To solve potential public health problems, and
 - iii. To serve public facilities.
- C. Assist in the construction of shared systems for existing rural communities facing a potential public health risk.
- D. Require Loudoun Water to own and operate all shared water and wastewater systems with more than 15 connections.

- E. Support merging or connecting shared systems operated by Loudoun Water to address potential public health threats. A Commission Permit is not required where the merger or connection includes no change to previously approved service boundaries.
- F. Require a Commission Permit, establishing a defined service area, prior to the construction of any shared water or wastewater system.

Towns and Joint Land Management Areas – Municipal Water and Sewer

Policy 4: Town municipal systems will be the utility providers for the Towns and surrounding Joint Land Management Areas unless the Town, Loudoun Water, and the Health Department agree to an alternative provider.

Strategy

- 4.1 Serve all development in Joint Land Management Areas (JLMA) by municipal sewer and water.

Actions

- A. Investigate financial assistance to Towns to improve sewer and water systems to meet minimum health standards established by the state for the existing populations of the Towns.
- B. Work with the Towns to ensure that the expansion of public sewer and water into the JLMAs satisfies the goals and policies of the County's adopted plans.
- C. Establish the JLMA boundary as the limit of utility extensions from the Towns and eliminate the need for a Commission Permit to extend or upgrade sewer and water lines into the JLMAs.
- D. Retain the option to use shared or alternative sewer and water facilities to serve Town and County owned and operated public facilities.
- E. Permit the extension of municipal (town) or shared water and wastewater service into the Rural Policy Area to serve public facilities or to address a potential public health threat.

Solid Waste Management

Policy 5: Continue to implement an integrated solid waste management strategy that places priority on reduction, reuse, and recycling of solid waste above resource recovery, incineration, and disposal into landfills.

Strategy

- 5.1 The County Solid Waste Management Plan will identify the type and level of service to be provided in the community.

Actions

- A. Continue to ensure that the County always has an acceptable means of local waste disposal through the County landfill operations, should other waste disposal alternatives fail or become ineffective.
- B. Continue to seek private sector support for the provision of current and future Solid Waste Management Services.
- C. Develop a hazardous waste education program and increase residential access to the safe disposal of hazardous waste to protect groundwater resources.

Electrical

Policy 6: Support expanded electrical capacity through generation facilities that use clean burning and environmentally sound fuel sources including gas, wind, and solar.

Strategy

- 6.1 Encourage local electrical generation in appropriate locations throughout the County.

Actions

- A. Establish zoning standards that permit alternative electrical generation such as wind and solar generation by and for individual users.
- B. Require the grouping and burying of utility lines and facilities to the extent permitted by law.
- C. Work with electrical providers to locate transmission lines and substations away from key travel corridors and residential communities and where possible to place such lines underground and minimize the number of substations.
- D. Encourage the use of stealth design techniques for electrical substations that are proposed adjacent to major travel corridors and residential communities.

Communication

Policy 7: The County supports the development of a high-quality wired and wireless telecommunications network to serve businesses, residents, and visitors.

Strategy

- 7.1 The County's *Strategic Land Use Plan for Telecommunication Facilities* and other regulations and standards will be regularly updated to address emerging technologies, to create an environment attractive to businesses, and provide high-quality services to meet the demands of the County.

Actions

- A. Review and update the County's *Telecommunications Strategic Plan* to facilitate the expansion of fiber and broadband service throughout the County.
- B. Adopt zoning regulations and design standards requiring open access conduit to all development projects to facilitate future broadband extensions.

- C. Establish performance standards for wireless communication facilities to minimize the need for legislative action.
- D. Incorporate the capacity to locate broadband and wireless facilities into the design, approval, and construction of all public facilities.

Fiscal Management

Policy 8: The County will link the goals of the Board of Supervisors' adopted Fiscal Policy and the County's Comprehensive Plan.

Strategy

- 8.1 Maintain a diversified and stable revenue structure by balancing residential and non-residential development.

Actions

- A. Seek further revenue diversification to increase fiscal stability and thereby, mitigate tax burdens on Loudoun County taxpayers.
- B. Direct the majority of public investments into currently developed communities, towns and non-residential areas of the County where development is planned according to the Comprehensive Plan and give priority to the redevelopment and enhancement of existing infrastructure, capital facilities, and services.
- C. Where permitted, continue to seek private sector support for improvements or provision of current and future public facilities and sites including proposals of cash and in-kind assistance for public facilities in addition to the timely provision of dedicated sites.
- D. Seek authority from the state legislature to establish impact fees and a reasonable implementation process applicable in areas where rezonings are not anticipated.

Strategy

- 8.2 Capital facility planning and budgeting will reflect anticipated needs based on forecasted development.

Actions

- A. Update a series of financial and planning tools regularly to evaluate long-term land use, fiscal, and demographic issues under the oversight of the Board and its advisory committee, the Fiscal Impact Committee.
- D. Develop long-range forecasts of residential and non-residential development, population, households, and employment.
- E. Develop demographic, economic, and financial data that are used as inputs to demographic forecasts and for fiscal impact modeling.
- F. Develop and regularly update the Capital Intensity Factor (CIF)—the dollar amount of the capital facilities impact measured by unit type or unit characteristics and geographic location that is calculated using County capital facility standards and

demographic inputs. The County uses the CIF to assess the capital facilities impacts of new residential development and provides a guideline for proffer negotiations during residential rezonings.

- i. Calculate the CIF using the following formula:

$$\text{CIF} = (\text{Household Size} \times \text{County Facility Cost per Capita}) + (\text{Students per Household} \times \text{School Facility Cost per Student})$$

- G. Develop and refine Capital Facility Standards—the type, acreage, and size of future capital facilities, along with “triggers” based on population, population characteristics, or other community factors.
- H. Develop and refine the CNA—the type and number of capital facilities needed over a ten-year planning period beginning at the end of the current six-year CIP.
- I. Ensure that the users or beneficiaries of a development will finance an equitable portion of public facility and infrastructure development costs that are directly attributable to a particular development project.
- J. Evaluate, consistent with the Va. Code Sec. 15.2-2283 and 15.2-2284, the adequacy of existing and planned public facilities and services when reviewing impacts of any legislative application for more intensive use or density. To fairly implement and apply this policy, the County will consider the following:
 - i. Existing facilities,
 - ii. Facilities included in the CIP,
 - iii. The ability of the County to finance facilities under debt ratios and limits established by its fiscal policies,
 - iv. Capital Facilities Standards and the effect of existing and approved development, and the proposed development, on those standards,
 - v. Service levels of the existing transportation system—the effect of existing and approved development and the proposed development on those service levels and the effect of proposed roads which are funded for construction,
 - vi. Commitments to phase the proposed development to the availability of adequate services and facilities,
 - vii. The availability of non-profit or HOA facilities to provide equivalent public access and programming, and
 - viii. Other mechanisms or analyses as the County may employ that measure the adequacy of such services and facilities for various areas or that measure the County’s ability to establish adequate services and facilities.

Strategy

- 8.3 Until such time as the General Assembly grants authority for other options the County will consider landowner proposals of cash and in-kind assistance to mitigate capital facilities costs associated with new development.

Actions

- A. Consider, subject to the limitations established by Virginia Code 15.2-2303.4, proposals of the timely dedication of land, cash, and in-kind assistance from a landowner through proffered conditions submitted in accord with Virginia Code Sections 15.2-2303 and 15.2-2297, as applicable, in the provision of public facilities identified in the CIP or CNA.

The County expects that such proposals of public facility and utility assistance by developers will occur in conjunction with any rezoning request seeking approval of densities above the existing zoning.

- i. Ensure that an equitable and a proportionate share of public capital facility and infrastructure development costs that are directly attributable to a particular development project are financed by the users or beneficiaries.
- B. Apply all of the proffer policies and actions and guidelines set forth in this document only subject to and in compliance with the limitations established by Virginia Code Section 15.2-2303.4 as applicable. In its consideration and acceptance of all proffers, the County will apply the standards of Virginia Code Sections 15.2-2297, 15.2-2303, and 15.2-2303.4, as applicable, to evaluate the reasonableness of proffered conditions.

For those applications subject to Section 15.2-2303.4, the County shall accept only those proffers permitted or deemed reasonable under Virginia Code Section 15.2-2297 and not deemed unreasonable under Section 15.2-2303.4.

- i. Where and to the extent permitted by law, the County will structure residential proffer guidelines based upon the respective levels of public cost of capital facilities generated by the various types of dwelling units.
- C. To assist the County in an equitable and uniform evaluation of developer proffers and other proposals, for proposed densities above the specified base density for each planning policy area, which otherwise conform with the policies of this Plan, the County anticipates developer assistance valued at 100 percent of capital facility costs.
- D. Through the CNA, the County differentiates between conventional suburban housing and other types of housing such as age-restricted, accessory, and micro units and considers commitments to small unit sizes or affordability in estimating the capital facility needs and CIF.
- E. Review the CNA policy subarea boundaries to ensure, to the extent feasible, that they do not divide existing communities and consider service standards that provide flexibility to respond to demographics, land availability, and other characteristics of specific communities.

- F. Consider providing credit against the anticipated capital facilities proffers of the development for transportation proffers that exceed the anticipated transportation impact mitigation of the proposed development.
- G. Consider partially crediting private facilities, which are not dedicated to the County but are for the use of a subdivision or community, toward capital facility proffers. The partial credit is dependent on the Board's adopted service standards, CNA and CIP identified facilities, and the estimated use or capacity of the facility. Language in the HOA/POA bylaws to allow public access to trails or other facilities may increase the available credit.
- H. The County will extend the existing Small Area Plans to encompass the Urban, Suburban, and Transition Policy Areas and residential areas of the Leesburg JLMA consistent with planned land use.

Policy 9: Use the following capital facilities proffer guidelines to evaluate proposed capital facility proffers.

Strategies

- 9.1. Use the following definition of "Capital Facility Proffer" to evaluate proffers: A contribution consistent with County policies and service needs, in cash or in kind (land or improvement), that benefits County residents at large and is agreed to as a condition of a rezoning. To be considered a proffer based on this definition, the following criteria shall apply:
 - i. The proffered facility is dedicated to the County or to a local, state, federal, or regional authority or otherwise satisfies a need identified in the Capital Facilities Standards (CFS), Capital Needs Assessment (CNA), and/or Capital Improvement Program (CIP);
 - ii. The measure of credit will be determined on a case-by-case basis and may not exceed what the County would expect to supply given the CFS and the population served at the date of official acceptance of the application or at the date of reactivation of an inactive application;
 - iii. The contribution has a quantifiable value;
 - iv. The value of land contributed for public use or use as a public facility site is recognized as a capital facility proffer;
 - v. Land for County facilities should be conveyed to the County or its designee;
 - vi. The contribution would not be required under existing statutes or ordinances; and
 - vii. The proffer is irrevocable.
- 9.2. Seek annual adjustments for proffers involving cash contributions based on the Consumer Price Index (CPI).

- 9.3 Base density thresholds beyond which capital facilities proffers will be anticipated are specified by planning policy areas as follows:
- i. Rural Policy Area: The planned density for the Rural Policy Area is implemented by the existing zoning pattern and zoning amendments are not anticipated. However, for a zoning map amendment applications within existing villages and other similar applications, include capital facility contributions for units above the density permitted by current zoning.
 - ii. Transition Policy Area: Evaluate capital facilities proffers against the base density permitted by current zoning.
 - iii. Suburban and Urban Policy Areas: Evaluate capital facilities proffers against a base density of 1.0 dwelling unit per acre or the current zoning, whichever is lower.
 - iv. Joint Land Management Areas: Evaluate capital facilities proffers against a base density of 1.0 dwelling unit per acre or current zoning, whichever is lower.
- 9.4. To evaluate proffers for public use sites, determine the per-acre value of unimproved land by a market appraisal of the site compared to properties with the same densities proposed by the applicant. The appraisal shall be conducted by an appraiser agreed to by the County, paid for by the developer, and the results provided to the County. For improved sites, consideration will be given as applicable to:
- i. Site-preparation including clearing and grubbing, grading, erosion control, and related engineering and permitting costs.
 - ii. Project infrastructure such as stormwater management ponds, sanitary sewer lines, and major off-site and on-site roadways serving the site.
 - iii. A proportional share of improvements directly related to providing access to the site (pedestrian underpasses, construction of adjacent streets, trails, and sidewalks).

Emergency Services Development Standards

Policy 10: Enhance efficient and effective public safety and emergency services response through the implementation of appropriate development standards.

Strategy

- 10.1 Ensure adequate fire suppression for residential uses that are not served by an on-site water source and/or are located outside minimum response times of existing stations.

Actions

- A. Create and maintain development regulations that require an adequate water supply, such as dry hydrants or tanks, for new residential subdivisions of more than five dwelling units when an alternative water source is not available on site.

- B. Support adoption of legislation by the Commonwealth of Virginia enabling the County to adopt regulations requiring sprinklers for all new residential construction.
- C. Encourage and offer incentives to voluntarily provide sprinklers in new residential construction.
- D. As part of residential rezoning applications in areas that are subject to approved small area plans or approved Metrorail service districts, recommend that sprinklers be installed in all new residential construction that is located outside of the recommended emergency services response times established in agency services plans.

Incentives for installing sprinklers could include:

1. *Building construction modifications*
2. *Reduction in road width and fire lane requirements*
3. *Development density credits*

Strategy

10.2 Ensure adequate and efficient access for emergency vehicles.

Actions

- A. Eliminate non-contiguous street names, duplicate street names, and sound-alike street names, and ensure that addresses reflect the access location.
- B. Coordinate with Virginia Department of Transportation (VDOT) to ensure that all new traffic signals are equipped with signal pre-emption equipment to provide priority access to emergency vehicles responding to a call.
- C. Establish a program that retrofits existing traffic signals, upon VDOT approval, with signal pre-emption equipment to provide priority access to emergency vehicles responding to a call.
- D. Require development applications to demonstrate adequate access and circulation of emergency apparatus.
- E. Ensure that development regulations address the installation and maintenance of emergency apparatus access roads for fire and rescue resources.
- F. Discourage the use of “emergency access only” gates and other roadway barriers.
- G. Evaluate requiring a minimum of 20 feet between structures to minimize fire spread between buildings.

Reference Maps

Existing Facilities (Map #2018-147)

Small Area Plan Boundaries: 2017 (Map #2018-154)

Trails and Parks (Map #2018-157)

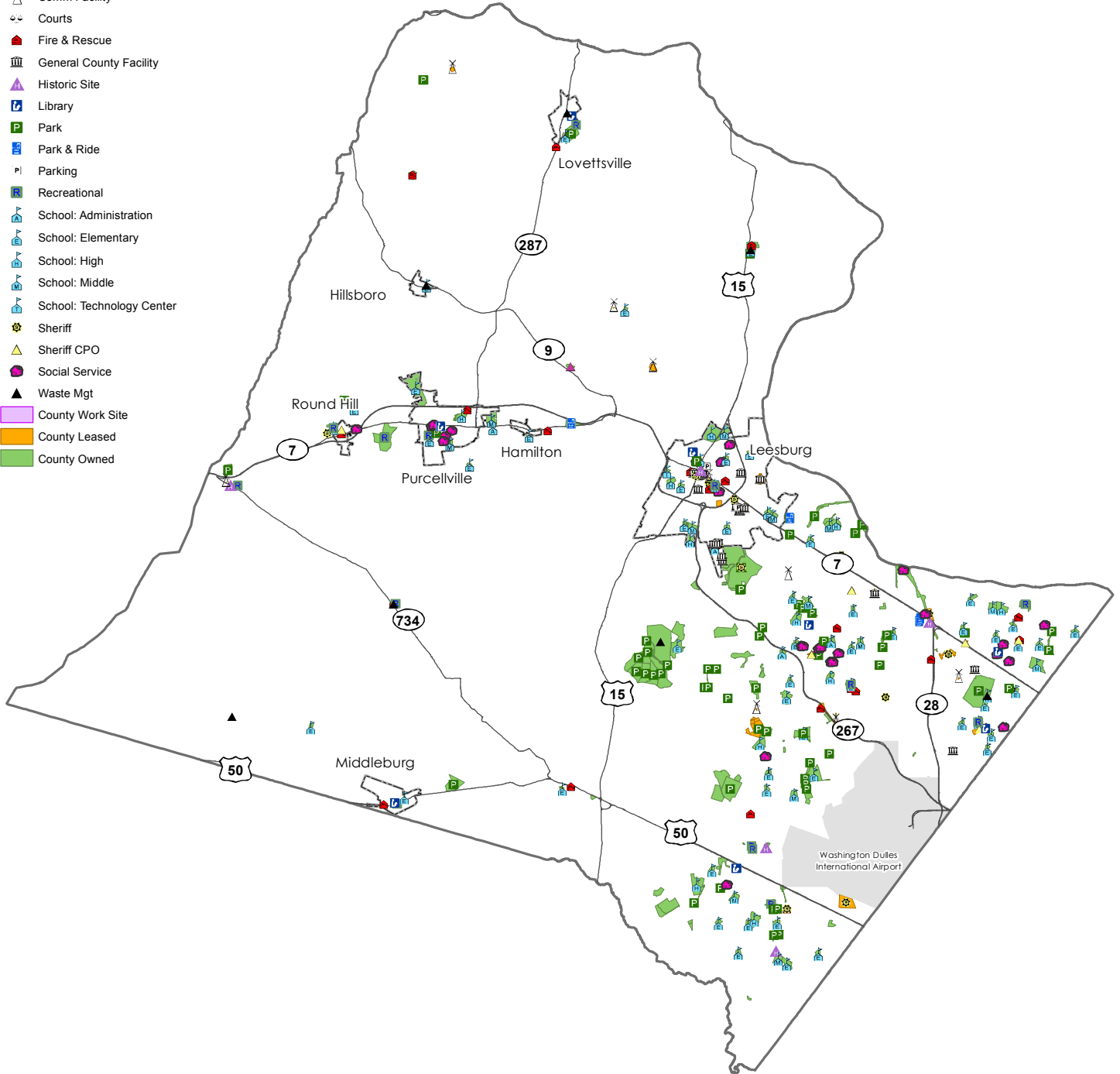
Water/Sewer Service Areas: 2018 (Map #2018-158)

Existing Facilities

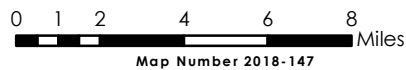
2040 General Plan



- Animal Control
- Comm Facility
- Courts
- Fire & Rescue
- General County Facility
- Historic Site
- Library
- Park
- Park & Ride
- Parking
- Recreational
- School: Administration
- School: Elementary
- School: High
- School: Middle
- School: Technology Center
- Sheriff
- Sheriff CPO
- Social Service
- Waste Mgt
- County Work Site
- County Leased
- County Owned

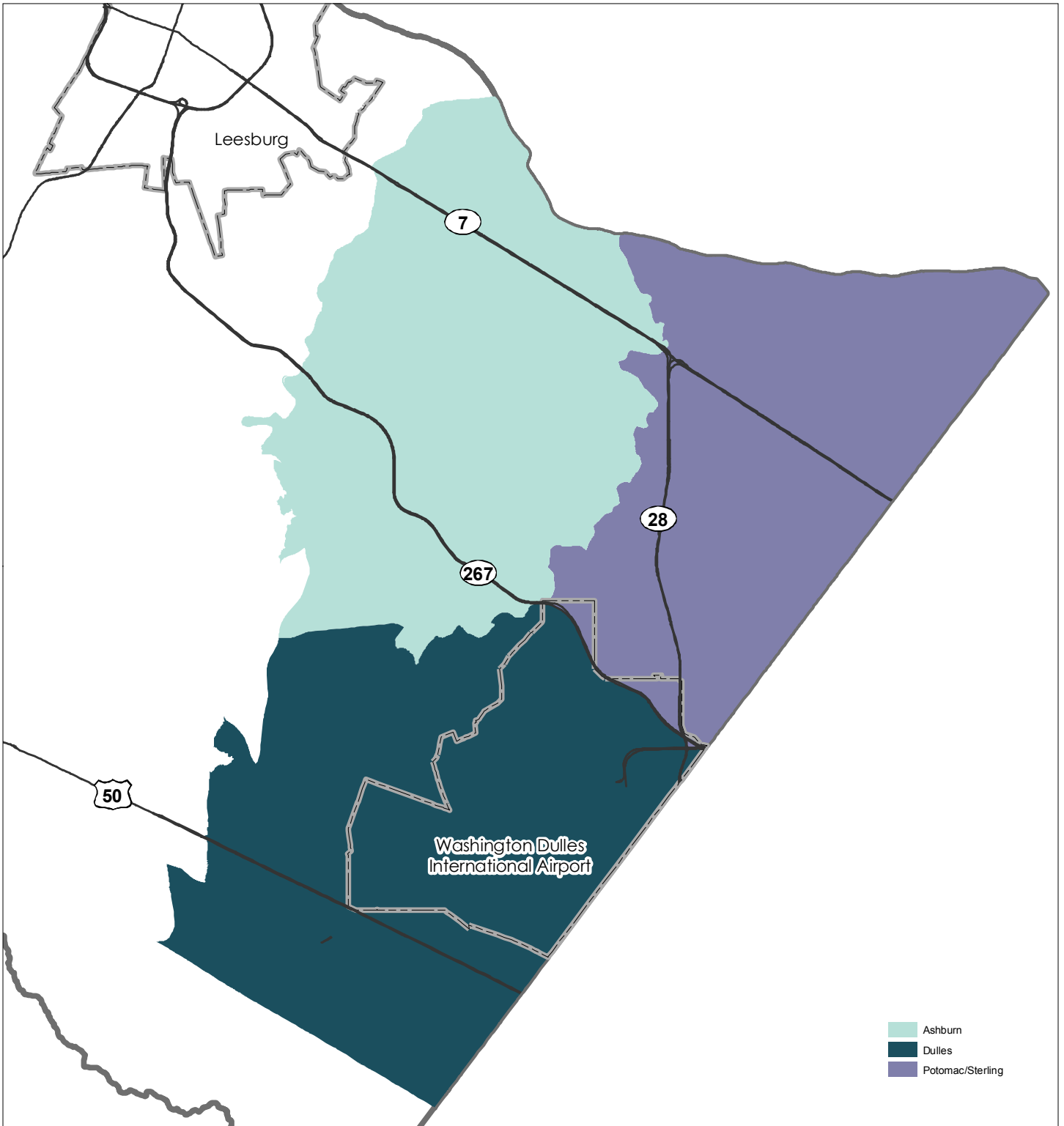


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Loudoun County
Small Area Plan
Boundaries: 2018
2040 General Plan



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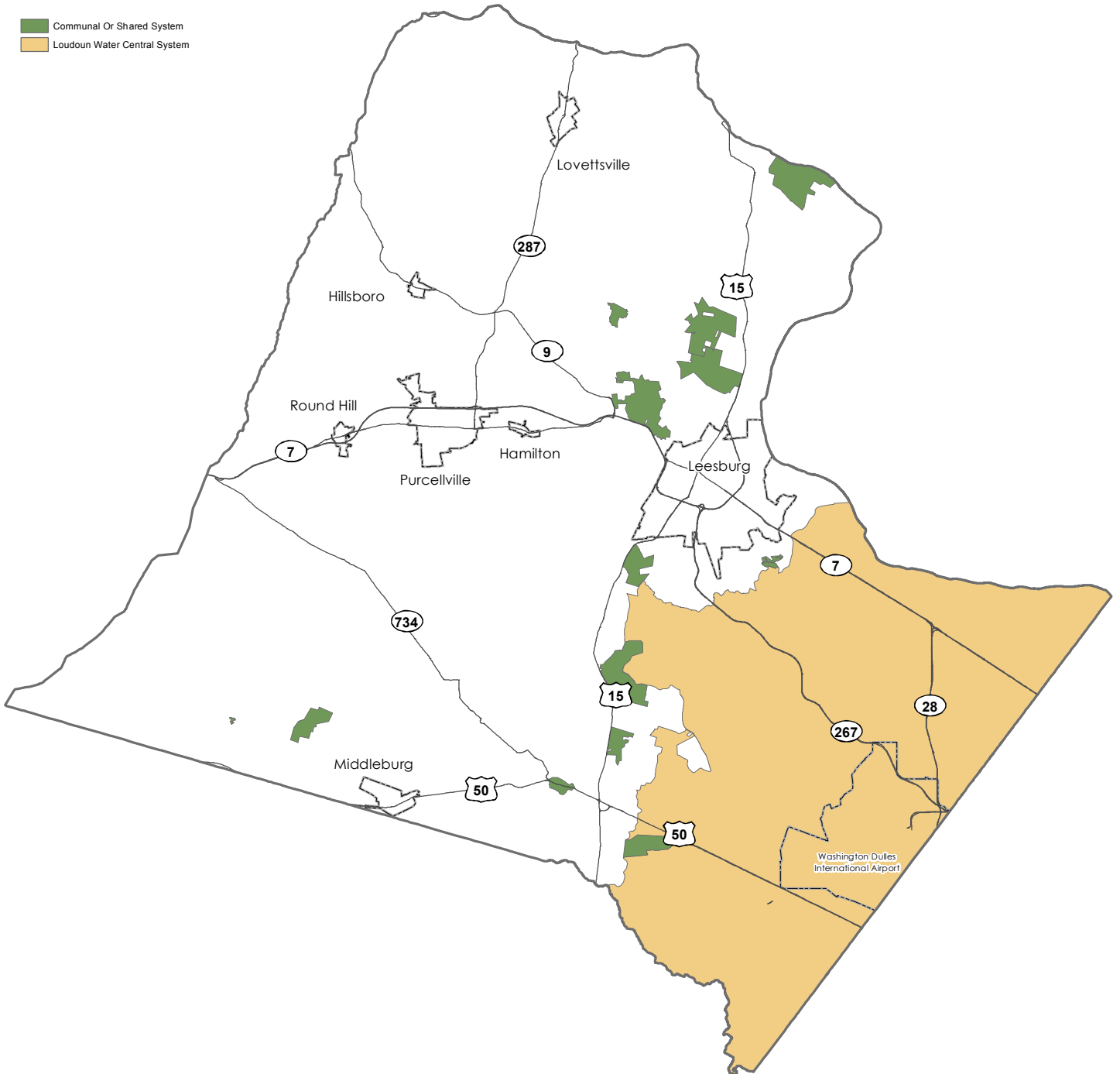
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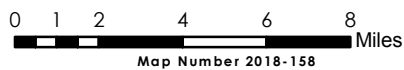
Loudoun County
**Water/Sewer
Service Areas: 2018**
2040 General Plan



- Communal Or Shared System
- Loudoun Water Central System



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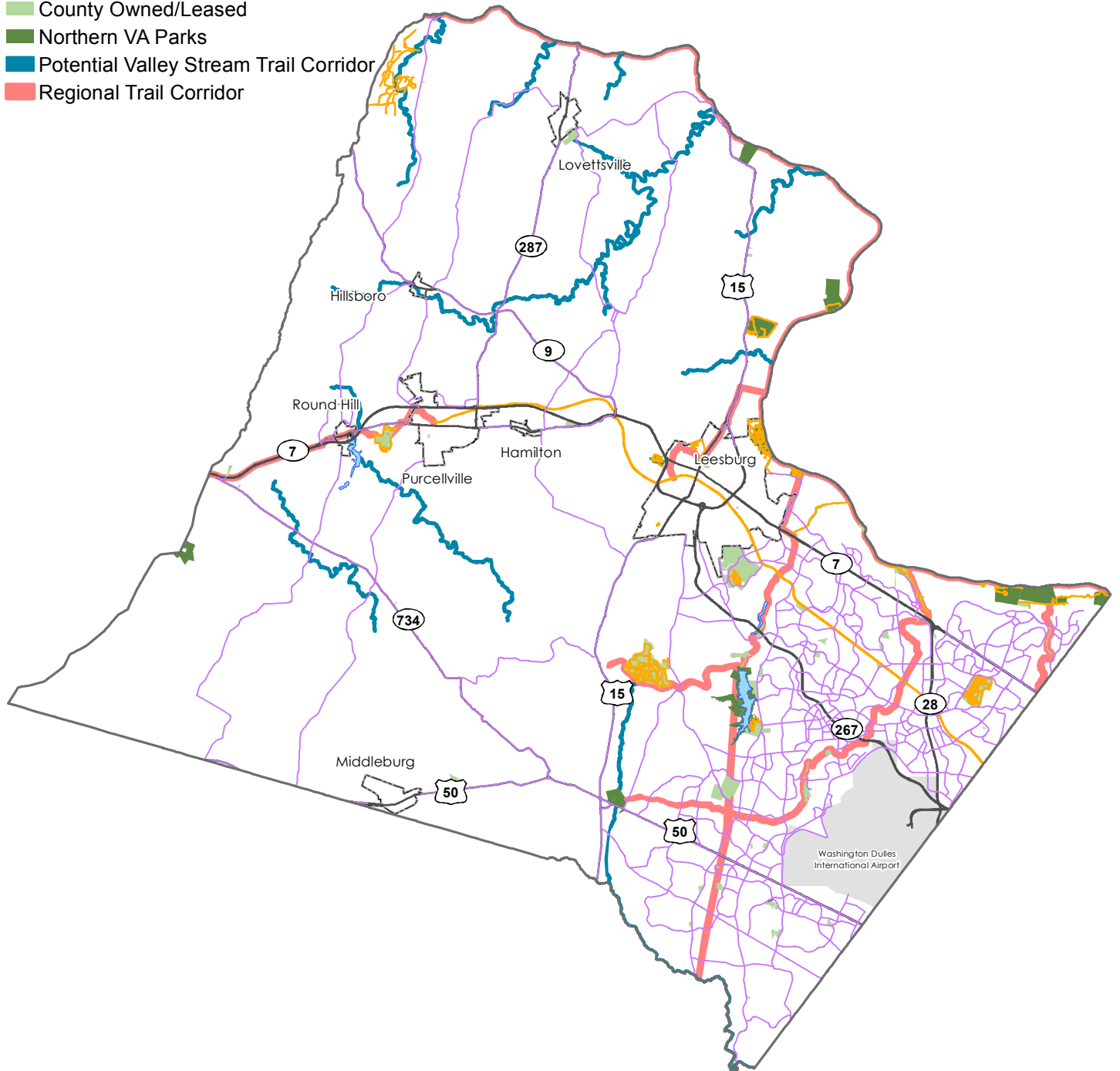


Map Number 2018-158

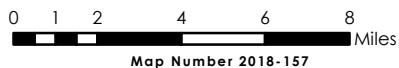
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- Existing/Planned Bike Lane/Roadside Trail
- Existing Recreation Trail
- Lake\Reservoir
- County Owned/Leased
- Northern VA Parks
- Potential Valley Stream Trail Corridor
- Regional Trail Corridor



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Chapter 7 - Implementation

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Chapter 7 - Implementation

Vision

Loudoun County continues to flourish as a prosperous and inclusive community with a well-deserved reputation for great places—natural and built as well as historic and new—in a variety of settings. The County will foster economic innovation, fiscal strength, and sustainability.

The *Loudoun 2040 General Plan* vision and goals encompass the County’s desire to preserve the principles that have led to Loudoun’s success, while also addressing trends and influences that will impact Loudoun’s future. Chapters 2 through 6 of the *Loudoun 2040 General Plan* include policies, strategies, and actions designed to achieve the Plan’s vision and goals. The implementation of the *Loudoun 2040 General Plan* begins with the adoption of the Plan. A new Zoning Ordinance, small area plans, design guidelines, and capital improvement projects are all products that can contribute to the implementation of the *Loudoun 2040 General Plan*. The County will periodically monitor and evaluate the Plan’s progress to ensure that visions and goals are being met.

Implementing the Plan

Implementation Matrix

The ability to monitor and evaluate the progress of the *Loudoun 2040 General Plan* is crucial to determining whether the Plan is achieving the community’s vision and goals. The implementation matrix that follows gives a roadmap with prioritization and general timeframes of all action items found in the Plan. The implementation matrix will continue to be amended, added to, and refined. The implementation matrix is provided as a tool for the Board to use as the framework for developing a work program to implement this Plan.

Comprehensive Zoning Ordinance

The *Loudoun 2040 General Plan* is designed to lay the groundwork for a new comprehensive Zoning Ordinance with policies, strategies, and actions that highlight new regulations needed in order to achieve the vision and goals of the plan.

Small Area Plans

The *Loudoun 2040 General Plan* is meant to be the overarching guiding document for the County. As the County grows and shifts from greenfield development to infill and redevelopment and urban-focused development, Small Area Plans may become vital tools that build upon the Plan’s goals, policies, strategies, and actions. These plans would speak to community identity and ensure development that fosters the unique sense of place for each community.

Capital Improvement Projects

The *Loudoun 2040 General Plan* presents opportunities and tools to allow for prioritization of key capital improvement projects needed as the County grows.

Design Guidelines

Ensuring high quality of life is a significant characteristic of the *Loudoun 2040 General Plan*. Design guidelines are tools to help promote an overall sense of place and build upon existing high-quality development in the County.

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IMPLEMENTATION MATRIX

| Chapter 2 | | | | |
|--|---------------------------------|--|---|----------|
| Quality Development | | | | |
| Policy: Provide flexible design guidelines in all Policy Areas in the County and in priority areas of the County create more specific design guidelines that encourage innovation. | | | | |
| Action | Priority (Low, Medium, or High) | Responsibility (Loudoun County Department or Agency) | Schedule (Short Term: 1-5 years, Mid Term: 5-10 years, or Long Term: 10+ years) | Progress |
| Develop a user-friendly, illustrative design handbook(s). Promote an overall sense of place through design elements that relate to block size, circulation and connectivity, streetscape and street sections, building form, placement (setbacks), orientation, articulation, parks and open spaces, public and civic uses, landscaping, and sustainability. | | Planning & Zoning | Short Term | ○○○○ |
| Create incentives that provide the opportunity to implement design guidelines. | | Planning & Zoning | Short Term to Mid Term | ○○○○ |
| Policy: Development must create a walkable pattern of compact development that is implemented by smaller blocks, shorter distances, inter-parcel connectivity, greater diversity of uses on the same street, and connected open spaces and that facilitates interaction of people and offers a more affordable and convenient lifestyle. | | | | |
| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
| Update County regulations to support this compact, walkable development pattern. | | Planning & Zoning, Building & Development | Short Term | ○○○○ |
| Policy: Development must provide diverse environments and experiences. | | | | |

| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
|---|------------------------------|--|---|----------|
| Develop flexible guidelines and regulations that support diverse environments and experiences. | | Planning & Zoning | Short Term | ○○○○ |
| Create incentives to ensure a mix of environments and experiences within a development. | | Planning & Zoning, Public-Private Partnership | Short Term to Mid Term | ○○○○ |
| Policy: Space is designed to maximize pedestrian and bicyclist activity, comfort, and convenience. | | | | |
| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
| Create guidelines and regulations that ensure bike lanes, shared spaces, and paths of travel. | | Planning & Zoning, Transportation & Capital Infrastructure, Parks & Recreation | Mid Term | ○○○○ |
| Create guidelines and regulations that ensure innovative traffic calming designs. | | Transportation & Capital Infrastructure | Mid Term | ○○○○ |
| Policy: Development encourages greater interaction between activity inside buildings and the public realm. | | | | |
| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
| Develop eye-level design guidelines, regulatory features, and additional design elements that contribute to the quality of the human experience of space and the built environment. | | Planning & Zoning | Mid Term | ○○○○ |
| Policy: Development with high-quality design and a mix of uses encourages longer stays in spaces and activity in order to create vibrant areas and create a sense of place. | | | | |

| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
|---|------------------------------|---------------------------------|---|----------|
| Create guidelines that ensure the siting of public seating, art, landscaping, outdoor rooms, safety, and other innovative elements that maximize public life opportunities. | | Planning & Zoning | Mid Term | ○○○○ |
| Policy: Encourage high-quality architectural, site, and landscape design in all development. | | | | |
| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
| Develop a user-friendly, illustrative design guideline handbook for non-residential/commercial development in priority areas. | | Planning & Zoning | Short Term | ○○○○ |
| Policy: Encourage sustainability efforts throughout the County and within all sectors. | | | | |
| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
| Continue to evaluate the energy demands of government buildings as well as transportation needs and develop plans for energy efficiency. | | General Services | Short Term Ongoing | ○○○○ |
| All County-constructed facilities have a goal to be constructed to LEED Silver, or equivalent standards. | | General Services | Long Term | ○○○○ |
| Continue to evaluate all sustainability efforts. | | General Services | Short Term Ongoing | ○○○○ |
| Support Loudoun Water in the expansion of the reclaimed water network. | | General Services, Loudoun Water | Short Term Ongoing | ○○○○ |

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| Update and implement the County Energy Strategy (CES) to reduce the impacts of climate change. | | General Services | Mid Term | ○○○○ |
| Evaluate the energy demands of residential and non-residential buildings, including data centers as well as transportation needs and develop plans for energy efficiency. | | General Services | Mid Term | ○○○○ |
| Encourage benchmarking the energy use of existing and planned County buildings to establish a baseline for energy demand estimates. | | General Services | Short Term | ○○○○ |
| Research and support opportunities for micro-grid energy and district energy systems. | | General Services | Long Term | ○○○○ |
| Incorporate green infrastructure and Best Management Practices (BMP) into County Energy Strategy. | | General Services | Long Term | ○○○○ |
| Encourage the use of C-PACE and research and support residential PACE program. | | General Services Public-Private Partnership | Long Term | ○○○○ |
| Policy: Encourage sustainable development practices, including long-term water conservation, green building principles, sustainable site design, renewable energy, adaptive re-use of historic structures, and integrated energy management planning. | | | | |
| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
| Educate and encourage the harvesting of rainwater for non-potable use, such as landscape irrigation. | | County Government LCPS, Local Sustainability Organizations | Mid Term | ○○○○ |
| Establish incentives for sustainable development. | | Planning & Zoning | Mid Term | ○○○○ |
| Adopt solar zoning and permitting best practices for accessory use solar development. | | Planning & Zoning | Short Term | ○○○○ |
| Become certified as a “solar-ready” community under the Department of Energy’s SolSmart program. | | General Services | Long Term | ○○○○ |

Infill and Redevelopment

| Policy: Redevelopment, infill development, and adaptive reuse projects and revitalization initiatives will enhance quality of life and neighborhood character, fulfill community needs, and improve economic opportunities. | | | | |
|--|-------------------------------------|------------------------------------|--|-----------------|
| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
| Identify and prioritize areas for redevelopment, infill development, adaptive reuse, and revitalization, and create a common vision and objectives for these areas through a public process. | | Planning & Zoning | Short Term | ○○○○ |
| Address redevelopment, infill development, adaptive reuse, and revitalization as part of community and small area plans. | | Planning & Zoning | Short Term to Mid Term | ○○○○ |
| Identify methods for ensuring developers will follow through on commitments to communities that are products of a facilitated engagement process between the developer and the surrounding neighborhoods and developments. | | Planning & Zoning | Mid Term | ○○○○ |
| Evaluate the creation of overlay districts to encourage revitalization and convey community support and buy-in for investment in priority/targeted areas. | | Planning & Zoning | Mid Term | ○○○○ |
| Conduct analysis of local market demands to determine what is needed to foster successful redevelopment. | | Planning & Zoning | Short Term | ○○○○ |
| Evaluate the appropriateness of mixed-use development for projects through the small area plan process. | | Planning & Zoning | Short Term | ○○○○ |
| Ensure projects increase and diversify housing opportunities when in conformance with other Plan policies. | | Family Services, Planning & Zoning | Long Term | ○○○○ |
| Develop strategies to address displacement and housing affordability when redevelopment occurs. | | Family Services, Planning & Zoning | Mid Term to Long Term | ○○○○ |

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| Encourage annexation of residential projects into adjoining Homeowners Associations (HOAs) to make the provision of amenities more economical. | | Planning & Zoning | Long Term | ○○○○ |
| Develop criteria, such as site constraints, important resources, and community amenity gaps, to identify infill sites appropriate for use as park, civic, and open space rather than private development. | | Planning & Zoning, Transportation & Capital Infrastructure, Parks & Recreation | Long Term | ○○○○ |
| Endorse the development of interim uses on underutilized properties that are compatible with the surrounding development pattern. | | Planning & Zoning | Short Term Ongoing | ○○○○ |
| Identify and prioritize neighborhoods with an emerging need for revitalization and reinvestment, work with these communities to identify needs and desires, and build support for revitalization. | | County Government, Public-Private Partnership | Mid Term | ○○○○ |
| Identify strategies to preserve and enhance a community's sense of place and social fabric. | | Planning & Zoning | Short Term | ○○○○ |
| Identify and include in the Capital Budget, capital facilities improvements necessary to support revitalization in targeted areas. | | County Government | Short Term Ongoing | ○○○○ |
| Identify and utilize funding sources for community revitalization strategies. | | County Government | Long Term | ○○○○ |
| Educate the community about funding sources for home improvement and repair. | | County Government | Short Term | ○○○○ |
| Provide incentives and resources for the provision of community amenities, such as pedestrian/bicycle facilities, sidewalks, traffic calming, street lighting, and bus stops, as well as cultural centers and community gathering places. | | Transportation & Capital Infrastructure, Planning & Zoning, Public-Private Partnerships | Mid Term | ○○○○ |
| Develop incentives that encourage the private sector to improve retail and commercial establishments in targeted areas. | | Public-Private Partnerships | Short Term | ○○○○ |
| Provide resources for community-based initiatives, such as neighborhood volunteer watch groups and teen programming. | | County Government, Community Organizations | Mid Term | ○○○○ |

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| Provide general project guidance, such as best practices, tool kits, examples of “approvable” development types, and profiles of successful projects. | | County Government | Mid Term to Long Term | ○○○○ |
| Provide development process, planning and zoning support services and technical assistance for specific projects located within identified priority areas for redevelopment. | | Planning & Zoning | Short Term | ○○○○ |
| Develop and maintain a redevelopment webpage with information and resources for residents and developers. | | Government | Long Term | ○○○○ |
| Develop zoning regulations and design standards that acknowledge the need for flexibility, existing conditions and constraints, and previous development standards; allow for innovative design and emerging development types; and provide certainty and clear direction for developers. | | Planning & Zoning, | Short Term | ○○○○ |
| Develop incentive programs for qualifying projects such as an increase in permitted density where infrastructure is available, reduce fees, or expedite review processes. | | Planning & Zoning | Short Term | ○○○○ |
| Evaluate and implement the use of fiscal tools to incentivize redevelopment, such as tax increment financing (TIF), public improvement districts (PID), or utility upgrade financing. | | County Government | Short Term | ○○○○ |
| Evaluate entering into public-private-partnerships to initiate redevelopment and adaptive reuse efforts and reduce development risks in priority areas. | | Planning & Zoning | Mid Term | ○○○○ |
| Direct public investment and resources to priority areas to facilitate redevelopment. | | County Government | Short Term | ○○○○ |
| Establish programs to assist in business retention, expansion, and recruitment when commercial redevelopment projects occur. | | Economic Development | Short Term | ○○○○ |
| Facilitate redevelopment of multi-ownership sites through a planning process that engages owners and the larger community in the creation of a shared vision for the area. | | Planning & Zoning | Mid Term | ○○○○ |

| Create incentives for parcel assembly and funding opportunities for infrastructure improvements associated with redevelopment projects to alleviate private sector risk and costs. | | County Government | Mid Term | ○○○○ |
|--|------------------------------|--|---|----------|
| Policy: Recognize adaptive reuse of existing unused or underutilized buildings as an opportunity to establish or reinforce a community’s identity and sense of place. | | | | |
| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
| Use the Heritage Preservation Plan to guide the adaptive reuse of historic resources. | | Planning & Zoning | Short Term | ○○○○ |
| Establish a collaborative program for adaptive reuse projects to foster entrepreneurship and encourage innovative ways to reuse buildings and sites. | | Planning & Zoning, Towns, Local Preservation Organizations | Mid Term | ○○○○ |
| Policy: Promote redevelopment and infill projects that balance compatibility and integration with new housing choices and innovative designs. | | | | |
| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
| Ensure that redevelopment and infill development are consistent with the Place Types land use structure and further the goals and objectives of the Plan. | | Planning & Zoning | Short Term Ongoing | ○○○○ |
| Ensure that residential development on infill sites is designed to fit into the surrounding context. | | Planning & Zoning | Short Term Ongoing | ○○○○ |
| Urban Policy Areas | | | | |
| Policy: Ensure walkable development and connectivity to the community throughout the UPA as it is important to foster the urban character. | | | | |
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| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
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| Mixed-use neighborhoods accommodate infrastructure plans for near-term and long-term transit circulator service. | | Planning & Zoning and Transportation & Capital Infrastructure | Short Term to Mid Term | ○○○○ |
| Community facilities like schools, community centers, and libraries are located to allow as many residents as possible to be within a short walking distance. | | Planning & Zoning and Management & Budget | Short Term Ongoing | ○○○○ |
| Policy: Key element of the Urban Policy Area is a public realm that is multilayered within the development. | | | | |
| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
| Accommodate walkable features and amenities like centralized activity areas such as shopping and dining areas with wide sidewalks, more narrow pedestrian-oriented streets, transit stops, and community gathering places (e.g., parks and plazas). | | Planning & Zoning, Transportation & Capital Infrastructure | Short Term Ongoing | ○○○○ |
| Policy: Provide a diverse mix of choices in all development. | | | | |
| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
| Create partnerships with universities and private sector companies to foster growth of an Innovation District at the Loudoun Gateway Station that supports workers and students in the advanced technology and science industries. | | Economic Development, Public, Private & Vocational Schools, Colleges and Universities, Public-Private Partnership | Mid Term | ○○○○ |
| Suburban Policy Area | | | | |

| Policy: Foster community identity within the Suburban Policy Area. | | | | |
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| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
| Update the County’s adopted Small Area Plans and create new Community Plans and other appropriate plans that address the particular needs and guide the remaining build-out and/or redevelopment of specific areas within the Suburban Policy Area. | | Planning & Zoning | Short Term to Mid Term | ○○○○ |
| Establish design principles for individual communities within the Suburban Policy Area that ensure a high quality of development and redevelopment is achieved. | | Planning & Zoning | Mid Term | ○○○○ |
| Ensure development and redevelopment proposals conform to the applicable Development Guidelines of this Plan. | | Planning & Zoning | Short Term Ongoing | ○○○○ |
| Develop a public outreach program to educate neighborhood residents regarding available County programs. | | Planning & Zoning | Mid Term | ○○○○ |
| Expand civic outreach to involve underserved individuals. | | Planning & Zoning | Short Term | ○○○○ |
| Support citizen organizations in their efforts to improve their communities. | | Planning & Zoning | Mid Term | ○○○○ |
| Foster the development of community partnerships to improve community character, maintenance, and safety. | | County Government | Mid Term | ○○○○ |
| Invest in programs that allow residents to formulate and assume stewardship of neighborhood values, standards, and goals. | | County Government | Long Term | ○○○○ |
| Evaluate the appropriateness of a proposed use or development with the surrounding community. | | Planning & Zoning | Short Term | ○○○○ |
| The County, in collaboration with other governmental agencies and the private sector, will ensure through a | | Planning & Zoning, Building & Development, , | Long Term | ○○○○ |

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| variety of measures that all public spaces in residential and commercial areas are accessible by pedestrians. | | Public-Private Partnership | | |
| Retail and office development proposals should combine open and civic space in features such as pedestrian promenades and plazas, public art, entrance features, linear parks and trails, outdoor seating, lawns and greens, and similar design features that invite pedestrian activity. | | Planning & Zoning | Short Term | ○○○○ |
| Require convenient pedestrian and bicycle access for residential, office, institutional, civic, and retail areas in the Suburban Policy Area. | | Planning & Zoning, Building & Development, Transportation & Capital Infrastructure | Short Term | ○○○○ |
| Policy: Create environments where individuals can work, live, and have convenient access to services, shops, and recreation. | | | | |
| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
| Provide incentives for redevelopment, infill development and adaptive reuse projects that will enhance quality of life and neighborhood character, fulfill community needs, and improve economic opportunities (see Infill and Redevelopment). | | County Government | Long Term | ○○○○ |
| Allow new multi-family residential units to be located within existing commercial centers, both retail and employment, to bring housing to Employment areas and allow for more walkable, mixed use communities. | | Family Services, Planning & Zoning, Economic Development | Short Term Ongoing | ○○○○ |
| Promote residential and office uses above first floor retail. | | Planning & Zoning | Short Term Ongoing | ○○○○ |
| Allow flexibility in the development phasing for mixed-use projects while establishing a build-out relationship between the residential and non-residential | | Planning & Zoning | Mid Term | ○○○○ |

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| components that ensures a mix of uses is achieved and to best balance the fiscal costs and benefits of the project. | | | | |
| Promote high quality site and building design, landscape design and buffering in Employment Areas that reflect their function as a gateway to the Urban Policy Areas and location along major vehicular thoroughfares (see Quality Development). | | Planning & Zoning | Short Term Ongoing | ○○○○ |
| Accommodate transit infrastructure in Employment Areas (see Loudoun 2040 Countywide Transportation Plan). | | Transportation & Capital Infrastructure, Planning & Zoning | Long Term | ○○○○ |
| Ensure pedestrian and bicycle connectivity to surrounding networks and transit nodes within Employment Areas. | | Transportation & Capital Infrastructure, Planning & Zoning | Mid Term Ongoing | ○○○○ |
| Policy: Support the Route 28 Highway Transportation Improvement District established by the State as a means of providing additional local revenue to pay for Route 28 improvements. | | | | |
| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
| Continue the non-residential policy to limit residential development in the Route 28 Tax District to the three (3) Mixed Employment Centers that are strategically located to capture high-quality and high-density Office, thereby catalyzing the office development potential while having an overall positive impact to the County's Route 28 Tax District debt obligations. | | Planning & Zoning, Management & Budget | Short Term Ongoing | ○○○○ |
| Once the County's financial obligation to the Tax District is met, identify specific areas within the Tax District where the County could consider residential development on a case by case basis that results in a net positive impact to the County. | | Planning & Zoning, Management & Budget | Mid Term | ○○○○ |

| Transition Policy Area | | | | |
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| Policy: Ensure the Transition Policy Area provides a visual transition between the Suburban Policy Area and the Rural Policy Area, using compact development concepts, substantial open space, and low profile construction to minimize visual intrusion into the natural environment. | | | | |
| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
| Encourage a variety of housing within individual developments by permitting small and large lot single-family detached units, duplexes, semi-detached units, accessory units, townhouses, and other housing types that expand affordability opportunities and support the lifestyle preferences of a diverse community. | | Family Services, Planning & Zoning | Mid Term Ongoing | ○○○○ |
| Modify the Rural And Countryside Village Zoning District standards to accommodate Mixed-use Commercial Centers and the Transition Village development option to expand housing diversity and improve commercial viability. | | Planning & Zoning | Short Term | ○○○○ |
| Require new development to connect to Loudoun Water’s central water and wastewater systems and encourage existing development to connect to central water facilities as water lines. | | Planning & Zoning, Health Department, Loudoun Water | Short Term Ongoing | ○○○○ |
| Continue to define the TPA by six subareas to protect and expand the existing development pattern as identified on the Transition Policy Area Place Types Map. | | Planning & Zoning | | |
| Policy: Offer safe and accessible parks and recreation opportunities that provide diverse activities for all ages, interests, and abilities. | | | | |
| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |

| | | | Term: 5-10 year, Long Term: 10+ year) | |
|--|-------------------------------------|--|--|-----------------|
| Develop a Master Plan for parks, open space, and trails in the TPA that: 1) builds on and links current planned trails and park areas, and 2) places greater emphasis on quality, connected, usable, and publicly accessible open space. | | Parks & Recreation | Mid Term | ○○○○ |
| Protect the drinking water resources of the Occoquan, Beaverdam, and Goose Creek Reservoirs with natural buffers, improved stormwater management, and other means. | | General Services, Planning & Zoning, Loudoun Water | Short Term Ongoing | ○○○○ |
| Retain 50 percent open space throughout the TPA, and seek to reserve publicly usable, accessible, and interconnected open space. | | Planning & Zoning | Short Term Ongoing | ○○○○ |
| Establish programs and regulatory mechanisms to increase publicly accessible open space, consistent with County facilities plans, through easements, land dedications, and purchase. | | County Government | Long Term | ○○○○ |
| Require Open Space Plans with individual development applications to illustrate proposed use, public accessibility, resource protection, and connection with other open space. | | Planning & Zoning, Building & Development | Short Term Ongoing | ○○○○ |
| Policy: Non-residential uses will define the Transition Policy Area as a unique planning area and include a range of uses that are compatible with desired development patterns and the rural landscape. | | | | |
| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
| Require Industrial uses to: <ul style="list-style-type: none"> i. Be located in locations consistent with the Place Type Map, ii. Be visually compatible within a rural | | Planning & Zoning | Short Term Ongoing | ○○○○ |

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| environment, iii. Minimize the effects of noise, vibration, odor, iv. Have access to adequate infrastructure, v. Integrate visually into the natural environment, and vi. Enhance water quality protection when near key water supply reservoirs. | | | | |
| Continue to protect the extractive industry (Bull Run and Luck Stone quarries) by maintaining a quarry zoning overlay district. | | Planning & Zoning | Short Term Ongoing | ○○○○ |
| Establish regulations that ensure new development does not hinder the operation of quarries. | | Planning & Zoning | Short Term | ○○○○ |

Rural Policy Area

Policy: The RPA’s land use pattern builds upon natural, cultural, heritage, and agricultural resources in order to provide character-defining features of the rural landscape.

| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
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| Incentivize the consolidation of underutilized or undeveloped small lots into larger parcels for agricultural and rural economy uses. | | Planning & Zoning, Economic Development | Long Term | ○○○○ |
| Use public funds to create public and private conservation easements in order to reduce the land that is available for residential development and to provide land owners with financial options to support working farms, rural economy uses, and/or stewardship of the land. | | Economic Development, Private Land Conservation Trust, Public-Private Partnership | Short Term | ○○○○ |

Policy: Limit residential development to protect the land resource for agricultural operations, rural economy uses, and open space uses; minimize traffic impacts; and reduce the demand for additional public facilities and services.

| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
|--|------------------------------|------------------------|---|----------|
| Establish subdivision regulations and design standards that improve the design of clustered residential development. | | Building & Development | Short Term | ○○○○ |
| <p>Policy: Develop agricultural and rural business uses that are compatible with the predominant land use pattern in a manner that is consistent with the County’s growth management, economic, and environmental goals.</p> | | | | |
| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
| Adopt zoning regulations and development standards for rural economy uses. Such regulations and standards will address traffic capacity limits, safe and adequate road access, number of employees, site design standards (i.e., land disturbance, buffering, use intensity, siting, and architectural features), and public health, safety, and welfare. | | Planning & Zoning | Short Term | ○○○○ |
| Allow the establishment and/or expansion of existing commercial, industrial, and institutional uses by Special Exception if the use and/or expansion is: 1) small in scale and compatible with the rural character, 2) preserves ridgetops, natural resources, farmland, and open space, and 3) meets applicable zoning regulations and development standards. | | Planning & Zoning | Short Term | ○○○○ |
| Non-agricultural commercial uses may be permitted by Special Exception if the use is compatible in scale and intensity with the agricultural and rural character of the area, poses no threat to public health, safety, and welfare and if the use helps to preserve farmland and | | Planning & Zoning | Short Term | ○○○○ |

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| open space and continues agricultural operations. | | | | |
| Adopt zoning regulations and development standards that include new types of rural business and agricultural uses, permit flexibility for the sale of farm products, and promote rural tourism, hospitality uses, and similar kinds of rural business uses that are compatible with the character of the RPA. | | Planning & Zoning | Short Term | ○○○○ |
| Develop zoning standards to permit a variety of residential unit types and accessory apartments for seasonal farm laborers and year-round tenant housing to support the rural economy. | | Planning & Zoning | Short Term | ○○○○ |
| Develop County parks with trail networks, cross country courses, and equestrian riding rings or other equestrian-related features. | | Parks, Recreation & Community Services | Long Term | |
| Develop a publicly accessible multi-use trail network (pedestrian, bicycle, and equestrian) to link private and public lands in the RPA in partnership with nonprofit entities, land owners, and developers of rural properties. | | Parks, Recreation & Community Services | Long Term | ○○○○ |
| Promote rural business sectors and community events to support rural tourism, showcase the rural economy, and strengthen the economic vitality of rural businesses, villages, and towns. | | Economic Development, Loudoun Convention & Visitors Assoc., Visit Loudoun | Long Term | ○○○○ |
| Develop a coordinated service approach to assist rural landowners in the review and development of proposals to maintain agricultural operations, preserve the agricultural potential of farmland, institute farm and rural business plans, and assist in filing applications that support agriculture, agricultural activities, and the rural economy. | | Economic Development, Planning & Zoning, Building & Development | Long Term | ○○○○ |
| Retain the Rural Economic Development Council (REDC) as an advocacy and advisory committee on initiatives, programs, and policies that affect the economic growth and development of rural Loudoun County. | | Economic Development | Long Term | ○○○○ |

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| Support public education and job training in agriculture-based careers to ensure a stable agricultural work force. | | Economic Development Public, Private & Vocational Schools, Colleges and Universities | Long Term | ○○○○ |
| Regularly review, update, and amend the Use Value Assessment program and other voluntary agricultural programs (such as Agricultural and Forestal Districts) to strengthen the rural economy, preserve the rural character, and maintain the viability of farming. | | Commissioner of the Revenue, Planning & Zoning | Long Term | ○○○○ |
| Develop additional incentives to retain and encourage agricultural enterprises and support land preservation. | | County Government | Long Term | ○○○○ |
| Adopt zoning regulations and development standards to facilitate the use of existing agricultural and historic structures. | | Planning & Zoning | Mid Term | ○○○○ |
| Promote community supported agriculture (CSA); the direct sale of farm products between farmers and local consumers including farmers markets, local restaurants and retailers; and the establishment of a permanent year-round indoor farmers market in the eastern portion of the County. | | Economic Development | Long Term | ○○○○ |
| Facilitate effective distribution and assist in the marketing of locally grown products. | | Economic Development | Long Term | ○○○○ |
| Develop zoning regulations and design standards that protect the right to farm. | | Planning & Zoning | Long Term | ○○○○ |
| Provide educational programs about farming practices and activities to reduce potential conflicts associated with the proximity of agriculture to nonagricultural uses. | | Economic Development, Farm Bureau, Loudoun County Soil and Water Conservation District | Long Term | ○○○○ |
| Rural Villages | | | | |
| Policy: New development and uses in Rural Villages must be compatible with the historic development pattern, community character, visual identity, intensity, and scale of the individual villages and enhance the quality of life for residents. | | | | |
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| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
|---|------------------------------|---|---|----------|
| Develop small area plans and master plans for the Rural Villages to support community goals and address issues related to land use and zoning, economic development, natural and historic resources, community facilities and services, water and wastewater, and transportation to maintain the character of the villages. | | Planning & Zoning, Economic Development | Mid Term | ○○○○ |
| Develop zoning regulations, design standards and guidelines to achieve compatible building and street design to ensure that quality development occurs within the Rural Villages. | | Planning & Zoning | Short Term | ○○○○ |
| Clearly differentiate entrances into the villages from surrounding areas through appropriate street design, landscaping, and building placement. | | County Government | Mid Term | ○○○○ |
| Incorporate traffic calming measures where appropriate to reduce vehicle speeds and provide a pedestrian-friendly environment within the Rural Villages. | | County Government | Mid Term | ○○○○ |
| Retain existing Rural Commercial (RC) zoning and consider new zoning regulations and development standards for commercial uses in the Rural Villages that are compatible with the settlement patterns and neighborhood scale. | | Planning & Zoning | Short Term | ○○○○ |
| Develop criteria to evaluate Rural Villages to determine if their current designation is warranted and amend the Comprehensive Plan and Zoning Ordinance as appropriate. | | Planning & Zoning | Long Term | ○○○○ |
| Develop criteria for evaluating other crossroads communities in the RPA for designation as Rural Villages and amend the Comprehensive Plan and Zoning Ordinance as appropriate. | | Planning & Zoning | Long Term | ○○○○ |

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| Promote and support building maintenance and improvements to preserve the existing building stock and the character of the villages. | | Planning & Zoning , Local Preservation Organizations | Long Term | ○○○○ |
| Establish and expand the County Historic Zoning Districts for the Rural Villages. | | Planning & Zoning , Local Preservation Organizations | Long Term | ○○○○ |
| To provide housing options, adopt zoning regulations and design standards to encourage traditional housing on smaller lots, allow accessory apartments attached to single-family residential units, and allow residential units above commercial/retail uses within the Rural Villages. | | Planning & Zoning and Family Services | Short Term | ○○○○ |
| Adopt zoning regulations, design standards and performance criteria that are specific to the types of small-scale, community-related commercial uses that the County encourages within the Rural Villages. | | Planning & Zoning | Short Term | ○○○○ |

Towns and JLMAs

Policy: The County will support conservation of historical and cultural resources in and around the Towns to preserve the identity of each Town distinct from the surrounding rural area.

| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
|---|------------------------------|-------------------|---|----------|
| Encourage the maintenance, improvement, or adaptive re-use of existing building stock in a manner that supports social and economic diversity within the community. | | County Government | Short Term Ongoing | |
| Promote the commercial areas within the Towns as the preferred location of retail and service businesses, office development, and major civic uses. | | County Government | Short Term | |

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| <p>Work with the Towns to enhance their economic base and maintain viable commercial areas through marketing, capital investments, and business attraction.</p> | | <p>County Government</p> | <p>Short Term Ongoing</p> | |
| <p>Coordinate with the Towns on planning and development in areas surrounding the Towns by undertaking joint planning efforts in the JLMAs, referring to Town and County policies applicable to development applications, and offering technical support.</p> | | <p>County Government</p> | <p>Short Term Ongoing</p> | |
| <p>Implement a greenbelt around the Towns or their JLMAs through conservation design efforts, preservation of natural resources, and location of passive and active parks to help maintain the distinct character of each Town.</p> | | <p>County Government</p> | <p>Mid Term</p> | |
| <p>Encourage annexation by the Towns when water and sewer extend into a JLMA.</p> | | <p>County Government</p> | <p>Short Term Ongoing</p> | |
| <p>Support the Towns in negotiations with VDOT and other relevant agencies for safety improvements and traffic calming, particularly along Route 50, Route 7, Route 9, and Route 287 in proximity to the Towns, and other changes in roads and/or transportation services that are consistent with both the Town’s and the County’s development goals and priorities.</p> | | <p>County Government</p> | <p>Short Term Ongoing</p> | |
| <p>Assess the effectiveness of the JLMA approach and associated zoning to protecting town character or maintaining a “hard edge” between the town and the rural area.</p> | | <p>County Government</p> | <p>Short Term Ongoing</p> | |
| <p>Encourage the continued use and enhancement of existing public facilities located in the Towns and JLMAs and seek to maintain existing community-based schools as an important social and economic component of the communities.</p> | | <p>County Government</p> | <p>Short Term Ongoing</p> | |

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| Cooperate with the Town Councils of those communities providing local law enforcement to ensure a coordinated enforcement strategy within the Town JLMAs. | | County Government | Short Term Ongoing | |
| Support development of sidewalks and recreational, multi-use, and equine trails connecting the Towns to each other, to regional trail networks such as the W&OD and C&O Canal, and to area destinations. | | County Government | Short Term | |

Chapter 3

Natural and Heritage Resources

Policy: Provide protection for natural and heritage resources.

| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
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| Maintain a map of natural and heritage resources as part of an integrated system and contiguous network of natural and passive open spaces and active recreational sites. | | Planning & Zoning, Mapping & Geographic Information | Short Term Ongoing | ○○○○ |
| Identify those properties that are not conducive to development due to sensitive environmental, cultural, and historical characteristics, and promote their purchase through various programs (such as a PDR/TDR program, land trusts, etc.). | | Planning & Zoning | Long Term | ○○○○ |
| Adopt zoning regulations and development standards that implement a Conservation Design or similar process applicable to land development. | | Planning & Zoning | Short Term | ○○○○ |
| Update the <i>Facilities Standards Manual</i> , the <i>Land Subdivision and Development Ordinance</i> , and other development standards to implement the natural and heritage policies in this Plan. | | Building & Development and Planning & Zoning | Short Term | ○○○○ |

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| Consider establishing a PDR/TDR program that protects agricultural, natural, historic, and scenic resources. | | County Government | Long Term | ○○○○ |
| Use the Conservation Design process, Use Value Assessment Program, Agricultural and Forestal Districts, the PDR/TDR program, public-private partnerships, and other regulatory and incentive-based efforts for the preservation, conservation, restoration, and management of the County’s natural and heritage resources. Explore and implement additional incentive-based approaches. | | Planning & Zoning, Commissioner of the Revenue | Short Term Ongoing | ○○○○ |
| Retain conservation easements as a tool to protect open space areas in subdivisions and to ensure long-term maintenance and protection of the area. Such easements will be recorded as part of the subdivision process and include public access where appropriate. | | Planning & Zoning, Building & Development | Short Term Ongoing | ○○○○ |
| Direct public investment and resources toward completing a natural and heritage resource network and recapturing natural and heritage resources in developed areas. | | Public-private partnerships | Long Term | ○○○○ |
| Ensure that development proposals that impact one or more natural and heritage resources offset impacts by enhancing and/or recapturing natural and heritage resources elsewhere onsite. | | Planning & Zoning, Building & Development | Short Term Ongoing | ○○○○ |
| Ensure that development proposals create links to adjacent natural and heritage resources to create an integrated network. | | Planning & Zoning, Building & Development | Short Term Ongoing | ○○○○ |
| Study and if feasible aid in the establishment of a public-private conservation foundation to facilitate communication, grants, easements, education and partnership opportunities to accomplish the goals of conservation and the protection of natural and heritage resources. | | Planning & Zoning, Management & Budget | Long Term | ○○○○ |
| Provide incentives for innovation and good design and collaborative public-private-community partnerships for | | Planning & Zoning | Mid Term to Long Term | ○○○○ |

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| <p>program implementation including provisions for awards of certificates of excellence in environmental design for the public and private sectors.</p> | | | | |
| <p>Encourage protection of the following priority open space areas through conservation easements acquired by the County or others, participation in the Open Space Preservation Program, development clustering, and other means:</p> <ul style="list-style-type: none"> i. Key green infrastructure features not already protected from development by conservation easements or regulation, ii. Rural areas immediately adjacent to the Towns, JLMAs, and Villages that help form greenbelts and gateway buffers, iii. Areas adjacent to the Potomac, Catoctin, Bull Run, Goose Creek, and Broad Run floodplains to protect water quality, iv. Properties on the State or National Registers of Historic Places and within local historic districts, v. Corridors and sites identified for trails and parks provided they permit the construction of such facilities, and vi. Other areas of local natural, historic, or cultural significance including designated scenic rivers and roads. | | <p>County Government</p> | <p>Mid Term to Long Term</p> | <p>○○○○</p> |
| <p>River and Stream Corridor Resources</p> | | | | |
| <p>Policy: The County will protect natural ecosystems, restore water quality, serve Loudoun’s population, and support the built environment through healthy surface and groundwater resources.</p> | | | | |
| <p>Action</p> | <p>Priority (Low, Medium, High)</p> | <p>Responsibility</p> | <p>Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year)</p> | <p>Progress</p> |

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| <p>Amend zoning regulations and development standards, including but not limited to the Floodplain Overlay District (FOD) and Scenic Creek Valley Buffer sections, to address the objectives of the RSCR policies. Zoning regulations and development standards will establish performance standards and best management practice requirements to ensure the health and biological integrity of the river and stream corridors and minimize adverse impacts.</p> | | <p>Building & Development, Planning & Zoning</p> | <p>Short Term</p> | <p>○○○○</p> |
| <p>Develop and implement a watershed management plan for each watershed, establishing development guidelines and performance standards to protect water quality. The County will follow the recommendations of the 2008 <i>Comprehensive Watershed Management Plan</i>.</p> | | <p>Building & Development</p> | <p>Mid Term to Long Term</p> | <p>○○○○</p> |
| <p>Develop appropriate standards and regulations to protect natural streams from the harmful effects of increased stormwater volume, velocity, and pollutant loads resulting from development.</p> | | <p>Building & Development, Planning & Zoning</p> | <p>Short Term</p> | <p>○○○○</p> |
| <p>Protect the headwaters of the Catoclin and Goose Creeks by establishing appropriate regulations for Catoclin Mountain, Shorthill Mountain, and the Blue Ridge Mountains to limit diversions of water from the headwaters and to prevent stream pollution.</p> | | <p>Building & Development, Planning & Zoning</p> | <p>Short Term</p> | <p>○○○○</p> |
| <p>Encourage stormwater Best Management Practices on-site or as close to the area being treated as possible to prevent increased nutrient and sediment runoff.</p> | | <p>Building & Development, Planning & Zoning</p> | <p>Short Term Ongoing</p> | <p>○○○○</p> |
| <p>Establish incentives and/or a funding program for reforestation, stormwater management (SWM)/BMP projects, and SWM/BMP retrofits.</p> | | <p>General Services</p> | <p>Mid Term</p> | <p>○○○○</p> |
| <p>Support the retrofitting of older stormwater systems and the rehabilitation of degraded areas to enhance pollution removal capabilities and create open space amenities.</p> | | <p>General Services</p> | <p>Short Term Ongoing</p> | <p>○○○○</p> |

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| Promote the use of low-impact development to replicate natural hydrologic patterns and alleviate the strain on centralized systems. | | Building & Development, | Short Term Ongoing | ○○○○ |
| Support and incentivize reforestation for degraded forested areas in upper stream reaches that do not include Major Floodplain and promote natural regeneration within the limits of the Major Floodplain to mitigate the loss of native canopy coverage as a result of construction. | | County Government | Mid Term to Long Term | ○○○○ |
| Maintain standards for activities that propose pollution sources such as the storing and dispensing of petroleum products, chemical storage, and sale or transfer of potential contaminants. | | County Government | Short Term Ongoing | ○○○○ |
| Maintain a working relationship with the Federal Insurance Administration of the Federal Emergency Management Agency (FEMA) for continued participation in the National Flood Insurance Program (NFIP). The County will also maintain its current status as a Cooperating Technical Partner (CTP) in FEMA's Flood Map Modernization program. | | Building & Development | Short Term Ongoing | ○○○○ |
| Work with the incorporated Towns to establish overall water quality goals and specific standards for individual streams and river and stream corridors, consistent with County RSCR objectives and policies. | | County Government | Short Term | ○○○○ |
| Coordinate with the Metropolitan Washington Airport Authority regarding water quality protection within the Broad Run watershed. | | County Government | Short Term | ○○○○ |
| Promote and encourage community programs, such as the "Adopt-A-Stream" program, in order to keep river and stream corridors free of litter and debris and as a means of promoting public awareness of the County's river and stream corridors. | | County Government | Mid Term to Long Term | ○○○○ |
| Support the interstate 2014 Chesapeake Bay Watershed Agreement, a watershed partnership signed by the | | County Government | Short Term Ongoing | ○○○○ |

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| <p>governors of Virginia, Maryland, West Virginia, Delaware, New York, and Pennsylvania, as well as the District of Columbia and the United States Environmental Protection Agency (EPA). The County supports Virginia’s action towards meeting the Chesapeake Bay Total Maximum Daily Load (TMDL) and watershed implementation plans.</p> | | | | |
| <p>Support the mitigation of stream and wetland impacts and the creation of stream and wetland mitigation banks within Loudoun County to improve water quality in Loudoun.</p> | | <p>County Government</p> | <p>Short Term Ongoing</p> | <p>○○○○</p> |
| <p>Maintain the County’s Predictive Wetland Model and require submittal of digital wetland delineations in conjunction with land development applications in order to develop a reliable wetlands inventory and map of wetland areas.</p> | | <p>Building & Development and Mapping & Geographic Information</p> | <p>Short Term Ongoing</p> | <p>○○○○</p> |
| <p>Develop and use incentives to encourage property-owners to establish and maintain a 100-foot minimum riparian stream buffer.</p> | | <p>County Government</p> | <p>Mid Term to Long Term</p> | <p>○○○○</p> |
| <p>Encourage the implementation of enhanced pollutant control measures and watershed management strategies such as: downspout disconnection; tree planting/reforestation, especially within riparian areas; storm drain marking; stream restoration; wetland creation; adding best management practices (BMPs); enhanced stormwater management ponds; enhanced pollution/erosion control measures; coordination and outreach with the Virginia Department of Transportation (VDOT) and owners associations on use of sand and anti-ice materials in snow removal/road clearing operations; and stormwater pond conversion.</p> | | <p>County Government</p> | <p>Short Term Ongoing</p> | <p>○○○○</p> |
| <p>Actively participate in regional water quality initiatives to protect and improve water quality.</p> | | <p>County Government</p> | <p>Short Term Ongoing</p> | <p>○○○○</p> |

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| <p>Comply with the Virginia General Permit for stormwater discharges from small municipal, separate storm sewer systems (MS-4 General Permit).</p> | | <p>County Government</p> | <p>Short Term Ongoing</p> | <p>○○○○</p> |
| <p>Prepare and implement TMDL Action Plans, as necessary to meet TMDL requirements. The Action Plans, designed to improve the County’s surface water quality may include working with other entities, such as the Loudoun Soil and Water Conservation District (LSWCD) and Virginia Cooperative Extension-Loudoun (VCE-Loudoun).</p> | | <p>County Government</p> | <p>Mid Term</p> | <p>○○○○</p> |
| <p>Collaborate with the Department of Environmental Quality on any pollution impairment issues within streams and support volunteer water quality monitoring efforts and coordination of these efforts with federal, state, and local water quality data collection.</p> | | <p>County Government</p> | <p>Short Term Ongoing</p> | <p>○○○○</p> |
| <p>Protect lands that are critical to the quality of key water supplies through easement, fee simple acquisition, regulatory measures, or other sufficient measures. Restore filtration and erosion control functions through the re-naturalization of these areas.</p> | | <p>County Government</p> | <p>Short Term Ongoing</p> | <p>○○○○</p> |
| <p>Develop and implement a watershed overlay district for all public water supply reservoir watersheds, establishing more stringent development guidelines and performance standards to protect water quality.</p> | | <p>County Government</p> | <p>Short Term</p> | <p>○○○○</p> |
| <p>Develop and implement a Potomac River shoreline management plan and seek to coordinate this effort with adjacent jurisdictions (local, state, and regional organizations, advisory boards, and citizen groups). This Plan should include:</p> <ul style="list-style-type: none"> i. The boundaries of the study area, ii. A comprehensive natural resources inventory, iii. Policy recommendations for river corridor management and protection, | | <p>County Government</p> | <p>Mid Term to Long Term</p> | <p>○○○○</p> |

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| iv. A process for integrating the participating groups, and v. A plan for acquiring and managing open space corridors along the Potomac River. | | | | |
| Establish appropriate standards and land uses to protect drinking water supplies. | | County Government | Mid Term | ○○○○ |
| Develop and implement a comprehensive groundwater protection strategy to ensure adequate water supply. | | County Government | Long Term | ○○○○ |
| Initiate and maintain a comprehensive pollution management program to protect groundwater resources. | | County Government | Mid Term | ○○○○ |
| Local wellhead protection plans will be taken into consideration during review of development applications to maintain drinking water quality and protect groundwater from contamination. | | County Government | Short Term Ongoing | ○○○○ |
| Limit the installation of additional wells and limit the number of additional households that are dependent on wells through water conservation efforts and through the use of communal and/or central water systems where feasible and as approved by Loudoun Water. | | County Government, Loudoun Water | Short Term Ongoing | ○○○○ |
| Assess the recharge and consumption rates for groundwater in each watershed by analyzing data from groundwater level monitoring and stream flow measurements. If negative impacts are detected, the information will be presented to the Board of Supervisors for appropriate action. | | County Government | Mid Term | ○○○○ |
| Provide education to homeowners on the use and consumption of groundwater for areas of the County that are not connected to central water supply. | | County Government | Short Term Ongoing | |

Soils and Geological Resources

| Policy: Preserve and protect the County’s unique geologic characteristics, farmland, steep slopes, mountainsides, and ridgelines recognizing their sensitivity to land disturbance and development as well as their contribution to the quality of life valued by residents and visitors. | | | | |
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| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
| Maintain performance standards for lands within areas underlain by limestone. | | County Government | Short Term Ongoing | ○○○○ |
| Identify pollution sources and establish appropriate standards for reducing pollution in areas underlain by limestone. | | County Government | Short Term | ○○○○ |
| Monitor groundwater and surface water in areas underlain by limestone, and if monitoring recognizes negative impacts, present the information to the Board of Supervisors for appropriate action. | | County Government | Short Term | ○○○○ |
| Develop a public education program that will focus on communicating advantages associated with private protection of Prime Agricultural Soils. | | County Government | Mid Term | ○○○○ |
| Manage development in mountainside areas using performance standards and regulations to minimize negative environmental impacts; minimize land disturbance; protect the ridgelines; maintain woodlands, plant, and wildlife habitats; and preserve natural features and rural character as requirements for approval of the location of proposed development. | | County Government | Short Term Ongoing | ○○○○ |
| Protect ridgelines so that structures blend naturally into the mountain landscape through updates to the Mountainside Development Overlay District or the development of a Ridgeline Protection Overlay District. | | County Government | Short term Ongoing | ○○○○ |

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| Review and amend zoning regulations and development standards to ensure consistency with the objectives of the mountainside area policies. | | County Government | Short Term | ○○○○ |
| Establish performance standards for unavoidable development on questionable soils as defined by the International Building Code. | | County Government | Short Term | ○○○○ |

Forests, Trees, and Vegetation

Policy: Preserve, protect, and manage Loudoun County’s forests and trees for current and future use and enjoyment, recognizing these resources provide many benefits, such as improving air and water quality; offering important habitat for birds, small mammals and other wildlife; providing buffers between communities; conserving energy; reducing wind speed and redirecting airflow; and reducing stormwater runoff and soil erosion.

| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
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| Require applicants to submit a Tree Cover Inventory as part of all development applications and, where applicable, require applicants to submit a Tree Conservation Plan for designated Tree Conservation Areas; such Tree Conservation Plan should demonstrate a management strategy that ensures the long-term sustainability of these designated areas and address the removal and monitoring of invasive woody vegetation and insects. | | County Government | Short Term | ○○○○ |
| Incentivize and encourage the preservation of existing trees within required landscape buffer areas and for screening of uses. | | County Government | Mid Term | ○○○○ |
| Require the removal of invasive plant species during the development process. | | County Government | Short Term Ongoing | ○○○○ |
| Develop and adopt a Tree Preservation Ordinance. | | County Government | Mid Term | ○○○○ |

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| Inventory and map trees and indigenous vegetative resources to be preserved or managed in accordance with County standards and create and maintain a database of these resources to include, but not be limited to, old growth forests, significant tree stands, specimen trees, heritage trees, and State or National Champion trees. | | Building & Development and Mapping & Geographic Information | Mid Term | ○○○○ |
| Prioritize the planting of indigenous vegetation, specifically along those corridors that provide connections to other natural and heritage resources. | | County Government | Short Term Ongoing | ○○○○ |
| Develop Countywide goals and objectives for the creation, maintenance, and preservation of the County's tree canopy. | | County Government | Short Term Ongoing | |

Historic, Archaeological, and Scenic Resources

Policy: Loudoun County's distinctive cultural landscapes are comprised of scenic and heritage resources, which include Scenic Rivers and Byways, historic buildings, archaeological sites, battlefields, and historic cemeteries. These resources are foundational elements of the County's changing landscape that together tell the story of the formation and settlement of the County. The County will protect and enhance these resources, recognizing them as relevant, character-defining elements of both the natural and built environments.

| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
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| Evaluate land development applications within the context of this Plan as well as those more specific policies contained in the Heritage Preservation Plan. | | County Government | Short Term Ongoing | ○○○○ |
| Evaluate the Heritage Preservation Plan every five years and update if necessary. | | Planning & Zoning | Mid Term | ○○○○ |
| Require an archaeological and historic resources survey for all development applications. This survey must include a plan for recordation of identified resources and measures for preservation, mitigation, and adaptive | | County Government | Short Term Ongoing | ○○○○ |

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| reuse. The County will maintain a repository for artifacts recovered from required surveys; such artifacts will be used for research and public education purposes. | | | | |
| Evaluate the historic or archaeological value of inventoried resources based on criteria set forth in the Secretary of the Interior’s Standards, which include historic context and site integrity. The County will evaluate resources for consideration for State and National Registers. The County will update its cultural resource inventory through the land development process and County-sponsored historic surveys. | | County Government | Mid Term | ○○○○ |
| Identify, through survey and community outreach, locally important historic and archaeological resources that meet criteria for listing on the County Heritage Register as outlined in the Heritage Preservation Plan. | | County Government | Short Term | ○○○○ |
| Identify, delineate, and map historic cemeteries, burial grounds, and graves to ensure they are protected from destruction or neglect. | | Mapping & Geographic Information | Short Term | ○○○○ |
| Identify African American and Native American cultural resources to fill voids in the County’s database of heritage resources and create policies and programs that protect, preserve, and interpret these resources for the benefit of County residents. | | Planning & Zoning | Short Term | ○○○○ |
| Maintain the County’s database by using the inventory of cultural resources as a dynamic body of data to be reevaluated as needed. | | Planning & Zoning | Short Term Ongoing | ○○○○ |
| Conduct a staff assessment to determine historic significance prior to issuing a demolition permit for a structure that is 50 years old or older. | | Planning & Zoning | Short Term Ongoing | ○○○○ |
| Work with local communities to protect and enhance the character of cultural landscapes and historically significant sites through the designation of County Historic and Cultural Conservation Districts. | | Planning & Zoning | Short Term Ongoing | ○○○○ |

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| Preserve and protect significant cultural and scenic resources from development impacts by promoting private or public acquisition, easements, and the use of PDR/TDR programs. | | County Government | Mid Term to Long Term | ○○○○ |
| Where consistent with the applicable provisions of the Virginia Code Section 15.2-2303, applicants may provide cash contributions to the County for the enhancement and/or improvement of historic features within Loudoun to fulfill the open space guidelines if the County agrees to or requests the exchange. | | Planning & Zoning | Short Term Ongoing | ○○○○ |
| Prioritize the adaptive reuse of historic structures that are of local, regional, or national significance as the primary method of preserving the County's diverse collection of historic architecture within the framework of sustainable development. | | Planning & Zoning | Short Term Ongoing | ○○○○ |
| Amend zoning regulations and development standards to ensure the viability of adaptive reuse, particularly in the County's villages where the ability to reuse historic structures is vital to the historic character and vitality of these communities. | | Planning & Zoning | Short Term | ○○○○ |
| Prepare and implement corridor management plans, including identifying and defining viewsheds for the County's Scenic Rivers in order to protect their natural and scenic quality. | | Mapping & Geographic Information, Planning & Zoning | Short Term to Mid Term | ○○○○ |
| The County does not permit diversion of Scenic Rivers under any circumstances. | | Planning & Zoning, Building & Development | Short Term Ongoing | ○○○○ |

Natural Heritage Resources

Policy: Preserve, protect, and create a network of privately and publicly protected open space, favoring large contiguous areas over smaller disconnected areas, maintaining green infrastructure assets, preventing habitat fragmentation, and reinforcing the unique character of the diverse communities in the County.

| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid | Progress |
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| | | | Term: 5-10 year, Long Term: 10+ year) | |
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| Utilize open space requirements, passive recreation, nature preserves, incentives, and regulations to protect areas of natural biodiversity and rare, threatened, and endangered plant and animal species to foster the implementation of the Federal Endangered Species Act and the Virginia Wildlife Action Plan. | | County Government | Short Term Ongoing | ○○○○ |
| Development applications will identify Loudoun County’s natural heritage resources through coordination with the Virginia Department of Conservation and Recreation (VDCR) – Division of Natural Heritage and the Virginia Department of Game and Inland Fisheries (VDGIF). For those development applications that have a likely presence of one or more natural heritage resource, the County will require the applicant to conduct a species assessment. In cases where the presence of the species is identified, the County will require the applicant to develop and submit a plan for impact avoidance. | | County Government | Mid Term | ○○○○ |
| Ensure that the study of natural heritage resources is conducted by qualified research organizations such as the VDCR and VDGIF, and develop implementation strategies for the preservation of identified natural heritage resources. | | County Government | Long Term | ○○○○ |
| Ensure that new development, redevelopment, and infill development incorporates indigenous vegetation into the landscape design. | | County Government | | |
| Promote and support the establishment of public and private nature preserves throughout the County as part of the protection of natural and heritage resources. | | County Government | | |

Complementary Elements

| Policy: The County promotes healthy air and low levels of noise and light pollution as essential elements for current and future residents. | | | | |
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| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
| Comply with the requirements of the Federal Clean Air Act Amendments of 1990 through support of the State Implementation Plan (SIP). | | County Government | Short Term Ongoing | ○○○○ |
| Continue to work with the Metropolitan Washington Airports Authority to refine airport operations and routes at Washington Dulles International Airport to minimize the effects on noise sensitive uses. | | County Government | Short Term Ongoing | |
| Prohibit residential encroachment into the existing areas designated as within the Ldn 65 or higher aircraft noise contours to ensure that residential development will not create pressure for reductions in the intensity of service or prohibit the expansion of service at the airport. | | County Government | Short Term | |
| Continue to enforce and update with the most current information, as appropriate, the Airport Noise Impact Overlay District included as part of the Loudoun County Zoning Ordinance. | | County Government | Short Term Ongoing | |
| Update lighting standards to achieve the following: <ul style="list-style-type: none"> i. Promote the use of lighting for convenience and safety without the nuisance associated with light pollution, ii. Promote a glare-free environment through proper lighting performance standards to improve visibility and enhance public safety, iii. Promote appropriate lighting standards to conserve energy, | | County Government | Short Term | ○○○○ |

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| <ul style="list-style-type: none"> iv. Develop appropriate lighting standards to prohibit unnecessary and intrusive light trespass that detracts from the beauty and view of the night sky, and v. Promote Dark Sky standards to prevent light pollution. | | | | |
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Chapter 4

Housing

Policy: Increase the amount and diversity of housing unit types, sizes, and prices and promote innovative designs throughout Loudoun County that are desirable and attainable to all income levels.

| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
|---|------------------------------|-------------------|---|----------|
| Develop effective incentives that enable development to provide units to meet unmet housing needs to include housing for households with incomes at or below 30 percent of AMI, which is the area of greatest need and includes older adults on fixed incomes, persons with disabilities, and workers in low-wage occupations. | | County Government | Mid Term | ○○○○ |
| Strengthen regulations, to the greatest extent that the State Code allows, to require the development of affordable housing and to maximize diversity in housing types, prices, numbers, and locations that is interspersed within neighborhoods, communities, and throughout the County as part of new development and the number of units in the provision of affordable housing. | | County Government | Short Term | ○○○○ |
| Revise building and development standards so the design of residential units and neighborhoods meets the | | County Government | Short Term | ○○○○ |

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| physical needs of aging adults and persons with disabilities (e.g., universal design and accessible units). | | | | |
| Amend the Zoning Ordinance to expand the number of districts where manufactured housing, accessory units, and alternative housing types are allowed (e.g., small lot and innovative housing types, micro-units). | | County Government | Short Term | ○○○○ |
| Amend the Zoning Ordinance to incentivize affordable housing development. | | County Government | Short Term | ○○○○ |
| Ensure affordable units are provided in residential developments that contain 20 or more dwelling units and have a density that exceeds one dwelling unit per acre. | | County Government | Short Term Ongoing | ○○○○ |
| Examine and estimate unmet housing needs and evaluate housing programs for their effectiveness in addressing those needs every five years. | | County Government | Short Term | ○○○○ |
| Develop an affordable housing strategic plan that more specifically identifies strategies, actions, programs, and best practices to address the County’s current and future unmet housing needs. Research and implement effective incentives, such as appropriate density increases for the provision of affordable housing and the off-set of capital facilities contributions, and evaluate successful housing programs in other jurisdictions to determine the resources needed to foster a continuum of housing affordability for workers in Loudoun. | | County Government | Mid Term | ○○○○ |
| Policy: Preserve existing affordable housing stock levels and ensure housing remains safe and habitable. | | | | |
| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
| Provide programs that bring existing affordable housing in need of indoor plumbing, operational septic and | | County Government | Mid Term to Long Term | ○○○○ |

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| water systems, and major system repair (e.g., new roofs or heating and cooling systems) up to safe and livable conditions. | | | | |
| Implement housing programs that address the maintenance, preservation, and improvement of existing affordable housing stock. | | County Government | Mid Term to Long Term | ○○○○ |
| Create a dedicated revenue stream for affordable housing development. | | County Government | Mid Term | ○○○○ |
| Develop a rent subsidy program to address the housing needs of extremely low-income or vulnerable households including older adults on fixed incomes and persons with disabilities. | | County Government | Mid Term | ○○○○ |
| Use public and private partnerships, programs, tools, and incentives to address unmet housing needs and increase the County's capacity to compete for federal and state assistance. | | County Government | Mid Term to Long Term | ○○○○ |
| Provide technical assistance to the Towns to assist them in establishing and maintaining programs that provide affordable housing. | | County Government | Short Term Ongoing | ○○○○ |
| Work in partnership with nonprofit, public, and private entities that are committed to the provision of a wide range of housing opportunities by offering technical and financial assistance such as direct loans, gap financing, revolving loans, credits, and grants. | | County Government | Short Term Ongoing | ○○○○ |
| Create a Housing Authority that would develop new affordable housing, rehabilitate housing, and revitalize community infrastructure. | | County Government | Mid Term to Long Term | ○○○○ |
| Encourage the Economic Development Authority to exercise its authority to assist with property acquisition, tax exempt bond financing, and leverage gap financing, and stimulate cooperative partnerships toward the preservation and production of housing to address unmet needs. | | County Government | Mid Term Ongoing | ○○○○ |

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| Consider the use of County-owned property to offset the costs to nonprofit, public, and private sector entities to fulfill unmet housing needs and primarily target 1) special needs populations and/or 2) households earning less than 50 percent of AMI. | | County Government | Mid Term | ○○○○ |
| When purchasing real property, consider buying properties that can be developed to fulfill unmet housing needs in addition to the primary public use. | | County Government | Short Term Ongoing | ○○○○ |
| Expand the employer-assisted housing program to help meet the private sector’s workforce housing needs. | | County Government | Short Term | ○○○○ |

Chapter 5

Economic Development

Policy: Diversify the economy by strengthening targeted industry clusters.

| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
|---|------------------------------|-------------------|---|----------|
| Embed staffing resources in each cluster/overlay to attract or expand businesses using industry expertise, relationships, and earned reputation. | | County Government | Short Term | ○○○○ |
| Use marketing and research to create promotional materials, conduct market analysis, assist with site selection, and provide ombudsman services. | | County Government | Short Term | ○○○○ |
| Provide assistance with the regulatory process and streamline when possible using electronic plan submittals and online portals to get clients to market more quickly, provided all public safety, health, and welfare regulations are met. | | County Government | Short Term | ○○○○ |
| Create mechanisms for the rural economy to maintain its status as a regional agricultural leader and local advantage. | | County Government | Mid Term | ○○○○ |

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| Reserve adequate amounts of developable commercially-zoned land for cluster growth. | | County Government | Short Term Ongoing | ○○○○ |
| Strategically use economic incentives as needed for attraction and retention. | | County Government | Short Term Ongoing | ○○○○ |
| Policy: Create desirable places in key commercial corridors and employment centers. | | | | |
| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
| Establish State-endorsed “Technology Zones” for the encouragement of new and expanding technology businesses that enable reduction of user and permit fees, local tax incentives, special zoning treatment, and exemption from local ordinances. | | County Government | Short Term | ○○○○ |
| Streamline the process for amending the Comprehensive Plan to allow for flexible and timely responses to evolving market conditions and technological innovation and to reduce project time to market. | | County Government | Short Term | ○○○○ |
| Periodically update the County’s Zoning Ordinance to keep pace with innovation in the marketplace. | | County Government | Mid Term Ongoing | ○○○○ |
| Extend support to the Towns to plan for enhancing the economic base. | | County Government | Short Term Ongoing | ○○○○ |
| Policy: Invest in the skilled workforce needed for continued economic growth. | | | | |
| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
| Collaborate with community and academic partners on connecting people to careers, expanding “learn by | | County Government | Short Term Ongoing | ○○○○ |

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| doing” programs and securing funding sources for training. | | | | |
| Actively engage local businesses to determine workforce challenges and needed skills. | | County Government | Short Term Ongoing | ○○○○ |
| Incentivize construction of attainable workforce housing using density bonuses, fee waivers, revolving loans, or assistance with required infrastructure. | | County Government | Mid Term | ○○○○ |
| Consider using the Economic Development Authority for property acquisition to bank land for public-private partnerships on workforce housing projects. | | County Government | Long Term | ○○○○ |
| Policy: Market the County as a world-class business ecosystem. | | | | |
| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
| Tailor messaging to decision-makers and influencers who play a role in starting, expanding, or relocating businesses (e.g., owners, executives, site selectors, or brokers). | | County Government | Short Term Ongoing | ○○○○ |
| Post and respond on the County’s economic development website and social media channels in a timely fashion to maintain credibility. | | County Government | Short Term Ongoing | ○○○○ |
| Maintain economic development brands for custom professional-grade collateral. | | County Government | Short Term Ongoing | ○○○○ |
| Policy: Support the promotion and development of Loudoun County as a tourism destination. | | | | |
| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |

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| Establish State-endorsed “Tourism Zones” that enable the County to be eligible for gap financing from the State for tourism-related development projects. | | County Government | Short Term | ○○○○ |
| Refresh online content and optimize for search engines regularly, translate into multiple languages, and focus design to reflect Loudoun’s unique personality and strengths. | | County Government | Short Term Ongoing | ○○○○ |

Chapter 6

Fiscal Management and Public Infrastructure

Policy: Provide public facilities to meet identified needs.

| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
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| Expedite the approval of public facilities by establishing performance standards that would eliminate the need for legislative review. | | Planning & Zoning | Short Term | ○○○○ |
| Support the School Board acquisition of needed sites through the fiscal planning and land development processes. | | County Government | Short Term Ongoing | ○○○○ |
| Co-locate public safety and other facilities whenever it will improve service efficiencies. | | Board of Supervisors, Transportation & Capital Infrastructure | Short Term Ongoing | ○○○○ |
| Design school-related open space and athletic fields and make them available for joint use by Parks, Recreation, and Community Services (PRCS) and other facilities such as libraries and community centers. | | School Board, Parks, Recreation & Community Services | Mid Term to Long Term | ○○○○ |
| Evaluate Commission Permit applications for County facilities on the character and extent of the maximum development potential of the site in order to permit future expansion and colocation without requiring | | Planning Commission, Planning & Zoning | Short Term Ongoing | ○○○○ |

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| additional Commission approval under Code of Virginia Section 15.2-2232. | | | | |
| Combine public open space and parks with public and civic buildings, community centers, town centers, and other gathering places and include amenities such as seating areas, public art, playgrounds, and gardens, etc. | | Parks, Recreation & Community Services, Development Community | Short Term Ongoing | ○○○○ |
| Design public facilities to be quality examples of architectural design and sustainable construction and to be a defining feature of the community. | | Transportation & Capital Infrastructure | Short Term Ongoing | ○○○○ |
| Design new public facilities to be functional and efficient, to reflect the physical character of the adjacent community, and to maximize the broader social and cultural role the facility can play in the community. | | Transportation & Capital Infrastructure | Short Term Ongoing | ○○○○ |
| Improve existing County facilities through maintenance and modernization of facilities to meet current resource demands and customer needs; for example, improve library space for collaborative, hands-on learning (Maker spaces) with computer labs and large, multi-purpose rooms to meet the growing community demand for spaces to host community events. | | County Government | Mid Term to Long Term | ○○○○ |
| Locate new facilities on sites that can accommodate future expansions and colocation with other compatible facilities. | | Transportation & Capital Infrastructure | Mid Term | ○○○○ |
| Locate Fire and Rescue and Sheriff's facilities in accordance with adopted response time goals and at the most strategic point in a proposed service area. | | Transportation & Capital Infrastructure, Fire and Rescue | Short Term Ongoing | ○○○○ |
| Locate libraries and other high traffic uses in highly visible, accessible locations with adequate automobile and pedestrian access; examples of such locations include mixed-use centers, towns, and villages. | | Transportation & Capital Infrastructure, Library Services | Short Term Ongoing | ○○○○ |
| Integrate housing and other facilities for special population groups in the Suburban and Transition Policy | | Family Services, Towns, Development Community | Short Term Ongoing | ○○○○ |

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| Areas, Towns, and JLMAs to provide ease of access to associated commercial services, jobs, and amenities. | | | | |
| Link new facilities to adjacent neighborhoods by sidewalks, greenways, and trails. | | Transportation & Capital Infrastructure, | Short Term Ongoing | ○○○○ |
| Locate new public facilities in western Loudoun in close proximity to the Towns and JLMAs when land is available and locations can meet response time and other service standards. | | Transportation & Capital Infrastructure, | Mid Term | ○○○○ |
| Continue to make the Town of Leesburg the principal location of County Government offices and the County seat. | | Board of Supervisors | Short Term Ongoing | ○○○○ |
| Establish and maintain effective levels of public open space in all residential and mixed-use communities. | | Development Community, Homeowners Associations | Short Term Ongoing | ○○○○ |
| Investigate collocating County facilities with complementary nonprofit, commercial and residential uses that would create a mutually beneficial relationship; for example, locate schools with affordable housing projects to maximize access to afterschool and other programs that would benefit households. | | Transportation & Capital Infrastructure, Loudoun County School Board, Nonprofit Agencies | Long Term | ○○○○ |
| Support and encourage partnerships that develop sustainable housing for special populations, including the elderly, the mentally and physically handicapped, low income persons, and the homeless. | | Family Services, Public-Private Partnerships | Long Term | ○○○○ |
| Support NOVA Parks and others in acquiring land and developing facilities such as the Potomac Heritage Trail and the Appalachian Trail, extending the Washington and Old Dominion Trail to Bluemont, and preserving the Ball's Bluff Battlefield. | | Board of Supervisors | Mid Term | ○○○○ |
| Work with the U.S. Department of the Interior, the Conservation Management Institute, the Virginia Department of Historic Resources, NOVA Parks, and the incorporated Towns to define and recommend areas for open-space preservation and development of a trail | | County Government | Short Term Ongoing | ○○○○ |

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| network that links the County’s natural, historic, and recreational resources. | | | | |
| Work with homeowner and other property owner associations to encourage greater public access to association open space and facilities. | | County Government | Short Term Ongoing | ○○○○ |
| In subdivision plans for hamlets, villages, and clusters in the Rural Policy Area, include a plan outlining the proposed use of associated open space and suitability for rural economy uses. | | County Government | Short Term Ongoing | ○○○○ |
| Coordinate recreation-planning efforts with the Towns to prevent duplication of services. | | County Government | Short Term Ongoing | ○○○○ |
| Identify and leverage opportunities with the private sector to provide public facilities. | | Public –private partnerships | Mid Term Ongoing | ○○○○ |
| Policy: Retain the County’s unique combination of urban, suburban, and rural communities by using open space to protect natural resources and habitat, to create a network of high-quality active and passive recreation spaces, provide opportunities for recreation, and to delineate our built environments. | | | | |
| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
| Develop a Master Plan for parks, open space, and trails that builds on and encourages links to current planned trails and park areas, places greater emphasis on quality, connected, publicly usable, and accessible open space and identifies desired locations and connections of future trails and parks to facilitate acquisition and development. | | Parks, Recreation & Community Services | Mid Term | ○○○○ |
| Establish programs and regulatory mechanisms to increase publicly accessible open space through easements, land dedications and purchase; ensure that such programs and mechanisms are consistent with County facilities plans. | | Parks, Recreation & Community Services | Mid Term | ○○○○ |

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| Ensure that new developments extend identified trails and greenways into and through their projects during the development review process with the intent of creating a seamless network of public trails that is consistent with County trail plans. | | Planning & Zoning | Short Term Ongoing | ○○○○ |
| Establish and maintain useable levels of public open space in all residential and mixed-use communities. | | Planning & Zoning | Mid Term | ○○○○ |
| Increase the number of access points to key trail systems from adjacent neighborhoods and destinations. | | Parks, Recreation & Community Services | Mid Term to Long Term | ○○○○ |
| Seek through public purchase, proffer, donation, or third-party open-space easement, the preservation of greenways and the development of trails. | | Parks, Recreation & Community Services | Long Term | ○○○○ |
| Continue the Open Space Preservation Program, to the extent permitted by Virginia Code Section 15.2-2303, linking the loss of open space from low density residential land use to the provision of open space easements or funds towards the purchase of open space easements that provide publicly accessible and useable open space. (See Chapter 6 for more information) | | Planning & Zoning | Short Term Ongoing | ○○○○ |
| Institute a program whereby the County acquires or facilitates acquisition of conservation easements by others by providing other assistance such as a revolving loan program to reduce or defer the landowner cost of establishing conservation easements. The program should emphasize protecting the priority open space areas that are identified in this Plan and are not otherwise protected. | | Board of Supervisors | Mid Term | ○○○○ |
| Encourage protection of the following priority open space areas through conservation easements acquired by the County or others, participation in the Open Space Preservation Program, development common areas (Homeowners Association and Property Owners | | Board of Supervisors, Planning Commission, Planning & Zoning | Short Term Ongoing | ○○○○ |

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| Association areas) , and other means. (See Chapter 6 for more information) | | | | |
| Amend the development regulations as needed to permit: a percentage of the open space required on an individual site to be met through off-site permanent open space that creates a more useable, desirable or environmentally significant open space that is conveniently accessible to the same community. | | Planning & Zoning, Building & Development | Short Term | ○○○○ |
| Implement a local density transfer program as authorized by Virginia Code Sections 15.2-2316.1 and 15.2-2316.2 to protect open space. | | Board of Supervisors | Mid Term | ○○○○ |
| Policy: The County will work with Loudoun Water, the Health Department, and Town officials to ensure timely provision of central, municipal, shared, or on-site sewer and water in accord with the land use policies of this Plan. | | | | |
| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
| Identify and implement appropriate solutions such as upgrading or replacing failing systems, and where appropriate, installing shared systems. (See Chapter 6 for more information) | | Building & Development, Health Department, General Services | Mid Term | ○○○○ |
| Pursue funding sources to rehabilitate homes that currently lack adequate sewer and water systems. | | Board of Supervisors | Long Term | ○○○○ |
| Encourage clustering development away from water supply reservoirs and water supply sources. | | Planning & Zoning, Building & Development | Short Term Ongoing | ○○○○ |
| Establish the geographic limits of utility service and the capacity of the service, and ensure adequate environmental safeguards with a Commission Permit application prior to locating a utility system outside of existing service boundaries. | | Planning & Zoning, Health Department, Loudoun Water | Mid Term | ○○○○ |

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| Protect water and wastewater treatment system lines that cross land outside a water or sewer service area by permanent easements along the line prohibiting any connection outside the service area. | | Building & Development, Health Department | Short Term | ○○○○ |
| Permit pump-and-haul operations only as a last resort and temporary wastewater disposal method to address a proven, public health emergency. | | Board of Supervisors, Health Department | Short Term Ongoing | ○○○○ |
| Evaluate development proposals to ensure availability of a safe and adequate potable water supply and sewage treatment capacity in accordance with the land use policies of this Plan. | | Building & Development, Health Department, Planning & Zoning | Short Term Ongoing | ○○○○ |
| Construct new central wastewater and water lines and facilities in a manner that causes the least environmental risk and visual disruption. | | General Services, Loudoun Water | Short Term Ongoing | ○○○○ |
| Collaborate with Loudoun Water to ensure safe and adequate long-term water supply and wastewater treatment systems to meet County development goals. | | Building & Development, General Services, Loudoun Water | Short Term Ongoing | ○○○○ |
| Facilitate development and efficient operation of quarries as water supply reservoirs and protect reservoirs by establishing no-build buffers, watershed protection measures or equivalent protection. | | Planning & Zoning, Loudoun Water | Mid Term Ongoing | ○○○○ |
| Collaborate with Loudoun Water to use the Beaverdam and Goose Creek water supply reservoirs for safe, compatible public recreation. | | Health Department, General Services, Loudoun Water | Mid Term | ○○○○ |
| Support expansion of Loudoun Water’s reclaimed water network. | | Board of Supervisors, Loudoun Water | Mid Term Ongoing | ○○○○ |
| Implement a pollution prevention and mitigation program to protect and improve the County’s surface water quality. | | Building & Development | Mid Term | ○○○○ |
| Encourage existing residences and communities served by on-site or shared facilities to hook into central water or sewer facilities when such facilities become available. | | Board of Supervisors, Health Department | Short Term Ongoing | ○○○○ |
| Encourage and assist existing communities or residences to hook to a nearby public water or sewer | | Board of Supervisors, Health Department | Short Term Ongoing | ○○○○ |

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| system if on-site water supply or waste treatment capability has deteriorated to a point where there is a potential public health risk. | | | | |
| Prohibit extension of central water and wastewater service into the Rural Policy Area. | | Board of Supervisors | Short Term Ongoing | ○○○○ |
| Support the Safe Drinking Water Act and institute a wellhead protection program to ensure adequate water quality. | | County Government | Short Term Ongoing | ○○○○ |
| Discourage the use of groundwater for nonagricultural irrigation and other nonessential purposes. | | County Government | Short Term Ongoing | ○○○○ |
| Recommend monitoring groundwater and surface water in the Limestone Overlay Zoning District and report any negative changes to the Board of Supervisors for appropriate action. | | General Services, Building & Development | Mid Term | ○○○○ |
| Maintain oversight of siting, design, installation and maintenance of conventional, alternative, and alternative discharging onsite sewage disposal systems. | | General Services, Building & Development | Short Term Ongoing | ○○○○ |
| Implement an inspection and maintenance program for conventional on-site sewage disposal systems. | | General Services, Health Department | Mid Term | ○○○○ |
| Implement wastewater treatment and disposal standards for alternative systems that protect water quality. | | County Government | Mid Term | ○○○○ |
| Allow Loudoun Water-approved shared water and wastewater systems in the Rural Policy Area: <ul style="list-style-type: none"> ▪ To serve rural economy uses and residential clusters as defined in this Plan, ▪ To solve potential public health problems, and ▪ To serve public facilities. | | Health Department, Loudoun Water | Long Term | ○○○○ |
| Assist in the construction of shared systems for existing rural communities facing a potential public health risk. | | Health Department, Loudoun Water | Mid Term | ○○○○ |

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| Require Loudoun Water to own and operate all shared water and wastewater systems with more than 15 connections. | | General Services, Loudoun Water | Short Term Ongoing | ○○○○ |
| Support merging or connecting shared systems operated by Loudoun Water to improve efficiency and address potential public health threats. A Commission Permit is not required where the merger or connection includes no change to previously approved service boundaries. | | General Services, Loudoun Water | Short Term to Mid Term | ○○○○ |
| Require a Commission Permit, establishing a defined service area, prior to the construction of any shared water or wastewater system. | | Planning & Zoning, General Services | Short Term | ○○○○ |
| Policy: Town municipal systems will be the utility providers for the Towns and surrounding Joint Land Management Areas unless the Town, Loudoun Water, and the Health Department agree to an alternative provider. | | | | |
| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
| Investigate financial assistance to Towns to improve sewer and water systems to meet minimum health standards established by the state for the existing populations of the Towns. | | Health Department, Towns | Mid Term to Long Term | ○○○○ |
| Work with the Towns to ensure that the expansion of public sewer and water into the JLMAs satisfies the goals and policies of the County's adopted plans. | | Loudoun Water, Towns | Short Term Ongoing | ○○○○ |
| Establish the JLMA boundary as the limit of utility extensions from the Towns and eliminate the need for a Commission Permit to extend or upgrade sewer and water lines into the Town JLMAs. | | Planning & Zoning | Short Term | ○○○○ |

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| Retain the option to use shared or alternative sewer and water facilities to serve Town and County owned and operated public facilities. | | Loudoun Water, Towns | Short Term Ongoing | ○○○○ |
| Permit the extension of municipal (town) or shared water and wastewater service into the Rural Policy Area to serve public facilities or to address a potential public health threat. | | Health Department, Loudoun Water, Towns | Short Term | ○○○○ |
| Policy: Continue to implement an integrated solid waste management strategy that places priority on reduction, reuse, and recycling of solid waste above resource recovery, incineration, and disposal into landfills. | | | | |
| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
| Continue to ensure that the County always has an acceptable means of local waste disposal through the County landfill operations, should other waste disposal alternatives fail or become ineffective. | | General Services | Short Term Ongoing | ○○○○ |
| Continue to seek private sector support for the provision of current and future Solid Waste Management Services. | | General Services | Short Term Ongoing | ○○○○ |
| Develop a hazardous waste education program and increase residential access to the safe disposal of hazardous waste to protect groundwater resources. | | General Services | Mid Term to Long Term | ○○○○ |
| Policy: Support expanded electrical capacity through generation facilities that use clean burning and environmentally sound fuel sources including gas, wind, and solar. | | | | |
| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |

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| Establish zoning standards that permit alternative electrical generation such as wind and solar generation by and for individual users. | | Planning & Zoning | Short Term | ○○○○ |
| Require the grouping and burying of utility lines and facilities to the extent permitted by law. | | Planning & Zoning | Short Term Ongoing | ○○○○ |
| Work with electrical providers to locate major transmission lines away from key travel corridors and residential communities and where possible to place such lines underground. | | Planning & Zoning, Building & Development | Short Term Ongoing | ○○○○ |
| Encourage the use of stealth design techniques for electrical substations that are adjacent to major travel corridors and residential communities. | | Planning & Zoning | Short Term Ongoing | ○○○○ |
| Policy: The County supports the development of a high-quality wired and wireless telecommunications network to serve businesses, residents, and visitors. | | | | |
| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
| Review and update the County's <i>Telecommunications Strategic Plan</i> to facilitate the expansion of fiber and broadband service throughout the County. | | Planning & Zoning | Mid Term | ○○○○ |
| Adopt zoning regulations and design standards requiring open access conduit to all development projects to facilitate future broadband extensions. | | Planning & Zoning | Short Term | ○○○○ |
| Establish performance standards for wireless communication facilities to minimize the need for legislative action. | | Planning & Zoning | Short Term | ○○○○ |
| Incorporate the capacity to locate broadband and wireless facilities into the design, approval, and construction of all public facilities. | | Planning & Zoning | Short Term Ongoing | ○○○○ |
| Policy: The County will link the goals of the Board of Supervisors' adopted Fiscal Policy and the County's Comprehensive Plan. | | | | |

| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
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| Seek further revenue diversification to increase fiscal stability and thereby, mitigate tax burdens on Loudoun County taxpayers. | | Management & Budget | Mid Term | ○○○○ |
| Direct the majority of public investments into currently developed communities, towns and non-residential areas of the County where development is planned according to the Comprehensive Plan and give priority to the redevelopment and enhancement of existing infrastructure, capital facilities, and services. | | Board of Supervisors | Short Term Ongoing | ○○○○ |
| Where permitted, continue to seek private sector support for improvements or provision of current and future public facilities and sites including proposals of cash and in-kind assistance for public facilities in addition to the timely provision of dedicated sites. | | Board of Supervisors | Short Term Ongoing | ○○○○ |
| Seek authority from the state legislature to establish impact fees and a reasonable implementation process applicable in areas where rezonings are not anticipated. | | County Administration | Mid Term | ○○○○ |
| Update a series of financial and planning tools regularly to evaluate long-term land use, fiscal, and demographic issues, under the oversight of the Board of Supervisors and its advisory committee, the Fiscal Impact Committee. | | Management & Budget | Mid Term | ○○○○ |
| Develop long-range forecasts of residential and non-residential development, population, households, and employment. | | Management & Budget, Planning & Zoning | Short Term Ongoing | ○○○○ |
| Develop demographic, economic and financial data that are used as inputs to demographic forecasts and for fiscal impact modeling. | | Management & Budget, Planning & Zoning | Short Term Ongoing | ○○○○ |

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| <p>Develop and regularly update the Capital Intensity Factor (CIF)—the dollar amount of the capital facilities impact measured by unit type or unit characteristics and geographic location that is calculated using County capital facility standards and demographic inputs. The County uses the IF to assess the capital facilities impacts of new residential development and provides a guideline for proffer negotiations during residential rezonings. (See Chapter 6 for more information)</p> | | <p>Management & Budget, Planning & Zoning</p> | <p>Short Term Ongoing</p> | <p>○○○○</p> |
| <p>Develop and refine Capital Facility Standards—the type, acreage and size of future capital facilities, along with “triggers” based on population, population characteristics, or other community factors.</p> | | <p>Management & Budget,</p> | <p>Short Term Ongoing</p> | <p>○○○○</p> |
| <p>Develop and refine the Capital Needs Assessment—the type and number of capital facilities needed over a ten-year planning period beginning at the end of the current six-year Capital Improvements Program.</p> | | <p>Management & Budget</p> | <p>Short Term Ongoing</p> | <p>○○○○</p> |
| <p>Ensure that the users or beneficiaries of a development will finance an equitable portion of public facility and infrastructure development costs that are directly attributable to a particular development project.</p> | | <p>Board of Supervisors, Planning Commission, Planning & Zoning</p> | <p>Short Term Ongoing</p> | <p>○○○○</p> |
| <p>Evaluate, consistent with the Va. Code Sec. 15.2-2283 and 15.2-2284, the adequacy of existing and planned public facilities and services when reviewing impacts of any legislative application for more intensive use or density. (See Chapter 6 for more information)</p> | | <p>Board of Supervisors, Planning Commission, Planning & Zoning</p> | <p>Mid Term</p> | <p>○○○○</p> |
| <p>Consider, subject to the limitations established by Virginia Code 15.2-2303.4, proposals of the timely dedication of land, cash, and in-kind assistance from a landowner through proffered conditions submitted in accord with Virginia Code Sections 15.2-2303 and 15.2-2297, as applicable, in the provision of public facilities identified in the Capital Improvement Program or the</p> | | <p>Board of Supervisors, Planning Commission, Planning & Zoning</p> | <p>Mid Term to Long Term</p> | <p>○○○○</p> |

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| <p>Capital Needs Assessment Document. (See Chapter 6 for more information)</p> | | | | |
| <p>Apply all of the proffer policies and actions and guidelines set forth in this document only subject to and in compliance with the limitations established by Virginia Code Section 15.2-2303.4 as applicable. In its consideration and acceptance of all proffers, the County will apply the standards of Virginia Code Sections 15.2-2297, 15.2-2303, and 15.2-2303.4, as applicable, to evaluate the reasonableness of proffered conditions.</p> <p>For those applications subject to Section 15.2-2303.4, the County shall accept only those proffers permitted or deemed reasonable under Virginia Code Section 15.2-2297 and not deemed unreasonable under Section 15.2-2303.4. (See Chapter 6 for more information)</p> | | <p>Board of Supervisors, Office of the County Attorney, Planning Commission, Planning & Zoning</p> | <p>Short Term Ongoing</p> | <p>○○○○</p> |
| <p>To assist the County in an equitable and uniform evaluation of developer proffers and other proposals, for proposed densities above the specified base density for each planning policy area, which otherwise conform with the policies of this Plan, the County anticipates developer assistance valued at 100 percent of capital facility costs.</p> | | <p>Planning & Zoning</p> | <p>Short Term Ongoing</p> | <p>○○○○</p> |
| <p>Through the Capital Needs Assessment, the County differentiates between conventional suburban housing and other types of housing such as age-restricted, accessory, and micro units and considers commitments to small unit sizes or affordability in estimating the capital facility needs and Capital Intensity Factor.</p> | | <p>Management & Budget</p> | <p>Short Term</p> | <p>○○○○</p> |
| <p>Review the Capital Needs Assessment policy subarea boundaries to ensure, to the extent feasible, that they do not divide existing communities and consider service standards that provide flexibility to respond to demographics, land availability, and other characteristics of specific communities.</p> | | <p>Management & Budget</p> | <p>Short Term</p> | <p>○○○○</p> |

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| Consider providing credit against the anticipated capital facilities proffers of the development for transportation proffers that exceed the anticipated transportation impact mitigation of the proposed development. | | Board of Supervisors, Planning Commission, Planning & Zoning | Short Term to Mid Term | ○○○○ |
| Consider partially crediting private facilities, which are not dedicated to the County but are for the use of a subdivision or community, toward capital facility proffers. The partial credit is dependent on the Board of Supervisor’s adopted service standards, CNA and CIP identified facilities, and the estimated use or capacity of the facility. | | Board of Supervisors, Planning Commission, Planning & Zoning | Short Term to Mid Term | ○○○○ |
| The County will extend the existing Small Area Plans to encompass Suburban and Urban communities, areas of the Transition Policy Area and Leesburg JLMA communities, and the three Silver Line Metro Stations. | | Planning & Zoning | Short Term | ○○○○ |
| Policy: Use the following capital facilities proffer guidelines to evaluate proposed capital facility proffers. | | | | |
| Action | Priority (Low, Medium, High) | Responsibility | Schedule (Short Term: 1-5 year, Mid Term: 5-10 year, Long Term: 10+ year) | Progress |
| NO ACTIONS | | | | |
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Glossary

A

Active Adult Retirement Communities: Active adult retirement communities offer a form of housing most similar to traditional residential development. These communities offer an independent living environment with houses often designed to reduce maintenance requirements and cater to specific interests of the senior home buying market. Restricted to seniors above a certain age, these communities offer amenities and services tailored to this age group.

Adaptive Reuse: Re-use of an existing structure for a different purpose than that originally intended for the purpose of preserving the structure. Adaptive reuse efforts make improvements to existing buildings or change the land uses found within existing developments to adapt developments to modern design and building program preferences. These projects are not defined as redevelopment because they maintain the general massing and scale of existing buildings.

Affordable Housing: Non-subsidized housing (sale or rental) for those people whose income is 30–70 percent of the median household income for the area. Such housing should require no more than 30 percent of household income.

Agriculture: Any land use that produces live-stock or plant materials to be used for food or fiber for human or animal consumption. Examples include activities that produce cattle, sheep, hogs, horses or other live-stock; activities that produce grains such as wheat, barley and corn; fruit and vegetable production and tree or timber production.

Agricultural Supportive Business: Uses that provide either direct or indirect support and services to agriculture, forestal horticulture and animal husbandry activities. These uses include farm machinery sales, rental, and repair services, veterinary services, blacksmiths, agricultural product storage and processing, feed and seed supply and similar uses.

Agricultural and Forestal District: Districts created by the Board of Supervisors with the consent of landowners to protect agricultural and forest lands by limiting the use and development of property for a specified term.

Airport Noise Impact Area: Areas within one mile of the Ldn 60 and greater aircraft noise contour.

Aquifer: A geologic formation or structure that transmits underground water in sufficient quantity to supply pumping wells or springs.

Aquifer Recharge: Undeveloped or sparsely developed area where groundwater can be replenished by rainfall.

Archaeological Site: The physical remains of any area of human activity greater than fifty years of age for which a boundary can be established; including but not limited to domestic/habitation sites, industrial sites, earthworks, mounds, quarries, canals and roads.

Archaeological Survey: The scientific archaeological investigation of a known or potential archaeological resource as defined by the Virginia Department of Historic Resources' Guidelines for Archaeological Investigations in Virginia.

Area Plans: Specific, detailed land use plans, which Loudoun County adopts for various areas of the County.

Arterial Road: Generally, a publicly owned and maintained road, designed with restricted access and primarily intended to carry "through" traffic at 45 to 55 miles per hour.

B

Bedrock: Rock formation that underlies a surface covering such as soil.

Best Management Practices: Practices that are the most effective and practical means for preventing or reducing the amount of non-point source pollution (NPS) to a level compatible with established water quality goals. (Non-point source pollution is carried in runoff that cannot be traced to a specific source and whose point of entry into the stream cannot be determined.)

Buffer: An undeveloped or relatively undeveloped land area that lies between two conflicting land uses. A buffer is intended for screening the view or noise of one use from another. A buffer may include trees, plants, or other devices to further shield one use from the other.

Built Environment: Human-made surroundings that provide the setting in which people live, work, and recreate on a day-to-day basis and how they are interrelated as a complete and connected system in relationship to human activity. (The built environment includes such as buildings and structures, parks, utilities and communication infrastructure, roads, paths, transportation infrastructure, streetscape, wayfinding, man-made landscapes, and open space.)

By-Right Uses: Uses or structures that are allowed under a particular zoning district classification without the need for action by the Planning Commission or Board of Supervisors.

C

Canopy: The upper branches of a stand of trees; the tallest trees in a forested area.

Capital Improvements Program (CIP): The County's annual plan for future capital project expenditures. This plan spells out the funding for capital facilities including schools, libraries, and parks, that the County plans to finance over a six-year period.

Central Water and Wastewater Systems: The Loudoun Water utility network serving the Authority's eastern service area, which includes the Suburban and Transition Policy Areas.

Champion Tree: Any tree deemed largest of its species and listed on either the Virginia Big Tree Registry (maintained jointly by the Virginia Forestry Association, Virginia Department of Forestry and Virginia Tech College of Natural Resources) or the National Register of Big Trees (maintained by American Forests).

Civic Uses: Public or quasi-public uses in residential or business areas that are accessible to the public and primarily serve as gathering or meeting areas for the immediate community. Civic uses may be public buildings, defined space in commercial buildings or outdoor space constructed to accommodate gatherings of the community. They can be the settings where celebrations are held, where social and economic exchanges take place, where friends run into each other, and where cultures mix. Such uses may typically include churches, schools, libraries, community centers, amphitheaters, and property owner association meeting space or club houses.

Cluster Development: Grouping residences permitted by the zoning of a property, on smaller lots, with the intention of retaining a significant area of the site as open space or farmland.

Collector Road: A road into which local roads funnel and which, in turn, carries traffic to an arterial road. Ideally a collector road would have few private entrances accessing it directly.

Commercial Core: An identifiable center or focal point of a community. Typically a commercial area, park or civic facility that is convenient to most of the community

Commercial Use: Any wholesale, retail, or service business activity established to carry on trade for profit.

Community Plan: Detailed land use plans to be developed for specific communities within the Suburban Policy Area.

Compatible: An existing or committed land use or activity that can co-exist with a neighboring use/activity or uses/activities, without either creating or experiencing one or more off-site adverse effect(s). Adverse Effect: Means one or more of:

- impairment of the quality of the natural environment for any use that can be made of it,
- injury or damage to property or to plant or animal life,
- harm or material discomfort to any person,
- an adverse effect on the health of any person,
- impairment of the safety of any person,
- rendering any property or plant or animal life unfit for use by man,
- loss of enjoyment of normal use of property, and
- interference with the normal conduct of business.

Comprehensive Plan: The general plan for the County and its supporting components. Every County in Virginia must have a Comprehensive Plan, which spells out policies for future development in order to ensure orderly growth and the protection of the public health and welfare. The Comprehensive Plan may consist of a number of components, such as local area plans, service plans, and specific land-use related resolutions of the Board of Supervisors.

Conservation Design: Also referred to as conservation design techniques. A Countywide method for developing land that conserves the environmental, natural, and heritage elements of a site while providing for development at full density on the remainder of the site. The first step in Conservation Design is to identify the environmental, natural, and heritage features of a site to be preserved. The unconstrained land then is available for development and buildings can be located in that area as part of the second step. Street, utility, and trail locations are then introduced on the development plan as the third step. The final step is to location lot lines.

Conservation Easement: A voluntary legal agreement between a property owner and a land trust or government agency that places permanent restrictions on a property which may relinquish certain development rights and/or require the preservation of farmland, natural and heritage resources on a property in perpetuity. The easement is recorded in the land records and the property owner retains ownership of the property and all rights and privileges for its use, except for the uses restricted under the easement.

Contiguous: Touching, abutting, and/or adjoining at the border or immediately across the street.

Cultural Landscape: A geographic area (including both cultural and natural resources), that is associated with a historic event, activity or person, or exhibiting any other cultural or aesthetic values.

D

Density: The amount of development permitted per acre of land. It may be expressed in dwelling units per acre or as building floor area per acre (floor area ratio [FAR])

Density Transfer: The act of allowing on the development potential of a parcel of land to be used on a different parcel of land.

Development: The act of building, or the existence of structures for human habitation or business use including houses, stores, schools, offices, roads, etc.

Diabase: A fine- to medium-grained dark-colored igneous rock, which is a good source for crushed stone for road and building construction.

Dillon Rule: The rule adopted by the Virginia General Assembly that limits the legislative powers of local government in Virginia to those powers that have been specifically and expressly granted to them by the General Assembly.

Drainfield: Soil absorption trench fed by underground pipes for dispersion of the liquid portion of sewage from a septic system.

E

Easement: An interest in land owned by another that entitles its holder to a specific and limited use or enjoyment.

Open Space (Scenic, Conservation) Easement: An easement that removes or limits the right to develop land. “Eased” is used as an adjective applied to land with such open space restrictions.

Eco-districts: A neighborhood committed to sustainability with empowered people, green buildings, and smart infrastructure. Eco-districts are a comprehensive strategy to accelerate sustainable development at the neighborhood scale by integrating building and infrastructure projects with community and individual action. Can be used as part of a public/private partnership.

Ecosystem: A complex network of organic communities and their interaction with their environment. A specific ecological unit that is smaller than a biome and larger than a community.

Enabling Legislation: Legislation passed by the Virginia General Assembly which authorizes a locality to carry out some particular program or which grants certain specific powers to those localities. Local governments may not enact ordinances without enabling legislation.

Erosion: The wearing away and removal of soil or rock by natural means such as wind or water.

Exemplary Natural Communities: The most outstanding and viable occurrences of common community types, based on size, condition, and landscape context and all examples of rare community types as defined by the Virginia Department of Conservation and Recreation, Division of Natural Heritage.

F

Facilities Standards Manual: An adopted document that sets out specific regulations and design standards for such facilities as water/sewer service, roads and streets, soils review, etc.

Fiscal: Of or relating to public revenues, public expenditures and public debt; public financial matters.

Floodplain: A low, usually flat terrain on either side of a river or stream that is normally dry but submerged at times of high water, and where accumulations of silt and sand are deposited away from the main channel.

Floor Area Ratio (FAR): The enclosed gross floor area of buildings on a given lot divided by the total area of the lot.

Forest: A plant community predominantly consisting of trees and other woody vegetation of at least 10 acres in which 50 percent of the tree canopy coverage exceeds 25 feet in height and one that currently has or will result in 85 percent crown closure within ten years. A forest is further defined as forming an ecosystem that provides food, water, and shelter for various plant and wildlife habitats.

G

Greenbelt: Any largely undeveloped area or an area of low-density development consisting of entirely or primarily heavily vegetated open space surrounding a developed area or separating one area from another to create a visual separation.

Greenfield Development: Development that occurs on undeveloped land.

Groundwater: The supply of freshwater beneath the ground surface in a saturated zone that forms a natural reservoir for potable water. Major source of water supply for western Loudoun County.

Growth Management: The process of guiding development in the direction that is most efficient, and fiscally and environmentally sound.

H

Habitat: The place or environment where animals or plants naturally or normally live and grow.

Heritage Resource: Any historic, architectural, archaeological, or scenic site, structure, landscape, or object that has cultural significance to the community.

Heritage Trees: Any tree that has notable historic or cultural interest or significance to the community.

Historic District (County Designated): A zoning district overlaid on an existing zoning district and adding additional architectural and design controls to the regulations of the base district. Historic Site Districts (HS) comprise one property with its related structures; Historic and Cultural Conservation Districts (HCC) comprise a number of properties related in some way to each other.

Historic District Review Committee (HDRC): A committee of citizens appointed by the Board of Supervisors and empowered to approve or deny the issuance of Certificates of Appropriateness for any construction, reconstruction, renovation or restoration in the Historic Districts.

Historic Site: An architectural, engineering or archaeological area, structure, object, or landscape that has historic significance to the region, locality, community, or nation.

Hydric Soils: Soils that are saturated long enough to develop an anaerobic condition in the upper soil so that only certain plants can live in it. Hydric soil is an indicator of wetlands.

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Impervious Surface: Any material that prevents the absorption of water into the ground.

Indigenous Vegetation: Also referred to as native vegetation. Existing plant communities or species that occur naturally to a specified region or area, and that are descendants of plants that existed prior to the land being developed or cultivated.

Industrial Uses: Nonresidential and noncommercial employment uses such as warehousing, mining, milling, and manufacturing. Industrial Uses are defined by varying degrees of outside storage or activity, type of equipment use, and potential compatibility issues and are categorized as Light, General and Heavy Industrial Uses.

Light Industrial: Uses that have less deleterious impact on their locality than the heavy industries, located in industrial parks or in conjunction with large mixed-use development. May include such uses as manufacture and distribution of such products as scientific and precision instruments and other items that may be manufactured without unpleasant impacts on their surroundings. In the mixed-use communities, it should not have outdoor storage and be of architectural design and size compatible with non-industrial uses.

Heavy Industrial: A variety of uses that have significant impact on surrounding land uses and the environment. These industries include such uses as metal fabrication and quarries, asphalt or concrete mixing plants, and junkyards, which feature outdoor storage, noise, and other emissions, use of heavy equipment.

Infill Development: Establishment of a new land use on a site that may be undeveloped or underutilized but is located within the Suburban and Urban Policy Areas in an established, stable development where public facilities such as roads, water, sewer, and general services are available or planned. Infill lots are often small (less than 25 acres), and their development should complement or complete a larger development area.

Infrastructure: Utilities such as water/sewer, electrical, gas, communication, internet and transportation, which form the skeleton on which a development is built.

Institutional Uses: Large scale government or quasi government facilities; and p health, or educational facilities such as schools, training centers, universities, libraries, hospitals, or similar facilities.

Intensity: See Density. Intensity can also be described or measured in terms of impacts on the surrounding area such as traffic loading, sewage disposal needs, etc.

Interim Use: Land uses which do not require substantial infrastructure and construction investment and that by design or investment can be expected to be removed and the site redeveloped based on future market trends or can easily be adapted and augmented with future land uses. (such as community gardens, playgrounds, park-and-ride lots, and farmer’s markets)

Invasive Plant Species: Any plant species that is not native to the region and causes or is likely to cause economic, health-related or environmental harm.

J-L

Joint Land Management Area (JLMA): The County area surrounding an incorporated town intended to accommodate future town growth. The boundary of the JLMA typically marks the edge of utility service.

Karst: Refers to terrain characterized by the solution of bedrock that allows underground drainage and generates distinctive land forms and features such as sinkholes, pinnacled rock and caves. Much of the limestone conglomerate area is considered Karst.

Land Trust: A public and/or private, organization with the authority to buy, accept donations, hold, and/or sell interests in real property for the purpose of land and/or building preservation.

Ldn: Day-Night Sound Level. The energy-average level (Leq: see below) of sound for 24 hours adjusted to include a 10 decibel penalty for noise exposures during night-time hours (10:00 pm to 6:00 am).

Limestone Conglomerate: Geologic formation that is highly water soluble and is characterized by numerous underground caves and surface sink holes; it is a natural groundwater aquifer and good water supply source. Limestone conglomerate consists of various small rocks cemented together with a carbonate matrix. In appearance, it is very similar to concrete.

Local Road: A public, state-owned, and maintained road designed for direct access to individual lots.

M

Medical Centers: An aggregation of health care facilities whose day-to-day operation is supplemented by the close proximity or collocation of other health care facilities or healthcare-related businesses.

Mitigation (environmental): Methods used to alleviate or lessen the impact of development. Examples include planting of new forests to replace those that have been removed; creation of new wetlands to replace those destroyed by development. Mitigation is sometimes done in a different area than that previously occupied by the replaced forest, wetland, etc, but this practice is not encouraged.

Moderately Steep Slopes: Surface formation with a vertical incline greater than 8.5 degrees or 15 percent and up to 22.5 degrees or 25 percent, a sufficient steepness to cause problems such as erosion or increased flooding when disturbed for land development or other purposes. (See also steep slopes.)

Mountainside Areas: Areas defined by the following (the category of mountainside area is based on weighted criteria as defined in the Loudoun County Interpretive Guide to the Use of Soils Maps):

Elevation: Above 700 feet mean sea level for the Short Hill and Blue Ridge Mountains and 550 feet for the Catoctin, Hogback, and Bull Run Mountains;

Soils: Associated with mountainsides that affect groundwater recharge, slippage potential, and suitability for onsite sewage disposal systems;

Slopes: Moderately steep slopes (15 to 25 percent) and steep slopes (greater than 25 percent); and

Forests: The quality and extent of tree cover, woodlands, and forests.

N

National Historic Landmark: District, site, or structure listed on the National Register of Historic Places and considered to be of unusual importance to American history, architecture, archaeology, and/or culture. Under the jurisdiction of the Secretary of the Interior.

National Register of Historic Places: A register of districts, sites, buildings, structures, landscapes, and objects significant in American history, architecture, archaeology, and/or culture. The Register is maintained by the Secretary of the Interior and administered by the Keeper of the National Register. Local nominations to the Register are made by the Virginia Historic Resources Board.

Natural heritage resources: Those resources that include rare, threatened and endangered plant and animal species; exemplary natural communities, habitats, and ecosystems; and other natural features of the County.

O

Old Growth Forest: Also referred to as Ancient Forest. A forest that is ecologically mature and has been subject to negligible disturbance. Ecological maturity is typically defined when tree species reach the later stages of their life cycle, reflecting in significant amounts of the upper stratum or overstorey in the mature (old) growth phases.

100-foot Minimum Stream Buffer: Minimum stream buffer providing a minimum filtration area ensuring maintenance of water quality and the integrity of the river and stream corridor. The buffer is measured from the ordinary high water mark landward on

both sides of the stream when the 100-year floodplain and adjacent steep slopes do not extend beyond either bank by 100 feet.

On-Site or Individual Water and Wastewater Systems: A system that serves a single user, commonly well and septic systems.

Open Space: Any parcel or area of land or water essentially unimproved and designated for public or private use or enjoyment or for the use and enjoyment of owners, occupants, and their guests of land adjoining or neighboring such open space. There are three types of open space defined in this plan:

Active Recreation Open Space: Areas dedicated to leisure-time activities, usually of a formal nature and often performed with others, requiring equipment and taking place at prescribed sites or fields. Examples include ballfields, tennis or basketball courts, swimming pools, tot lots, golf courses, dog parks, and other areas for recreational sports and games.

Natural Open Space: Land left in a mostly undeveloped state. Examples include forests, meadows, hedgerows, and wetlands.

Passive Recreation Open Space: Areas for activities that involve less energetic activities such as walking, sitting, picnicking, card games or table games. Examples include trails (hiking, biking, walking, or equestrian), picnic, camping, hunting, or fishing areas. Passive recreation uses have fewer potential impacts on the site and on surrounding land uses.

Overlay Zoning District: A zoning district superimposed on another, but having validity in governing the use of the property. Historic Districts are overlay zoning districts.

P

Performance Standards: A set of regulatory criteria or limits relating to certain characteristics that a particular use or process may not exceed.

Perpetuity: A state of something that is continuing or enduring forever. In planning, a limitation on property, which is not destructible by the persons who hold an interest in the property, is said to be held in perpetuity.

Pervious: Materials that permit water to enter the ground by virtue of their porous nature or by large spaces in the material. Also, permeable.

Physiographic: Pertaining to physical geography.

Purchase/Transfer of Development Rights (PDR/TDR): Tools used to limit development on natural lands and preserve Green Infrastructure elements in perpetuity. These programs compensate property owners who voluntarily agree to sell the right to develop and place a conservation easement on their land. In the case of transfer of development rights, the development potential is applied to a property in an area of the County suitable for development. “Sending” and “receiving” areas limit the TDR program.

Planning Commission: Citizens appointed by the Board of Supervisors and empowered to prepare the Comprehensive Plan and to advise the Board on proposed land use changes for conformance with the Comprehensive Plan and the Zoning and Subdivision Ordinances.

Proffer: Voluntary promise or commitment given in writing by a landowner to construct certain improvements, to contribute towards mitigating impacts, or to develop property subject to specified conditions.

Public Facilities: Public works supplied generally by a government organization. Examples include public roads, schools, water and sewer facilities, fire stations, and libraries.

Public Water and Wastewater Systems: Water and wastewater systems that include shared water and wastewater systems that are owned and operated by Loudoun Water, municipal systems operated by Towns and central water and wastewater systems operated by Loudoun Water.

Pump-and-Haul: A sewage disposal method in which a sewage holding tank is pumped out on a regular basis and the raw sewage is transported by vehicle to an authorized treatment plant.

Q-R

Questionable Soil: Where the classification, strength, or compressibility of the soil are in doubt or where a load-bearing value superior to that specified in the International Building Code is claimed.

Real Property: Land and any immobile buildings or structures attached to the land.

Recreation, Active: A type of open space. Areas dedicated to leisure-time activities, usually of a formal nature and often performed with others, requiring equipment and taking place at prescribed sites or fields. Examples include ballfields, tennis or basketball courts, swimming pools, tot lots, golf courses, and other areas for recreational sports and games.

Recreation, Passive: A type of open space. Areas for activities that involve less energetic activities such as walking, sitting, picnicking, card games or table games. Examples include trails (hiking, biking, walking, or equestrian), picnic, camping, hunting, or fishing areas. Passive recreation uses have fewer potential impacts on the site and on surrounding land uses.

Redevelopment: A change in land use which would involve the removal and replacement, rehabilitation, or adaptive reuse of existing structures or uses.. Redevelopment includes all development projects that make significant modifications to an existing developed site resulting in changes to its design, use, and/or intensity. Projects may include razing existing structures and constructing completely new buildings and may necessitate mitigation of previous uses.

Revitalization: Reestablishing the economic and social vitality of a targeted area. Redevelopment, infill, and adaptive reuse are types of development that support revitalization.

Rezoning: A change in zoning district applicable to a given parcel or group of parcels of land.

Ridgeline: A ground line located at the highest elevation of a drainage divide for the major watersheds mapped by the County or other prominent ridgeline visible from the public right-of-way as identified during the land development process.

Right-to-farm Act: A State Act that offers protection to farmers against nuisance suits. Localities are prevented from enforcing nuisance ordinances that would disrupt normal farm practices.

Riparian: An area of land contiguous to a stream, river, lake or wetland that contains vegetation that, due to the presence of water, is distinctly different from the vegetation of adjacent areas.

Riparian Forest: Also called a riparian forest buffer when part of a larger stream buffer. A strip of land along a river or stream where forest and vegetation help to protect water quality, filter pollutants, regulate water temperature, enhance aquatic and wildlife habitats, and provide aesthetic value to the river or stream.

River and Stream Corridor Resources (RSCRs): These areas include:

Rivers and streams draining 100 acres or more.

100-year floodplains (including major and minor).

Adjacent steep slopes (slope 25 percent or greater, starting within 50 feet of streams and floodplains, extending no farther than 100 feet beyond the originating stream or floodplain).

50-foot Management Buffer surrounding the floodplains and adjacent steep slopes.

Wetlands, forests, historic and cultural resources, and archaeological sites that fall within the area of one or more of the above elements.

Rural Character: A term broadly applied to the appearance and experience associated with natural and man-made environments comprised of any combination of agricultural, forestal, environmental, scenic, historic and/or cultural elements that define a rural setting or landscape.

Rural Economy: A collection of traditional and non-traditional rural business uses that are dependent on the rural land base for its agricultural productivity, scenic quality, and rural character to sustain business activities. Rural economy uses include but are not limited to agriculture, crop and livestock production, forestry, horticulture and specialty farm

products, farm markets and wayside stands, the equine industry, orchards, vineyards, farm wineries, cideries and breweries, hospitality services such as farm restaurants, bed and breakfasts, country inns, banquet/event facilities, rural resorts, and private camps and parks.

S

Scenic Highway/Virginia Byway:

National Scenic Highway: A road located within a protected corridor and having recreational, historic or scenic interest.

Virginia Byway: A road or part of a road having high aesthetic or cultural value or leading to an area of significant historical, national or recreational interest. Designation by Virginia Department of Transportation on recommendation of the Commission on Outdoor Recreation with approval of local Board of Supervisors. Designation does not imply any particular protection of the roadway from development or structural improvements.

Scenic Rivers (Sec. 10-167(b) Code of Virginia): Rivers, streams, runs and waterways, including their shores and immediate environs which possess great natural and pastoral beauty.” Designated by an Act of the General Assembly on recommendation of the Commission on Outdoor Recreation, and overseen by a local committee appointed by the governor of Virginia.

Septic System: Subsurface sewage disposal system that uses the natural absorption of soil to treat wastewater. The common use is to serve one dwelling, but could be designed to serve several homes. Drainfield refers to this soil absorption trench fed by pipes from the dwelling.

Services: Establishments primarily engaged in providing assistance, as opposed to products, to individuals, business, industry, government, and other enterprises, including hotels and other lodging places; personal, business, repair, and amusement services; health, legal, engineering, and other professional services; educational services; membership organizations; and other miscellaneous services.

Setback: The distance from a property line to a structure or use such as parking. Governed by the Zoning Ordinance or by covenants and/or easements or by proffers or conditions at the time of rezoning or special exception.

Shared Water and Wastewater Systems: Water and/or sewage treatment systems that are designed to serve individual users or a number of residences such as a cluster located outside the central service area of eastern Loudoun.

Silviculture: The art and science of controlling the establishment, growth, composition, health and quality of forests and woodlands.

Site Plan: A plan, to scale, showing proposed uses and structures for a parcel of land. It includes such information as location of lot lines, streets, buildings, parking areas, landscaping, utility lines and topographic information.

Special Needs Population: Special needs populations include low income residents (incomes below the 30 percent Area Median Income (AMI)), elderly residents requiring congregate care, disabled residents, and the homeless.

Special Taxing District: A geographical area that pays a special assessment in order to provide a desired or necessary amenity or facility mutually beneficial to all the landowners of the district.

Specimen Tree: Any tree that is notable by virtue of its outstanding size and quality for its particular species.

Steep Slopes: Surface formation with a vertical incline greater than 22.5 degrees or 25 percent, a sufficient steepness to cause problems such as erosion or increased flooding when disturbed for land development or other purposes. (See also moderately steep slopes.)

Stormwater Run-off: The portion of the total precipitation that does not sink into the soil but instead flows across the ground or other surface and eventually reaches a watercourse.

Stream Buffer: Defined as part of the River and Stream Corridor Resource. A minimum area of land directly adjacent to and on either side of a river or stream. The primary purpose of the stream buffer is to provide adequate filtration of pollutants and improve water quality.

Stream Corridors: Also referred to as River and Stream Corridor Resource (RSCR).

Subdivision: The division of a parcel of land into two or more new parcels. The process of subdividing is regulated by the Land Subdivision and Development Ordinance.

Sustainable Site Design: Create and sustain a high quality of community values and environmental responsibility in design and construction of buildings, infrastructure, transport, and landscape. The construction methods employed should ensure that each step of the building process is focused on eliminating unnecessary site disruption (e.g., excessive grading, blasting, clearing) and resource degradation (e.g., stream siltation, groundwater contamination, air-quality loss). The strategies can harness features such as ventilating breezes, solar gain, and microclimates, and can mitigate unfavorable features such as cold, moist air drainage; desiccating winds; and increased stormwater runoff. The building process should be strategically charted in stages to avoid unnecessary site disruption, and to achieve an orderly construction sequence from site clearing to site finish. Such a strategy reduces costs and damage to the site. It requires close coordination between all sub-contractors.

Town Center: A marketing term for a mixed-use, concentrated community, which integrates employment, commercial, residential, and public uses. A town center will emphasize pedestrian movement over vehicular movement to create a pedestrian-friendly environment and will offer a full complement of services and amenities.

Traffic Calming: Measures to reduce the speed of motor vehicles, alter driver behavior, and improve conditions for non-motorized street users. Includes both physical (e.g., raised crosswalk, traffic circle, speed bumps) and non-physical measures (community education and enforcement).

Transferable Development Rights (TDR): The process whereby an owner of designated land may sell his right to develop to a landowner who may then build at a higher density on their receiving land. The land from which the development rights have been sold is placed under a permanent open space easement.

Transit: A shared mode of transportation, which often operates on a fixed route and fixed schedule, and is available to all who pay the fare; however, demand responsive transportation, which does not operate on a fixed route or fixed schedule is also a form of transit. Other examples include bus, light rail, and heavy rail.

Transit Oriented Development

Transit Station: Structures housing both passengers and transportation systems' operations and equipment.

Transit Stop: A location along the street or transit line that has simple facilities like signage and shelters.

Transportation Improvement Plan: A County transportation plan, which includes roads, car pools, public transportation and airport facilities, and which is designed to establish policies and priorities regarding county roads, public transportation, car pools, airports, and other transportation facilities.

Tree Stand: A plant community predominantly consisting of trees and other woody vegetation sufficiently uniform in species composition, age, arrangement and condition: an area to be distinguishable as a group from the forest or other growth in the adjoining area.

U

Understory: Low trees, large shrubs beneath the canopy in a wooded area.

Universal Design: The simple design of both products and the built environment to be useable by people of all ages and abilities, and which promotes the ability for people to age in place.

Unmet Housing Needs: The lack of housing options for households earning up to 100% of the Washington Metropolitan Area Median Income (AMI).

Unstable Soils: Soils that because of their composition and unique landscape position have a higher than normal potential for erosion, particularly during periods of high rainfall.

Urban Center: A mixed-use community in the Urban Policy Area, developed in a manner that supports transit and pedestrian movement.

Urban Growth Boundary: The limit of central water and wastewater utility service, it marks the separation of distinctly different land uses and densities.

Use-Value Taxation: (sometimes referred to as “land use tax”) A program authorized by the state and implemented by localities at their option in which qualifying agricultural, forestal, and open space land is taxed at its use value rather than at its market value for development.

V-Z

Watershed: A broad area defined by natural hydrology that collects and discharges water into surface water bodies or that recharges groundwater or both. A watershed generally includes rivers, streams, lakes, wetlands, and the surrounding landscape.

Wellhead Protection Plan: A plan identifying and protecting the land area where subsurface water flows to public drinking water supply wells in order to protect groundwater from potential contaminates.

Wetlands: Vegetated areas where plants are rooted in water or water-saturated soil, or that regularly tolerate flooding for extensive time periods. Includes but is not limited to swamps and marshes. Many wetlands do not appear wet at all times.

Zoning District: A classification of land that designates and limits allowed uses, lot sizes, building setbacks and other land development regulations.

Zoning Ordinance: A local ordinance that defines and implements land use and design standards such as permitted uses, lot sizes, setbacks, etc.



DRAFT

Loudoun 2040
Countywide
Transportation Plan

Version Date: May 4, 2018

Chapter 1 – Introduction to the Loudoun 2040 Countywide Transportation Plan (CTP)

Loudoun County is one of the fastest growing counties in the nation. The unprecedented growth the County has experienced over the last several decades has resulted in continued and ever-increasing strain on its transportation network. Transportation continues to be one of the most important services provided by government, fulfilling the crucial role of linking people to their jobs, schools, recreation and shopping. As such, and in light of this environment of rapid growth, careful transportation planning must be undertaken to ensure that the mobility needs of the County’s citizens continue to be met over the long-term.

Initiated in the summer of 2016, this edition of the Countywide Transportation Plan (CTP) builds upon the strong foundation provided by the 2010 CTP. It has been developed to accommodate planned land use and development through 2040 and includes a revised and enhanced arterial and collector road network, including facilities for motor vehicles, bicyclists, pedestrians, and transit riders. The CTP also includes policies and strategies to address the connections between land uses, the built environment, the transportation network, air travel, development impacts, environmental and heritage resources, coordination with outside agencies, prioritization and funding of transportation infrastructure, and plan implementation. This plan also identifies strategies and opportunities for the protection and enhancement of neighborhood collector streets, to promote development of complete streets and safety throughout residential and community activity centers. This plan for the transportation network was developed and evaluated using criteria such as multimodal safety, forecasted facility demands (volume and capacity), potential impacts on the environment, heritage resources, quality of life, and concurrent land use plans and policies.

This plan has been reviewed by the Virginia Department of Transportation (VDOT) pursuant to Section §15.2-2222.1 of the Virginia Code and VDOT’s *Traffic Impact Analysis Regulations Administrative Guidelines* and conforms to of Section §15.2-2222.3 of the Virginia Code.

Plan Purpose and Relation to Other Planning Documents

The CTP provides the policy foundation for the County’s transportation network. The Comprehensive Plan provides policy guidance on land and infrastructure development. The CTP is a volume of the County’s Comprehensive Plan, alongside other volumes such as the General Plan. The Comprehensive Plan forms the policy foundation for standards and regulations within the Zoning Ordinance, Land and Subdivision Ordinance, and Facilities Standards Manual, as well as amendments and updates to these regulatory documents.

Transportation Planning History in Loudoun County

Loudoun County has a long history of transportation planning. Following decades of small area plans for specific portions of the County beginning in the 1960s, the first Countywide Transportation Plan was adopted in 1995. This plan focused heavily on creating mobility to support planned suburban development. The 1995 CTP created the framework for each of the subsequent countywide and small area transportation plans and the results of this initial plan can be seen through today’s roadway network.

The 2001 CTP built upon the plans developed in 1995, while placing greater emphasis on protections for the environment, historic towns and villages, and quality of life in the newly-designated Rural Policy Area. It also incorporated the Dulles Corridor Metrorail Project and included language encouraging the development of mixed-used urban-style developments, particularly in the vicinity of the planned Metrorail Stations.

The 2010 CTP served as a forward-looking planning document that addressed the needs of Loudoun County by establishing a long-range vision for the County's transportation network and defining policies that provide for the successful implementation of that network. The transportation network included major roads, public transit services, bicycle and pedestrian accommodations, and airports, making this plan far more multimodal than previous iterations. The 2010 CTP also reconsidered appropriate capacity needs for roads, identifying the impacts of wide, high-speed corridors throughout the Suburban and Transition Policy Areas and included changes to ultimate planned conditions of roads to lower-capacity facilities where forecasted demand could be accommodated by fewer travel lanes.

Chapter 2 – Vision for Transportation

This plan is guided by a set of goals developed based upon public input and affirmed by the Board of Supervisors, providing the foundation for the entire document and ensuring that the public is the guiding force behind this vision. From those goals, the plan identifies the overarching objectives that this plan will seek to meet through implementation of the planned transportation network and policies.

The Foundation

The 2010 CTP provided a strong framework for modern multimodal transportation planning in the County. Due to its robust and actionable policies, in coordination with previous editions and localized transportation plans, the County has facilitated development of its roadway, bicycle and pedestrian, and transportation networks. Throughout the County, new corridors have been completed and projects are underway through engagement of available public funding and private contributions to expand and complete planned networks. Through the policies of the 2010 CTP and 2003 Bicycle and Pedestrian Master Plan, County policy states that:

- Connectivity and multimodal access are prioritized
- Road design considers complete streets elements
- Sidewalks and asphalt trails are constructed along both sides of all roads (except in the Rural Policy Area)
- Transit systems are enhanced and sustained

Through these policies, the County has completed more than 2,000 lane miles of planned arterial and collector roads, many featuring bicycle and pedestrian connectivity, expanded park and ride and transit options, and coordinated plans with Dulles Airport, Towns, and surrounding jurisdictions.

This plan builds upon the previous policies, seeking opportunities to strengthen areas previously limited in scope while encouraging enhanced transportation choices and design strategies.

Public Input

The Envision Loudoun public outreach process encompassed three sets of public meetings at different stages throughout the process. The County also appointed a Stakeholders Committee with representation from each election district and an array of impacted advocacy groups from across Loudoun County. Detailed information about public feedback, including transportation comments, can be found in the General Plan document.

Overall, feedback on the transportation planning effort focused on several key topics:

- Improving access, mobility, and transportation options
- Reducing traffic congestion
- Enhancing options for access to the County's Metrorail Stations, including expanded local bus service options between residential neighborhoods and Metrorail Stations
- Encouraging development around Metrorail to enhance quality of life

- Protecting the character and aesthetic of rural transportation options
- Ensuring that transition area aesthetics provide an appropriate visual connection to the rural landscape
- Providing adequate and complete networks of sidewalks, asphalt trails, and on-street bicycle lanes
- Creating better connections across major roadways and natural barriers for pedestrians and cyclists
- Introducing more off-road regional trails to allow for greater mobility and recreational opportunities
- Calming traffic on neighborhood streets where people should feel comfortable walking or riding a bicycle
- Enhancing connectivity to regional amenities, such as entertainment center, Dulles Airport, and regional parks
- Improve streetscapes
- Ensuring that transportation facilities are adequate to support new development

This plan was developed with the intent to provide policies, guidelines, and implementation steps to achieve these community concerns and interests, and is driven by the following vision and goals:

The Vision

Efficient infrastructure networks that safely connect people to places within the community, to the region, and to the world.

Transportation Network Goals

1. Enhanced multi-modal safety for all system users.
2. A reliable and efficient multi-modal transportation network that manages the travel demands of the County while maintaining fiscal and environmental sustainability.
3. Transportation choices that connect people to their communities, employment centers, educational institutions, activity centers, and other amenities.
4. Integration with neighboring jurisdictions to improve regional and statewide connectivity and to attract residents and businesses to Loudoun County.
5. Support the growth and potential of enhanced national and international connectivity including consideration of Washington Dulles International Airport and the Silver Line Metrorail Stations.
6. Context-sensitive planning and design that addresses the different characteristics and needs of the urban, suburban, transition, Towns, JLMA, and rural environments.
7. A transportation network supportive of the County's overall vision to support economic development, create vibrant, safe communities and public spaces, and protect natural and heritage resources.

Objectives of this Plan

With deference to and inspiration from the Transportation Network Goals, this document seeks to:

- Provide comprehensive access and mobility for residents, workers, and visitors throughout Loudoun County.
- Protect and enhance health and safety through design, construction, and improvement of quality transportation networks.
- Promote high quality of life by protecting the integrity and opportunities provided within the County's urban, suburban, transition, and rural areas, and supporting each of the incorporated towns within Loudoun County during planning, design, and construction of the transportation network.

Access and Mobility

Access and mobility are the two key indicators of success when evaluating a transportation system. Access describes the availability of practical connections between origins and destinations, while mobility describes the potential travel opportunities from a given place. This plan supports both high access and high mobility through a hierarchical and integrated roadway network that supports multi-modal transportation.

Health and Safety

Health and safety are the most critical factors in evaluating the usability of the transportation network and the supportive role the transportation network has in promoting community and economic development. By emphasizing health and safety throughout every component of this plan, this objective seeks to ensure that multi-modal access is integrated into design and development, impacts from the transportation network to residences, schools, and businesses are mitigated, and that safety is of paramount concern throughout each stage of design and construction.

Quality of Life

The purpose of providing transportation facilities is to enhance quality of life. The transportation network and policies in this plan ensure that people and goods can reach their destinations, whether commuting to a job, visiting friends and family, enjoying leisure activities, or returning home. In this way, transportation ensures access to the elements that make for high quality of life, with quality of life enhanced through transportation improvements that decrease congestion, provide alternative routes and travel options, and make it easier to get to selected destinations.

Chapter 3 – The Countywide Transportation Network

This plan carries forward the County’s commitment to coordinate road network plans with land use, environmental policies, heritage preservation plans, and other policies of the General Plan. The transportation vision, composed of a network and associated policies to accommodate motor vehicles, cyclists, pedestrians, and transit riders, is intended to support the County’s proposed land use by ensuring that adequate transportation facilities exist to serve the mobility needs of residents, visitors, and businesses throughout the County.

Four core sections are provided in this chapter to provide an overview of the Countywide Transportation Network. The Motor Vehicle Plan (MVP) provides a network of roadway travel lanes to accommodate the movement of passenger cars, light trucks and motorcycles, freight and delivery vehicles, transit service vehicles, and emergency vehicles. The Bicycle and Pedestrian Plan (BPP) provides a network of on-street and off-street facilities to accommodate cyclists and an off-street network of sidewalks and trails to accommodate pedestrians (unpaved trails are discussed in the General Plan). The Transit Infrastructure Plan (TIP) provides a plan for infrastructure, including transit stations and shelters, transit-priority corridors, and park-and-ride lots to facilitate growth and development of transit systems. The Characteristics of Planned Roadways section brings these plans together to define how each planned corridor in the County will facilitate travel for each mode. These four sections, along with the specific geographic area policies in Chapter 4, are the foundation of the Countywide Transportation Plan, while policies provided throughout the other chapters of this document serve to guide for implementation of the planned roadways defined in this chapter.

This chapter also includes two “Design Toolkits” at the end of the chapter. The first toolkit is a Roadway Design Toolkit which applies to the Suburban, Transition, Rural, and Joint Land Management Areas. Design standards for the Urban Policy Areas are provided in Chapter 4. The second toolkit is a Transit Infrastructure Toolkit, which is applicable for all areas of the County. These toolkits serve to provide policy-driven guidance to localized planning and implementation, while also serving as the standards for every applicable public and private transportation project.

Motor Vehicle Plan (MVP)

Loudoun County’s roads form the backbone of its transportation network. This chapter outlines the vision and associated policies that govern the planning, design and operation of Loudoun County’s road system. It features a road network that attempts to address future congestion concerns for motor vehicles, access and connectivity for cyclists and pedestrians, and accommodations for transit, reflecting travel needs through 2040. This plan also considers the importance of ensuring that roads serving each of the unique policy areas are designed and constructed in a manner consistent with the character of adjoining communities and land uses.

The County recognizes the limitations of the standard functional classification system, which traditionally emphasized operating speed and carrying capacity over other factors. By balancing mobility with access and by utilizing context-sensitive design techniques, the County is committed to achieving a complete and multimodal transportation network. Central to this commitment are Complete Streets. Complete Streets are safe for motorists, bicyclists, transit vehicles, and pedestrians of all ages and abilities. The complete street focuses not just on individual roads, but

on the decision-making and design process so that all users are routinely considered during the planning, design, construction and operation of all roadways. This chapter identifies roadways as principal arterials, minor arterials, major collectors, minor collectors, and neighborhood collectors, with consideration for complete street components for each roadway type. Local streets policies are provided in Chapter 4 of this document.

In order to plan the road network, County staff employed a combination of considerations, including public input, professional experience, institutional knowledge, and travel demand modeling to forecast future travel demands. These forecasts are based on observed local and regional travel patterns and behaviors, anticipated growth in population, households and employment both inside and outside of the County, and the characteristics of the existing and planned roadway network.

Road Capacity

The extent of improvements needed within the network and along particular corridors was guided in large part by the adequacy of a given road facility's projected capacity needs. These capacity needs are evaluated based upon forecasted traffic volumes under peak conditions on weekday mornings and weekday afternoons. When volumes approach or exceed the capacity of a road segment, the operational efficiency of the road quickly deteriorates, leading to congestion, delays, and potentially unsafe conditions. The travel demand model forecasts the preference of traffic for certain road corridors to assign future trip demand. While the travel demand model serves as an estimate of future conditions, regular reevaluation of the road network is needed as new development is completed and land use plans are revisited and revised over time. If a particular road segment was forecasted to have an inadequate capacity based on proposed land uses, improvements were considered and evaluated for effectiveness in improving operations, either along the corridor or along parallel corridors, and incorporated into the network. Conversely, in locations where excess planned capacity was identified based on forecasted traffic volumes, rightsizing of the network was considered. Under either scenario, retesting was completed to ensure that the ultimate planned road network serves the anticipated needs of the County through 2040.

While these forecasts played a significant role in appraising potential network improvement locations, the need to enhance the roadway network was also balanced with contextual considerations by staff and County leadership as to whether such improvements were deemed practical, possible (given environmental or other physical constraints) and appropriate. Further consideration for the planned network is provided in the policies of this document that inform and support the implementation of the planned network.

The results of this analysis are provided in Appendix XX.

Level of Service

Another indicator that is considered in transportation planning is Level of Service (LOS). LOS is measured on a scale of A through F, with A representing the least amount of forecasted delay at intersections, and F representing a substantial amount of delay. Given the travel demand in an urbanized region, a certain threshold is established by policy to define acceptable levels of delay

relative to the conditions of the surrounding area. This ensures that an efficient roadway network can be planned without overcompensating to accommodate for only the highest demand during a few minutes each day, which would require substantially more travel lanes and road corridors than are envisioned by this plan. In order to account for the diversity of places that benefit Loudoun County, this plan defined adequate LOS differently in different Policy Areas, understanding that reasonable delay in planned urban centers may be different than that in auto-oriented suburban neighborhoods or rural areas. Since LOS is an indicator of intersection operations, this level of analysis was not completed with this high-level plan, but would be considered as part of public and private roadway improvement projects, and may be considered during subsequent small area planning efforts.

Maintenance

Roads are generally maintained either by VDOT or through private associations, such as homeowners associations. VDOT's Road Design Manual, Road and Bridge Standards, and Secondary Street Acceptance Requirements (SSAR) contain design and construction standards required for roads to be incorporated into the State Highway System and for road improvements for those facilities already a part of the State Highway System. VDOT has design standards for the wide variety of secondary roads that exist in Loudoun County, ranging from rural local roads to subdivision streets and collector roads. However, as the County adopted policies to encourage creative forms of residential development and for preservation of the character of the County's rural roads grew, so has the need grown for greater flexibility in the application of VDOT standards. Since the adoption of the 2010 CTP, the VDOT Road Design Manual was amended to include new standards for multimodal facilities in mixed-use urban centers. This provides an excellent opportunity for the County to work with VDOT to ensure that the planned land uses in the Urban Policy Areas are supported by compatible transportation facilities. As the maintainer and operator of all public roads in the County (with limited exceptions), VDOT is responsible for the operational integration of the roadway network. Therefore, it is critical to ensure that all road design, engineering, and construction in the County has a positive impact on VDOT's ability to maintain an efficient network.

Private Streets

Many local streets in the County are privately maintained and are therefore not in the VDOT maintenance system. The use of private streets in Loudoun County is only permissible for certain types of development as permitted by County Ordinance, usually requiring parcels to have frontage on a public road (except when part of an historic district or residential subdivision). During the rezoning process, modifications may be needed to permit private streets. In certain cases, private streets are needed to support the planned development. Developments that include perpendicular or angled parking along streets must be private, as this feature is not permitted by VDOT design standards. Regardless, all private streets must meet the design and construction standards of the County's Facilities Standards Manual.

VDOT continues to advise against the use of private streets for new development because of concerns related to maintenance, connectivity of the road network, and consistent design standards. County and VDOT policies call for provision and use of interparcel connections within and between developments in order to promote connectivity and options for local traffic. Additionally,

road maintenance is an expensive commitment as it includes repair and upkeep of roadways, curbs, accessible curb ramps, and stormwater management, as well as snow removal, landscape care, and street cleaning. In residential communities, the maintenance responsibility for private streets generally falls upon a property-owners association, such as a homeowners association (HOA).

In order to ensure successful maintenance of private streets, it is important that road maintenance be adequately funded for current needs and that a fund is established for future maintenance and emergency repairs. The maintenance program must ensure a state of good repair and be capable of providing access as soon as possible after snows or other emergency situations.

Traffic Calming

Following construction of a road, observations and data may indicate that vehicles are traveling at a rate of speed that is higher than was intended or is desired. Traffic calming is intended to modify driver behavior, reduce vehicle speed to legal limits, increase safety for all users of the roadway, and improve the quality of life through minimizing the negative effects of motor vehicles on neighborhoods. By slowing vehicles, it encourages the use of other modes of transportation such as walking and cycling. Traffic calming is typically implemented on residential streets, but can also be applied in activity centers with high pedestrian activity.

Common techniques for implementing traffic calming on residential streets include vertical changes to the street (speed tables, raised intersections), lateral changes to the travel way (chicanes, offset intersections, lateral shifts), constrictions to the travel way (narrowed pavement widths, pinch points, islands, traffic circles or roundabouts, entrance features, small corner radii), and streetscape improvements (surface textures, edge treatments, colors, landscaping, street trees and street furniture). Traffic calming may also include measures such as community education and enforcement. The County works closely with VDOT to implement traffic calming measures where needed.

COUNTYWIDE MOTOR VEHICLE PLAN POLICIES (SEE CHAPTER 4 FOR POLICIES RELATED TO GEOGRAPHIC POLICY AREAS)

- 3-1.1 **Road Standards** Roads will be built to the standards and conditions described in this plan.
- 3-1.2 **Land Development Plans** Planned roads will be incorporated into every stage of the land development process, including planning, design, and construction, including provision of necessary rights-of-way or easements to accommodate the facility, as determined in this plan.
- 3-1.3 **Missing Segments** It is a priority of this plan that safety concerns, gaps in the existing road system, and connections to collector and arterial roads be addressed to serve neighborhoods and employment centers already in place.
- 3-1.4 **Focus Areas** The County will prioritize transportation funding to the Urban and Suburban Policy Areas where planned land uses and population densities warrant the expansion of roadway capacity and the implementation and expansion of transit services.
- 3-1.5 **Parallel Roads** Suitable alternative access to existing uses, including parallel roads where planned, shall be constructed prior to establishment of limited access freeways.

- 3-1.6 **Dulles Loop** The County will work to implement the “Dulles Loop” as a system of limited access roads that encircle Dulles Airport in Loudoun and Fairfax Counties consisting of limited access conditions for VA Route 28, VA Route 606, and a southern connector (either US Route 50 or an extension of Air and Space Museum Parkway), in order to improve travel in the vicinity of the airport.
- 3-1.7 **Managed Lanes** The County will study opportunities for implementation of managed lanes, including HOV, HOT, and Transit-Only Lanes along planned limited access corridors and other major commuting routes, when these facilities are considered for expansion to their ultimate planned conditions.
- 3-1.8 **Spot Improvements** Intersection and safety improvements on primary roads are considered to be part of this planning document throughout the County.
- 3-1.9 **Natural Features** The County will maintain vegetation and woodlands along roadways and incorporate landscaped medians using native species where possible.
- 3-1.10 **Electric Vehicles** To promote the use of electric vehicles, this plan supports provision of electric vehicle charging stations, recognizing that this emerging technology will need to be revisited as new innovations impact public demand for alternative fuel vehicles.
- 3-1.11 **Plan Coordination** Roadway design characteristics will conform to the standards of the applicable road design toolkit and associated policies for the associated Geographic Policy Area and will complement the streetscape design guidelines and other policies of the Comprehensive Plan.
- 3-1.12 **VDOT Coordination** The County will coordinate with VDOT to seek changes in VDOT policies and standards to ensure conformity with the land use, environmental, heritage preservation and other policies of this plan while providing a safe, efficient, and cost-effective transportation network.
- 3-1.13 **Public Roads** All new public roads will be planned and constructed to VDOT standards for acceptance into the State Highway System. As appropriate, the County will seek waivers and exceptions to these standards when warranted as part of planning or design.
- 3-1.14 **VDOT Standards** Roads shall be constructed in accordance with VDOT and County design standards, as appropriate based upon future maintenance responsibilities, and shall be subject to review and comment by County and VDOT
- 3-1.15 **Complete Streets** All road construction will strive to provide all of the elements of a Complete Street, with consideration of context-sensitive design, to create roads that are safe for all users.
- 3-1.16 **VDOT Improvements** The County will work with VDOT to continue and enhance maintenance of public roads by supporting repaving efforts, encouraging construction of spot safety improvements, and coordinating to identify opportunities for optimizing use of existing pavement.
- 3-1.17 **Pavement, Marking, and Signage** DTIC shall be provided with opportunity to review and comment on all PMS (Pavement Marking and Signage) Plans and all construction plans for Arterial and Collector roadways within the County to ensure coordination with this plan.
- 3-1.18 **Functional Classifications** The County shall work with VDOT to determine appropriate

functional classifications for roadways and work to correlate these classification for all roads in the County to ensure consistency between County and VDOT classifications for roadways.

- 3-1.19 **Primary Routes** As major cross-county secondary road corridors are completed, VDOT reclassification of these corridors to primary routes should be pursued.
- 3-1.20 **Arterial Preservation** Significant arterial roadways, including all primary corridors and principal arterial roadways in the County, will be designed and maintained to support the flow of traffic through the County and the region, limiting local access points, and minimizing the use of traffic controls and allowances for cross-traffic. Preservation of these corridors will be coordinated with VDOT for acceptance into the VDOT Arterial Preservation Program as Mobility Enhancement Segments, and design of these corridors will be evaluated based upon the standards set forth for improving mobility in the VDOT Road Design Manual and Traffic Signal Justification Report Requirements.
- 3-1.21 **Permissibility of Private Streets** The County will encourage public streets while allowing private streets where needed to support alternative solutions for a proposed development pattern that would better address plan policy and would be unsupported by VDOT SSAR standards. This determination will be made by the County and VDOT based upon applicable County ordinances.
- 3-1.22 **Responsibility for Private Streets** Maintenance of private streets will be the sole responsibility of the identified private sector entity in perpetuity. Such streets are not eligible for acceptance into the public street system. Neither VDOT nor the County will accept maintenance responsibility for any private street.
- 3-1.23 **Private Street Improvements** All street improvement projects along private streets, including traffic calming measures, will be the sole responsibility of the private maintenance entity.
- 3-1.24 **Public Road Access** For lots accessed from private roads or easements, demonstration of safe access to the public road network will be provided.
- 3-1.25 **Financial Responsibility for Private Streets** The maintenance responsibility for private streets will be insured by a bond or other long-term surety approved by the County before approval of the private road. In each case where County ordinances allow private streets, there will be language specifying the entity that will provide for maintenance of the road and that neither VDOT nor the County have, or will have, responsibility for the maintenance, repairs, or improvements.
- 3-1.26 **Community Traffic Calming Measures** The County will promote and implement traffic calming measures in all policy areas through community-based and supported programs, small area plans, development applications, and collaboration with VDOT.
- 3-1.27 **Types of Traffic Calming** The County will work collaboratively with VDOT and the community in identifying appropriate traffic calming measures within the context of the surrounding area. Measures will be analyzed to determine the most effective tool for each project in coordination with surrounding residents and businesses.
- 3-1.28 **Cut-Through Traffic** Opportunities to mitigate cut-through traffic shall be evaluated with consideration of alternative routes and continuity of the network.

Bicycle and Pedestrian Plan (BPP)

Loudoun County aspires to be a place where pedestrians and bicyclists of all abilities have a safe, secure and convenient transportation network of walkways and bikeways that enable efficient movement to and from home, work, school, shopping, libraries, parks and community centers. To accomplish this, effective planning for the cyclist and pedestrian is integrated within each stage of planning, design, and implementation.

Buildout of planned bicycle and pedestrian networks will lead to enhanced quality of life by providing: mobility, connections, and increased options for bicycle travel; improved access to public transportation, employment, and other activity centers; a cleaner environment through reduction of air pollution caused by single-occupancy vehicle trips; expansion of the rural economy by providing the opportunity for visitors to experience the County's beauty through biking; and preservation of cultural and natural resource corridors for public enjoyment through the designation of shared use paths, bicycle routes, and improved signage.

Bicycle Network

This plan sets forth a vision of a comprehensive bicycling network, with on-street bicycle lanes, asphalt trails, marked bicycle routes, and other accommodations to improve the viability of bicycle commuting, recreation, and tourism. The spine of the County's bicycle network is the Washington & Old Dominion (W&OD) Trail that provides an east-west route through the central parts of both eastern and western Loudoun County. The County is working to improve safety and connectivity along the W&OD Trail, studying and implementing grade-separated crossings at high-traffic corridors and improved at-grade crossings at others. Connections to the W&OD Trail provide access from nearby locations, allowing opportunities for trips to and from major transit hubs such as Metrorail Stations, commercial and entertainment centers, residential neighborhoods, and rural economy uses. Through the land development review process, the County will implement the improvements detailed in this plan along new and existing roads. In built-up areas, including developed areas near Metrorail stations, public efforts are envisioned to complete bicycle network development.

The County recognizes that a variety of facility types are needed based on the context of the built environment and roadways in different areas of the County. Accommodations for bicyclists along roadways include on-street bike lanes, buffered on-street bike lanes, off-road asphalt trails, wide curb lanes, and paved shoulders. Along existing roads, variations in traffic volumes, traffic patterns, and roadway designs, are of paramount consideration when considering facility types. Along new roads, design constraints due to topography, available right-of-way, design speed, anticipated traffic volumes, and historic and natural resources are also considered as part of facility design.

Furthermore, the needs of different user groups vary from experienced bicyclists who often prefer on-street facilities to the less-experienced riders who find off-road shared use paths more conducive to comfortable travel. The complete reliance on an off-road shared use path system is not possible or desirable due to costs and funding constraints, as well as diverse public preferences. Within a suburban street setting, off-street trails may create dangerous conditions at intersections, where drivers are less aware to the presence of cyclists. By bringing bicycle facilities onto the road, the awareness of drivers and cyclists to each mode of travel is increased, leading to greater attentiveness to multimodal safety. However, on higher speed, wider auto-oriented facilities, the

difference in anticipated speed and driving habits may make greater separation of these modes more preferable.

Pedestrian Network

Pedestrian-friendly communities are a key component of an effective multimodal transportation system. Not only does every trip begin with walking, but safe, logical, and efficient pedestrian connections can significantly decrease the need to drive for short trips. Walking is the only form of transportation that is completely free and has positive impacts for personal health and no negative environmental impacts. The County has a substantial pedestrian network, but significant work still needs to be done to provide comprehensive pedestrian opportunities for all residents, workers, and visitors. Generally, such needs include additional sidewalks along roads and between subdivisions where missing, better lighting, safer and appropriately wide sidewalks, and improved road crossings, especially along wider and higher-speed roads, through installation of more and better marked crosswalks.

Countywide Bicycle and Pedestrian Policies

- 3-2.1 **Purpose** Bicycle and pedestrian facilities will be built to the standards and conditions described in this plan and in accordance with the Roadway Design Toolkit.
- 3-2.2 **Road Projects** Contextually-appropriate bicycle and pedestrian facilities will be included as part of all public and private secondary road construction and improvement projects.
- 3-2.3 **Prioritization** Priority shall be given to construction of bicycle and pedestrian accommodations and connections associated with arterial and collector roadways with emphasis on the completion of connections between existing facilities in an effort to provide regional connections, and to the provision of safe walking and bicycling routes to new and existing public schools.
- 3-2.4 **Design Standards** All bicycle facilities will be designed in accordance with VDOT standards and with considerations of the American Association of State Highway and Transportation Officials (AASHTO) and National Association of City Transportation Officials (NACTO) guidelines, the Americans with Disabilities Act (ADA), and the policies within this plan.
- 3-2.5 **Land Development Plans** Bicycle and pedestrian facilities will be incorporated into every stage of planning, design, and construction, including necessary rights-of-way or easements to accommodate the appropriate facility types, as determined in this plan. Such facilities will be provided regardless of the existence of connecting facilities. This full integration will reduce the cost of designing the facilities into a project at later stages of design and engineering and ensure that the needs of bicyclists and pedestrians are met.
- 3-2.6 **Timing** Bicycle and pedestrian facilities along existing or proposed CTP roads will be provided at the commencement of a project, or the associated phase of the project, regardless of whether connections from adjacent properties are already in place.
- 3-2.7 **Site Connections** All land development applications shall provide internal bicycle and pedestrian circulation systems connecting building entrances, parking areas, and other bicycle and pedestrian destinations within the site, and will demonstrate that the facilities are designed to be safe, direct and barrier-free. These systems will also address connections

to existing and planned bicycle and pedestrian facilities along the public road network and adjacent properties through direct, safe, and logical routes.

- 3-2.8 **Site Access** Child care centers, schools, and similar uses will provide safe and uninhibited pedestrian access between entrances, parking lots, play areas, adjacent roadways, and auxiliary buildings.
- 3-2.9 **Community Access** Public schools and other community facilities and uses shall be designed to encourage students and patrons to walk or bike to school through provision of connections to adjoining roads and subdivisions in all directions and implementing safe routes to school programs to improve access and educate students.
- 3-2.10 **Trail Crossings** The County shall actively seek to create grade-separated crossings for major bicycle and pedestrian corridors, such as the W&OD Trail, Broad Run Linear Park, and Goose Creek Trail. Grade-separated crossings of the W&OD Trail will be required for all roadway improvement projects at trail crossings at no cost to the Northern Virginia Regional Park Authority (NVRPA).
- 3-2.11 **Crossings** Safe, convenient, and visually attractive crossing options will be considered at each stage of development and planning to enable pedestrians and bicyclists to comfortably cross major thoroughfares. Alternatives may include new intersection designs, pedestrian and bicycle overpasses and underpasses, and other options that separate or limit exposure to vehicular traffic.
- 3-2.12 **Public Outreach** The County shall engage the public to prioritize and identify funding and alignments for bicycle and pedestrian improvements.
- 3-2.13 **Connectivity** The County shall actively seek to establish connections to local and regional trail networks including but not limited to, the Appalachian National Scenic Trail, Chesapeake and Ohio Canal Towpath, and Potomac Heritage Trail.

[Transit Infrastructure Plan \(TIP\)](#)

Loudoun County has a long history of transit planning and operations, including decades of support and planning for the Dulles Corridor Metrorail Project (Silver Line) from Falls Church through Tysons and Reston and into Loudoun County. With revenue service to station stops at Dulles Airport and in the Ashburn area anticipated to begin shortly after adoption of this plan, a new and expanded approach to transit services is underway. This plan provides a guide for general and targeted transit infrastructure. Service plans can be found in the County's Transit Development Plan (TDP).

Currently, the County operates three distinctly branded bus transit services, each serving different destinations and rider bases, and provides support to the Washington Metropolitan Area Transit Authority (WMATA) as a member jurisdiction.

- Premium Commuter Bus Service (Long-Haul) travels between County park-and-ride lots and major job centers in Arlington County and Washington, DC. This service provides 112 weekday trips with 987,000 annual rides (FY 2016).
- Metro Connection Service operates seven routes between County park-and-ride lots and Metrorail Stations in Reston and Falls Church. This service provides 274,000 annual rides (FY 2016).

- Local Fixed-Route Service provides intra-jurisdictional curbside bus services on 15 routes throughout Eastern Loudoun County. This service provides 445,000 annual rides (FY 2016).

The County also provides demand-response services to qualifying individuals in the vicinity of its local fixed route bus services. In Western Loudoun County and the unserved areas of Eastern Loudoun County, Virginia Regional Transit (VRT) operates demand-response services to support these communities. VRT also operates a local fixed-route service between Purcellville and Leesburg.

Metrorail Planning

The completion of the Silver Line represents a commitment of significant County resources, as well as a need to change the focus of the County’s public transportation strategies. The most recent iteration of the TDP recommends a complete transition from a pre-Metrorail transit system to a transit system that incorporates and considers the Silver Line as the spine of transit services for the entire County. With this change, the County envisions an integration of Metro Connection and Local Fixed-Route services into a singular combined service plan. The benefits of this service include:

- Improved scheduling and connectivity
- Increased access to jobs and entertainment, driving opportunities for ridership growth
- Expanded integration with Metrorail and Long-Haul Services
- Better customer experiences through unified technological and service systems

In order to minimize system redundancies and ensure optimal use of public funds, Long-Haul is planned to continue its operations as a premium service, with an aim of maintaining cost neutrality, meaning that revenue from fares and advertising support the cost of services. It is anticipated that the dependability and comparative value of Metrorail with considerations of cost and travel time will highly impact the future viability of Long-Haul. Therefore, the County will continue to evaluate all options on a regular basis following the opening of Metrorail revenue service.

Transit Infrastructure Goals

- I. Provide a safe, affordable, convenient, efficient and sustainable multi-modal transportation system to serve the County.
- II. Provide an integrated transit system to connect regional centers, neighborhoods, attractions and employment and retail centers.
- III. Ensure the transportation system and land use policies foster greater transit use through incentives or management of parking, supportive services, and other public/private initiatives.
- IV. Utilize investments in the transit system to enhance and promote economic development in the County.

Improving Transit Infrastructure

As a service-based mode, transit is as dependent on the quality of the service as it is on the infrastructure placed to support utilization and ridership. Transit infrastructure can best be defined

as the physical attributes of transit, such as vehicle type and design, stations and stops, rails and lanes, transit signal priority (TSP), and even branding. The other characteristics of transit, such as frequencies, routing, fleet sizes, financial planning, operations and maintenance, and anything else that would be a component of the TDP would fall under the auspices of transit operations.

In order to build a more robust core network structure atop the Silver Line “spine”, this plan includes identification of transit corridors. These corridors have been identified through a combination of considerations of existing routes, existing and planned population densities, street functions, and planned service changes in the TDP. Above all, this plan emphasizes utilization of Silver Line stations and attempts to link both regional and community activity centers in a way that supports mutual interaction between residents and workers in those areas. Transit Corridors may include but are not limited to segments of the following roadways:

- Ashburn Village Boulevard
- Atlantic Boulevard
- Belmont Ridge Road
- Croson Lane
- Davis Drive
- Dulles Greenway
- Gloucester Parkway
- Harry Byrd Highway (Route 7)
- Innovation Avenue
- Loudoun County Parkway
- Mooreview Parkway
- Nokes Boulevard
- Northstar Boulevard
- Old Ox Road
- Pacific Boulevard
- Potomac View Road
- Riverside Parkway
- Russell Branch Parkway
- Ryan Road
- Shellhorn Road
- Sterling Boulevard
- Sully Road (Route 28)
- Tall Cedars Parkway
- Waxpool Road

This network of transit corridors serves as a starting point for countywide improvements. It creates a transit infrastructure supportive of greater densities and growth at activity centers, establishes highly visible and managed transit corridors capable of linking multiple activity centers through the use of multiple routes, shifts transportation mode shares in the denser and more congested eastern portion of the county, introduces logical feeder service to Metrorail and commuter bus service in currently unserved areas, provides opportunities to reassess present and future importance of activity centers as development occurs, and allows consideration of the role of the Dulles Greenway and nearby park-and-ride facilities in providing express services for riders from central and western portions of the County.

Conversely, as a framework, this network is limited. It does not add significantly enhanced coverage to currently underserved areas, requires additional consideration of transit-only lanes, transit-priority lanes, and more robust facility investments as part of corridor improvements, and needs further study of the best locations for investments in additional base or premium services while maintaining reasonable service levels along existing routes.

Key Components of Transit Infrastructure Planning

There are several components to planning a robust network of transit infrastructure. The list below provides options related to some of the ways that a complete network can be achieved. Each corridor and location is different and may require different design standards.

- **Branding:** Unified color and font schemes on vehicles, at station stops, schedules and brochures, websites, and signage.
- **Vehicle Type and Design:** Clean and functional service vehicles with appropriate capacity, accessibility, and design to be visible and convenient for all riders.
- **Stations and Stops:** Comfortable places to board and alight vehicles, including amenities that may include shelters, seating, lighting, trash, heating, restrooms, retail, and service information. These should be designed commensurate with anticipated usage and surrounding development patterns. Where intended to remove drivers from the roadway network, these should be designed with parking that is coordinated to ensure safe bicycle and pedestrian access as well as economic development opportunities. As possible, these should be located at or near the actual stop location of the transit vehicle. These facilities can provide opportunities for marketing and other business partnerships.
- **Rails and Lanes:** Dedicated space for operation of transit vehicles to improve travel times and dependability. May encompass an entire transit line or may be provided for a portion of service area.
- **Transit Signal Priority:** Sensor-activated traffic signals that provide extended green time to facilitate movement of buses or allow buses to “jump” a signal via special signals that allow buses to utilize a right-turn lane to advance through an intersection ahead of other traffic.
- **Land Use Planning:** Quality features will achieve the greatest results when paired with transit-friendly land use planning and development, including connectivity to other modes, activity centers, and population densities that can support robust services along a corridor.

Park and Ride Lots

Park and ride lots are a critical component of the County’s transportation system. They provide space for commuters to park their cars and commute via carpool, vanpool, or transit. Park and ride lots help reduce traffic congestion and pollution, assisting the region in meeting Clean Air Act requirements. Park and ride lots also provide an effective means for residents to manage travel costs by sharing the ride with others. In certain locations, successful park-and-ride lots can transition to become successful transit-oriented development sites, reserving and making use of land that can later be used for more intensive development. This long-range strategy may be appropriate in the Urban Policy Areas and in the Transit Corridors. As demand for Park and ride spaces continue to grow, the County will need to identify strategies to make efficient use of available land and transit operations opportunities.

Countywide Transit Infrastructure Policies

3-3.1 Transit Toolkit Transit infrastructure shall be designed to meet minimum standards as outlined in this chapter’s Transit Toolkit.

- 3-3.2 **Planning** Studies of transit infrastructure improvements will evaluate and identify system priorities that will provide the greatest benefit to all users, enhancing transit infrastructure in response to population growth and congestion.
- 3-3.3 **Amenities** Transit amenities will be provided consistent with standards described in the transit toolkit with consideration of forecasted demand for transit service based upon development patterns and service frequencies.
- 3-3.4 **Information Signage** Boarding locations for all transit and shuttle services will be designated and signed with schedules, service and fare information posted at boarding locations.
- 3-3.5 **Barriers** At all planned and existing transit facilities, projects shall identify and rectify barriers to transit station or stop access for cyclists and pedestrians, including built and natural features, lacking sidewalk and trails, and lacking transit shelters and pads.
- 3-3.6 **ADA Accessibility** Transit stations and stops and adjoining public and publically-accessible spaces will be made accessible to persons with disabilities in accordance with the Americans with Disabilities Act (ADA) and other applicable requirements.
- 3-3.7 **Land Use** The County will support opportunities and investments in transit infrastructure by planning and implementing land uses that will facilitate increased levels of transit ridership in the Urban and Suburban Policy Areas.
- 3-3.8 **Transit-Oriented Development** The County will direct new development to the Urban Policy Areas and Transit Corridors to improve the viability and cost-effectiveness of the future transit services and reduce traffic congestion in these areas.
- 3-3.9 **Transit Access** The County will require design features to improve transit accessibility and efficiency, such as grid street patterns and streetscapes that accommodate pedestrians and bus stops. County review of applications along Transit Corridors will consider station or stop access, transit vehicle stop location, pedestrian and bicycle circulation, and other features related to transit-oriented design.
- 3-3.10 **Interim Densities** The County may permit interim development along transit corridors at densities lower than those needed to support viable services so long as the proposed development patterns do not inhibit the ability of the site to reach its planned development potential as part of future development program.
- 3-3.11 **Mode Split** Development applications along Transit Corridors are anticipated to achieve a minimum 10% mode split via transit through incorporation of TDM policies.
- 3-3.12 **Park and Ride Locations** Park and ride lot locations will be strategically identified and will be located along or proximate to arterial roads and connected by sidewalks or asphalt trails to public bicycle and pedestrian networks.
- 3-3.13 **Existing Park and Ride Lots** As feasible, the County will evaluate opportunities to expand existing park-and-ride lots prior to acquiring land and constructing new lots in the same general vicinity. This will allow improved service frequencies and increased opportunities for local transit service connectivity.
- 3-3.14 **Park and Ride Lots by Policy Area** Park and ride lots, which do not include Metrorail parking garages, shall not be constructed or expanded in the Urban Policy Areas. Existing

park and ride lots in the Urban Policy Areas shall be evaluated for relocation into the Suburban Policy Area as development within these areas provides opportunities for more robust uses of available land.

- 3-3.15 **Park and Ride Shared Lots** Park and ride lots may be co-located with other complimentary uses, so long as it can be demonstrated that the park-and-ride lot and the adjoining use will not impact the safe and efficient operations of the other use.
- 3-3.16 **Park and Ride Access** Park and ride lots will be designated to provide convenient and safe access, meeting ADA requirements, between the bus stopping location and the parking areas.
- 3-3.17 **Park and Ride Calculations** Park and ride lot facility needs will be calculated on the basis of one commuter park and ride space for every 30 households approved for development in the Suburban, Transition, and Rural Policy Areas.
- 3-3.18 **Park and Ride Amenities** At minimum, park-and-ride lots will include adequate lighting and waste receptacles. Lots will also include amenities such as seating, bicycle parking, indoor waiting areas, retail amenities, restrooms, recreational trails, and informational kiosks.
- 3-3.19 **Private Bus Shelters** Bus shelters erected on private property will be provided within a public access easement and will be maintained by the property owner for service of public transit vehicles and private shuttles, with the following guidelines: trash is to be removed at minimum twice a week, all graffiti to be removed immediately from shelter, landscaping is to be maintained regularly, lighting will be in working order, and the shelter structure will be repaired and replaced as needed.
- 3-3.20 **Funding** The County will pursue funding opportunities to improve and enhance transit infrastructure through development applications, special tax districts, public-private partnerships, bond referendums, and other identified funding sources.
- 3-3.21 **Public Outreach** Throughout the planning and development of transit infrastructure, the County will seek the input of the Transit Advisory Board and general public concerning locations, funding, and implementation of improvements.
- 3-3.22 **Plan Coordination** Transit Infrastructure Plan implementation will meet the policies and intent of this document as well as other policies of the Comprehensive Plan.

Characteristics of Planned Roadways

Planned roadway corridors in this plan consider the needs of all system users, including drivers, cyclists, pedestrians, and transit riders. In order to accommodate this spectrum of travelers, road corridors shown on the maps provided in this chapter are further defined by typical sections provided below. It is understood that road improvement projects each feature unique challenges related to environmental preservation, public input, and the surrounding built environment. Therefore, modifications to the assigned section for each roadway segment in this plan may be necessary for implementation. However, all reasonable efforts should be made to accommodate safe and efficient multimodal mobility and operation through each stage of the planning, design, and construction processes.

There are several characteristics that help inform and describe the section and purpose of a given road segment. The most prominent characteristic is modal accommodation, which are the physical attributes, such as travel lanes, bike lanes, asphalt trails, sidewalks, and transit shelters that together comprise the roadway. Other important physical characteristics include the widths of these facilities, the presence of intersection improvements such as turn lanes and traffic controls, and accommodations for bicycle and pedestrian crossings. Other attributes that impact the design and character of a roadway include functional classification, which identifies the intent and purpose of a segment and attempts to inform design accordingly, and design speed, which impacts how the road is intended to operate. In order to standardize these factors, this plan provides a set of typical street sections that apply to each corridor identified to provide greater guidance to transportation improvement projects.

Functional Classification

A planned roadway network includes consideration of hierarchy to ensure that each corridor and segment is designed to appropriately address the needs of the traveling public. These functional classifications determine or relate several characteristics of a roadway, including anticipated design speeds, requirements for turn lanes, the prominence and significance of the road within the network, and the types and designs of bicycle and pedestrian facilities that are appropriate for the corridor. The following functional classifications relate roadway classifications that exist within Loudoun County. (The highest functional classification level – Principal Arterial – Interstate (Level 1) does not exist within Loudoun County).

Principal Arterial – Freeway (Level 2)

This classification relates planned limited access freeways and parkways where at-grade and local access is not anticipated. These corridors provide the highest level of mobility and promote long-distance travel in to, across, and out of the County. Examples include Route 28, the Dulles Greenway, and significant portions of Route 7 and US Route 50. Principal Arterial – Freeways are intended to feature the following standards:

- 60 MPH Design Speed
- All at-grade access terminated, with access provided via interchanges at identified locations
- Local access will be provided via other public roads along the corridor, which will be provided prior to any closure of access.

- Under interim conditions, will be designed with 60 MPH design speed and other standards based on the Principal Arterial – Expressway (Level 3) classification.

Principal Arterial – Expressway (Level 3)

This classification relates to planned at-grade arterial expressways where at-grade access is highly controlled, preferred only at major intersections. Examples include Loudoun County Parkway, Route 7 in Sterling, and Route 15 north of Leesburg. Principal Arterial – Expressways are intended to feature the following standards:

- 50 MPH design speed
- Highly-Controlled at-grade access, with local access provided via other roads or, where alternative access is not available, via consolidated multi-parcel access points.
- Left- and right- turn lanes at all intersections

Minor Arterial (Level 4)

This classification relates to planned at-grade arterial roadways where design is focused on intra-county mobility and connections to Principal Arterial corridors. Examples include Algonkian Parkway, Belmont Ridge Road, Northstar Boulevard, and Route 9. Minor Arterials are intended to feature the following standards:

- 50 MPH design speed
- Moderately controlled at-grade access, with local access provided via consolidated multi-parcel access points.
- Left- and right- turn lanes at all intersections

Major Collector (Level 5)

This classification relates to planned at-grade collector roadways that serve to provide connections between communities and arterial corridors. These seek to balance access and mobility by providing equitable measures for all travel modes, while also providing separated areas between each type of roadway user. Major Collectors are intended to feature the following standards:

- 40 MPH design speed.
- Somewhat controlled at-grade access, with local access provided via a single access point and consolidation of access highly preferred.
- Left-turn lanes at all intersections. Right turn lanes at major intersections and where warranted.

Minor Collector (Level 6)

This classification relates to planned at-grade collector roadways that serve to provide connections within communities. These corridors are designed to promote multimodal access by emphasizing the needs of bicyclists and pedestrians with consideration of the needs of motor vehicles, including transit vehicles. Minor Collectors are intended to feature the following standards:

- 35 MPH design speed
- Access must meet VDOT requirements for collector roadways.
- Left-turn lanes at major intersections and where warranted. Right-turn lanes where warranted.

Neighborhood Collector (Level 7)

This classification relates to planned at-grade collector roads that serve to provide access within a neighborhood. These roads are generally built with a development and serve as major gateways within and through neighborhoods and often feature limited numbers of direct driveway access points. Therefore, these streets serve greater amounts of traffic than a typical neighborhood street and require special consideration to ensure safety and multimodal access. Neighborhood Collectors are intended to feature the following standards:

- 25 MPH design speed
- Local access permitted.
- Left-turn lanes at major intersections when warranted.
- Traffic calming measures anticipated.

Local Secondary Road (Level 8)

The remainder of streets in the County are functionally classified at Local Secondary Roads. These facilities are meant to provide local access within subdivisions and other developments. Local Secondary Roads are intended to feature the following standards:

- 25 MPH design speed
- Local access permitted
- Bicycles share the road
- Five-foot wide pedestrian facilities along both sides of the road

Arterial and Collector Roadway Identification and Street Sections

The street sections below relate motor vehicle and bicycle and pedestrian accommodations for planned roadways including:

- Cross-sectional elements (i.e. shoulder and ditch or curb and gutter)
- Functional classification
- Number of travel lanes
- Turn lane requirements
- Provision of on-street parking
- Asphalt trail width
- Concrete sidewalk width
- Pedestrian refuge requirements

Typical street sections and roadway assignments will be provided later in the process based on review and updates to the roadway plans, including ultimate travel lanes, bicycle and pedestrian facilities, and geographic policy areas.

Roadway Design Toolkit for Suburban, Transition, Rural and Joint Land Management Areas

As outlined, design of streets with appropriate accommodations for motor vehicles, cyclists, and pedestrians can highly impact the reality of multimodal use and preference along any corridor. In order to achieve the vision of this plan, implementation of design elements that support the vision is essential. This toolkit provides guidance and standards for design of roadway elements, in conjunction with streetscape-related policies in the General Plan. For roadway design specifications in the Urban Policy Areas, refer to the Urban Policy Areas section of this plan.

Roadway Guidelines

Vehicular travel lanes are the core elements of roadway design. Most users will at some point use travel lanes, whether in a private vehicle, transportation service vehicle, or transit vehicle to reach a destination. Therefore, several features need to be considered when designing roads. All roads will need to meet the design standards of VDOT or the County, depending on whether the road will be maintained publically or privately. The following is an overview of guidelines for road design.

- Typically, travel lanes should be 12 feet in width. In activity centers and along planned lower speed roadways, narrower lanes should be considered to encourage reduced vehicular travel speeds and shorter crossing distances for pedestrians.
- Striping should be provided along both sides of travel lanes, and is highly desired when separating through traffic from turning traffic, on-street parking spaces, or on-street bicycle lanes
- Local streets should be designed to slow vehicles through contextually-appropriate elements such as narrow widths, tight corner radii, roundabouts, chicanes and islands, traffic controls, intersection tables, raised crosswalks, striping, and heavy landscaping.
- A striped buffer area or other barrier meeting VDOT standards between the vehicle lane and bicycle lane is preferred to strengthen the indication of a bicycle lane for drivers and cyclists, and prevent misuse of the bicycle lane for parking or turning vehicles
- During public road repaving and restriping projects, provision of on-street bicycle lanes should be evaluated based on this plan and in coordination with VDOT as part of the effort to create a complete and comprehensive bicycling network. Additional opportunities to maximize multimodal utility along existing roadways should be considered, including striping of on-street parking spaces, center turning lanes, right-sizing travel lanes, and traffic calming.
- Along rural area secondary roads, consideration will be given to opportunities to construct bicycle lanes by widening shoulders and adding signage or markings to accommodate bicycles

Off-Road Bicycle and Pedestrian Facility Guidelines

Due to their physical placement to the side of the travel ways and their relative narrow width compared to the road, off-road facilities for cyclists and pedestrians need to be designed appropriately to accommodate safe and comfortable travel. This includes sufficient sizing,

prominence, sightlines, and construction materials to make these facilities dependable and desirable to travelers. The following is an overview of guidelines for off-road facilities.

- In the Urban Policy Areas, Suburban Policy Area, and JLMAs, sidewalks are to be constructed of an impervious surface such as concrete or asphalt that will permit safe and dependable use in varying weather conditions. In the Transition Policy Area and Rural Policy Area, sidewalks are preferred to be constructed using asphalt in lieu of concrete due to the more natural aesthetic of asphalt. Where an asphalt trail is provided in place of a sidewalk, width standards for a pedestrian sidewalk may be applied.
- The following minimum standards will be applied to off-road bicycle and pedestrian facilities, with wider facilities preferred:
 - Regional Trails – 16 feet
 - Asphalt Bicycle and Pedestrian Trails along Planned Roadways – 10 feet
 - Sidewalks along Planned Roadways – 6 feet
 - Sidewalks along Local Streets – 5 feet
- Sidewalks and trails located along public roads will need to be entirely located either within the public right-of-way or within a public access easement.
- Connections between bicycle and pedestrian facilities and surrounding neighborhoods should be considered and supported through public and private planning processes, particularly along regional trail corridors including the W&OD Trail.
- Bicycle and pedestrian facilities will be designed with consideration for safe travel along and across high speed multilane roadways with consideration of the diversity of user groups who are anticipated to use these facilities.
- Bicycle and Pedestrian facilities should feature designs consistent with the natural topography of the area, especially in the transition and rural areas, minimizing impacts to existing natural and manmade features while providing for safe and efficient travel.
- Asphalt trails along roadways should be designed to follow the roadway in a direct and efficient manner, meeting AASHTO and VDOT guidelines for vertical and horizontal shifts to ensure useful and accessible bicycling routes

Intersection Design Guidelines

The integration and connection of transportation facilities provides opportunities for access and mobility as well as the need for route decisions and concerns for traveler safety. To this end, intersections, whether between two roads or a road and an off-road bicycle and pedestrian facility, need to consider multimodal safety and positive design to provide comprehensive opportunities for travel. The following is an overview of guidelines for intersections.

- Opportunities for installation of roundabouts should be considered when developing public and private projects as a safer, cost-effective alternative to a traditional signalized or stop-controlled intersection designs.
- Right-In / Right-Out intersections, and other modified intersections, will be designed in order to physically prevent non-permitted turning movements.

- Pedestrian refuge islands will be provided at crossings of median divided roadways with four or more through travel lanes to shorten individual crossing distances and improve pedestrian safety.
- Grade-separated bicycle and pedestrian crossings should be considered for major roads and rivers where anticipated demand or distance to alternative crossing locations may necessitate such an improvement.
- Crosswalks should be evaluated and provided across all four legs of signalized intersections, at stop controlled intersections, at roundabouts, and where needed to facilitate safe and efficient bicycle and pedestrian mobility, as well as between opposing curb ramps along two lane roads.
- Along primary roads and within villages in the rural area, crosswalks should be provided at pedestrian crossing locations.
- Curb ramps will need to be provided at all intersections where crosswalks are planned or anticipated.

Amenities and Natural Features

Aside from the core transportation facilities, other elements can have significant impact on travel and route preference. Natural features, such as trees, waterways, mountains, and landscaping can improve both the roadside experience and the surrounding vistas. Manmade improvements, such as buildings, public art, or erected barriers can also impact the quality of the journey. To create the best possible travel experience, useful amenities, wayfinding signage, aesthetic improvements, and safety features can be incorporated into the corridor. Additionally, natural features, such as plantings and natural barriers, can be installed to improve the design. The following is an overview of guidelines for amenities and natural features.

- Plantings are encouraged along roadways and within roadway medians where feasible.
- Consideration will be given to accommodations for public art, place-making elements, and other aesthetic improvements along roadway corridors.
- Pedestrian plazas, pocket parks, and seating areas should be considered to provide opportunities for pedestrians to congregate and enjoy outdoor areas.
- Provision of bicycle parking for multifamily residential, commercial, and institutional uses, as well as at transit centers, park and ride lots, and other public facilities will help encourage bicycle trips. These should be located in the vicinity of primary building entrances to provide safety and convenience for cyclists.
- Where noise mitigation or other barriers to access - whether natural or artificial – are proposed between a major thoroughfare and an adjacent use, it is preferable to locate the shared-use paths and sidewalks on the side of the barrier with access to proposed uses. This will provide for better access to adjacent uses.
- Bike route signage should be considered along regional trails and along major cycling corridors following study to ensure the corridors are generally safe for bicycle travel.
- Bicycle and pedestrian wayfinding signage will be designed in a context-sensitive manner, matching the existing and planned surrounding aesthetic.

- Wayfinding signage should be provided to direct travelers to destinations such as public parks and other tourism areas
- Lighting for roads, sidewalks, and trails encourages use and promotes safety.

Transit Infrastructure Design Toolkit

In order to provide a safe, affordable, convenient, efficient and sustainable multi-modal transportation system to serve the County as outlined in the goals, distinct guidance for transit infrastructure amenities is essential. The following transit toolkit provides guidelines to create a systematic approach for the County and developers to build out a consistent and unified transit system and serves as the County’s policy foundation for the development of transit infrastructure.

Stop Placement Guidelines

Bus stops are a critical component of the transit system. On a single round trip a bus rider will typically use at least four different bus stops for boarding and alighting, and any one of those stops may create a significant barrier if not designed well. Being able to get to a bus stop easily and wait for the bus in a comfortable environment are important elements of every transit customer’s experience. These bus stop design guidelines are intended for bus stops used by full-size transit buses on fixed-route service.

Location Choice

Existing conditions such as roadway type and width, transit service characteristics, and land use affect the way that bus stops should be spaced and designed to ensure comfort, short travel times, and overall network efficiency. Additional considerations that impact the safety, convenience, and accessibility of a stop, such as placement relative to street intersections must also be considered. The following is an overview of several factors that influence the placement of bus stops.

- Bus stops should be placed near activity centers, such as shopping areas, civic buildings, schools, medical centers, or residential communities to attract ridership by enhancing the convenience of transit service. In areas where there are several activity centers in close proximity, such as an area with several popular shopping destinations, bus stop placement should consider additional factors, such as spacing and logical routing.
- For major activity generators, such as special event centers, stops should be located as close as possible to the entrance of the destination.
- Roadway speed, width, and vertical alignments should be considered when siting and designing a bus stop and stops. A bus stop’s adjoining roadway can impact both design and operation of bus service and stops. For example, wider streets may allow for curb extensions at bus stops, which would create more space for amenities and reduce the pedestrian crossing distance. However, wider streets also typically have higher travel speeds, which increase the sight distance needed for pedestrians to feel comfortable crossing the roadway as well as distance needed for drivers to see passengers at the stop as they approach.
- Conditions of the sidewalk and connections with the surrounding area are important and affect the prioritization of bus stop improvements. At minimum, a stop should be accessed by a sidewalk in safe and ADA-accessible condition between the bus stop and the closest intersection.

- As almost all riders will need to make round trips using a pair of bus stops on opposite sides of a street, safe, nearby crosswalks with curb cuts for wheelchairs, are required. When a stop is intended to serve a singular destination, a logical path between that destination and the bus stop shall be provided as well.
- Bus stops will be designed with lighting, either as part of the stop or via nearby street lights. Passenger security (real and perceived) can positively or negatively affect customer perceptions of the bus stop. Therefore, landscaping, walls, and solid structures should be designed to CPTED (Crime Prevention Through Environmental Design) standards so as not to provide hiding spaces or restrict sight lines for passengers.

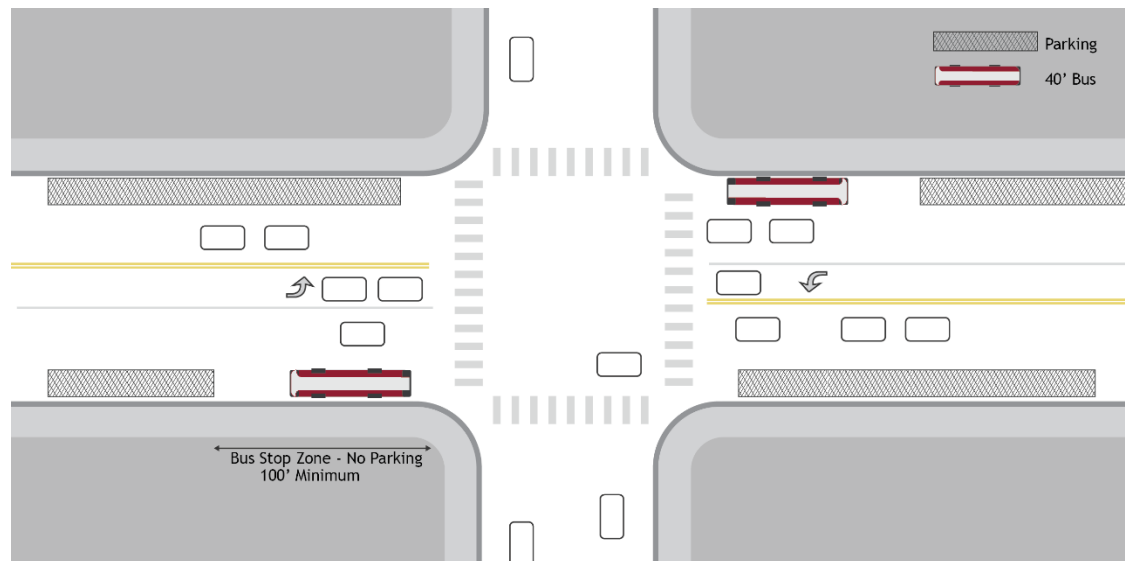
Bus Stop Zones

Determining the proper location of bus stops involves choosing between near-side, far-side and mid-block stops. The location of the stop relative to the intersection is an important consideration. If all other factors were similar, far-side stops would be preferable, since they encourage people to cross behind the bus and not in front. However, there are almost always complicating factors.

The size of the bus stop zone—where other vehicle parking is not allowed—varies based on the type of vehicle used. If the County adds articulated buses to its future fleet, 20 feet should be added to the length of all bus stop zones described in stop siting alternative. Additionally, the length of the bus stop zone should be increased by 50 feet per additional bus at locations where multiple buses may stop to board/alight passengers simultaneously.

NEAR-SIDE STOP

Near-side bus stops are located at the approach to an intersection, allowing passengers to load and unload while the vehicle is stopped at a red light or stop sign. Bus stops located at the near side of the intersection should be placed at least 5' behind the crosswalk to prevent the bus from straddling the crosswalk while it is stopped to serve the stop.



Near-side stops have several advantages, depending on various intersection factors. They minimize interference with heavier traffic on the far side of the intersection, provide more convenient access to crosswalks (if existing), allows riders to board and alight simultaneously with

the red light, avoids being forced to stop for a red light and then again at the bus stop, and provides space for the bus to “jump” traffic when the traffic signal turns green.

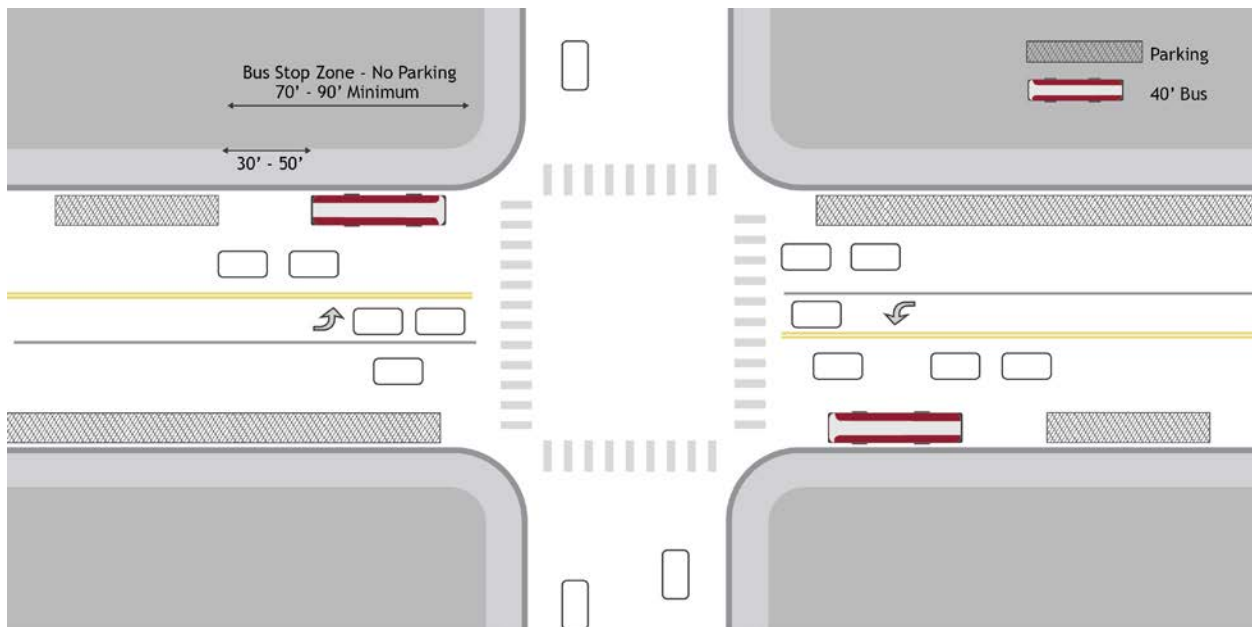
However, there are several potential drawbacks to a near-side stop as well, including increased vehicle and control device sightline problems for crossing pedestrians, sightline problems for drivers approaching the intersection, conflicts with passing and right-turning vehicles, blockage of through travel lanes, and disruption of traffic flows. A bus may also find itself stuck on a red light after dropping passengers at the stop during the traffic signal’s green phase.

Near-side stops are recommended in locations where:

- Vehicular traffic is heavier on the far side of an intersection
- Pedestrian facilities are more readily available on the near-side of the intersection
- The bus will be turning right at the intersection, where curb extensions protect the bus from turning traffic
- Stacking of buses at far-side stops may lead to gridlock within the intersection

FAR-SIDE STOP

Far-side bus stops are located after an intersection, allowing the bus to travel through the intersection before stopping to load and unload passengers. For a standard 40’ transit bus, the bus stop should be located at least 50’ after the intersection to ensure that the rear of the bus does not extend into the intersection and/or straddle the pedestrian crosswalk.



Advantages to far-side stops include minimized potential conflicts with turning vehicles, the ability of buses to take full advantage of the gaps in traffic flow created at signalized intersections behind the stop, additional right-turn capacity by making curb lane available for traffic, longer deceleration distances for buses, smaller area needed for curbside bus zone (when considering space needed to pull in to the stop area), and opportunities for pedestrians to cross behind the bus.

The disadvantages to far-side stops include the potential for traffic to queue into the intersection when a bus is stopped in travel lane, obscured sight distance at the far-side crosswalk and for side

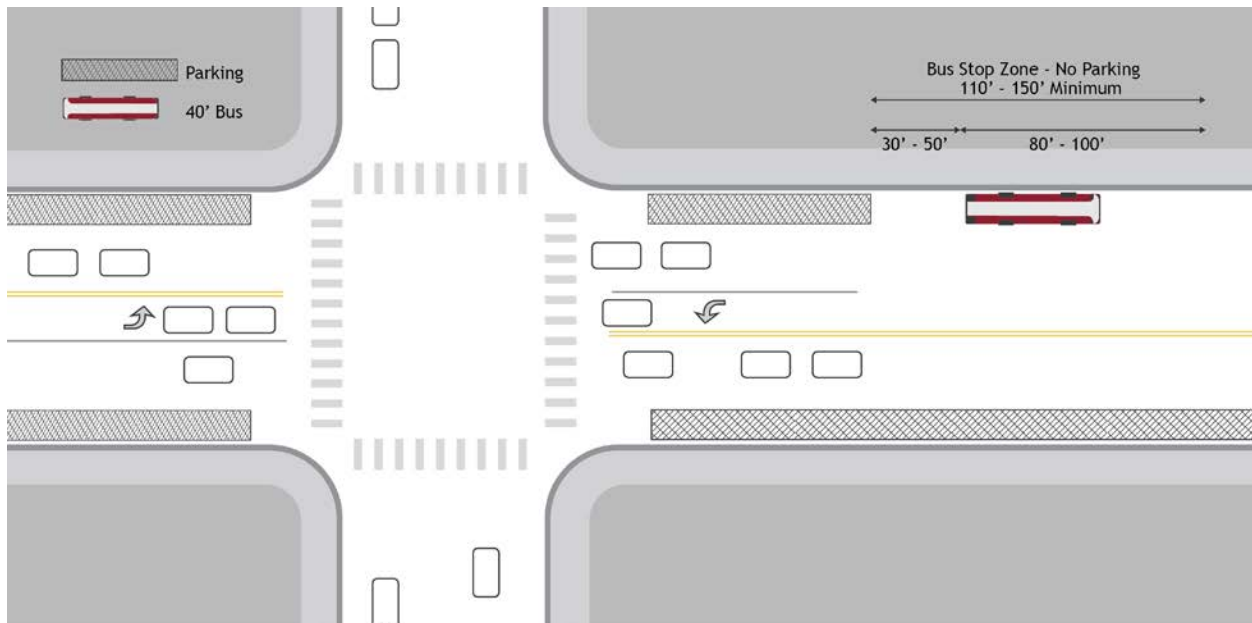
streets, pedestrian conflicts as the bus approaches the stop while seeking to move past the intersection, and may result in the bus being required to stop at both the red light and the far side stop.

Far-side stops are recommended in locations where:

- Vehicular traffic is heavier on the near-side of an intersection
- At heavy right turns on major approach (or where the near side approach includes a right-turn lane), or heavy left and through movements from side street
- Existing pedestrian facilities are greater and movements safer than on the near side
- At complex intersections with multiphase signals or dual turn lanes, this removes buses from the area of complicated traffic movements
- Intersections that have transit signal priority or queue jump lanes

MID-BLOCK STOP

Midblock bus stops are located between intersections. Mid-block stops should generally only be used under special circumstances, such as where major trip generators/attractors justify high-volume access and that generator/attractor cannot be served at the nearest intersection, or when the distance between adjacent intersections exceeds stop spacing recommendations and a midblock crossing is available for use.



Midblock stops, while generally not preferred, provide some advantages, including the likelihood of less pedestrian congestion near customer waiting areas, improved sightlines for pedestrians and vehicles, and limited conflicts with traffic flows. However, the drawbacks of mid-block stops include the need for more significant on-street space for the bus to pull in and out of the stop zone, increased potential for unsafe midblock crossings, and increased walking distance to nearby intersections and associated destinations.

Therefore, midblock crossing should only be considered under limited circumstances where:

- Traffic or street/sidewalk conditions at the intersection are not conducive to a near or far-side stop
- Customer traffic generators are located mid-block and/or adjacent intersections are too far apart
- A queue jump lane conflicts with a potential near side or a far-side stop

Bus Stop Spacing

Stop spacing refers to the distance between bus stops along a route. Stop spacing affects overall travel time and, therefore, demand for transit. In general, the tradeoff is between close stops, which result in short walking distances but more frequent stops and longer bus trips, and stops farther apart, which result in longer walking distances but less frequent stops, higher speeds, more reliable bus service, and a shorter bus trip.

- Generally, a distance of about 1,000 feet between bus stops is recommended while up to 1,300 feet may be more appropriate for low density areas. This distance is a reasonable balance of the conflicting goals. However, finding suitable sites for bus stops may necessitate altering the spacing significantly. In addition, there may be reasons for bus stops to be closer together, such as major transfer points and/or activity centers. And there may be places where bus stops should be further apart, particularly if there would be not be any boarding or alighting anticipated based upon adjacent land uses. In high density areas, such as the Urban Policy Areas, stops along a route should occur generally no less than once every 3,000 feet.
- Whenever possible, bus stop locations should be paired, so that people are able to board and alight on opposite sides of the same roadway in the same vicinity when making a round trip. This allows the transit service to be more intuitive, and maximizes convenience for the greatest number of users.

In many cases, there are certain existing or planned locations for bus stops which stand out as particularly important. This can be due to existing use, activity centers, transfer opportunities, or other conditions. Once these critical locations are determined, the remaining stops can be planned for optimal spacing.

- At locations where transfer activity between routes is heavy, bus stops for the intersecting routes should be located as close to each other as possible in order to shorten travel for passengers traveling between routes. Additionally, stops with high transfer activity should have a high level of passenger amenities since transferring passengers have less control over the amount of time they wait at the bus stop for a transfer.

Loading Area Type

On-street bus stops each include a stop zone which may be located in a travel lane, a parking lane, or along the shoulder depending on the characteristics of the roadway. Although on-street bus stops are the most common and the easiest to establish, each location has site constraints that should be considered when evaluating a location for an on-street stop.

- Posted speed limits should not exceed 40 miles per hour.

- Parked cars must not block bus access to acceleration/deceleration areas or the curb, rendering the stop inaccessible to customers who use wheelchairs. Alternative configurations such as curb extensions, and bus bays may address some of these issues while accomplishing other service goals.

- *CURBSIDE STOPS*

The most common stop location, these are designed for the bus to pull up along the existing curb edge to board and alight passengers. When installing amenities at these locations, such as seating or a shelter, it is preferable to locate the amenities between the sidewalk and street edge so that riders waiting for a bus are not required to cross the sidewalk to reach the curb. These stop locations placed at least 60 feet from the edge of the curb radius of the nearest intersection to ensure safe boarding and alighting for transit riders and safe turning movements for vehicular traffic.



- *CURB EXTENSIONS*

A curb extension, also known as a bulb-out, is a widening of the sidewalk to extend the bus stop loading and waiting area into the parking lane, bring it directly adjacent to the travel lane. Curb extensions are most effective in denser environments with high pedestrian activity or areas where the sidewalk is too narrow to accommodate a bus stop. In these locations, curb extensions provide a larger bus stop footprint that can accommodate shelters, benches, and other transit customer improvements while reducing interference with pedestrian activity on the sidewalk. Curb extensions also reduce the need to displace parking spaces since a bus serving a stop on a curb extension will stop in the traffic lane instead of traveling into the parking lane as they do at curbside bus stops. Finally, curb extensions work well in conjunction with crosswalks by reducing the crossing distance for pedestrians.

Curb extensions should be considered at sites with the following characteristics:

- High pedestrian activity
- Crowded and/or narrow sidewalks
- A need to reduce pedestrian crossing distances
- Bus already stops in travel lane
- The need to minimize loss of street parking

There are multiple travel lanes, enabling vehicles to bypass a stopped bus. Since a bus serving a stop on a curb extension will now stop in the traffic lane instead of traveling into the parking lane, a shorter bus stop length (50-feet) is required.

Stops located along a curb extension should be designed to the following minimum dimensions:

50-foot bus stop length (70-foot bus stop length for stops served by articulated buses)

5-foot by 8-foot concrete landing pad

4-foot by 10-foot rear door clear zone

BUS BAYS

A bus bay is a stop with a pull-out for buses that is constructed as an inset into the curb. The bus bay allows buses to pull out of traffic for loading and unloading, allowing general traffic to pass the loading bus. Bus bays are most effective in areas where the impact of a bus blocking a travel



lane creates significant traffic delays, where traffic speeds are more than 40 MPH, or where long dwell times are common. In these locations, bus bays allow buses to service the stop while minimizing traffic delays and conflicts with traffic. Bus bays also clearly define the bus stop and allow customer loading and unloading to be conducted in a more relaxed manner.

However, bus bays can also make it difficult for buses to reenter traffic, which can increase bus delays, decrease service reliability, and increase average bus travel time. Bus bays may also require right-of-way acquisition. Additionally, bus bays may reduce sidewalk width and impact pedestrian traffic if sufficient right-of-way is not available.

Bus bays should be considered where street traffic averages 40 mph or more and any of the following conditions exist:

- Average peak period dwell time exceeds 30 seconds per bus

- There is a high frequency of collisions involving buses and/or pedestrians
- Bus volumes exceed 10 or more buses per hour
- Where stops in the curb lane are prohibited
- Where sight distances prevent traffic from stopping safely behind a stopped bus
- At stops where there are frequent wheelchair passengers boarding
- Where buses are expected to layover at the end of a trip

Bus stops located along bus bays require slightly different footprints than typical curbside bus stops. Since a bus serving a stop in a bay will pull out of the general traffic lane into a curved pull-out lane, a shorter bus stop length (60') is required, as the bus will use the curved pull-out lane for its approach.

Stops located in a bus bay should be designed to the following minimum dimensions:

- 60-foot bus stop length
- 5-foot by 8-foot concrete landing pad
- 4-foot by 10-foot rear door clear zone

Bus Stop Elements and Amenities

Well-designed bus stops enhance the rider experience, decrease perceptions of extended wait times for transit services, and can contribute to increased ridership. Conversely, poorly designed bus stops can decrease customer satisfaction, make transit less attractive to potential new customers, and potentially make waiting at stops unsafe and uncomfortable for riders. Investing in high quality bus stops is often a low-cost, high-reward strategy for improving transit operations.

Developing clear and practical guidelines for amenities at bus stops can provide the structure and process needed to improve overall transit system quality. No matter how many riders use a bus stop on a given day, each stop requires certain key design elements to be safe, accessible, reliable, and comfortable for passengers. By formalizing the amenity installation process, the County can set clear goals for stop quality and provide justification for how and when bus stop upgrades occur. Bus stop amenities are profiled below.

BUS STOP SIGN

Bus stops should all include consistently updated and attractive signage conveying essential information to increase customer satisfaction and understanding of the bus system.

- Basic information includes route numbers and names, stop ID number, the direction of the routes, a phone number and website for additional assistance, and often destination(s) and service hours. A stop ID number is often used to access real-time schedule information via text message, internet, or an automated phone system. These details help to reduce confusion and increase rider comfort at stops.



- All bus stops should have a consistently maintained bus stop sign on the far side of the boarding area and be placed on a pole at a height that conforms to ADA standards while avoiding impacts to pedestrian movement on the sidewalk.

SEATING

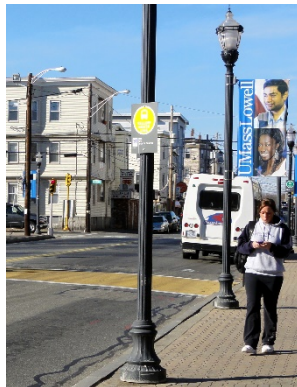
Benches can be either freestanding or part of a shelter design and provide seating for passengers waiting for the bus or near sites that attract riders who may have difficulty walking and standing.



- Seating should be provided wherever possible and designed so as not to compromise safety or obstruct sidewalk access or access to customer information.
- Benches should be fabricated of durable materials resistant to vandalism and weather conditions.

LIGHTING

Adequate lighting at bus stop facilities allows bus drivers and approaching traffic to see waiting passengers at night. Lighting also provides added security for those waiting at the stop, in addition to illuminating route and schedule information for patrons.



- Lighting can be provided by a nearby streetlight, lighting installed within the shelter, or a stand-alone light pole. Transit stops should either be located within 30 feet of an overhead street light or include lighting within the shelter.
- Lights installed within the shelter should be designed with appropriate brightness to provide visibility, while not being so bright as to create a spotlight effect that makes it difficult for waiting passengers to see outside.

SHELTER

Shelters offer a prominent and safe protective waiting area for bus passengers, traditionally including informational signage about the bus service or surrounding land uses. Shelters protect transit riders from the elements and help to identify stop locations by defining a sense of place along a roadway or at a transit center.

Numerous suppliers provide off-the-shelf bus stop shelter designs. The County also has a standard design, which may be updated from time to time. This is a minimum standard and can be provided by DTCI upon request.



- Shelters should include at least two walls, a roof, seating, and a clear space for customers using a wheelchair.
- Bus shelters should provide a clear line of sight to approaching buses. Many shelter designs incorporate glass or plastic walls in order to provide multiple lines of sight.
- Bus shelters shall be a minimum of 16-feet in width in the Urban Policy Areas and a minimum of 12-feet in width elsewhere in the County. At existing or planned transfer points, at stop locations central to activity centers, and at locations where high ridership is anticipated, a minimum of 16-feet in width shall be required. All bus shelters will be designed to include lighting, which may be on a motion detector or timer, and shall be solar-powered as feasible.

WASTE AND RECYCLING

Bus stops, both those with and without shelters, can offer both trash and recycling receptacles to help keep the stop area free of debris, food scraps, or other refuse generated by waiting bus passengers on a daily basis.

- Receptacles should be durable, visible, and placed conveniently without blocking major pedestrian movements.



- Bus stops that have a problem with litter and those in proximity to fast food establishments should have trash receptacles.
- Receptacles should be of a standard type, closed at the top to prevent rain, snow, or other precipitation from entering, and easy for maintenance workers to access and empty.
- Maintenance may be completed through a private maintenance agreement. Design should be consistent for easy identification by travelers, but receptacles can be customized with artwork or advertising specific to stop locations.

BICYCLE PARKING

Permanently and individually installed bicycle racks provide an opportunity for bus passengers arriving by bicycle to securely park their bike during the length of their bus trip. Groups of bicycle racks may be covered and secured in lockers or a shelter with gated access to provide an additional benefit to long-term bicycle parkers by protecting bicycles and related gear from weather or theft.



- Bicycle parking should be provided at all park-and-ride lots and at transfer stations.
- Lockers should be clearly labeled as bicycle parking and signs should be posted with directions for use. Larger bicycle parking stations can have vertical hanging racks and typically require a unique maintenance plan and are often operated as a concession or contract service.
- Sufficient spacing between racks enables a comfortable and intended fit of two bicycles to each rack. To be consistent with the Association of Pedestrian and Bicycle Professionals (APBP) Bicycle Parking Guidelines, racks aligned parallel to each other should be at least 36 inches apart. Those aligned end-to-end should be 96-inches apart. Racks perpendicular to a wall must be at least 48-inches from the wall and at least 48-inches from the curb. Racks parallel to a wall should be at least 36-inches from the wall and 24-inches from the curb.

Additional Amenities

The following amenities will be considered as part of bus stop design but are not anticipated at all stop locations at this time:

REAL TIME INFORMATION DISPLAYS

An electronic display at bus stops showing the number of minutes until the next arrival of each operating bus route at that very stop can help improve the passenger experience.

Especially at stops where bus route frequencies are less than every 10-15 minutes, knowledge of how long a passenger must wait until the next bus is important for rider comfort.



OFFBOARD FARE VENDING EQUIPMENT

At major bus stops and transfer stations, the installation of fare payment/purchase equipment at bus stops can improve customer convenience and service reliability by reducing on-board cash transactions and bus stop dwell times. Off-board fare payment vending machines and associated instructional signage typically require a 10' by 10' footprint for two machines and should be semi-enclosed. The potential need for wired connections for power or communications can restrict the number of potential deployment sites



PUBLICATION VENDING

Newspaper boxes and other literature vending machines can be an added convenience to passengers and should be placed at locations where there is a high level of pedestrian activity or bus ridership. Corrals can be used to designate a location for newspaper boxes. As with other bus stop elements, boxes should not obstruct pedestrian movement and should comply with ADA requirements.



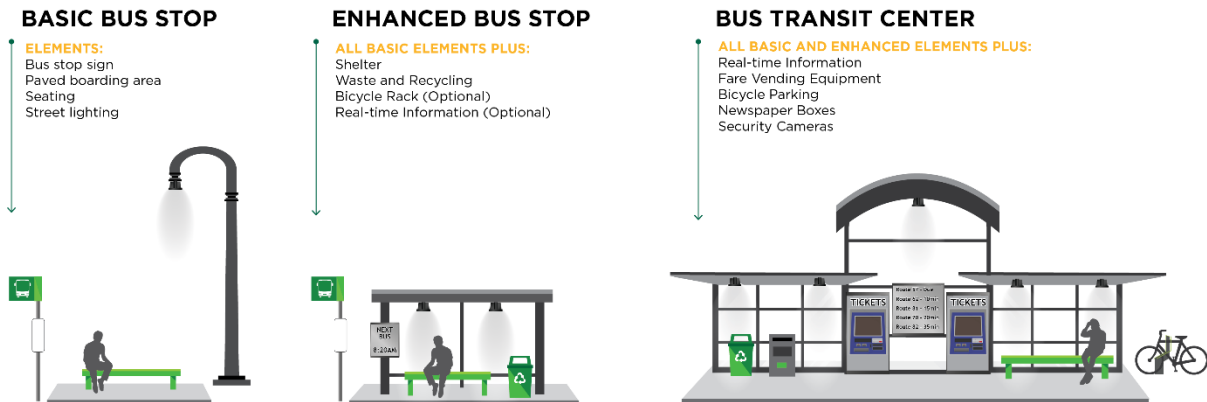
SECURITY CAMERAS

Bus stops and transit centers see large numbers of users each day, not always under employee supervision. A security surveillance system both on-board buses and at select facilities can help to ensure a safe and secure environment for customers and employees alike. Video surveillance also allows the transit operator to monitor facilities remotely at any time of the day and may have operational benefits from an arrival/departure/loading time perspective.



Bus Stop Hierarchy

Resources for providing and improving passenger facilities must be prioritized in terms of what improvements will be made and where they will be applied. The table below provides a guide for the provision of the previously described bus stop elements for each class of bus stop.



Conceptual Ideas of Basic, Enhanced, and Transit Center Bus Stops

Note that the Park & Ride is not in and of itself a typology. The bus stop located proximate to any size parking facility may be configured as a basic stop, an enhanced stop, or a transit center, although anticipated high ridership at these locations are more likely to lend themselves to the Transit Center category. Considerations on the choice of stop class should consider total daily trips, number and type of routes serving the stop, and any the customer based served.

| Bus Stop Element | Basic Stop | Enhanced Stop | Transit Center |
|------------------------|------------|---------------|----------------|
| Bus Stop Sign | Yes | Yes | Yes |
| Seating | Yes | Yes | Yes |
| Lighting | Yes | Yes | Yes |
| Shelter | No | Yes | Yes |
| Waste and Recycling | No | Yes | Yes |
| Bicycle Parking | No | Optional | Yes |
| Real-Time Information | No | No | Yes |
| Fare Vending Equipment | No | No | Optional |
| Literature Vending | No | No | Optional |
| Security Cameras | No | No | Optional |

Operational Network Features/Improvements

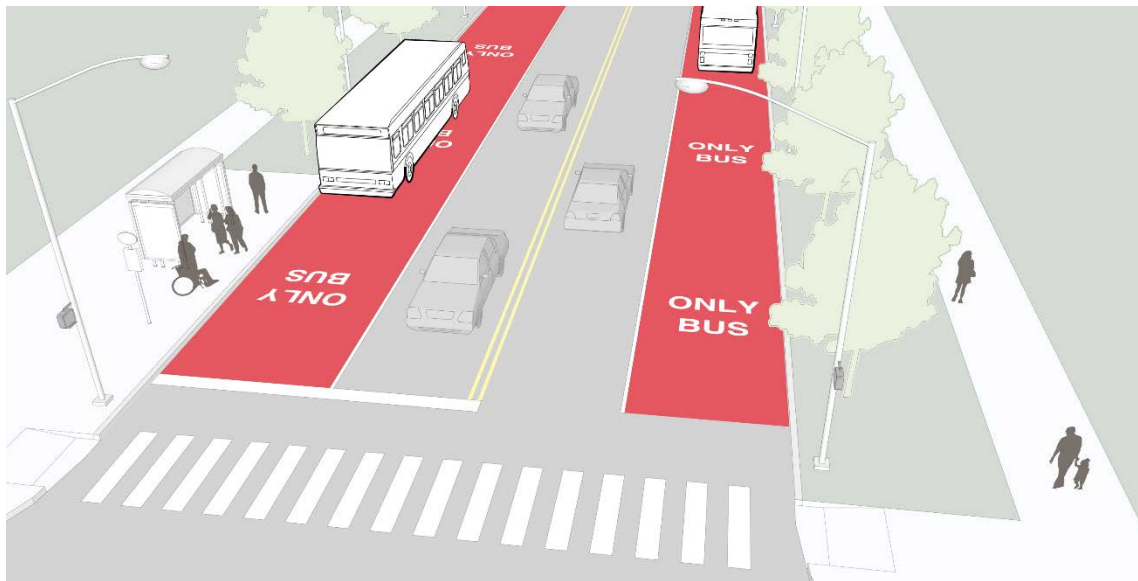
In addition to stops, there are improvements that can be made to the transit system through management of travel lanes along identified transit corridors. These improvements attempt to prioritize transit as a more efficient way to move more people through a transportation corridor, understanding the people trips as being different than the traditional vehicle trips metric.

DEDICATED TRANSIT LANES

Dedicated transit lanes are used to prioritize and improve frequent bus services on busy streets. Owing to the high passenger capacity of transit, a dedicated transit lane can drastically increase the amount of people that can be transported along a corridor during the highest demand travel periods. Since dedicated transit lanes encourage people to shift to transit, reducing vehicle demand, they are an important part of maximizing the utility of the transportation system by making travel faster, more reliable, and more enjoyable. Pavement markings, signage, and enforcement are important to maintain the integrity of dedicated lanes.

Dedicated lanes can be located along the curb, which work best on streets with a parking lane that can be designated as no parking during peak travel hours, few driveways, and limited right-turning traffic. They can also be located within the median, operating in full-time dedicated lanes with median islands for boarding. For short connections, they can use transit plazas that prohibit other vehicle traffic and reserve the entire right of way for buses.

Transit lanes are used only on corridors where transit service is very frequent, ridership is high, and traffic congestion significantly and routinely impedes transit operations. Transit lanes may be permanent or time restricted—reserved for transit vehicles only at peak hours of the day and permitted for other uses at other times. Transit lanes may also be considered for future implementation where planned densities may result in the need for such facilities in the future.

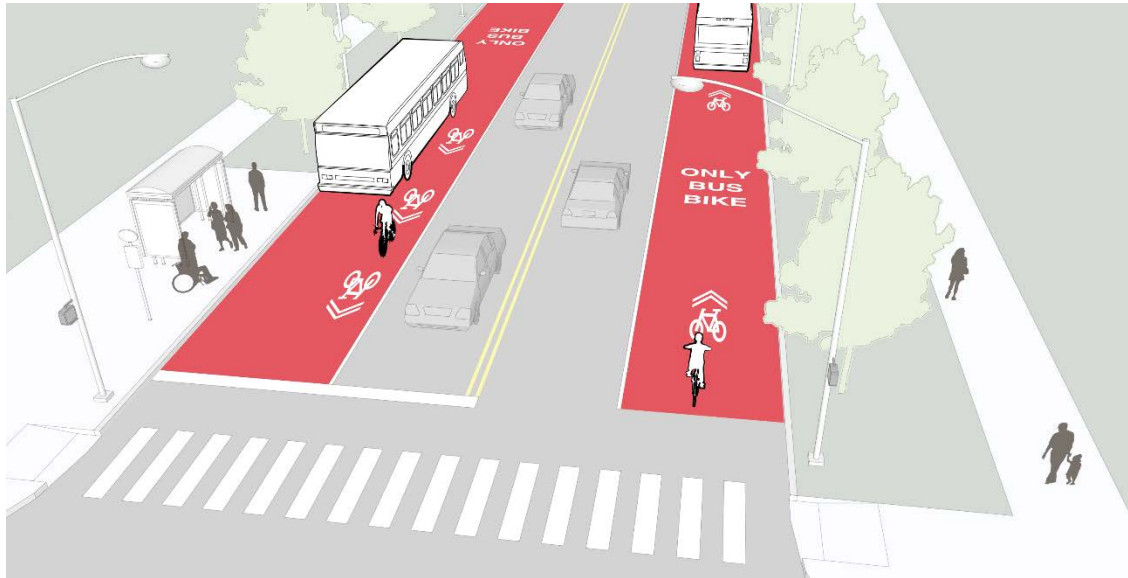


Example of Dedicated Transit Lanes

SHARED TRANSIT LANES

A shared lane reserved for transit vehicles and bicyclists can provide improved accommodation for both road users to maneuver together as transit vehicles start and stop along a corridor. Shared

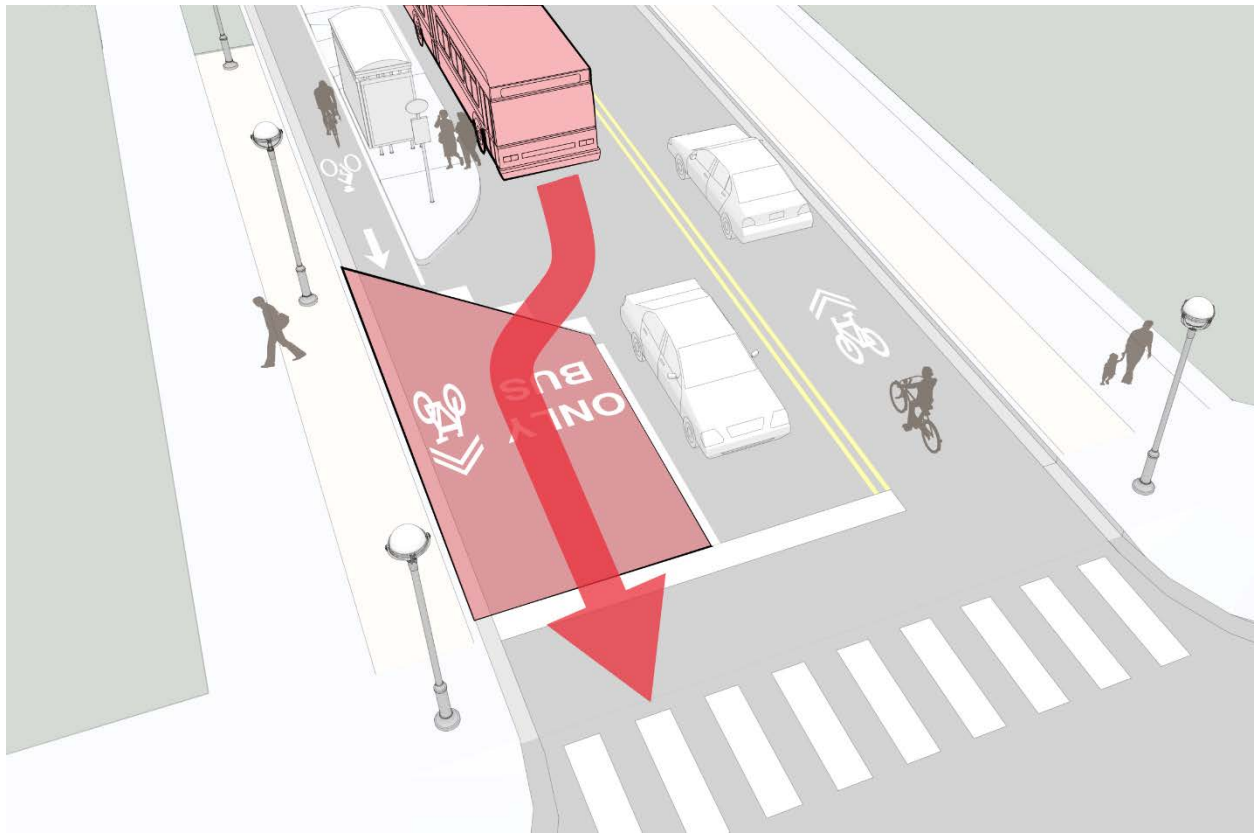
lanes are appropriate on streets where bus headways are at most every five minutes, traffic speeds are less than 30-miles per hour, bike volumes are not very high, and space constraints preclude exclusive facilities for each mode. The shared lane is typically wider than a dedicated transit lane. They should be located in the outermost lane adjacent to a curb to reduce conflict.



Example of Shared Transit Lanes

BUS QUEUE JUMP LANES

- A short bus lane located at the approach to a traffic signal allows buses to bypass waiting traffic, significantly improving transit travel time. They are best used at congested intersections on primary transit routes and where stops can be placed at the far-side of an intersection. Space on the far side of an intersection should exist for the bus to reenter traffic. Bus queue jumps may be:
 - **Transit Exemption for Right-Turn Lanes:** The bus queue jump lane shares space with a right-turn lane, but transit vehicles are allowed to proceed straight through the intersection.
 - **Shared Right-Turn/Bus Lane:** The entire curbside lane is reserved for transit vehicles, but drivers are allowed to enter the lane when approaching an intersection for right turns.
 - **Advanced Stop Bar:** The main stop bar is pushed back several car lengths and a transit-only or “right and transit” lane is placed along the curb at least two car lengths ahead of the stop line, so that transit vehicle can pull ahead of other traffic.



Example of Bus Queue Jump Lanes

Maximum Allowable Walkshed Mode Shifts for Site Analysis

When evaluating the breakdown of transit trip generation, realistic assumptions should be made by considering the type of available transit service nearby, the frequency of the service, the distance to the service area, and the uses proposed. Mode shifts to transit may not exceed the following rates subject urban orientation of the proposed use and the allowable mode shift rates described below:

Transit Inner Core (*Generally ¼ Mile or less from a Transit Center*)
 40% Rapid Transit | 25% Local Transit

Transit Outer Core (*Generally ¼ Mile to ½ Mile from a Transit Center*)
 20% Rapid Transit | 10% Local Transit

Transit-Supportive Area (*Generally ½ Mile to 1 Mile from a Transit Center*)
 5% Rapid Transit | 0% Local Transit

(These may be applied at the weighted rates for proposed developments as described below based upon walkshed and transit service in the vicinity).

Retail Uses 100% of the allowable walkshed mode shift for all pedestrian-oriented retail uses. Reductions may not be applied for any auto-oriented retail use, including drive-through

restaurants, drive-through banks, drive-through pharmacies, car washes, gas stations, automobile service stations, or convenience stores (if fronted by gas pumps).

Commercial (Non-Retail) Uses 100% of the walkshed reduction for office uses, artistic studios, educational institutions, research and development campuses, and technology campuses. Reductions may not be applied for any auto-oriented or industrial/manufacturing use such as warehouses, data centers, vehicle rental businesses, manufacturing, breweries (non-retail), and moving/shipping/storage businesses, including any related office components.

Residential Uses 100% for the allowable walkshed mode shift for multi-family residential units under 1,500 SF and urban single-family attached residential units under 1,800 SF; 80% for multi-family residential units over 1,500 SF and urban single-family attached residential units between 1,800 SF and 2,400 SF; 50% for single-family attached residential units over 2,400 SF and all single-family detached residential units.

Chapter 4 – The Built Environment – Transportation and Land Use

Our collective desire to travel and explore is generated by our interest not in the journey, but the destination. Without places to go, be they homes, businesses, schools, entertainment venues, or recreational options, there would be no need for roads. Therefore, the demand for mobility and access is dependent on the built environment, and the built environment has a substantial impact on how the transportation system operates. Distances between uses, connectivity and integration of places, building design, and environmental features can all impact how the traveling public perceives a particular location. Addition, alteration, or removal of a seemingly trivial structure or other feature, such as landscaping, signage, entryways, or windows may deeply impact the way people feel about their safety and security in that areas, as well as about the aesthetic quality of the environment.

If places are the reason people travel at all, the spaces between the places can impact experiences just as significantly. Low speed roads may deter drivers, while high speed roads may deter cyclists and pedestrians. Narrow, winding two-lane roads may fit perfectly in a rural environment, but feel out of place and insufficient in a suburban environment. The transportation network connects people to places within every part of Loudoun County, but to achieve planned connections while supporting the goals and intended outcomes of the entire Comprehensive Plan, the context of the built environment must be of paramount consideration. Therefore, design of the transportation system must consider not only facilities needs but appropriate design for the surrounding planned environment. This chapter provides policies to support the creation of a comprehensively multimodal transportation system that accommodates all transportation modes with strong consideration of enhancement opportunities in the Urban and Suburban Policy Areas, creation a visual transition in the Transition Policy Area, preservation of the landscape in the Rural Policy Area, and coordination and integration with Towns through the Joint Land Management Areas.

To accommodate travel options along every route to incorporate the needs of different users within these differing contexts, this plan incorporates roads, sidewalks, bike lanes, asphalt trails, and transit infrastructure policies to ensure that multimodal connectivity can be realized. Effective implementation of a context-sensitive multimodal transportation system requires implementation of several key planning principles to ensure that facilities are designed to fit the natural and built environment in which they currently or are planned to exist. These principles include:

1. The development of local and regional street connections providing redundant routes and multiple access options appropriate based upon the existing and planned environment.
2. Human-scaled connections to ensure that every system user has logical routes throughout the area.
3. Design of roadways that accommodate drivers, cyclists, and pedestrians.
4. Amenities that encourage and provide adequate access to all travelers.

The following sections provide a framework for context-sensitive transportation system design for the Urban, Suburban, Transition, and Rural Policy Areas, as well as for the Towns and Joint Land Management Areas.

Urban Policy Areas

The Urban Policy Areas transportation network focuses on the concept of choices. If a transportation network is designed appropriately, no resident, worker, or visitor to the area is limited to a single transportation mode in order to travel, allowing for choice depending on distance, weather conditions, trip purpose, or personal preference. For others, such as those who are too young to drive, those who do not feel comfortable driving, those who cannot afford a personal vehicle, or those who are unable to drive, multimodal systems provide safe and dependable travel options to ensure convenient access to goods, services, employment opportunities and entertainment.

Creating a Multimodal System

The Urban Policy Areas plan and policies are critical because development of a multimodal system cannot happen haphazardly or through piecemeal efforts. Just as a comprehensive street network is necessary to allow cars and traffic to move efficiently, so are the networks intended for transit riders, cyclists, and pedestrians necessary to encourage people to take advantages of these different mode choices. This is comparable to a two-lane road with stop signs every block that intentionally slows traffic, and is therefore not as preferable to drivers as a freeway. Transit, automobile, bicycle, and pedestrian networks that account for the mobility needs of these different modal users are required for each mode choice to be viable.

- For *Automobiles*, this means ensuring development of a system of higher-capacity roadways in order to move traffic through and into the area.
- For *Transit Riders*, this means identifying and building streets that feature elements to support premium transit services, including frequent but practically-spaced transit stops, to allow for direct routing and high-frequency transit services that provide logical connections throughout the County and to the rest of the region via Metrorail.
- For *Cyclists*, this means ensuring development of on-street bicycle lanes into a network that serves bicycle commuters by providing higher speed, traffic-signal controlled routes through the Urban Policy Areas. Meanwhile, this also means developing a comprehensive on- and off-road trail network that serves recreational cyclists.
- For *Pedestrians*, this means completing a sidewalk system that provides continuous routes along both sides of every street in the corridor for maximum mobility and access. It further means providing sidewalks that are free of bicycles, delivery loading and unloading, and limits the frequency of driveways to provide limited interruptions and conflict points in the pedestrian network.

Urban Policy Areas – Built Environment

General policies for these facilities are outlined below. Chapter 3 of the Countywide Transportation Plan provides specific descriptions of the street section typology for each roadway identified in the plan. Along planned limited access roadways, trail systems along parallel roadways have been incorporated into the plan to provide non-motorized access in these corridors.

Urban Areas Built Environment Policies

- 4-1.1 **Multimodal Design** Every street within the Urban Policy Areas will include design elements for vehicles, pedestrians, and bicycles to ensure multimodality. These elements should incorporate all prominent modes, including:
- *Bicycling* through on-street bike lanes, trails, and shared travel lanes
 - *Walking* through sidewalks and jogging paths
 - *Driving and Riding Transit* through innovative street designs
 - *Modal Transfers* through bicycle parking, transit shelters, and transit stations
- 4-1.2 **Block Size** Small urban block sizes are a critical component to maximizing access and walkability. Development in the Urban Policy Areas will provide connected internal streets (including Local Streets, Avenues, Boulevards, and Multimodal Through Corridors) placed at an interval of no more 660 feet (1/8th mile). This interval is not inclusive of alleyways or service roads. Exceptions for interruptions to the street grid, resulting in a *Superblock* (a block larger than 660 feet by 660 feet), shall be allowed where necessary to provide for public parks, public facilities, cultural institutions, or other uses deemed appropriate by the County requiring a large uninterrupted swath of land, or where natural and fixed manmade features (e.g., floodplains, bridges, utility substations) would not permit development of an optimally-connected network. Where feasible, pedestrian connections through this *Superblock* shall be provided to ensure ample pedestrian connectivity.
- 4-1.3 **Off-Street Parking Areas** Parking lots should be oriented to the rear of buildings to ensure safe and convenient access to Boulevards and Avenues for pedestrians and cyclists in order that conflicts with vehicle drive aisles are reasonably minimized.
- 4-1.4 **Inter-parcel Connectivity** New, expanded, or significantly renovated development plans will seek to maximize the number of logical street connections to adjacent properties and to CTP roadways for all modes so that seamless connectivity can be achieved between developments. Development proposals in the Urban Policy Areas shall provide for or reserve inter-parcel connections meeting the block criteria above to both undeveloped and underdeveloped adjacent sites so that future developments may connect seamlessly into the proposed development in accordance with land use policies of this plan.
- 4-1.5 **Landscaped Buffers** The buffer area between sidewalks and roadways is an important element of transportation system design. Buffer widths should depend on the speed of a roadway and the character of the surrounding development and will conform to VDOT Design Guidelines.
- 4-1.6 **Street and Driveway Alignments** As feasible, streets and driveways shall be constructed to align with existing streets and driveways in order to facilitate development of a grid of streets.

- 4-1.7 **Connectivity** Land development applications will include connected and unified road, bicycle, and pedestrian networks where feasible in order to promote connectivity within a development and between neighboring developments.
- 4-1.8 **Public Roads** Internal roads within a development site shall be public, unless meeting the definition of alleys or service roads. Public Roads shall be designed to meet the standards of VDOT Road Design Manual Appendix B (2) and DRPT Multimodal System Design Guidelines.
- 4-1.9 **Meeting the Intent of the Typology** Development applicants will define how the proposed roadways within the proposed development meet the intent of either a commuter route, commercial mixed-use street, residential street, or industrial street, and demonstrate compliance with the policies and sections for each roadway.
- 4-1.10 **Pedestrian Corridors** All Multimodal Through Corridors, Boulevards, and Avenues shown in this plan shall be considered pedestrian corridors. In order to maintain the integrity of these corridors, service uses such as loading docks and trash collection should face service driveways internal to the site. Service driveways and parking lots shall not be placed immediately parallel to pedestrian corridors, unless it can be demonstrated that the proposed layout enhances or complements the pedestrian streetscape.
- 4-1.11 **Planned Roadways, Sidewalks, and Trails** Any roadway or trail indicated within this plan shall be constructed in the location shown on this plan as described in this plan, whether built by the County or as part of a land development application.
- 4-1.12 **Plan Coordination** Transportation Improvements in the Urban Policy Areas will meet the policies and intent of this document as well as other policies of the Comprehensive Plan.

Urban Policy Areas Roadway Network

The transportation network established herein seeks to meet all of the objectives described above, creating a regional grid to facilitate the development of an urban grid of local streets throughout. Corridors run generally east-west or north-south, providing multiple redundant travel ways through the area. This allows traffic to divide onto parallel roads, similar to the County's transportation system plan for other parts of the County. This plan also includes several new components in regard to transportation. Roads are more specifically defined to ensure coordination with all modes. This allows for creation of a network that serves drivers, cyclists, walkers, and transit riders all within the same system. This network allows developments to retain and create their own identities, while ensuring that development can be designed to fit seamlessly into the greater network. This network features high-speed highways and low-speed local streets, recognizing the importance of each type of roadway in the overall network, and integrates access to Metrorail as a key component of the overall concept.

The Urban Policy Areas road network provides ample mobility and access for drivers, transit users, cyclists, and pedestrians, regardless of age or ability. The transportation network provides for true mode choice, ensuring that users are not limited in the options, whether they choose to drive a personal vehicle, ride transit, ride a bicycle, or walk. The Urban Policy Areas transportation network facilitates the development of the envisioned high-density urban environment detailed

within this plan, and improves and increases connectivity to places throughout Northern Virginia and the region for people throughout Loudoun County.

In a suburban roadway network, grid connectivity is replaced by funneling traffic onto arterial roadways. Traffic in a traditional suburban subdivisions travel along local roads, funneling to one or two entrances along collector roads. From there, traffic funnels from the collector onto an arterial with traffic from other subdivisions. This system therefore requires wide collector roads and even wider arterial roads to act as the ribs and spine of the network, respectively. An urban network, comparatively, has several sets of ribs and spines, more evenly dispersing traffic through the network and allowing for more direct travel routes.

Urban multimodal streets feature many elements already found in Loudoun County. In the Urban Policy Areas, these elements include:

- **Parallel Roads** With redundant travel options, multiple routes allow travelers to disperse more evenly and efficiently throughout the system.
- **Frequent Intersections** Long blocks limit pedestrian access and opportunities to reach key corridors. Human-scaled block sizes ensure greater mobility for all system users.
- **Crosswalks and Midblock Crossings** While traveling an additional ¼ mile during a trip may be nearly imperceptible when driving, pedestrians travel approximately three miles per hour. This means that if someone wants to get across the street and the nearest crossing is ¼ mile in either direction, that person has to travel an additional 10 minutes simply to complete this crossing. Therefore, frequent and well-marked crosswalks make a substantial difference for pedestrians. Along main streets, midblock crossings should also be considered for additional convenience.
- **Sidewalks** Wide sidewalks facilitate pedestrian activity and make streets welcoming to pedestrians. On slower streets, sidewalks may be built adjacent to the curb, while on higher-speed roadways, a buffer area may be appropriate.
- **Bike Lanes** These striped bike-only zones create a safe and dependable route for cyclists, not blocked by pedestrians and not sharing the travel lane with cars. They encourage bicycle commutes and increase comfort for cyclists and drivers.
- **Transit Shelters** Enhanced transit shelters are critical in making transit a choice mode during the heat of the summer, cold of the winter, and in the evening. These shelters can include information such as schedules, live next bus screens, and provide access for all users, including those with physical disabilities. By placing shelters between the sidewalk and the street, transit users can move seamlessly from the shelter onto the bus without conflicting with pedestrians or being exposed to the elements.

[DRPT Definitions and Concepts](#)

In 2013, the Virginia Department of Rail and Public Transportation (DRPT) released the Multimodal System Design Guidelines, which provide a transportation system design manual alternative to the Virginia Department of Transportation's (VDOT) Road Design Manual. In order

to permit these guidelines to be applied in certain areas, VDOT amended its Road Design Manual in 2014, adding Appendix B (2), which includes guidelines for implementation of the DRPT standards within a designated urban area. In order to facilitate the County's visions of the Urban Policy Areas as an urban, multimodal center, the County has incorporated these guidelines into the plans within this document.

Streets within the Urban Policy Areas will be identified by a hierarchy as defined by the Virginia Department of Rail and Public Transportation. Descriptions of roadway typologies as defined in the DRPT Multimodal System Design Guidelines are provided below:

Multimodal Through Corridor

The Multimodal Through Corridor (MTC) is a higher speed corridor that connects multiple activity centers. It is intended for longer distance, higher speed automobile, bus, or rail travel and ideally has limited at-grade intersections with other roadway types. MTCs are good candidates for high speed commuter transit having few impediments to traffic flow. Higher speeds limit pedestrian and bicycle modes and hence the corridor design should provide separated facilities for these modes if they are needed. The design of the adjacent buildings should be oriented away from MTCs and towards place-making corridors on the other side of the buildings, providing more desirable pedestrian facilities and pedestrian-oriented land uses on the place-making corridors, while still accommodating pedestrian travel along the MTCs. Design speeds for MTCs range from 35 to 55 mph.

Transit Boulevard

The Transit Boulevard is the highest capacity and most transit supportive Multimodal Corridor in the typology. It would typically only be found in dense urban centers that have sufficient density and market for premium transit. A Transit Boulevard is a multi-lane and multimodal boulevard with a dedicated lane or right-of-way for transit. Transit technologies could be bus service with a bus only lane (BRT or express bus), light rail, or other transit technologies with a separate right-of-way. Other transit types that share lanes with general traffic, such as streetcar or local bus service, could be accommodated on a Boulevard, Major Avenue, or Avenue, but the dedicated transit-only right-of-way defines the Transit Boulevard corridor type. Design speeds for Transit Boulevards range from 30 to 35 mph.

Boulevard

A Boulevard is the corridor type of highest multimodal capacity that accommodates multiple motorized and non-motorized modes. Boulevards allow for higher traffic volumes and greater efficiency of vehicular movements than Major Avenues, Avenues, and Local Streets, and typically have four to six lanes of traffic but may be up to eight lanes in particularly dense centers, such as Tysons (in Fairfax County). Boulevards provide safe and convenient pedestrian and bicycle access to adjacent land uses. Boulevards feature a median, landscaped amenity elements, street trees, and wider sidewalks. Design speeds for Boulevards range from 30 to 35 mph.

Major Avenue

Major Avenues contain the highest density of destinations, intensity of activity, and mix of modes. Because of the close proximity of destinations, pedestrians and street activity are common on Major Avenues. Major Avenues have wide sidewalks to accommodate high numbers of pedestrians and a variety of outdoor activities, including sidewalk cafes, kiosks, vendors, and other street activities. Major Avenues can be areas of high transit ridership for local bus routes. Traffic

is low speed and localized. Due to the intensity of destinations, longer regional trips do not use Major Avenues; rather such trips would typically utilize Boulevards or Multimodal Through Corridors. Autos and buses on Major Avenues travel at slow speeds because pedestrian crossings and on-road bicyclists are frequent. Major Avenues typically have four or fewer lanes for motor vehicle travel while providing adequate facilities for bicycling and typically providing roadway space dedicated to on-street parking. Design speeds for Major Avenues range from 30 to 35 mph.

Avenue

Avenues provide a balance between access to the businesses and residences that front upon them and the collection of vehicular and pedestrian traffic. While having fewer destinations than Major Avenues, pedestrian and bicycle activity is very common, as Avenues serve as critical links in the non-motorized network. Avenues are low speed roadways that facilitate shorter trips, but still contain a fair amount of destinations. Avenues typically have three travel lanes or fewer, and do not exceed four lanes. Avenues may have roadway space dedicated for on-street parking and provide adequate bicycle facilities. Avenues have a 25-30 mph design speed.

Local Street

Local Streets see the lowest amount of activity and have the slowest speeds and the highest access. Bicyclists typically can share the road with autos, because speeds are slow and auto traffic is sparse, although they have separate sidewalks and trails for pedestrian accommodation. Local Streets are primarily in more residential areas and are intended to serve only trips that originate or end along them. They connect to Avenues, Boulevards or Major Avenues, funneling longer trips to these higher capacity corridor types. Local Streets are characterized by slow design speeds, wider setbacks; they may not have lane striping and emphasize on-street parking. Local Streets have a 25 mph design speed.

Roadway Features

Good design for the multimodal transportation system in the Urban Policy Areas needs to integrate all of the modal demands outlined above. Therefore, consideration of design standards, traffic controls, roundabouts, and other traffic operations and traffic calming measures must be considered in relation to their impacts to each of the modes desired along the corridor. The decisions made in pursuit of these goals will impact traffic patterns, development potential and design, and mode splits for the transportation system through the area.

While it is commonly understood that the number of travel lanes on a roadway determines roadway capacity, the width of those lanes can have a significant impact as well. Lane width impacts travel speed, and pedestrian crossing distance. For example, on a four-lane median-divided roadway, suburban standards can call for the two-lane section in each direction to be 27 feet from curb to curb, exclusive of turn lanes. Comparatively, in a more urban environment, that width could be limited to 22 feet. While this difference may seem minimal to drivers, it can make a significant difference for pedestrians.

On-street parking is another factor that can help drivers find parking easily and can slow traffic, make drivers more aware of bicyclists, and protect pedestrians. This is because the cars parked next to the roadway make drivers in the right-lane more cognizant of the potential for movement on their right side, thereby making them more aware of bicyclists. Further, it provides a physical barrier between the roadway and the sidewalk, separating pedestrians from vehicle traffic.

Multimodal streets can serve the needs of drivers, transit users, cyclists, and walkers all at the same time. The pictures below demonstrate designs conducive to a multimodal environment, such as pedestrian refuges at wide crossings that provide pedestrians a safe place to wait if they cannot make it all the way across the street, and peak hour bus/HOV lanes can encourage transit ridership and carpooling when congestion is heaviest, removing single-occupancy vehicle trips from the road. Meanwhile, in order to protect the pedestrian-oriented character of local streets, traffic calming measures integrated into street design, such as roundabouts, road diets, chicanes, and raised crosswalks can create an environment where traffic feels the need to travel at slower speeds. These are preferable to other types of retrofits, such as speed bumps, median dividers, and retrofitted cul-de-sacs, which breakup neighborhoods and reduce accessibility and mobility.

Roadway System Policies

- 4-1.13 **DRPT Implementation** All roadways within the Urban Policy Areas will be built or redesigned in accordance with VDOT Road Design Manual Appendix B (2) and DRPT Multimodal System Design Guideline standards and policies and descriptions provided in this plan. Streets internal to a development site should be classified as local secondary roads (VDOT Functional Classification) and local streets (DRPT Multimodal System Classification).
- 4-1.14 **Design to Meet the Typology** Based upon the DRPT Multimodal System Design Guidelines, roadways within the Urban Policy Areas will be defined according to the DRPT Multimodal System Classification. The descriptions provided below are derived from the DRPT Multimodal System Design Guidelines as they are intended to be applied within the Urban Policy Areas:
- 4-1.15 **Grid of Streets** Streets within the Urban Policy Areas will be developed in a grid pattern corresponding to the alignment of at least one Avenue or Boulevard adjacent to or within the site, or to an existing grid of local streets immediately adjacent to the site.
- 4-1.16 **Connectivity** Road and pedestrian connectivity will be maximized within the Urban Policy Areas through connections between Local Streets, Avenues, and Boulevards at regular intervals, and sidewalks along all public and private streets and commercial driveways.
- 4-1.17 **Roadway Widths** Streets shall be designed to minimum widths required by the standards of the Virginia Department of Transportation, in accordance with an appropriate multimodal street section type approved with this document.
- 4-1.18 **Curb Radii** Corners at intersections along Boulevards, Avenues, and Local Streets in the Urban Policy Areas shall be designed to shorten the crossing distance for pedestrians and slow turning traffic in order to increase safety for all system users. Corners at the intersection of two Multimodal Through Corridors shall be designed to facilitate both traffic flow and pedestrian safety.
- 4-1.19 **Turn Lanes** Turns lanes will be provided along Multimodal Through Corridors. Turn lanes will be provided along Boulevards, Avenues, and along commercial driveways only where warranted and needed for safety. Turn lanes are prohibited along local streets as defined in this plan. Free-flow turn lanes are prohibited to or from Boulevards, Avenues, or Local Streets. Dual left-turn lanes are prohibited along Avenues, and Local Streets.

Dual left-turn lanes are permitted on Boulevards only at intersections with Multimodal Through Corridors.

- 4-1.20 **Cul-de-Sacs** Cul-de-sacs and dead-end streets are prohibited in the Urban Policy Area, except where specific environmental constraints, road design minimum standards, or public amenities exist that would prohibit a connection, and reasonable development alternatives are not feasible. Service driveways and parking access driveways are not subject to this policy.
- 4-1.21 **On-Street Parking** On-street parallel parking shall be provided where feasible along all Avenues and is encouraged along all Boulevards in commercial, industrial, and residential districts, except where the proposed adjacent use will generate minimal travel and occupies an area greater than 660 feet in length. On-street parking will be clearly striped and indicated by signage along the street. On-street parking is recommended along local streets in commercial, industrial, and residential districts. Angled or perpendicular on-street parking spaces are prohibited along all public and private streets within the Urban Policy Areas.
- 4-1.22 **Lane Striping** Roadway lanes should be striped at a width appropriate to the DRPT Multimodal System classification, even if they have a wider curb-to-curb width.
- 4-1.23 **Traffic Controls** All intersections within the Urban Policy Areas shall include traffic control signs or signals so as to clearly indicate right-of-way for all system users.
- 4-1.24 **Roundabouts** Roundabouts should be considered as an alternative to traffic signals and stop controls along Avenues and Local Streets, particularly at entrance gateways to commercial or residential districts. Roundabouts are not preferred along Transit Corridors.
- 4-1.25 **Traffic Calming on Boulevards and Avenues** Boulevards and Avenues shall be designed to permit traffic to operate efficiently at speeds appropriate for the area. As such, measures should be taken during the initial design phase to incorporate elements that will provide a safe environment for all users. On-street parking, roundabouts, textured crosswalks, curb extensions, median islands, and pavement markings that indicate a reduced travel-way width should be incorporated into land development and construction plans.
- 4-1.26 **Traffic Calming on Local Streets** Local streets should be designed to prioritize pedestrians. As such, raised crosswalks and intersections, miniature roundabouts, striped chicanes with parking bays, and curb extensions should be employed to maintain appropriate vehicular traffic speeds and provide for safe pedestrian crossings.

Urban Policy Areas Bicycle and Pedestrian Transportation

Often paired, cycling and walking are two distinctive transportation options that can be made possible with incorporation of infrastructure to support these travel modes. Generally, people will choose cycling or walking for shorter trips as well as for recreation. In the Urban Policy Areas, the development patterns outlined in Chapter 3 of this document support walking and cycling by establishing a mix of uses, residential density to support these uses, and street design elements to make these non-motorized modes not only an option, but a preferable alternative to driving or taking transit. A bicyclist and pedestrian-friendly development pattern may also help to remove

potential vehicle trips from the roadway as people may choose to shop locally and seek employment locally, rather than driving to these destinations and adding cars to the area's roadways. Below is a discussion of how to facilitate development that considers accommodations for bicyclists and pedestrians.

Bicycle mobility is important for the success of the Urban Policy Areas. Cycling has become a primary mode of travel in urban areas throughout the United States, allowing for short- to medium-range trips with no per-mile transportation cost to the commuter. A multimodal urban center must accommodate bicycles in a safe and inviting manner through buffered, connected, and logical bike lanes, and ample bicycle parking. The proliferation of bicycles is possible when safe, convenient, and abundant networks are put into place to provide real mobility. A comprehensive network will not only lead to a significant increase in bicycling for commutes and errands, but these trips directly reduce automobile trips and help to alleviate vehicular congestion on roads by making these other modes of travel more feasible. This will also ease demand for limited parking spaces, which are costly to construct and maintain in an urban environment where land values are high. The more comprehensive the bicycle network, the exponentially greater the impact. In many American cities, investments in bicycling infrastructure has helped to draw young professionals and dynamic businesses, further growing their local economies.

For commuter cyclists, real mobility exists when a combination of shared low-speed travel lanes, dedicated bicycle lanes on medium-speed roadways, and buffered bike lanes on higher-speed roadways are provided in a complete and practical form to create a network that caters to commuter cyclists. This plan includes a detailed plan for on-road bicycle lanes in the Urban Policy Areas, with an overall goal of creating a bicycle-friendly environment for residents, workers, and visitors.

On-road bicycle facilities exist in many form based upon the roadway characteristics. On low-speed local roads, bicycles may be able to safely share the travel lanes with vehicles. To facilitate this multimodal operation, signage, such as "Share the Road" signs, and striping, such as "Sharrow" markings can be used to alert drivers to the presence of cyclists. On slightly more prominent roads with more traffic, striped bike lanes, which create an additional, narrow travel lane intended only for bicycles, may be suitable. Often, these types of lanes are best located on streets with moderate traffic speeds, where other moderate-speed elements, such as on-street parking and frequent pedestrian crossings can be accommodated. For higher-speed roads, providing a dedicated bicycle lane is crucial, as is ensuring its separation from vehicular traffic. This can be accomplished by adding a striped-out area between the bike lane and the vehicle lane, providing a buffer between modes. This buffered bike lane helps ensure that errant drivers and cyclists will be less likely to cross paths, just as a highway shoulder helps ensure that errant drivers have some ability to regain control of a vehicle before departing the roadway altogether. On the highest-speed roads, however, accommodating cyclists in a safe and comfortable manner on the roadway may not be possible. While regular cyclists tend to prefer the roadway where traffic is of a low-to-moderate speed (35 MPH or under), higher speed corridors are often incompatible with on-road bicycling, instead requiring a trail adjacent to the roadway. In these cases, it becomes critical that the trail is arranged to accommodate cyclists, limiting tight curves and providing clear sightlines for safety.

Off-road trails can further improve this network, with well-placed and well-designed paths providing an additional layer of connectivity for cyclists. This, however, depends on these trails becoming an integrated part of the network, with adequate space for cyclists and pedestrians, manageable curves, protected roadway crossings, and frequent, bicycle-friendly access points. These trails can serve a dual purpose: providing commuter routes during weekday peak travel periods while providing recreational opportunities during early-mornings, evenings, and weekends. In order to facilitate demand for these trails for either use, it is critical that these pathways are pleasant, with good maintenance and natural features, and safe, with adequate sightlines, trail markings, and wayfinding. This plan includes a detailed plan for off-road trails in the Urban Policy Areas in order to create commuting routes and family-friendly amenities that serve to promote and enliven the outdoor environment. While road-adjacent trails can also provide useful connectivity along major corridors outside of the development core, they are not appropriate in high-density urban areas due to the pedestrian activity in these locations. As such, in these areas, sidewalks and on-road bicycling are more compatible with the Urban Policy Area's mobility and development goals.

Asphalt trails, or shared-use paths, in the Urban Policy Areas serve two important and distinct purposes. They provide recreational opportunities through their role as linear parks, allowing families to ride bicycles together or hike through nature, and allowing opportunities to experience a natural environment interwoven into one that is markedly urban. However, they are also a key component of a multimodal transportation system. While a trail may serve as a recreational amenity on Saturday afternoon, come Monday morning, it can also become a commuting route for those walking or riding a bicycle to work. Loudoun County already has a transportation corridor of this nature: the Washington & Old Dominion Regional Park Trail. Well used by commuters and leisurely travelers alike, this route is often over-capacity, with pedestrians, joggers, recreational cyclists, and commuter cyclists all in conflict with one another. The popularity of this facility speaks to the need for more trail systems in the County, as well as to the importance of these trails not only as parks but as part of the transportation system.

[Bicycle Amenities](#)

An important part of a comprehensive bicycle network, stationary amenities such as bicycle parking are necessary components of a complete system. Similar to a road network without traffic signals or adequate parking, a good bicycle network requires quality bicycle parking, including bike racks and bike storage that are provided with a high level of access to major destinations. Additionally, with a complete network comes opportunities for services such as bike share, allowing tourists and workers access to bicycles away from their homes, and providing opportunities for "last mile" travel, so that people living or working within bicycling distance – but not walking distance – of a transit center can reach their destinations without requiring a personal vehicle or waiting for the bus.

[Comprehensive Vision for Bicycling](#)

Creating a comprehensive bicycle network means developing a system that serves bicycle commuters, those shopping and making local trips by bicycle, and those cycling for recreation and/or exercise. The network proposed within this plan provides ample options for all of these users, ensuring travel options for current and future residents, workers, and visitors.

Pedestrian Connectivity

A comprehensively connected pedestrian network is integral to the success of the Urban Policy Areas. The promise and economic success of the Urban Policy Areas is dependent on providing an inviting, accommodating, and safe environment, encouraging pedestrian activity within the urban core. Pedestrians are not only a critical transportation component, but also act as a magnet, attracting economic growth and development. Achieving the goals of a walkable and vibrant urban center is only possible with human-scaled transportation system development, including street sections at a scale narrow enough for all pedestrians to cross comfortably with elements such as curb extensions to shorten crossing distances, crosswalks at frequent intervals, direct routes between key destinations within the urban center, and grade separation where pedestrian and/or vehicular traffic volumes and/or road widths make at-grade crossings impractical.

Pedestrians depend on many factors to make travel comfortable and easy. Like roadways, sidewalks that are too narrow may feel constricted, especially if located along a wide roadway or tall buildings. Also like roadways, wider sidewalks can encourage pedestrian activity, as the sidewalks become more accommodating to large groups and conversations. Human-scaled transportation elements also include analysis and consideration focused on the pedestrian experience. A mile-long journey that may take 4 minutes for a driver in a climate-controlled vehicle within a moderately-dense environment takes approximately 20 minutes for a pedestrian in the elements, assuming a safe and direct pathway is available. Therefore, considering the needs of pedestrians means thinking at a pedestrian scale, understanding that a short travel distance for a driver may be significant for a pedestrian, and that the amenities offered by a personal vehicle cannot be provided in the same way for a pedestrian. Therefore, improving conditions for pedestrian travel must be accommodated in other ways, such as creation of an attractive streetscape, development of awnings and inlets to provide temporary shelter, provision of benches and tree for sitting and shade, and allotment crosswalks, signs, and signals that can ensure safe interaction with vehicular travel ways.

The most prominent conflict for pedestrians in a suburban environment is often the barrier of wide and intimidating roadways that can feature up to 150-foot wide crossing distances. That distance requires more than 30 seconds for a typical pedestrian to cross, and far longer than that if the pedestrian is unable to move at a rapid pace.

Additionally, these types of roadway promote automobile travel, with drivers often unprepared for the presence of pedestrians, making collisions between vehicles and pedestrians, especially when vehicles are turning, particularly common. While ground-level pedestrian activity is always preferred, and visually-appealing crosswalks are encouraged, high-volume, wide thoroughfares may require more extensive crossing infrastructure, including grade-separation, in order to ensure that system users, including children, senior citizens, and disabled individuals can cross safely. The vision for the Urban Policy Areas is a highly-connected pedestrian-friendly network that supports and encourages pedestrian activity and makes walking a preferred mode of travel. This can be achieved through construction of a comprehensive system, development of pedestrian-oriented neighborhoods, and a focus on pedestrian nodes.

Bicycle and Pedestrian Connectivity Policies

- 4-1.27 **Bicycle Lanes** Marked on-street bike lanes (minimum 5 feet in width) shall be provided where called for by the Bicycle Facilities Plan. On roads with speed limits of 30+ MPH or roads with at least four through travel lanes, bicycle lanes shall be buffered from traffic by striping at least 3 additional feet in width. Buffer zones are recommended, but not required, where on-street parking spaces are provided adjacent to the bicycle lanes as they help provide additional space between both open doors from parked cars and moving traffic.
- 4-1.28 **Trails** Off-street asphalt trails shall be constructed in accordance with the Urban Policy Areas Trails Plan. Where parallel and adjacent to a roadway, these trails shall be at least 10 feet in width and shall provide a direct route (without overly meandering deviations) to allow for moderate bicycle speeds. Where routed independently from a roadway, the trails shall be at least 16 feet in width and feature a separating stripe down the center of the path to indicate the bi-directional nature of the trail.
- 4-1.29 **Intersection Crossings** At intersections, curb ramps shall be placed in the direction of the bicycle path to facilitate through movements. Where both sidewalks and trails intersect with a roadway in the same direction, separate crosswalks should be marked for trail users (bicyclists) and for those on the sidewalk (pedestrians), as permitted by VDOT.
- 4-1.30 **Trail Construction** Development proposals shall include construction of trails, or at minimum, reservation or dedication of trail easements where indicated by the plan. Unless specifically indicated otherwise by the plan, all trails shall be paved for ease of use and access for all system users. Trails included in the Bicycle Facilities Plan shall include a public access easement along their entire length or be dedicated to the County as a linear park in order to ensure public right of access along throughout the trail network.
- 4-1.31 **Dedicated Roadway Crossings** For roadway crossings as part of the off-road trail network, the County shall seek public and private opportunities to construct grade-separated crossings. As an interim condition, traffic signals may be sought to provide a safe crossing of roadways with four or more vehicular travel lanes.
- 4-1.32 **Bicycles on Roadways without Bicycle Lanes and Trails** On two-lane Avenues and Local Streets without on-street bicycle lanes or adjacent trails, travel lanes shall be designed for use by vehicles and bicycles through pavement markings and/or “Share the Road” signs to convey awareness of the presence of bicyclists in the vehicular travel lanes.
- 4-1.33 **Bicycle Parking** Secure bicycle parking (bike racks) for at least four bicycles shall be provided at average intervals of once every 660 feet (1/8th of a mile) within commercial districts and once every 1,320 feet (1/4th of a mile) within residential districts. Bicycle parking will be provided in public parks and near primary entrances to public facilities.
- 4-1.34 **On-Site Bicycle Facilities** Secure bicycle rooms are encouraged within high-density residential and commercial buildings proposed within the Urban Policy Areas to encourage bicycling among residents and employees.

- 4-1.35 **Bicycle and Pedestrian Connectivity Plan** Land development applications within the Urban Policy Areas shall demonstrate conformance with the Urban Policy Areas Bicycle and Pedestrian Plans and, for legislative applications, shall include a bicycle and pedestrian connectivity plan, clearly indicating on-road and off-road mobility options proposed with the application.
- 4-1.36 **Sidewalks** Minimum eight-foot sidewalks are required along both sides of all Multimodal Through Corridors, Boulevards, and Avenues, and are encouraged along all Local Streets, within the Urban Policy Areas, regardless of use or location, except where specific provisions are described for the roadway in Chapter 3 of this plan. Minimum six-foot wide sidewalks are required along both sides of any Local Street in the Urban Policy Areas, regardless of use or location.
- 4-1.37 **At-Grade Pedestrian Crossings** Safe pedestrian crossings shall be incorporated into all intersections within the Urban Policy Areas for all pedestrian approaches.
- 4-1.38 **Grade-Separated Pedestrian Crossings** Grade-separated crossings may be provided in lieu of an at-grade crossing if such a crossing meets the grade-level sidewalk within 660 feet (1/8th of a mile) of the subject intersection. Grade-separated crossings are preferred to connect dense developments on either side of Multimodal Through Corridors and other higher-speed and wide roadways where the street typology is not conducive to a pedestrian environment.
- 4-1.39 **Crossing Accessibility and Safety** Grade-separated and at-grade pedestrian crossings shall be fully-accessible for all users, complying with all local, state, and federal regulations, and shall be, at minimum, 16 feet in width. Tunneled and skyway crossings shall include lighting throughout for pedestrian safety and clear sightlines from end to end, including at approaches. Signing shall be provided directing pedestrians and cyclists to use the grade-separated crossing in order to reach the opposite side of the roadway. Pedestrian refuge islands should be considered for at-grade crossings of wider roads where space allows.
- 4-1.40 **Pedestrian walkability** In order to maximize pedestrian access and mobility, pedestrian networks should provide direct routes to major destinations within the grid, as possible. When trip reductions are applied as part of traffic study for a development application, transit walksheds are required to provide a high-level of pedestrian access in coordination with plan policies.
- 4-1.41 **Curb extensions** In order to narrow the travel width of an intersection, curb extensions should be constructed at all crossings along streets with on-street parking, unless a right-turn lane is required per policy at the intersection.
- 4-1.42 **Crosswalks** Crosswalks shall be provided at all intersections within the Urban Policy Areas. Crosswalks shall be provided along avenues and boulevards a least once every 1,320 feet (1/4th of a mile), shall be designed to VDOT standards, and shall include appropriate signage and/or signaling to alert drivers to presence of pedestrians. Along Multimodal Through Corridors, Boulevards, and Avenues, crosswalks will be marked in

an enhanced style, such as Solid, Continental, Zebra, Ladder, or another similar style acceptable by VDOT that provides a highly visible indication of the potential for pedestrians to be crossing at that location.

Urban Policy Areas Transit Infrastructure

A critical element of an urban area, public transportation serves as most efficient way to move people along popular commuter routes and between activity centers. This is because far more people can be transported comfortably in a railcar or bus than in a personal vehicle and no dedicated space is needed to park that transit vehicle. Within the Urban Policy Areas, transit services are planned to include Metrorail, commuter, limited-stop, express, and local buses, and shuttles and circulators. Together, these services provide accessibility, convenient, and affordable access for people both inside and outside of Loudoun County.

Metrorail

Transit service in the Urban Policy Areas is centered around Metrorail. The Dulles Corridor Metrorail Project (Silver Line) will include stations at Ashburn, Loudoun Gateway, and Dulles Airport in Loudoun County and Innovation Center in Fairfax County on the Loudoun County border with frequent service to the commercial centers at Herndon, Reston, Tysons, Arlington, and Washington, DC. Though not part of the current project, the Town of Leesburg envisions in its Town Plan an extension of Metrorail to Leesburg, following the Dulles Greenway corridor. With the arrival of Metrorail service to Loudoun County, existing bus transit service will be altered to serve changing commuter patterns.

Countywide (local and express) Transit Network

Metrorail is complemented by a comprehensive and dependable local fixed-route bus service connecting people to places throughout Loudoun County. To create and enhance a high-quality transit system, frequent, fast, and dependable service, as well as clean and comfortable vehicles and stops are provided. These routes run both express service to important locations throughout the County and more locally to neighborhoods and communities. Within the Urban Policy Areas, a limited number of routings between the Metrorail stations and the fringes of the Urban Policy Areas will increase service on key roadways and provide opportunities for easy transfers. Every local bus route provides access to a Metrorail station or a Transit Center. Optimal service for local fixed-route bus services are at least every 15 minutes in the peak periods, with, at minimum, 30 minutes in the off-peak. Fares should be commensurate with surrounding jurisdictions, and discounts for transfers to/from Metrorail should be studied.

Several major corridors within the Urban Policy Areas are designated as Transit Corridors. These streets will serve as the primary routes for the countywide transit network through the Urban Policy Areas, providing efficient and logical routes between locations throughout the County and the Metrorail Stations. Located primarily along four-lane roads, these streets are designed to facilitate travel of transit and private vehicles alike. In order to facilitate dependable and logical transit routes, stop locations will be placed strategically at key locations along the corridor, at distances that provide access to the surrounding area without unnecessarily frequent and underutilized stops. Bus stop locations should face the Transit Corridor when possible, rather than an intersecting or

adjacent street, to provide dependability and clarity of route to riders. For this system to function properly, it is also crucial that bus stops on either side of a Transit Corridor are located at the same intersection so that riders may depart and alight a transit vehicle at the same approximate location. Features along these corridors may include enhanced bus stops and transit centers, intelligent transportation system devices (such as signal preemption), transit-friendly street elements, and frequent crosswalks. These streets should be considered for transit lanes at such time as transit ridership and projected growth within the area can justify such an improvement.

Localized Shuttles and Circulators

Private developments may choose to operate private shuttles connecting residents, employees, and visitors to locations within their site, or to Metrorail services. These private shuttles may be interim – until public transportation service is implemented – or permanent. However, demands for public transportation services and constrained space at the Metrorail Stations for transit vehicles may limit the effectiveness of these services as substantial growth occurs.

Aside from countywide bus services and private shuttle services, circulator services localized within the Urban Policy Areas can efficiently move people in high-density areas with all-day demands for service between the Metro Stations and the core developments within the Urban Policy Areas. This circulator is different from countywide local routes in both its character and route, using smaller buses and preferring denser, busier, and often slower streets that bring people to the most popular centers in the area, even at the expense of slightly increased travel times. Fares on circulator routes are usually lower than local fixed-route services, if not free altogether. Circulators, unlike traditional buses, are considered to be economic incubators and tend to run at all times, with the greatest demand and frequently in the evening and on weekends, when tourism to the area is most prominent. A conceptual map of potential circulator routes is shown below. These routes are intended for conceptual purposes only and would be further planned in coordination with the entity that would be operating the service. In the long term, circulator routes should comprehensively cover residential and employment centers within the Urban Policy Areas, ensuring that all residents and most employees are within a five minute walk of a shuttle stop. As the below concepts indicate, at least four shuttles are envisioned:

- A Moorefield Station Shuttle providing a connection between Moorefield Station and the Ashburn Metrorail Station South Transit Center.
- An Ashburn Station Shuttle providing a connection between areas north and south of the Ashburn Metrorail Station and the Ashburn Metrorail Station South Transit Center.
- A Loudoun Gateway Station Shuttle providing a connection between the Route 28 Business District and the Loudoun Gateway Metrorail Station Transit Center; and
- A Silver Line Loop Circulator providing a connection between the Ashburn North, Ashburn South, and Loudoun Gateway Transit Centers and the surrounding areas.

These shuttles will provide direct routes between development areas and the Metrorail Stations in order to ensure convenient and reliable access to all parts of the Urban Policy Areas.

Transit Amenities

Bus shelters are an important element at stop locations, with stops and associated shelters placed at intervals relative to the surrounding development density. In higher density areas, more frequent stops are assigned, with frequencies declining as dictated by housing and commercial density. Regardless of spacing, well-lit and signed shelters placed at the bus stop locations should be easily identifiable and include service information where feasible. In the central core of highly dense areas, more prominent and inclusive amenities are constructed to provide for modal transfers, higher ridership demands, and route transfers. The transit toolkit in Chapter 3 provides guidelines for these improvements.

Urban Area Transit Infrastructure Policies

- 4-1.43 **Transit Infrastructure Design** Development and implementation of transit infrastructure will be based upon the policies of this plan and the guidelines provided in the Transit Toolkit in Chapter 3.
- 4-1.44 **Metrorail Project Facilitation** The County will facilitate the implementation of the Dulles Corridor Metrorail Project, extending to Ashburn via intermediate station stops at Innovation Center, Dulles Airport, and Loudoun Gateway.
- 4-1.45 **Improvements Associated with Metrorail** The County, in partnership with VDOT, WMATA and/or other appropriate agencies, will ensure that land needed to provide planned rail-related improvements is obtained or reserved prior during review of land development applications. Land acquisitions and reservations will consider long-range transit plans as well as short term improvements.
- 4-1.46 **Transit Corridor Elements** Specific streets identified as *Transit Corridors* will be designed for transit service with special attention to transit elements including transit shelters and stations, bus bays, and bicycle and pedestrian access to transit services. Development proposals should concentrate the location of fixed transit elements along these roadways in accordance with the policies outlined below.
- 4-1.47 **Transit Corridor Design** Roundabouts and raised roadway traffic calming measures are prohibited along Transit Boulevards and other Transit-Priority Roadways, unless specifically designed to accommodate transit vehicles.
- 4-1.48 **Intelligent Transit Systems** Transit-priority elements such as traffic signal preemption and active parking information signage should be considered as part of transit system development within the Urban Policy Areas.
- 4-1.49 **High-Capacity Transit System Development** Transit Corridors should be prioritized for any future plans for transit-priority lanes through the Urban Policy Areas.
- 4-1.50 **Private Shuttles** In order to ensure residents and employees in the Urban Policy Areas have a car-free option for travel to and from Metrorail, the County will seek private shuttle services between developments within the Urban Policy Areas and at least one of the Metrorail Stations during review of legislative land development applications. These

shuttles should operate at a minimum frequency of every 15 minutes during peak hours and every 30 minutes during all other times that Metrorail is operating.

4-1.51 **Land Development Applications** Proposed circulator routes and stop locations should be indicated on applicable land development application materials in order to ensure integration and route connectivity with adjoining developments.

4-1.52 **Provision of Service** Fixed-route private shuttle services will be operated on an interim basis, ceasing operation at such time as a public circulator service is initiated that provides redundant routing and frequency.

4-1.53 **Circulator Routes** Circulators will be routed to provide direct access to development nodes within the Urban Policy Areas

Urban Policy Areas TDM Strategies

Urban development patterns provide ample opportunities for implementation of bold TDM strategies. Walking to work becomes a viable option for many people. High ridership transit service is made possible by increased density along major corridors. Possibilities for bike share and car share services that are dependent on integrated residential and office environments can grow in demand in order to serve the area.

Public Transit Walksheds and Trip Reductions

Trip reductions based on transit access from a proposed development are encouraged in the Urban Policy Areas. These reductions will consider several factors related to use, transit services available, access to transit service, and orientation of uses toward transit with appropriate connectivity. Scoping agreements for traffic impact studies shall be based on walksheds described herein (which could vary within the development area), and the design of the transportation network within the development site to facilitate the level of transit-use described in the scoping document and traffic impact study. Transit reductions for local transit will vary, not to exceed the rates outlined above, based upon a review of:

- The overall *frequency* of all existing transit services serving the site, including combined headways and hours of operation (weekday / peak / weekend).
- The *type of service* offered (local / limited / express).
- The *scale* of bus facilities existing on the site or proposed as part of the land development application (shelter / transit center / transit station).
- Estimated transit *ridership* based on the proposed uses and likelihood of the proposal to generate ridership at a level equitable to the requested reduction.

TDM Policies

4-1.53 **Live/Work** The County will provide information regarding the benefits of working in mixed-use urban center and encourage employees to consider options for living closer to their workplaces.

4-1.54 **Metrorail and Transit** The County will strongly encourage the use of Metrorail and other transit services, and work with companies in the Urban Policy Areas to develop strategies

to encourage daily ridership, and incentives for those who do not drive alone. The County will work with development applicants to ensure that transit is featured as a prominent component of the development proposal.

- 4-1.55 **Traffic Scoping** The trip reduction guidelines described in this section shall be applied to planning studies, traffic impact study scoping documents, and land development applications, as applicable and requested, when identifying needs and mitigating impacts of proposed transit-oriented developments. During traffic scoping, the Applicant may also request to take reductions based on ITE, ULI, or other accepted industry standard urban development impact evaluator in consultant with County staff.
- 4-1.56 **Vehicle Trip Reductions** Trip reductions shall be permitted for different uses within the Urban Policy Areas based upon walkshed and access to transit if the site is designed according to the guidelines for transit-oriented developments within this document. The primary/public building entrances claimed within the walkshed must be located within the walkshed area for the associated reduction to be utilized.
- 4-1.57 **Minimum Parking Reductions** Reductions to parking requirements will be evaluated by standards of the County's Zoning Ordinance and policy. The policy component of this review will be based upon the trip reductions described above as well as any information provided by the Applicant as justification for the reduction.
- 4-1.58 **Car Share and Bike Share** The County will study the creation of a bike share system and encourage car sharing services to locate in the Urban Policy Areas in order to allow residents and workers to access local and regional services without the need for a private automobile. The County will request that development applicants provide opportunities for car share and bike share within their developments.
- 4-1.59 **Carpools and Vanpools** The County will work with employers in the Urban Policy Areas to encourage workers to commute by carpool and vanpool, and to incentivize those who do not drive alone.
- 4-1.60 **High-Occupancy Vehicle and Bus Lanes** The County will consider alternative travel lane typologies along roadways within the Urban Policy Areas in order to encourage alternative travel options.
- 4-1.61 **Dynamic Parking** The County will encourage the development of dynamic parking systems in public and publicly-accessible parking structures in order to guide drivers to available spaces.

Suburban Policy Area

Suburban areas are typified by networks of wide, high-speed roads and tree-lined residential local streets defined by curves and cul-de-sacs, strip center retail, and isolated office parks, while heavily oriented towards automobiles. As the County's suburban areas have built out, plans and policies have sought to improve upon this model through encouragement of interconnectivity, strengthened pedestrian access, and integration of both commercial and community amenities into development planning. Today, these efforts have in many ways bucked many of the problems of traditional

suburban development while sustaining the positive aspects of suburban living, such as access to open space, access to goods and services, and moderate densities that provide for community integration and personal space.

Modern definitions of quality of life have reflected these trends, with consumer preference for townhomes, bicycle and pedestrian facilities, and walkable amenities driving demand. In order to accommodate these desires, the policies below are designed to facilitate safety and operation of this modern transportation system while providing flexibility to accommodate the types of uses the market demands.

Suburban Policy Area Built Environment

For the purposes of this transportation plan, the suburban built environment is best defined as the spaces between the places (trip origins and destinations), including site access, parking, and the relationship between structures and streets. In the Suburban Policy Area, this means engaging buildings into transportation system planning to ensure that placemaking can occur while support suburban mobility needs.

Suburban Built Environment Policies

- 4-2.1 **Structure Access** All buildings will be designed to accommodate safe and convenient pedestrian access between building entrances, parking areas, and adjoining streets.
- 4-2.2 **Quality Design** The County supports proposals for quality design for streets and transit shelters, including the use of enhanced materials, plantings, and wayfinding signage to enhance the aesthetic character of development.
- 4-2.3 **Entrances** Building entrances should be designed to face streets either along or internal to the development in order to provide opportunities for improved streetscape and encourage pedestrian traffic.
- 4-2.4 **Village of Ashburn** This plan supports the preservation and enhancement of the Village of Ashburn through context-sensitive transportation network design and consideration of historic structures and preservation of the village aesthetic.
- 4-2.5 **Plan Coordination** Transportation Improvements in the Suburban Policy Area will meet the policies and intent of this document as well as other policies of the Comprehensive Plan.

Suburban Policy Area Roadways

While this plan attempts to provide modal options for travelers throughout the Suburban Policy Area, the primary mode of travel in the suburban area is the automobile. Therefore, completion of the planned roadway network is critical to success of the planned suburban area. The policies below seek to create a safe, efficient, and connected road network in the suburban area, promote the suburban quality of life desired by residents within this area.

Suburban Roadway Policies

- 4-2.6 **Design Standard** All roadways in the suburban area shall be designed consistent with the Roadway Design Toolkit.
- 4-2.7 **Grid of Streets** Roadways will be designed to facilitate development of a grid of local streets with integrated bicycle and pedestrian access.
- 4-2.8 **Integration of Uses** The County will improve the planned and existing motor vehicle,

bicycle, and pedestrian networks in the Suburban Policy Area by encouraging additional connections between neighborhoods and between residential and employment areas where such connections can be made with minimal disruptions. These connections will be prioritized where it can be demonstrated that such connections will ultimately reduce congestion.

- 4-2.9 **Level of Service** For public and private transportation projects within the Suburban Policy Area, a Level of Service threshold of LOS D or better, overall and by approach, will be the standard for analyzing needed improvements.
- 4-2.10 **Interparcel Access** Interparcel access reservations will be provided via dead end streets, cul-de-sacs, or land reservations as part of development applications, including redevelopment applications, where adjacent parcels are undeveloped or could be redeveloped in the future.
- 4-2.11 **Connectivity** Development applications will connect to established interparcel access points or reservations, unless sufficient justification can be provided for abandoning such a potential connection.
- 4-2.12 **Traffic Calming** Traffic calming measures shall be considered for local and collector roadways in the Suburban Policy Area to improve multimodal safety and quality of life.

Suburban Policy Area Bicycle and Pedestrian Facilities

One of the primary benefits of suburban living is the opportunity to enjoy open space while living proximate to workplace and lifestyle destinations. While the automobile is the primary mode of transportation in the suburban area, it is crucial to provide opportunities for bicycling and walking for short trips, to provide mobility to those who cannot drive, and for recreation. As in urban areas, a complete network is necessary to realize the full potential of bicycle and pedestrian systems in the suburban area.

Suburban Bicycle and Pedestrian Policies

- 4-2.13 **Provision of Facilities** Bicycle and pedestrian facilities are required along both sides of all public and private streets in the Suburban Policy Area, designed and constructed consistent with the policies and Roadway Design Toolkit of this plan.
- 4-2.14 **Off-Road Trails** Provision of publicly-accessible off-road trail networks through suburban neighborhoods is highly encouraged. Such networks will provide for greater access to natural amenities and activity centers.
- 4-2.15 **Off-Road Trail Parking Areas** Small parking areas intended to serve recreational trails in the suburban area, including the W&OD Trail, are supported by this plan. Such lots may be privately maintained by entities other than the County or VDOT. Wayfinding and informational signage will also be provided at these parking areas to direct cyclists and pedestrians to nearby destinations.

Suburban Policy Area Transit Infrastructure

The suburban policy area features suburban street grids, but in many places within the county, development densities present opportunities to expand local transit service by attracting riders through convenience and, in the coming years, access to Metrorail and planned urban centers. This means that coordinated planning with identification of potential transit corridors can help to facilitate these ridership growth opportunities. Additionally, community park-and-ride lots can

offer transit services, increasing the efficiency of the suburban road network and providing travel options to those seeking to reach major job centers.

Suburban Transit Infrastructure Policies

- 4-2.16 **Park-and-Ride Lots** Regional park and ride lots shall be considered for placement at the outskirts of communities and neighborhoods to attract nearby residents to depart the public road network and shift to transit prior to reaching the County's most demanded arterial roads.
- 4-2.17 **Bus Shelters** Curbside bus shelters are encouraged along collector roads in the suburban policy area. This will ensure that such investments are located along pedestrian-friendly corridors that can efficiently accommodate transit services.
- 4-2.18 **Bus Lanes** Opportunities for bus-only, bus-priority, and signal-priority shall be evaluated along major corridors in the county. Such studies will consider ridership demands, potential service types and patterns, and key locations where such facilities would have the most significant impact on reducing travel time for transit riders.
- 4-2.19 **Stop Locations** It is anticipated that bus stops intended to serve specific uses will be located to provide logical and direct access for transit riders between the stop and building entrances, including placement such that the rider will not need to cross parking lots or travel a further distance than is reasonable.

Suburban Policy Area TDM Strategies

A balanced transportation system is vital to Loudoun citizens. The County supports and promotes a variety of commuting options for residents, employees and visitors. These include carpools and vanpools, rail and bus transit, bicycling, walking, teleworking and alternative work schedules. To facilitate these options, transportation demand management (TDM) strategies are implemented to encourage use of positive commuting options. TDM strategies also seek to reduce single occupant vehicle (SOV) travel, thereby increasing the efficiency of the transportation system. By providing mobility choices, air and water quality can be improved, congestion can be reduced, and citizens may enjoy a better quality of life. TDM measures also support other goals within this plan, including the creation of walkable mixed-use communities, which help to reduce the need to build as many multi-lane roadways. In addition, mobility options serve the needs of a growing and diverse population, including non-drivers, and help attract economic development to the County.

In the suburban area, TDM is key to improving utilization of existing facilities and services while accommodating growth. TDM programs help manage travel demand to make the systems more efficient with a core mission of moving more people in fewer vehicles, less demand during the peak travel period, or, in the case of teleworking, eliminate travel demand altogether. To accomplish these goals, TDM focuses on people-oriented transportation choices and efficient transportation solutions.

The benefits of enhanced investment in public transportation and TDM programs to Loudoun County and the region span a broad range. Some of the most notable benefits include improved mobility and travel choices, decreased cost of travel, reduce roadway congestion, improved air and water quality, and opportunities for improved quality of life through decreased stress, time savings, and greater opportunity for rest or work while in transit, while allowing the transportation network to keep pace with needs of a growing population.

Specific TDM programs offered by Loudoun County include transit services, carpool and vanpool programs, employer outreach efforts, telework support services, provision of bicycle and pedestrian facilities, and planning and management of park and ride lots and HOV facilities.

Suburban Transportation Demand Management Policies

- 4-2.20 **Land Development** Strategies for TDM will be evaluated and recommended at each stage of the development process for legislative applications, including at traffic study scoping stage, to evaluate opportunities to mitigate transportation system impacts deriving from proposed land uses.
- 4-2.21 **Trip Reductions** TDM-based trip reductions included with traffic study scoping agreements will be evaluated as mode shifts and appropriate provisions will be requested during the land development review process to support such reductions. Such reductions will be reviewed taking into consideration existing and proposed surrounding land use patterns and opportunities for effective TDM implementation.
- 4-2.22 **Recommended Improvements** TDM will be facilitated through provision of facilities needs to accommodate programs, including but not limited to: transit shelters and stations, park-and-ride lots, bike racks, carpool and vanpool parking spaces, workplace TDM information displays, car sharing parking spaces, bicycle sharing stations, regional bicycle and pedestrian facilities, workplace transit commute benefit programs, private shuttle services, managed travel lanes, and financial support of County TDM programs.
- 4-2.23 **County Efforts** The County will encourage employers to support alternative travel modes by engaging employers, providing County staff support, and encouraging adoption of private TDM programs.
- 4-2.24 **Parking Reductions** The County will consider existing and proposed TDM programs as a factor when evaluating requests for modifications and reductions to parking requirements. These TDM factors will be evaluated based on demonstration of likely reductions to trip and parking generation rates commensurate with the demonstrated reduced forecasted demand for parking.
- 4-2.25 **Shared Mobility** The County shall encourage private provision of car sharing and bicycle sharing in public and private commercial and residential areas to decrease the demand for private vehicle ownership and parking.
- 4-2.26 **Shared Rides** The County shall encourage vanpooling and carpooling through public and private programs in order to encourage more efficient commuting and better use of the County's roadways.
- 4-2.27 **Telework** The County shall encourage public and private entities to provide opportunities for employees to telework, hold alternative hours, or provide opportunities for a compressed work schedule in order to improve travel along the County's roadways.
- 4-2.28 **Metrorail Access** The County supports the extension of Metrorail into Loudoun County and will continue to seek opportunities to increase ridership through improved mobility, access, and amenities in the vicinity of the station areas.

Transition Policy Area

The Transition Policy Area serves to provide a visual transition between the suburban and rural areas of the County. To achieve this goal, development in the Transition Policy Area should provide more rural features than the suburban area and more suburban features than the rural area. In the same vein, the transportation network should reflect the shifting development patterns and aesthetic between these areas. To achieve this type of built environment, the policies below reflect a combination of suburban and rural area policies.

Transition Policy Area Built Environment

The transition built environment is one that provides a defined transition between suburban and rural through changes to the aesthetic characteristics of transportation corridors. This means creating an environment that features elements of both rural and suburban design while still feeling connected, integrated, and logical to provide a sense of continuity and place.

Transition Built Environment Policies

- 4-3.1 **Setbacks** All buildings shall be sufficiently set back from roadways to create a less intensive feeling along roadways, supplemented with native landscaping to enhance the aesthetic character of development.
- 4-3.2 **Streetscape** Building entrances should be designed to face streets along the development frontage in order to provide opportunities for improved streetscape.
- 4-3.3 **Traffic Operations** Site access will be designed to limit impacts to traffic operations along arterial and collector corridors, including incorporation of design elements to limit the need for traffic signals.
- 4-3.4 **Plan Coordination** Transportation improvements in the Transition Policy Area will meet the policies and intent of this document as well as other policies of the Comprehensive Plan.

Transition Policy Area Roadways

The road network in the Transition Policy Area is planned to reflect the transitional character of the area as outlined in the General Plan. The policies below represent a combination of suburban and rural roadway policies that will facilitate development of the transition area in a way that achieves its planned purpose.

Transition Roadway Policies

- 4-3.5 **Level of Service** For public and private projects within the Transition Policy Area, a Level of Service threshold of LOS C or better will be the standard for analyzing needed improvements.
- 4-3.6 **Interparcel Access** Reservations will be provided for future interparcel access via dead end streets, cul-de-sacs, or land reservations as part of development applications, including redevelopment applications, where adjacent parcels are undeveloped or could be redeveloped in the future.
- 4-3.7 **Connectivity** Development applications will connect to established interparcel access points or reservations, unless such a connection would disrupt significant environmental or natural features, or other sufficient justification can be provided for abandoning such a potential connection.

- 4-3.8 **Capacity** Collector and arterial roads in the transition area will be planned for the necessary capacities and roadway sections to accommodate through trips and are generally not intended to accommodate development beyond that planned to occur.
- 4-3.9 **Transition Techniques** Appropriate techniques will be used to visually signal to travelers that they have left the Suburban Policy Area and entered the Transition Policy Area. Some of these techniques include a reduction in the number of through travel lanes, a change to the design of the roadway section, a change in speed limit, increased natural landscaping and wider buffers, and a transition from curb and gutter to shoulder and ditch sections. Any improvements within the transition area will also be made consistent with the Roadway Design Toolkit.

Transition Policy Area Bicycle and Pedestrian Facilities

Through extensive provisions of open space, the transition area offers opportunities for recreation and enjoyment of nature. Bicycle and pedestrian connections can improve access to these amenities while also providing connectivity to residential, retail, and community centers.

Transition Bicycle and Pedestrian Policies

- 4-3.10 **Connectivity** Developments will be designed to feature internally and externally integrated bicycle and pedestrian access, with great deference to preservation of natural topographies and environmental features.
- 4-3.11 **Off-Road Trails** Provision of publicly-accessible off-road trail networks is highly encouraged in the transition area. Such networks will provide for greater utilization and access to natural amenities.
- 4-3.12 **Recreational Parking Areas** Small parking areas intended to serve recreational trails in the transition area are supported by this plan. Such lots may be privately maintained by entities other than the County or VDOT. Wayfinding and informational signage will also be provided at these locations.

Transition Policy Area Transit Infrastructure

The auto-oriented nature of the Transition Policy Area provides opportunities for commuter park-and-ride lots. Comparatively, planned densities in the Transition Policy Area are generally incompatible with higher population densities needed to support local bus service. However, planned activity nodes in the General Plan may provide opportunities for hybrid bus services with longer routes and fewer stop locations.

Transition Transit Infrastructure Policies

- 4-3.13 **Park and Ride Lots** Regional park and ride lots shall be considered for placement along arterial corridors in the transition area to provide options to local residents as well as travelers from rural areas and those traveling from outside of the County.
- 4-3.14 **Bus Shelters** Curbside bus shelters shall be evaluated in planned activity nodes, but are not envisioned in other parts of the transition area where population densities are unlikely to support local transit services.

Transition Policy Area TDM Strategies

A balanced transportation system is vital to Loudoun citizens. The County supports and promotes a variety of commuting options to residents, employees and visitors. In the transition area, these commuting options include carpools and vanpools, commuter bus, bicycling, walking, teleworking

and alternative work schedules. To facilitate these options, transportation demand management (TDM) strategies are implemented to encourage use of positive commuting options. TDM strategies also seek to reduce single occupant vehicle (SOV) travel, thereby increasing the efficiency of the transportation system. By providing mobility choices, air and water quality can be improved, congestion can be reduced, and citizens may enjoy a better quality of life. In addition, mobility options serve the needs of a growing and diverse population, including non-drivers, and help attract economic development to the County.

Transition Transportation Demand Management Policies

- 4-3.14 **Land Development** Strategies for TDM will be evaluated and recommended at each stage of the development process for legislative applications, including at traffic study scoping stage to evaluate opportunities to mitigate transportation system impacts deriving from proposed uses.
- 4-3.15 **Trip Reductions** TDM-based trip reductions included with traffic study scoping agreements will be evaluated as mode shifts and appropriate provisions will be requested during the land development review process to support such reductions. Such reductions will be reasonable based upon proposed and surrounding land use patterns and opportunities for effective TDM implementation.
- 4-3.16 **Recommended Improvements** TDM will be facilitated through provision of facilities needs to accommodate programs, including but not limited to: transit shelters, park-and-ride lots, bike racks, carpool and vanpool parking spaces, workplace TDM information displays, regional bicycle and pedestrian facilities, and financial support of County TDM programs.
- 4-3.17 **County Efforts** The County will encourage employers to support alternative travel modes by engaging employers, proving County staff support, and encouraging adoption of private TDM programs.
- 4-3.18 **Parking Reductions** Parking reductions are generally not supported in the transition area due to the lower planned densities. Limited consideration of parking reductions will be considered on a case-by-case basis where it can be demonstrated that reasonable reductions in parking generation will be achievable.
- 4-3.19 **Shared Rides** The County will promote vanpooling and carpooling through public and private programs in order to encourage more efficient commuting and better use of the County's roadways.
- 4-3.20 **Telework** The County will encourage public and private entities to provide opportunities for employees to telework, hold alternative hours, or provide opportunities for a compressed work schedule in order to improve travel along the County's roadways.

Rural Policy Area

The Rural Policy Area represents the County's goals to focus new urban and suburban development in the eastern portions of the County, thereby maintaining and supporting rural economic uses and residential lifestyles throughout the west. As the largest policy area by geography, planning transportation capacity through this area with appropriate consideration of context, character, and preservation aesthetic is a challenging process. When planned correctly,

such efforts can create opportunities sustaining the rural qualities that Western Loudoun offers for generations to come.

Rural Policy Area Built Environment

Although the “built” environment is not what comes to mind when picturing the west, development that does occur in the context of the General Plan requires consideration of access and impacts on the transportation system. The policies below seek to protect the rural area while being cognizant of the ever-increasing demands for mobility through this area by travelers to and from locations within and outside of the County.

Rural Built Environment Policies

- 4-4.1 **Setbacks** Buildings in the Villages should be located closer to the street frontage and provide a consistent streetscape, while those outside of the Villages should be sufficiently set back from roadways to create a less intensive feeling along roadways, supplemented with native landscaping to enhance the aesthetic character of development.
- 4-4.2 **Streetscape** Building entrances should be designed to face streets along the development frontage in order to provide opportunities for improved streetscape.
- 4-4.3 **Access Points** Access points will be designed to support the rural context, including shoulder and ditch sections, rustic elements, and preservation of the rural road corridor aesthetic.
- 4-4.4 **Traffic Operations** Site access will be designed to limit impacts to traffic operations along arterial and collector corridors.
- 4-4.5 **Plan Coordination** Transportation improvements in the Rural Policy Area will meet the policies and intent of this document as well as other policies of the Comprehensive Plan.

Rural Policy Area Roadways

Loudoun County has a network of over 265 miles of unpaved rural roads that reflect the County’s agricultural heritage, many of which were trail blazed in the 17th and 18th centuries. The unpaved rural road network has a natural traffic calming effect that permits their shared use for horseback riding and hiking and contributes to the quality of life sought by rural residents. They are recognized as adding to the rural character that attracts tourists. They also facilitate the safe, efficient movement of farm vehicles. The County is committed to the preservation of a safe unpaved rural road network. It is also worth noting that paving this extensive network of unpaved roads is undesirable due to the cost of completing such a task, which would require reallocation of state funds from other, more utilized, roads in the Secondary Road Improvement Program (SRIP), such as those in the Suburban and Transition Policy Areas.

In certain circumstances, unpaved roads may need to be paved. In consultation with the County, road paving occurs when VDOT can no longer provide adequate maintenance to keep the facility in operable condition due either to the geometry or traffic demands for the road. In such instances, the County supports the use of minimal-impact and context-sensitive design techniques, such as Pave-In-Place and Rural Rustic Road standards.

Rural Rustic Road Program

VDOT manages a Rural Rustic Road program that can be applied to any unpaved secondary road that carries at least 50 but no more than 1,500 vehicles per day, serve

predominantly local traffic, and that has been designated by the County as a Rural Rustic Road. The design and engineering standards of this program are intended to preserve the significant historic and environmental features of these low volume roadways, while limiting the need for additional rights-of-way. The intent of this program is to improve travel conditions and dependability on the road while limiting traffic growth along the corridor by maintaining the most limited design and engineering standards necessary to maintain safe travel along the road.

[Pave-In-Place Program](#)

VDOT manages a Pave-In-Place program that can be applied to any unpaved secondary road that carries at least 50 but no more than 750 vehicles per day. These roads are paved within an existing right-of-way if possible or within a slightly wider right-of-way that is less than 40 feet wide based on considerations of safety, public input, historical and aesthetic features along the corridor, availability of land, and environmental considerations.

[Rural Roads Policies](#)

- 4-4.6 **Intent** Transportation road improvements in the Rural Policy Area will be focused on the safety of all users and will be designed to protect the rural character of the road network. Such improvements will be consistent with the Roadway Design Toolkit.
- 4-4.7 **Lanes** All the roads in the Rural Policy Area will be retained as two-lane roads except VA Route 7 (Harry Byrd Highway) and portions of), US Route 15 (James Monroe Highway), and VA Route 621 (Evergreen Mills Road).
- 4-4.8 **Traffic Calming** Traffic calming measures will be incorporated into road projects in the Rural Policy Area to improve safety, with particular focus on Towns, Villages, and other historic areas. Improvements to roads in or adjacent to existing Villages will incorporate site specific design solutions to preserve the existing aesthetic and character.
- 4-4.9 **Improvements** All transportation improvements made within the Rural Policy Area will be designed to a rural standard, including use of shoulder and ditch sections, native plantings, and provision of turn lanes only where warranted and needed for safety and maintenance of traffic operations.
- 4-4.10 **Level of Service** For public and private projects within the Rural Policy Area, a Level of Service threshold of LOS C or better, overall and by approach, will be the standard for analyzing needed improvements.
- 4-4.11 **Roadway Districts** The County will seek to protect the historic and scenic qualities of roads within the Rural Policy Area through the designations of Historic Roadway Districts, Virginia Scenic Byways, and Historic Access Corridors.
- 4-4.12 **Necessary Improvements** The County will seek to make only essential safety improvements on unpaved rural roads based on volumes, the nature of the road users (local vs. regional traffic), and crash data.
- 4-4.13 **Preservation** The County will coordinate with VDOT on review of planned road improvement plans for rural roads so that the County can limit potential negative impacts on rural character, including features such as:

- Tree canopy
- Stone walls and fences
- Hedgerows
- Historic and Agricultural Structures
- Significant View Sheds
- Limestone / Karst topography

4-4.14 **Low-Impact Improvements** The County supports maintaining the unpaved roads as feasible. In cases where unpaved roads must be paved, the VDOT *Pave-in-Place* and *Rural Rustic Road* programs will be used to the maximum extent possible. The County will work with VDOT to expand opportunities and refine application of these standards through legislation.

4-4.15 **Traffic Calming** The County’s commitment to maintain its unpaved rural roads is a *facto* recognition of the traffic calming effect of these roads on local traffic. Other traffic calming measures along rural roads will be designed with considerations of rural context and character.

Rural Policy Area Bicycle and Pedestrian Facilities

This plan supports growth of a cycling network in the Rural Policy Area while promoting safety for riders. The plan also indicates the need for pedestrian facilities along primary roads and in the villages, where pedestrian activity is anticipated to occur.

Rural Bicycle and Pedestrian Policies

4-4.16 **Priority** Facilities along primary roads and within the Towns and Villages will be prioritized in order to provide mobility within rural activity centers.

4-4.17 **Villages** Within the villages, sidewalks will be provided along both sides of all public and private streets.

Rural Policy Area Transit Infrastructure

The County provides select long-haul commuter bus services from limited portions of the rural area. However, the County does not operate local transit services in the rural area. Instead, these services are operated by Virginia Regional Transit and include a fixed-route local bus service and on-demand services. The relatively low densities in the rural area outside of the towns are generally unable to support transit services. However, future consideration may be given to routes through the rural area that connect rural towns and villages to transportation hubs either in the eastern portions of the County or in neighboring jurisdictions.

Rural Transit Infrastructure Policies

4-4.18 **Park-and-Ride Lots** The County shall study and seek public input regarding opportunities for regional park and ride lots along primary road corridors in the rural area to provide options to rural communities as well as travelers from outside of the County, thereby mitigating some pressures on the County road network.

4-4.19 **Commuter Bus Services** The County will continue to support long-haul bus services from locations in the rural area, exploring opportunities for connections to the County’s Metrorail Stations and evaluating the ongoing demand for these services.

4-4.20 **Support** The County supports the continued provision of local and on-demand transit services in the rural area by Virginia Regional Transit.

Rural Policy Area TDM Strategies

In order to maintain a high quality of rural life and low traffic congestion in the County's rural communities, transportation demand management (TDM) measures can be instituted in the context of rural opportunities and lifestyles. Due to the relatively low population densities across the rural landscape, the types of TDM measures employed in denser portions of the County may not be adaptable in the rural area. However, certain steps can be taken to minimize the need for single-occupancy vehicle travel in these areas.

In the rural area, TDM can manage travel demand to make the systems more efficient with a core mission of moving more people in fewer vehicles, less demand during the peak travel period, or, in the case of teleworking, eliminate travel demand altogether. To accomplish these goals, TDM focuses on people-oriented transportation choices and efficient transportation solutions.

The benefits of enhanced investment in public transportation and TDM programs to Loudoun County and the region span a broad range. Some of the most notable benefits include improved mobility and travel choices, decreased cost of travel, reduced roadway congestion, improved air and water quality, and opportunities for improved quality of life through decreased stress, time savings, and greater opportunity for rest or work while in transit, while allowing the transportation network to keep pace with needs of a growing population.

Specific TDM programs applicable to rural development patterns may include long-distance transit services, carpool and vanpool programs, employer outreach, telework, provision of context-sensitive bicycle and pedestrian facilities, and planning and management of park-and-ride lots.

Rural Transportation Demand Management Policies

4-4.21 **Land Development** Strategies for TDM will be evaluated and recommended at each stage of the development process for legislative applications, including at traffic study scoping stage to evaluate opportunities to mitigate transportation system impacts deriving from proposed uses.

4-4.22 **Trip Reductions** TDM-based trip reductions are not anticipated in the rural area, except in the Towns. For TDM policies within the Towns, please refer to the Town Plans.

4-4.23 **Recommended Improvements** TDM will be facilitated through provision of facilities needs to accommodate programs, including but not limited to: park-and-ride lots, bike racks, carpool and vanpool parking spaces, workplace TDM information displays, regional bicycle and pedestrian facilities, private shuttle services, and financial support of County TDM programs.

4-4.24 **County Efforts** The County will encourage employers to support alternative travel modes by engaging employers, providing County staff support, and encouraging adoption of private TDM programs.

- 4-4.25 **Shared Rides** The County will promote vanpooling and carpooling through public and private programs in order to encourage more efficient commuting and better use of the County's roadways.
- 4-4.26 **Telework** The County will encourage public and private entities to provide opportunities for employees to telework, hold alternative hours, or provide opportunities for a compressed work schedule in order to improve travel along the County's roadways.

Towns and Joint Land Management Areas (JLMAs)

Each of Loudoun County's seven incorporated towns – Hamilton, Hillsboro, Leesburg, Lovettsville, Middleburg, Purcellville and Round Hill – control their own transportation planning functions within their corporate limits. Additionally, due to their larger populations, both the Town of Leesburg and the Town of Purcellville are responsible for the maintenance and operation of all public roads within their boundaries. However, the County works cooperatively with each Town regarding transportation matters both within the Towns and in unincorporated areas outside the Towns' boundaries. Joint Land Management Areas (JLMAs) have been established by the County as urban growth boundaries around four of the Towns: Hamilton, Leesburg, Purcellville, and Round Hill. JLMA boundaries define the planned ultimate extent of Town municipal water and sewer systems.

Towns and JLMAs Policies

- 4-5.1 **Coordination** The County will coordinate development of plans and design of all transportation facilities within JLMA areas with the associated Town, and will seek opportunities to provide comment and coordination during Town transportation planning and design efforts.
- 4-5.2 **Town Plans** Development in the JLMAs should refer to the associated Town JLMA plan for policy and strategy related to connectivity of the transportation network. Proposed connections outside of the JLMA will be subject to the plans and policies for the associated Policy Area as defined in this plan.
- 4-5.3 **Connectivity** The County will work with the Towns to ensure seamless connections and continuous networks between the Towns and surrounding portions of the County as appropriate based upon other County policies and plans.
- 4-5.4 **Traffic Management** The County will work with the Towns to strive for completion of a functional and dependable transportation system, while respecting the historic nature and aesthetic qualities of the Towns.
- 4-5.5 **Land Development** The County will work with the Towns to complete joint evaluations of land development applications that are located near Town boundaries or that would have substantial transportation impacts on both Town and County networks.
- 4-5.6 **Plan Coordination** Town and JLMA transportation improvements will meet the policies and intent of this document as well as other policies of the Comprehensive Plan.

Chapter 5 – Air Travel

Air travel is an integral component of Loudoun County’s overall transportation system. Washington Dulles International Airport (IAD) is one of the most utilized airports in the United States. It offers connections to international destinations and provides a critical economic engine for business and cargo movement with the County and the larger Washington, DC region. Leesburg Executive Airport is one of the largest non-commercial airports in the Washington region and supports both a burgeoning corporate market and recreational fliers. Air travel also occurs from localized facilities such as helipads, which can be used for emergency services as well as to provide high-speed travel options for businesses and individuals.

Washington Dulles International Airport

Washington Dulles International Airport (Dulles Airport) is a critical component to success of the County’s entire comprehensive plan. In 2016, 264,785 flights operated out of Dulles Airport serving nearly 22,000,000 passengers, including 7,473,890 international travelers, each arriving and departing through the airport’s Loudoun County terminal buildings.

Access to Dulles Airport is provided by the Dulles Airport Access Road, which connects to Route 28 and the Dulles Greenway for connections to Loudoun County. Transit access is provided by WMATA via the Wiehle-Reston East Station until the completion of the Dulles Corridor Metrorail Project, at which time rail access will connect travelers to the airport, providing access to locations along the rail line within Loudoun County. At this time, bicycle and pedestrian connections are not provided to the airport. In addition, this plan calls for extension of the Air and Space Museum Parkway as an arterial corridor between Route 28 and Loudoun County Parkway, enhancing mobility for air travelers, museum visitors, and daily commuters into and out of southern Loudoun County.

Dulles Airport also features the Smithsonian Institute’s Udvar-Hazy Air and Space Museum in the southeast corner of the airport. This cultural center is easily accessed from Loudoun County via Route 28 and US Route 50 via Air and Space Museum Parkway.

Leesburg Executive Airport

Leesburg Executive Airport is a general aviation facility. The airport supports 115,000 annual arrivals and departures, with 250 aircraft stationed at the facility. The airport also features minimum charter operations and repair services. Its 5,500-foot long runway is planned for extension in the future to support the airport’s growth and expansion.

Private Air Travel Facilities

Aside from airports, air travel can be facilitated via heliports, helipads, and other private facilities. These facilities can support emergency safety and medical services, economic development, and decreased demand for travel along County roads. While not common, such facilities do exist throughout the County and serve a role in supporting mobility goals.

AIR TRAVEL POLICIES

5-1.1 **Intent** The County supports the growth and development of Washington Dulles

International Airport and Leesburg Executive Airport.

- 5-1.1 **Coordination** The County will coordinate development of plans and design of transportation facilities along the boundaries of the airports with MWAA, VDOT, Fairfax County, the Town of Leesburg, and other agencies as appropriate. The County will seek opportunities to provide comment and coordination with airport officials during airport planning and design efforts.
- 5-1.2 **Access** To improve access to Washington Dulles International Airport, the County supports and will work to implement the Dulles Loop, consisting of limited access conditions for VA Route 28, VA Route 606, and a southern connector (either US Route 50 or an extension of Air and Space Museum Parkway), working to identify where airport access points would be logically located or improved along these corridors.
- 5-1.3 **Multimodal Access** The County will work to enhance access to the airports through improvements to nearby roadways, provision of transit services, and options for bicycle and pedestrian access.
- 5-1.4 **Transit Access** The County will work in coordination with the other jurisdictions surrounding Dulles Airport to conduct a joint transit study to determine if a fixed guideway transit system is feasible along the Route 606, Route 28, US Route 50, or other corridors in the vicinity of Dulles Airport.
- 5-1.5 **Expansion** The County will work with the airports to design transportation facilities that facilitate planned growth at both airports, including runway expansions and freight connectivity.
- 5-1.6 **Private Air Travel** The County supports development of air travel facilities such as helipads for emergency services and business development, in adherence to local, state, and federal regulations. See Chapter 8 of this document for policies related to mitigation of noise impacts.

Chapter 6 – Mitigating the Impacts of Development

Successfully implementing this plan requires a concerted effort by the County government, private landowners, and developers to ensure that a coordinated and connected multimodal network is achieved. Land development applications (LDAs) consist of two types: legislative and ministerial. To the extent permitted by the Virginia Code and the applicable guidelines of the Comprehensive Plan, the CTP seeks to engage development applicants to facilitate coordination with and completion of planned transportation infrastructure.

Review of LDAs

Legislative applications seek to change or expand permitted development opportunities and are subject to review by the Planning Commission and the Board of Supervisors. Legislative applications may, or may not, request changes that conform to the planned land use, and therefore may, or may not, represent consistency with forecasted regional trip generation anticipated by this plan. Therefore, each application needs review and comment regarding transportation policy and to identify any issues that might arise in conflict with this plan following approval of the land development application. For legislative applications, concerns with conformance to existing plans can be addressed either through proffers, which are voluntary commitments made as part of rezoning application packages, or conditions, which are requirements imposed by the County as part of special exception application packages. To ensure the viability of this plan, transportation proffers and conditions seek to ensure that the policies and intent of this plan are incorporated into the final application package. All policies within this document are considered as part of this review, as appropriate based on proposed use and location of an application. The County will not in any way suggest, request, require or accept any proffered commitment unless and to the extent such proffers are consistent with County proffer policies and proffer guidelines as set forth in the General Plan.

Ministerial applications seek to authorize development of already permitted uses on a site subject to regulations and ordinances. Similarly, ministerial applications advance development of permitted uses which also may not conform with planned land use. However, since these uses are already permitted, review of these applications includes ensuring fulfillment of any associated proffers and conditions, and resolving any direct conflicts with this plan related to the planned transportation network, access management, frontage improvements, and connectivity.

LAND DEVELOPMENT REVIEW POLICIES

- 6-1.1 **Ensuring Conformance** DTCI will review land development applications to ensure conformance to the County's transportation policies as provided in this plan and the General Plan. Requests for additional detail or commitments may be made with as part of any applications to facilitate implementation of this plan, in accordance with applicable State and local requirements.
- 6-1.2 **Legislative Applications** DTCI review of legislative applications may include comments related to traffic studies, traffic engineering, potential impacts of the proposals, ensuring that the plan set accommodates planned transportation facilities and appropriate circulation

elements, reasonable access to the public roadway network, and any other transportation-related characteristic of the development proposal as described in this plan.

- 6-1.3 **Ministerial Applications** DTCI review of ministerial applications will include comments related to conformance with this plan, adherence to any approved proffers and conditions, and assurance that development plans will accommodate the ultimate condition of the County's planned transportation network.
- 6-1.4 **Mitigating Impacts** The Applicant will be responsible for mitigating each of the modal impacts generated by the proposed development. Trip reductions incorporated into the Applicant's traffic analysis will be considered as modal shifts and appropriate facilities will be provided to support this modal shift.
- 6-1.5 **General Approach** The County will actively seek transportation proffers, including those for roads and related infrastructure such as traffic signals, transit (including transit capital and route start-up costs), and bicycle and pedestrian facilities from rezoning applications. A case-by-case analysis of the needs for transportation improvements will be made for each development application.
- 6-1.6 **Level of Service Standards** Through legislative applications, the Applicant will be required to demonstrate that minimum level of service thresholds, as defined by the relevant policy area, will be achieved and maintained at all study intersections throughout all phases of development. Mitigation measures needed to meet the level of service standard must be in place and open for use prior to the appropriate occupancy permit that is forecasted to cause the degraded level of service.
- 6-1.7 **Planned Roadways** Any transportation facilities indicated within this plan shall be constructed in the location shown on this plan and as described in this plan, whether built by the County or as part of a land development application. Justification for exceptions to this policy require appropriate documentation, including demonstration of cause.
- 6-1.8 **Traffic Calming** Applicants will be responsible for addressing potential traffic calming concerns that may result from a proposal new development and ensuring that network design encourages low travel speeds while also providing for a logical and efficient network.
- 6-1.9 **Access Management** Proposed site entrances from public roads are subject to review by the County. The County may request limitations or additions to the total number and locations of access points in order to ensure efficient operation of the transportation system.
- 6-1.10 **Access Design** Turn lanes and other safety features shall be of primary consideration when evaluating access management to developments, especially those primarily serving children, tourism, and large vehicles.
- 6-1.11 **Driveway Stubs** Existing driveway stubs should be used when feasible as part of development, unless such access points conflicts with access management policies or standards. When a site is developed that would preclude future use of an existing stub, the stub shall be removed and the roadway and associated turn lanes and median breaks shall be fully removed and the roadway will be reconstructed to appropriate standards for the segment as described in this document.

6-1.12 **Plan Coordination** Transportation improvements will meet the policies and intent of this document as well as other policies of the Comprehensive Plan.

TRAFFIC STUDY POLICIES

6-2.1 **Traffic Study Requirements** Traffic studies are required with all legislative applications and will be scoped based upon the intensity and impacts of the proposal.

6-2.2 **Pre-Application Meeting** A pre-application meeting or waiver is required to occur at least one week prior to a traffic study scoping meeting.

6-2.3 **Scoping Requirements** In order to scope a traffic study, a completed draft traffic study scoping application form, including identification of all uses proposed for the site, trip generation table, site layout graphics, and bicycle and pedestrian accommodations will need to be submitted at least one week in advance of the meeting date. Traffic study scoping parameters and agreements will be consistent with the standards and criteria set forth by VDOT. Traffic study scoping agreements will be coordinated with VDOT as required.

6-2.4 **Agreement Expiration** Traffic Study Scoping Agreements will expire two years from the date of County approval. After two years, the County, at the request of an applicant, may renew the agreement only if the scoping agreement is deemed to accurately represent the current proposal and surrounding land uses and transportation network.

6-2.5 **Traffic Counts** Traffic counts shall be considered valid for a period of one year after collection.

6-2.6 **Background Traffic** If substantial changes, as determined by the County, have occurred at a study intersection more than 6 months after the scoping agreement is signed (e.g., a new road or large development opens, impacting traffic patterns), DTCI reserves the right to request a new traffic study scoping agreement be drafted and a new traffic study be completed.

6-2.7 **Conformance** Traffic Study submissions and CDPs should generally conform to the scoping agreement. If the County identifies substantial changes in use, character, extent, or scale at time of checklist submission, the County may deem the traffic study scoping agreement invalid and require that a new agreement be drafted.

PROFFER POLICIES

The following policies are subject to the overriding County proffer policies and proffer guidelines as set forth in the General Plan. In its consideration and acceptance of all proffers, the County will apply the standards of Virginia Code Sections 15.2-2297, 15.2-2302, and 15.2-2303.4, as applicable, to evaluate the reasonableness of proffered conditions, and for those applications subject to Section 15.2-2303.4, the County shall accept only those proffers permitted or deemed reasonable under Virginia Code Section 15.2-2297 and not deemed unreasonable under Section 15.2-2303.4.

6-3.1 **Cash-In-Lieu** When a proffer proposes an improvement along a public road, a cash-in-lieu provision should be included in order to allow the County or others to advance implementation of an improvement.

6-3.2 **Potential Proffers** Private participation in the funding and development of the transportation system may include, but need not be limited to:

- Access improvements beyond those required by County Ordinance;
- Frontage improvements beyond those required by County Ordinance;
- Appropriate right-of-way for on-site roads not required by County Ordinance;
- Appropriate cross-section of a roadway to accommodate traffic beyond that generated by the development;
- Construction of regional improvements (both on- and off-site) or cash contribution towards regional improvements;
- Traffic signal warrant studies and traffic signalization at intersections;
- Roundabouts, interchange improvements, and other alternative intersection designs;
- Development and improvement phasing;
- Interparcel connections beyond those required by County Ordinance;
- Sidewalks and asphalt trails, with accompanying public access easements and maintenance agreements for those facilities constructed outside of the public ROW;
- On-road bicycle facilities;
- Land acquisition or contributions towards eminent domain proceedings;
- Routing and scheduling of construction and industrial traffic to minimize impacts on adjoining areas;
- Travel Demand Management measures;
- Traffic calming measures;
- Contributions towards roadway, transit capital, or bicycle and pedestrian improvements, and;
- Contributions towards abandonment / vacation of public ROW.

6-3.3 **Monetary Contributions** Where cash proffer contributions can be accepted subject to state and local policies and ordinances, the County will seek contributions for roadways and transit in the general vicinity of a residential development site on a per-unit basis. The amounts of any such contribution will be guided by analysis of acceptable level of service standards, projected costs of improvements, and projected funding levels through the plan horizon. Regional improvements (as defined in this document) made as a part of a development can be deducted from this contribution amount. Improvements necessary to mitigate site-generated impacts shall not be considered as regional improvements.

6-3.4 **Use of Monetary Contributions** Cash contributions provided as part of a development application either for regional improvements or in lieu of completed improvements, funds will be utilized within the related policy or planning subarea. If requested during the land development review process, alternative geographic areas of reasonable size and

relationship to the site may be considered, such as tax district boundaries or boundaries defined by major roads.

- 6-3.5 **Right-of-Way Valuation** The County will value right-of-way dedications based on County pre-rezoned assessment values at the time of the rezoning application in accordance with Capital Facilities proffer guidelines.

Parking Standards

Parking requirements are regulated by the Zoning Ordinance. However, parking locations, standards, and safety impact the transportation system by affecting demand for parking on public streets, pedestrian routes between sidewalks and building entrances, and vehicular safety and access between parking facilities and the public road network. Therefore, parking needs to be evaluated in the broader context regarding the transportation system.

- 6-4.1 **Parking Studies** Parking studies shall be reviewed by DTCI to ensure adequate on-site and on-street parking is provided to support the proposed uses.
- 6-4.2 **Pedestrian Routes** Safe and practical pedestrian access between parking areas and proposed uses shall be considered when evaluated when analyzing proposals for shared parking.
- 6-4.3 **Parking Reductions** Proposals for reductions in minimum parking requirements for residential and commercial uses shall be supported by DTCI when existing, substantial, and reasonable peak, off-peak, and weekend local and regional travel alternatives can be demonstrated as accessible from the site when the parking reduction is proposed.
- 6-4.4 **Parking Areas** Locations of proposed parking areas shall be arranged to meet the Countywide Transportation Plan and Comprehensive Plan goals for the planning subarea and policy area where the development will be located.
- 6-4.5 **Site Access** Parking shall not be placed in conflict with site access points, and shall be arranged so as not to inhibit traffic flows into and out of the site.
- 6-4.6 **Parking Locations** As possible, parking lots and parking structures shall be located to the rear of development sites so as to bring buildings closer to the street, improving walkability and creating a sense of place.
- 6-4.7 **Parking Signage** Appropriate signage shall be provided for restricted parking spaces, including accessible spaces, day care pick-up and drop-off spaces, use-specific spaces adjacent to a shared parking area, and for visitor-specific spaces, as appropriate.
- 6-4.8 **Parking Requirements** The County will study appropriate rates of parking to ensure that sufficient parking is provided while not providing an overabundance of parking that can detract from the quality of a development.

Traffic Management and Operations

Significant development proposals may generate traffic exceeding normal conditions. Such proposals might including regional destinations such as major shopping or entertainment venues, conference centers, large religious or educational institutions, or other special event or activity centers. Such locations may warrant substantial transportation system improvements based on their peak usage, but would result in a substantially overbuilt network during most other times.

Therefore, alternative solutions could be considered to support such proposals while promoting the goals of this plan through use of Traffic Management and Operations Plans (TMOPs).

TRAFFIC MANAGEMENT AND OPERATIONS PLAN (TMOP) POLICIES

- 6-5.1 **Use of TMOPs** TMOPs shall be required only when extreme shifts to travel demand are anticipated based a proposed use.
- 6-5.2 **Alternative Modes** As feasible, alternative modes should be incorporated into TMOPs, specifically transit shuttles and general transit access.
- 6-5.3 **Traffic Mitigation Fees** To manage travel demand and encourage carpooling and use of transit shuttles, the County supports the use of parking fees as part of a TMOP.
- 6-5.4 **Traffic Control** Traffic control personnel shall be incorporated into TMOPs. Any changes to lane usage and access along public roads shall be approved in advance by the County and VDOT.
- 6-5.5 **Hours** As feasible, the County shall encourage timed events to be scheduled such that travel demand generated by the proposed use would occur outside of the normal peak commuting hours. This would promote the efficiency and effectiveness of the transportation system in the vicinity of the site and minimize impacts to regular travelers.

Chapter 7 – Regional, State, and Local Coordination

Transportation planning is a complex process, requiring coordination with decision-making bodies from all levels of government and often with the private sector. Loudoun County actively participates in transportation planning processes at the regional, state and local levels to ensure:

- Effective coordination among appropriate agencies/bodies
- Full compliance with State and Federal laws
- The ability to maximize Regional, State and Federal funding, and ultimately
- The provision of needed transportation facilities and services and implementation of the County’s vision for transportation

Regional Coordination

As part of the Washington, D.C. metropolitan region, Loudoun County coordinates with various regional agencies in order to identify, plan for and implement priority transportation improvements and ensure concerns of a regional nature are addressed. Federal and state laws form the framework of these associations. The County works cooperatively with three such regional bodies on a regular basis. They include the National Capital Region Transportation Planning Board (TPB), the Northern Virginia Transportation Authority (NVTA) and the Northern Virginia Transportation Commission (NVTC). Each of these institutions has distinct roles and is discussed in the sections that follow.

The National Capital Region Transportation Planning Board (TPB)

The National Capital Region Transportation Planning Board is the federally designated Metropolitan Planning Organization (MPO) for the entire Washington, D.C. metropolitan region. The TPB was established in 1965 in response to federal legislation that required urban areas to develop coordinated planning processes. The TPB plays an important role as the regional forum for transportation planning. MPOs prepare plans and programs that the federal government must approve in order for federal-aid transportation funds to flow to their regions. The TPB’s primary activities are the development of a 25-year Financially Constrained Long-Range Plan (CLRP) and a six-year Regional Transportation Improvement Program (TIP). At present, the TPB is in the process of developing an updated long range plan, referred to as Visualize 2045, which will contain both financially constrained and unconstrained transportation plans. Members of the TPB include representatives of local governments; state transportation agencies; the Maryland and Virginia General Assemblies; the Washington Metropolitan Area Transit Authority (WMATA); and non-voting members from the Metropolitan Washington Airports Authority (MWAA) and federal agencies. Loudoun County currently holds one seat which is filled by a member of the Board of Supervisors; a second seat will become available to Loudoun County when the County’s population surpasses 400,000 persons. The County became actively involved with the TPB in the mid-1980s during the early stages of planning for future transportation improvements to include the Dulles Corridor Metrorail Project and the Dulles Toll Road, and later the Dulles Greenway. The TPB’s activities are closely coordinated with the Metropolitan Washington Council of

Government's (MWCOG) programs for forecasting population and employment for the region, and with the air quality planning activities of the Metropolitan Washington Air Quality Committee (MWAQC).

The CLRP responds to federal requirements that funding sources be identified for all strategies and projects included in long-range plans. Updated at least every three years, the CLRP includes only those projects and strategies that can be implemented over the planning period with funds that are "reasonably anticipated to be available." The TIP shows how portions of the CLRP will be implemented over the first six years of the planning period. Individual projects in the CLRP and TIP are often analyzed in more detail in corridor or sub-area studies. These studies are conducted by state and local agencies in cooperation with the TPB, and in accordance with federal procedures. Loudoun County projects must be on this six-year program in order to receive federal or state funding. Because the TPB places a project in the CLRP only after a funding source is identified, the placement of a project in the CLRP and TIP creates a high probability that the project will be constructed.

One reason for the strict criteria for project placement in the CLRP and TIP is that, under federal law, metropolitan areas must demonstrate that they comply with the Clean Air Act Amendments of 1990 and with a United States Environmental Protection Agency (USEPA) memorandum of March 1995 on the phased attainment process. The Washington, D.C. metropolitan region is currently designated as a non-attainment area for the federal health standards for ozone and fine particles. As such, the region has developed a State Implementation Plan (SIP) for the attainment of clean air standards and must demonstrate that planned transportation improvements are in conformance with the SIP. Each year, the CLRP and TIP are tested for air quality conformity. In recent years, conformity for specified pollutants has consistently been obtained by the region as called for in the SIP. Air Quality issues are further discussed in Chapter 8, Environmental and Heritage Resources.

[The Northern Virginia Transportation Authority \(NVTA\)](#)

Established in 2002 by the Virginia General Assembly, the Northern Virginia Transportation Authority is responsible for long-range regional transportation planning for Northern Virginia. Member jurisdictions include the Counties of Arlington, Fairfax, Loudoun and Prince William, and the Cities of Alexandria, Fairfax, Falls Church, Manassas, and Manassas Park. Loudoun County has been a member of the NVTA since its inception and holds one seat which by Code is filled by the Chairman of the Board of Supervisors. In accordance with its mission, NVTA is responsible for development of the TransAction Regional Transportation Plan, most recently updated and adopted in 2017, which identifies critical transportation projects requiring funding within Northern Virginia through the year 2040. TransAction stands for "A Transportation Action Plan for Northern Virginia" and is scheduled to be updated every five years.

In 2013, NVTA's role increased significantly with the General Assembly's passage of HB 2313. That legislation created a dedicated revenue source for funding transportation projects through the NVTA. One of the criteria for jurisdictions to receive certain funding through the NVTA is that the transportation project for which funding is sought must be included in TransAction. Additionally, NVTA identifies priority projects for regional Congestion Mitigation and Air Quality Improvement (CMAQ) and Regional Surface Transportation Program (RSTP) funding

each year.

[The Northern Virginia Transportation Commission \(NVTC\)](#)

The Northern Virginia Transportation Commission is responsible for coordinating public transportation planning and funding in the Northern Virginia jurisdictions of Arlington County, Fairfax County, Loudoun County, the City of Alexandria, the City of Fairfax, and the City of Falls Church. Created by the Virginia General Assembly in 1964, NVTC consists of 21 commissioners. Fourteen commissioners are locally elected officials from the six member jurisdictions, six are from the General Assembly, and the final commissioner is a representative of the Virginia Secretary of Transportation. Loudoun County holds two of the 21 seats which are filled by members of the Board of Supervisors. Loudoun County became actively involved with NVTC when it began collecting a 2% local gasoline tax in January 1989. As part of its mission, NVTC receives and administers gasoline tax funds for member jurisdictions. NVTC also advocates for funding for public transit, provides oversight for Virginia Railway Express (VRE) and Washington Metropolitan Area Transit Authority (WMATA) services, and coordinates planning for innovative transit services in the region, among other functions. Additionally, NVTC administers the I-66 Commuter Choice Program, which awards funding from I-66 inside the Beltway tolling revenues for transit infrastructure and service as well as transportation demand management programs in the greater I-66 Corridor through a competitive process.

[The Metropolitan Washington Airports Authority \(MWAA\)](#)

The Metropolitan Washington Airports Authority operates Washington Dulles International Airport and Ronald Reagan Washington National Airport under a 50-year lease with the Federal Government, as authorized by the Metropolitan Washington Airports Act of 1986, Title VI of Public Law 99-500. Washington Dulles International Airport, located within both Loudoun County and Fairfax County, provides domestic and international air service for the Mid-Atlantic region. Both airports were transferred to MWAA from the Federal Government in June 1987. Prior to that date, the airports were owned and operated by the Federal Aviation Administration in the U.S. Department of Transportation. MWAA is governed by a 17-member Board of Directors, which establishes the Authority's policy and provides direction to management. Members of the Board are appointed by the Governors of Virginia and Maryland, the Mayor of Washington, D.C., and the President of the United States. The MWAA organization includes central administration, airports management and operations, and police and fire departments.

MWAA is not taxpayer-funded but is self-supporting, using aircraft landing fees, rents and revenues from concessions to fund operating expenses. In recent years, MWAA has embarked on a major capital construction program at Dulles Airport, including improved facilities and additional capacity with completion of a new airport traffic control tower, expanded airline gates, a fourth runway, and a train system that provides access between terminals. Airport capital improvements are funded by bonds issued by the Airports Authority, Federal and State Airport Improvement Program funds, and Passenger Facility Charges.

In November 2008, the Commonwealth of Virginia transferred responsibility for the daily operation, maintenance and control of the Dulles Toll Road to MWAA. Tolls collected are used for operation, maintenance and improvements in the Dulles corridor, and to fund a portion of the construction of the Metrorail in the Dulles corridor. Additional construction funding is provided

by Fairfax and Loudoun Counties, the Commonwealth of Virginia, and the Federal Government. MWAA is managing the Dulles Corridor Metrorail Project; the first phase to Reston opened in July 2014, and the second phase to Dulles and Loudoun County is under construction and is anticipated to operational in 2020.

[The Washington Metropolitan Area Transit Authority \(WMATA\)](#)

The Washington Metropolitan Area Transit Authority, commonly referred to as Metro, was created by an interstate compact in 1967 to plan, develop, build, finance, and operate a balanced regional transportation system in the national capital area, to include Metrorail and Metrobus. WMATA is governed by a Board of Directors consisting of eight voting and eight alternate members. Maryland, Virginia, the District of Columbia and the Federal Government appoint two voting and two alternate members each. Metro began operating the first phase of Metrorail in 1976. Today, Metrorail serves 91 stations and has 117 miles of track, with an additional six stations, including three in Loudoun County, and 12 additional miles of track to be opened with Phase 2 of the Silver Line in 2020. When Phase 2 of the Silver Line opens, MetroAccess paratransit service will also become operational within portions of Loudoun County.

[Route 28 Highway Transportation Improvement District Commission and Advisory Board](#)

The Route 28 Highway Transportation Improvement District Commission administers the Route 28 Highway Transportation Improvement District, established by Loudoun County in partnership with Fairfax County in 1987 to accelerate limited access improvements to Route 28, a key artery in the region. The Commission is made up of members of the Boards of Supervisors from both Counties and has the authority to subject the owners of industrial and commercial property within the District to a maximum additional tax assessment of 20 cents per \$100 of assessed value. The funds collected are used for the road improvements and debt service on bonds issued by the state. The Route 28 Highway Transportation Improvement Advisory Board submits an annual report to the District Commission on the transportation needs of the District and activities of the Board, and presents special reports concerning the District tax as requested by the Commission or either the Fairfax or Loudoun Board of Supervisors. The Advisory Board consists of members appointed by the Boards of Supervisors and selected by landowners within the Route 28 District.

[Specific Regional Coordination Topics](#)

[New Potomac River Crossing](#)

[At the June 29, 2017 Transportation Summit, the Board of Supervisors directed County staff to 1) develop and include a narrative statement in the update to the Countywide Transportation Plan (now referenced as the Loudoun 2040 Countywide Transportation Plan) that expresses the Board's intent and support for a future Potomac River Crossing, east of Goose Creek in Loudoun County; this narrative is to include a summary of the economic development and transportation benefits that could be realized from such a new crossing; 2) identify a series of potential corridors that staff recommends for further analysis of the social, cultural, historical, environmental, and transportation impacts of a future crossing to better position the County for use of Federal and State funding where a formal environmental assessment document would be required to move a project forward, and to show all identified potential corridors in the Loudoun 2040 Countywide Transportation Plan, and 3) continue regional and multi-state coordination efforts, at the Board's

direction, that advance the concept of a new Potomac River Crossing and monitor funding source availability to plan for future implementation of the project.

County staff has retained consultant assistance to complete a study to identify potential corridors for a possible bridge connection between Loudoun County and the State of Maryland. Specific elements of the study will include identification of opportunities and constraints, potential corridors, and the results of field surveys. This study is underway and, once completed, a report will be produced and presented to the Board of Supervisors at a public meeting (anticipated in June or July 2018). The Loudoun 2040 Countywide Transportation Plan document will be updated to include the information outlined above following presentation of the study to the Board of Supervisors.]

Regional Recreational Access

Loudoun County is situated near two major national recreational corridors just outside of its boundaries, namely the Appalachian National Scenic Trail along the Blue Ridge and the Chesapeake & Ohio (C & O) Canal Towpath along the Maryland shoreline of the Potomac River. There are limited non-motorized connections between Loudoun County and these corridors for individuals wishing to access them without the use of a motor vehicle, or conversely, for individuals hiking or biking along these corridors wishing to access points within Loudoun County. Improved connections could, for example, provide access between the Appalachian Trail at Snickers Gap and the Village of Bluemont, between the C & O Canal Towpath at Brunswick, Maryland to the Town of Lovettsville, and between the C & O Canal at White's Ferry and the Washington and Old Dominion (W & OD) in the Town of Leesburg.

Regional Transportation Coordination Policies

- 7-1.1 **County Participation in Regional Organizations** The County will continue to participate as a member of regional transportation planning agencies to increase the County's role and status in the regional planning arena and to generate support for transportation projects that are contained within the Loudoun 2040 Countywide Transportation Plan. Roadways and other transportation facilities identified in the Loudoun 2040 Countywide Transportation Plan represent planned or improved transportation facilities Countywide and their ultimate conditions. Transportation facilities noted in this plan are will be updated on a regular basis through the County's transportation planning process in coordination with regional planning agencies, and by resolution of the Board of Supervisors.
- 7-1.2 **Issues of Mutual Concern** The County will continue to work with other localities on specific issues of mutual regional concern, such as the Route 28 Highway Transportation Improvement District (HTID), and to provide support for appropriate regional transportation improvements outside the County.
- 7-1.3 **Potomac River Crossing** *[Placeholder for policy language following review of Potomac River Crossing Study by Board of Supervisors].*
- 7-1.4 **Regional Recreational Access** The County will work with adjacent jurisdictions and agencies to identify and implement improved non-motorized access between the Appalachian Trail and the Chesapeake & Ohio Canal Towpath to points within Loudoun

County.

State Coordination

Of equal importance to its coordination with regional agencies, the County must partner with state agencies to realize its vision for transportation. Coordination with VDOT is particularly important given that the state is responsible for maintenance and operation of all public roadways in Loudoun County.

The Commonwealth Transportation Board (CTB)

At the forefront of transportation issues for the state, the Commonwealth Transportation Board is a governor-appointed 17-member body that establishes administrative policies for Virginia's transportation systems and allocates funding for highway projects, airports, seaports and public transportation. CTB-approved programs are administered through the various transportation-related state agencies, including the Virginia Department of Transportation (VDOT), the Virginia Department of Rail and Public Transportation (DRPT), the Port of Virginia, and the Virginia Department of Aviation.

Office of Intermodal Planning and Investment (OIFI)

The Office of Intermodal Planning and Investment is located within the Office of the Secretary of Transportation and was created in 2002 to encourage the coordination of multimodal and intermodal planning across the various transportation modes within the Commonwealth. Since then, the office has produced multiple statewide planning efforts, performance reports and collaborated with multiple entities to promote a safe, strategic and seamless transportation system. OIFI is also charged with assisting the CTB in the development of the Statewide Transportation Plan, currently known as VTrans2040. VTrans2040 identifies is the long-range, statewide multimodal policy plan that lays out overarching Vision and Goals for transportation in the Commonwealth. It identifies transportation investment priorities and provides direction to transportation agencies on strategies and programs to be incorporated into their plans and programs.

VTrans2040 identifies multimodal needs across the Commonwealth. The plan focus is on the needs of the Commonwealth's statewide network of Corridors of Statewide Significance, the multimodal regional networks that support travel within metropolitan regions, and improvements to promote locally designated Urban Development Areas. In Loudoun County, the Northstar Boulevard / Belmont Ridge Road corridor is a designated Corridor of Statewide Significance, referenced as "North-South Corridor G," and the locally designated Urban Development Area is comprised of the Urban and Suburban Policy Areas.

VTrans2040 is divided into two components: the VTrans2040 Vision Plan (Vision Plan) and the VTrans2040 Multimodal Transportation Plan (VMTP). The VTrans2040 Vision component lays out Virginia's Guiding Principles, Vision, Goals, and Objectives in a policy framework to guide partner agency investment decisions over the next 25 years. The VTrans2040 VTMP component includes a Statewide Transportation Needs Assessment. This needs assessment serves as a screen

for state funding consideration through the SmartScale program.

[The Virginia Department of Transportation \(VDOT\)](#)

The Virginia Department of Transportation is responsible for the maintenance and operation of all public roads in Loudoun County (excluding incorporated towns with populations greater than 5,000 people). Included with this responsibility is the provision of transportation improvement projects to ensure the continued mobility of the traveling public. The County works closely with VDOT in the identification and implementation of priority transportation projects through the Six-Year Improvement Program (SYIP). These projects represent a portion of the County's priorities and are the culmination of significant programming, design and funding actions.

VDOT's Locally Administered Projects (LAP) Program offers opportunities for the County to directly manage construction, as well as planning, environmental clearance, design, and permitting of transportation projects that include VDOT funding. This approach helps to streamline project development, saving time and money in the process and bringing projects to fruition in an abbreviated time-frame compared to past projects. In 2006, VDOT approved Loudoun County's application to participate in a predecessor to the LAP program for the rehabilitation of historic Hibbs Bridge on Route 734. The Hibbs Bridge project was successfully completed by the County's Office of Capital Construction in 2007. More recently, with the development of the County's robust CIP since 2012, several other projects have been or are currently being administered under the LAP program through the County's Department of Transportation and Capital Infrastructure (DTCI). These projects include the extension of Claiborne Parkway between Croson Lane and Ryan Road; construction of the Route 7 / Belmont Ridge Road Interchange; the widening of Belmont Ridge Road between Truro Parish Drive and Croson Lane, and Northstar Boulevard between US Route 50 and Tall Cedars Parkway.

The County also works with VDOT and the development community in the land development review process regarding road improvement issues, including through the Chapter 527 legislation initially passed by the Virginia General Assembly in 2006 and which became effective July 1, 2007. This legislation allows VDOT to review and submit comments on comprehensive plans and plan amendments and certain rezoning proposals, as well as their associated traffic impact analyses. It is intended to provide local governing bodies and their constituents with additional information to aid in the land use and transportation decision-making process. In general, comprehensive plans or plan amendments that have a substantial impact on, or cause a substantial change to, the existing transportation network or state-controlled/maintained highways, and land development applications that have a significant impact on state-controlled highways must be submitted to VDOT for review and comment. The specific criteria that are used with each type of application are contained within the VDOT *Revised Traffic Impact Analysis Regulations Administrative Guidelines*, 24VAC30-155.

The County intends to continue its current relationship with VDOT as the County continues to implement public transportation infrastructure improvements to design and construct roadways and bicycle and pedestrian facilities as identified in the Loudoun 2040 Countywide Transportation Plan.

The Virginia Department of Rail and Public Transportation (DRPT)

The Virginia Department of Rail and Public Transportation focuses on the movement of people and goods throughout the Commonwealth, primarily in the areas of rail, public transportation, and commuter services. DRPT works with local, regional, state, and federal governments, as well as private entities to provide support for projects and programs by:

- Assessing feasibility and environmental impacts of new and expanding services;
- Conducting statewide rail and public transportation studies;
- Planning and programming new services and capital improvement projects; and
- Providing leadership, advocacy, technical assistance and funding.

DRPT works with private railroad companies to promote freight rail and to expand access to passenger rail across Virginia, including Amtrak and Virginia Railway Express (VRE) services. DRPT supports both passenger and freight rail initiatives through funding options, expert advice, research, and advocacy, and represents the State's interests in interstate and national rail issues. DRPT also provides advice, support and funding to local bus as well as commuter bus and rail services throughout Virginia. Commuter Services Programs, which work to promote carpools, vanpools, telework and other alternative modes of transportation to Virginia's commuters, help to save individuals (and employers) time and money, and can also help manage traffic congestion and benefit the environment. DRPT partners with commuter service programs operating in the Commonwealth, including Loudoun County Commuter Services, to provide information, business incentives, and ridematching services.

Additionally, with regard to increased focus on multimodal transportation across the Commonwealth, DRPT in 2013 developed the Multimodal System Design Guidelines to provide a framework for multimodal planning at regional, local and corridor scales. These guidelines provided an alternative to VDOT's Road Design Manual, and in 2014 VDOT amended its Road Design Manual to allow for the application of these guidelines in certain designated urban areas in jurisdictions where VDOT operates and maintains the public road network. Further information regarding the DRPT Multimodal System Design Guidelines is provided in Chapter 4, The Built Environment – Transportation and Land Use.

Local and Other Coordination

As an extension of its coordination with other agencies, particularly VDOT, the County works with other key entities to ensure appropriate coordination is accomplished for certain transportation issues, initiatives and projects. The most common of these are as follows:

- The County coordinates with its towns and neighboring jurisdictions as well as regional agencies.
- The County develops and pursues a legislative program with the Virginia General Assembly that includes transportation facilities and funding and also coordinates with other jurisdictions on transportation matters of mutual interest.
- The County facilitates Transportation Demand Management (TDM) programs through the County's Transit and Commuter Services program, in coordination with DRPT, VDOT,

MWCOG, and local Transportation Management Associations (TMA's). Each organization provides technical and financial support through grant programs, research, training, and marketing assistance. As part of each program, the County provides employer outreach opportunities to assist employers in developing or expanding employee transportation programs.

State, County, Local and Other Coordination Policies

- 7-2.1 **VDOT Transportation Planning Coordination** The County will continue to encourage the VDOT to participate in long-range planning processes to provide the input for the formulations of County transportation policy.
- 7-2.2 **VDOT Funding Coordination** The County will submit applications for funding to VDOT for the various funding programs managed by VDOT.
- 7-2.3. **VDOT Land Development Coordination** The County will obtain VDOT's input into development applications through the County's land development application referral process, and by working with VDOT and applicants to ensure that proposed public streets are accepted into the state's system. This will include submissions of development related traffic impact analysis to VDOT for review in accordance with the Chapter 527 legislation.
- 7-2.4 **VDOT LAP Project Participation** The County will continue to manage projects under VDOT's LAP Program and coordinate with VDOT throughout all phases of project development and implementation.
- 7-2.5 **Coordination with Incorporated Towns** The County will work with officials and citizens of its towns to discuss transportation issues and opportunities. Participation of local citizens and associations in local road design will be encouraged as part of the process for the Primary and Secondary Road Programs.
- 7-2.6 **Coordination with Adjacent Jurisdictions** The County will work with adjoining jurisdictions to create seamless road, bicycle, and pedestrian connections across borders wherever possible.
- 7-2.7 **DRPT Coordination** The County will continue to facilitate TDM programs in coordination with the DRPT, other partner agencies, and local TMAs.

Local Control and Management Options

In Virginia, responsibility for public roads in most counties lies with the state. However, state legislation permits counties to take responsibility for road management. This local control is mandatory in incorporated towns larger than 5,000 people and in cities. The Towns of Leesburg and Purcellville presently have this responsibility. Recent indications are that the state may encourage increased local responsibility as a means of reducing costs. The terms of transferring responsibility for secondary roads from VDOT to Loudoun County, commonly referred to as devolution, would require agreement between the Commonwealth Transportation Board and the Board of Supervisors. Local management and responsibility for roads would entail significant costs to the County.

Should Loudoun choose to maintain its local roads, the County could face annual maintenance

expenditures, depending on the level of state funding to the County. This figure does not include the potentially larger costs of additional preconstruction and review staff, equipment, materials, and other costs associated with local control of secondary roads. For now, the County has chosen to continue relying on VDOT's management and maintenance support of all primary and secondary public roads in the county.

The Public-Private Transportation Act of 1995 (PPTA) is the legislative framework enabling the Commonwealth of Virginia, qualifying local governments and certain other political entities to enter into agreements authorizing private entities to acquire, construct, improve, maintain, and/or operate qualifying transportation facilities. The public entities may either solicit or accept unsolicited proposals from private sources. Loudoun County has utilized the PPTA to fund needed transportation improvements in the Route 28 and Dulles Greenway Corridors. Planned transportation projects beyond those currently constructed in these corridors will be evaluated to assess whether application of the PPTA is appropriate.

Local Control and Management Options Policies

- 7-3.1 **VDOT Maintenance Responsibility** VDOT will continue to have responsibility over all public roads in Loudoun County, except incorporated towns with populations larger than 5,000 people.
- 7-3.2 **Projects Consistent with County Policy** The County will encourage transportation projects that minimize the fiscal impact of construction, operation, and maintenance on the County to the extent that such projects are also consistent with the County's land use, environmental and historical preservation policies.
- 7-3.3 **VDOT Standards** All roads to be maintained by VDOT will be built to VDOT standards or VDOT permitted variations from VDOT standards for admission into the state system.
- 7-3.4 **PPTA Project Review** The County will review any transportation projects proposed for construction in Loudoun County under the provisions of the Virginia Public-Private Transportation Act of 1995 (PPTA).

Chapter 8 – Environmental and Heritage Resources

The protection of the environment in and around Loudoun County is a top priority of this plan. Consistent with state and federal legislation and the policies of the General Plan, this document supports the protection of Environmental and Heritage Resources, with specific policies to address transportation-related impacts. Additional policies on these matters can be found in the General Plan.

Environmental Resources

Air Quality

Loudoun County is actively involved in the protection of air quality through its engagement in the regional planning process. The County participates in this process as a member of the National Capital Region Transportation Planning Board (TPB) and the Metropolitan Washington Air Quality Committee (MWAQC) through the Metropolitan Washington Council of Governments (MWCOG), the Metropolitan Planning Organization (MPO) for the region. The Washington Metropolitan region is currently designated by the US Environmental Protection Agency (EPA) as a nonattainment area for federal health standards with respect to ozone and fine particles (PM_{2.5}), which means that potentially serious health problems can be expected as a result of the levels of these pollutants in the atmosphere. In 1977, Federal clean air legislation was enacted which specified that an MPO could not approve any transportation project that did not conform to a State Implementation Plan (SIP) for attainment of clean air standards. Following in 1990, the Clean Air Act Amendments (CAAA) further defined conformity of an implementation plan as “meeting the purpose of eliminating or reducing the severity and number of violations of the national ambient air quality standards and achieving expeditious attainment of such standards.”

Each year the TPB updates two regional planning documents that make up the implementation plan. The Financially Constrained Long-Range Plan (CLRP) and the Regional Transportation Improvement Plan (TIP). The CLRP has a long-range planning horizon of 25 years while the TIP focuses on all regionally significant projects in a short-term six-year time frame. Both the CLRP and TIP are required to have an EPA finding of air quality conformity each time they are updated.

The most recent CLRP and TIP (2016 CLRP and FY 2017-2022 TIP, respectively) have been demonstrated to be in conformance with regional transportation plans according to the Air Quality Conformity Assessment. Should air quality conformity fail to be attained in the future, the region could face federal sanctions, including loss of highway funding.

It is very important that policies support lowering total vehicle emissions and meeting air quality standards. The County’s land use policies, calling for high density development at major transit nodes and implementation of transit routes are important factors. These policies promote new transit and ridesharing services—Metrorail, express inter-jurisdictional bus and local bus, and carpools and vanpools. They include bicycle and pedestrian improvements as well as travel demand management strategies such as telecommuting and flexible work hours. The County supports a comprehensive approach to implementing these measures to reduce the use and dependence on the private automobile.

Air Quality Policies

- 8-1.1 **Clean Air Attainment** The County will participate in the regional Clean Air Act Attainment Plan air quality conformity evaluation process.
- 8-1.2 **NEPA** All transportation planning will comply with the Federal Clean Air Act Amendments of 1990 through support of the State Implementation Plan (SIP).
- 8-1.3 **Reducing Trips** The County will implement land use policies that will reduce vehicular trips and vehicle miles traveled to achieve the air quality standards required by the federal, state or county government, whichever are the most stringent. Such land use measures may promote pedestrian facilities, bicycle use, ridesharing, mass-transit options, and mixed-use communities.

Water Quality

The County seeks to preserve and protect the quality of surface water and groundwater by minimizing the intrusion of the road network on river and stream corridor resources and areas underlain by limestone. In Loudoun County, disturbances to river and stream corridors and their associated floodplains are regulated by the United States Army Corps of Engineers (the Corps) and the Virginia Department of Environmental Quality (DEQ), with regular coordination with the County's Department of Building and Development. The Corps and DEQ call for the avoidance and minimization of impacts to the maximum extent practicable and to provide compensatory mitigation for authorized impacts exceeding established thresholds. The County supports measures that protect water quality by minimizing the intrusion of the road network on river and stream corridor resources and areas underlain by limestone. The County also seeks to protect these areas by establishing buffers to maintain stream bank stabilization, temperature moderation, flood control, and aquatic habitat as well as filtering nutrients and sediments from upland disturbances.

Water Quality Policies

- 8-1.4 **Road Crossing Locations** Road crossings of the river and stream corridor resources will avoid or, when avoidance is not feasible, minimize and mitigate disturbances within floodplains and steep slopes. Road crossings will be constructed generally perpendicular to the flow of the drainage way to minimize impacts. Road alignments designed to extend within and parallel to the floodplain will be avoided.
- 8-1.5 **Stream Maintenance** Road crossings will avoid, minimize, and compensate for filling of jurisdictional waters and wetlands in a manner consistent with requirements of the United States Army Corps of Engineers and the Virginia Department of Environmental Quality. A natural stream channel will be maintained beneath road crossings to minimize impacts on stream flow and habitat. The County supports the mitigation of stream and wetland impacts and the creation of stream and wetland mitigation banks to improve water quality within Loudoun County.
- 8-1.6 **Riparian Buffers** Forested riparian buffers are a crucial component of environmental planning. Road crossings will avoid disturbance of forested riparian buffers. Where this is not feasible, road crossing projects will include reforestation to compensate for lost forest habitat.

8-1.7 **Limestone** Road projects proposed in areas underlain by limestone / karst features will seek to avoid sensitive environmental features.

Noise Exposure

It is the County's intention to protect residents from exposure to excessive noise from transportation facilities within reasonable limits by applying recognized standards. This will ensure that the County receives federal and state assistance in mitigating traffic noise problems near existing developments. Finally, the County should adopt the state standards into the Zoning Ordinance to ensure that future development protects itself from noise problems. These policies are not intended to apply to temporary noise sources such as transportation construction projects.

Noise Policies

8-1.8 **Land Development** All proposals for residential, institutional, or other noise sensitive uses adjacent to existing or proposed arterial and major collector roads will complete a study of predicted traffic noise to ensure that forecasted noise levels fall within acceptable levels, or can be abated to meet County standards.

8-1.9 **Noise Studies** Roadway noise studies will use the most recent version of the Federal Highway Administration's Highway Traffic Noise Prediction Model (FHWA-RD-77-108, as amended). Studies will use a design year no less than 10 years after the road corridor is anticipated to be completed to its ultimate condition and open to traffic, with considerations for planned design speed, pavement type, future topography, and lane configurations. Forecasted traffic volume projections will be provided by the County upon request.

8-1.10 **Noise Abatement Criteria** A noise level is considered to approach the noise abatement criteria when it is 1 dBA less than the noise abatement criteria for a defined use. A noise level is considered to substantially exceed existing noise levels when noise levels increase by 10 dBA or more. Hourly A-Weighted Sound Levels in Decibels (dbA) will demonstrate future noise levels at, or below the following levels:

- Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose – **57 Leq (h) (exterior)**
- Picnic areas, recreation areas, playgrounds, active sports areas, parks, residential yards, motels, hotels, schools, churches, libraries, and hospitals. – **67 Leq (h) (exterior)**
- Commercial uses or developed lands, properties, or activities excepting those described above – **72 Leq (h) (exterior)**
- Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums – **52 Leq (h) (interior)**

Traffic noise impacts can occur below the Noise Abatement Criteria List Above. These criteria should only be used as absolute values which, when approached or exceeded, require the consideration of traffic noise abatement measures. These do not represent federal standards or desirable noise levels and should not be used as design goals for noise barrier construction.

8-1.11 **Noise Reduction** Noise abatement will provide at least a 5dBA reduction in

highway traffic noise levels in order to provide noticeable and effective attenuation and will be in place prior to the issuance of occupancy permits for any impacted structures.

8-1.12 **Noise Abatement Types** Structural noise abatement measures, such as concrete walls, shall not be used unless required noise reductions cannot be reached by other means. Passive noise abatement measures are preferred including adequate setbacks, earthen berms, wooden fences, and dense tree vegetation. When used, noise walls will include design elements such as articulated walls and gradual descents that blend with natural features in the landscape. Walls should be supplemented with appropriate landscaping and reflect the character of the surrounding natural environment.

8-1.13 **Responsibility** Construction and maintenance costs associated with noise abatement measures needed for land development activities will be borne by the associated development(s).

Heritage Resources

The rural character of the County is deeply associated with the County's rich history. Stone walls and tree-lined rural roads frame great expanses of farmland dotted with historic homes, barns, and small farm structures creating a unique Loudoun landscape. In addition to these scenic resources, there are six County-administered historic districts, two town-administered historic districts and one historic district on the Virginia Register of Historic Places. Loudoun has dozens of historic sites and districts listed in the National Register of Historic Places and many historic and archeological resources yet to be evaluated for the Register, as well as five National Landmark sites. Loudoun County has most recently been recognized as part of the nationally renowned "The Journey Through Hallowed Ground" corridor, a historically and culturally significant corridor that extends outside of Loudoun County, and follows Route 15. The Journey Through Hallowed Ground National Heritage Area is a 180-mile long, 75-mile-wide historical region extending from Gettysburg, Pennsylvania to Monticello in Charlottesville, Virginia. The County Board of Supervisors joined The Journey Through Hallowed Ground Partnership in 2008 with the issuance of a resolution of support for this National Heritage Area. This corridor includes many of the sites already recognized in the County as historic treasures including the John Mosby Heritage Area. All of these sites are major tourist destinations. The impact that roads and other means of transportation have on the rural landscape must be considered during the design of road-improvement and new construction projects. These sites are closely tied to their rural settings and can be negatively affected by road projects.

The County has six designated historic and cultural conservation district, two historic site districts, and one historic roadway district. There are also three town-administered historic districts. One method used by the County to help facilitate the public awareness of scenic roads and their associated landscapes is through state-designated "Virginia Byways," as authorized by the 1966 Scenic Highway and Virginia Byways Act. Virginia Byways are corridors with significant aesthetic and cultural value, leading to or lying within areas of historical, natural or recreational significance. Virginia Byways designation could ensure valued heritage resources are considered as part of road improvement and maintenance projects. The designation does not guarantee the conservation and protection of roadways or their adjacent corridors. Local land use controls are still needed to preserve the unique character of the Virginia Byway corridor. Seventeen Virginia Byways are located in the County. Route 15 is also designated as a National Scenic Byway.

Seventeen Virginia Byways are located in the County. They are:

- Route 7 (Colonial Highway) from the intersection with Route 287 in Purcellville east through the Town of Hamilton to the intersection with Route 699 (Dry Mill Road);
- Route 9 (Charles Town Pike) from its intersection with the Route 7 bypass and Route 662 (Clarkes Gap Road) to the West Virginia State Line;
- Route 15 (James Monroe Highway) from the Maryland State Line south to the Prince William County Line;
- Route 662 (Clarkes Gap Road) from Waterford to Route 9 at Paeonian Springs;
- Route 665 (Loyalty Road) from Taylorstown to Waterford;
- Route 671 (Harpers Ferry Road) from its intersection with Route 9 (Charles Town Pike) to the intersection with Route 340 near the Potomac River;
- Route 673 (Milltown Road) from the intersection with Route 287 (Berlin Turnpike) in Lovettsville to the intersection with Route 681 (Milltown Road) southwest of Lovettsville;
- Route 681 (Milltown Road) from the intersection with Route 673 (Featherbed Lane) to Route 698 (Old Wheatland Road) near Waterford;
- Route 690 (Mountain Road) from Route 673 (Irish Corner Road) near Lovettsville to Hillsboro;
- Route 699 (Dry Mill Road) from the intersection of Route 7 (Colonial Highway) to the intersection of Loudoun and King Street (Route 15) in the Leesburg Historic District;
- Route 704 (Harmony Church Road) from the intersection of Route 7 (Colonial Highway) in Hamilton to Route 15;
- Route 719 (Woodgrove Road) from Round Hill to Hillsboro;
- Route 722 (Lincoln Road) from the southern boundary of Purcellville, including the JLMA, to the intersection with Route 728 (North Fork Road);
- Route 728 (North Fork Road) from the intersection of Route 722 (Lincoln Road) to the intersection of Route 731 (Watermill Road);
- Route 731 (Watermill Road) from the intersection of Route 728 (North Fork Road) to the intersection with Route 734 (Snickersville Turnpike); and
- Route 734 (Snickersville Turnpike) in its entirety from Bluemont to Aldie.
- Route 751 (Cider Mill Road) in its entirety from the intersection of Route 719 (Woodgrove Road) to the intersection with Route 9 (Charles Town Pike)

The Zoning Ordinance empowers the County to further protect historic roads through the designation of Historic Roadway Districts and Historic Access Corridor Districts. Route 50 through the Mosby Heritage Area will be considered for designation as either a Historic Roadway District or Historic Access Corridor and Route 626 will also be considered for designation as a Historic Access Corridor. The County will work with the Town of Leesburg to designate Edwards Ferry Road from Battlefield Parkway east to River Creek Parkway as a Historic Access Corridor. The Beaverdam Creek Historic Roadways District has already been established using this section of the Zoning Ordinance.

Heritage Resource Policies

- 8-2.1 **Preservation and Protection** The County supports heritage resource and archeological studies for transportation project and will implement measures to protect cultural, historic and archaeological sites which are affected by state-funded road improvement projects and supports archeological studies for state-funded improvements, including use of Section 106 and 4F processes when required.
- 8-2.2 **National Scenic Byways** The County supports The Journey Through Hallowed Ground National Scenic Byway designation of US Route 15 and will incorporate the National Scenic Byway guidelines to ensure that improvements are constructed to meet these standards, as applicable. The County will coordinate with VDOT on road improvement plans along this corridor.
- 8-2.3 **Virginia Byways** The County will work with the state to recommend and implement Virginia Scenic Byway designations along roads of significant aesthetic or historical value. The County will coordinate with VDOT on road improvement plans along these corridors.
- 8-2.4 **Designation of Corridors and Districts** The County will identify, define, and designate Historic Roadway Districts, and Historic Access Corridor Districts beneficial to preserving the rural and community character of the County. The creation of Historic Roadway Districts and Historic Access Corridors will be a community-driven process to include relevant Advisory Boards, Commissions, and Committees.
- 8-2.5 **Middleburg** The County, in coordination with the Town of Middleburg, will protect the entrance corridor to the National Register Middleburg Historic District, as well as the scenic and historic character and importance of the first paved road in the Commonwealth, the County will designate Route 50 through the Mosby Heritage Area as a Historic Access Corridor or Historic Roadway District as provided for in the Revised 1993 Zoning Ordinance. To further protect the entrances to the Middleburg Historic District, the County will designate Route 626 (Foxcroft Road and The Plains Road) as a Historic Access Corridor as provided for in the Zoning Ordinance.
- 8-2.6 **Waterford** The County will protect the Waterford National Historic Landmark, as designed by the National Park Service, as well as the scenic and historic character and importance surrounding roadways and will seek opportunities to enhance protections of this area through traffic calming measures and other efforts to encourage through traffic to use alternate routes.
- 8-2.7 **Mosby Heritage Area** The County will pursue Virginia Byways designation by the Commonwealth for Route 626 in its entirety and Route 50 in the Mosby Heritage Area.

- 8-2.8 **Edwards Ferry Road** The County will work with the Town of Leesburg to designate Edwards Ferry Road from Battlefield Parkway east to River Creek Parkway as a Historic Access Corridor and the spine of the Ball's Bluff Battlefield National Historic Landmark.
- 8-2.9 **Historic Towns and Villages** In addition to those noted in the above policies, the County will seek opportunities to enhance and protect historic landmarks and buildings within the incorporated Towns and designated Villages.

Chapter 9 – Prioritization and Funding

It is important that the County set priorities for its planned transportation improvements in order to be able to efficiently focus public and private resources on major projects needed in both the short- and long-term. This chapter is intended to provide general guidance for the Board of Supervisors to consider in its development of the Capital Improvement Program (CIP). This six-year program, updated annually based upon real and forecasted budget allocations, provides funding for transportation infrastructure development throughout the County. Funding sources, which are outlined later in this chapter, include County revenues, as well as Regional, State and Federal funds as distributed to the County.

This chapter provides high-level guidance on prioritization of projects and provides policy to enable the County to seek funding opportunities for desired projects. It is not intended to provide a ranked listing of projects, as such rankings occur during the annual CIP development. Rather, the policies below provide broad guidance relating to completing missing links for all modes, considering functional classification, and coordinating with private project development to ensure available funding is optimized to maximize efficiency of the transportation network.

Transportation Improvement Priorities Policies

- 9-1.1 **General Guidance Documents** The County’s Capital Improvement Program (CIP) and the Virginia Department of Transportation’s Six-Year Improvement Program (SYIP) will be the key processes for prioritizing transportation improvements on a regular basis. The County will base transportation decisions in part on its land use policies contained in the Loudoun 2040 General Plan and its transportation model outputs.
- 9-1.2 **Priority Project Considerations** Road and other transportation infrastructure improvements will promote traffic, pedestrian, and bicycle safety and mobility. This shall include appropriate locations for transit stops that provide for improved vehicular and transit operations consistent with area land uses and regional demands.
- 9-1.3 **Priority Project Types** The County will place priority on transportation projects falling into one or more of the following types, in no particular order:
- Projects that complete missing segments of arterial and major collector corridors
 - Projects within the County’s Intersection Improvement Program
 - Projects to provide connectivity in and around the County’s Metrorail stations
 - Projects that provide significant economic development benefits to the County
 - Projects within the County’s Sidewalk and Trail Program
 - Projects that incorporate “complete streets” concepts and features

Funding Sources

The planning, design, construction, operation and maintenance of a multi-modal transportation system are completely dependent upon the availability of adequate funding. The funding of transportation infrastructure requires significant expenditure of capital, typically beyond the resources of local government. Traditionally, the County has depended on State and Federal funds for the design and construction of transportation projects, augmented by private sector contributions, known as proffers. However, as traditional sources of funding dwindled, the County was forced to increasingly rely upon private sector contributions, and to implement funding alternatives, including the sale of bonds and the use of innovative financing options.

While the County has been successful in utilizing a variety of means to finance transportation projects, the inherent uncertainty in the timing of infrastructure improvements linked to private sector projects remains a challenge. Also, key projects continue to remain unfunded or under-funded where financing is unavailable or inadequate. Finally, rising construction costs further complicate the issue. Accordingly, the County places an emphasis on setting priorities through annual project review and provides guidelines and direction for funding acquisition and management.

In November 2006, Loudoun County voters approved the County's first ever local road bond referendum in the amount of \$51.3 million. The approval allowed for the sale of bonds to pay for the construction of an interchange at the intersection of Route 7 and Loudoun County Parkway, a section of Russell Branch Parkway associated with the interchange, and the full or partial design of six additional road projects. The approval of the 2006 referendum represented a commitment by the County and its voters to ensure the provision of priority transportation improvements in an effort to promote both economic development and quality of life. Building on this effort, beginning in 2012, the Board of Supervisors embarked on a robust transportation component of the County's Capital Improvement Program (CIP), which as of 2018 has grown to a level such that transportation comprises over 50% of all CIP funding. Loudoun's CIP is now one of the largest transportation programs administered by a local government anywhere in the United States. Additionally, with the passage of HB 2313 in 2013, the General Assembly authorized a significant source of dedicated revenue for funding transportation projects in Northern Virginia through the NVTAs.

The various sources of funding that are available to the County are summarized below. These include local, regional, state, federal, and public-private funding sources (including proffers). Each of the listed funding programs has specific criteria that must be met in order to be used. The County seeks to take advantage of all available resources, or a combination thereof, in an effort to secure adequate funding and advance its transportation initiatives. Leveraging outside, or non-local source funding, is a primary goal for the County. For specific information on planned transportation expenditures within the County, please refer to the County's latest adopted Capital Improvement Program (CIP), as well as VDOT's latest adopted funding programs.

Local Funding Sources

General Obligation Bonds, Lease Financing and Revenue Bonds

Many of Loudoun's transportation projects have been financed by the sale of state bonds through the Northern Virginia Transportation Bond Act. Such improvements include the widening of Route 7 to six lanes between Route 28 and the Route 15 Bypass; the construction of the interchange at Route 7 and the Route 15 Bypass in Leesburg; and Route 15 safety improvements north of Leesburg. These bonds have been financed from different sources, such as recordation taxes, public right-of-way use fee, and the state's general funds. Where appropriate Lease Financing and Revenue Bonds may be used to fund projects. The County's use of bonds to fund transportation and non-transportation projects is subject to the Board's self-imposed fiscal policies.

Local Tax Funding / Local Tax Funding for Roads

The Board has adopted a policy to fund a minimum of ten percent of the CIP using cash. Additionally, HB 2313 (2013 Session of the General Assembly), which provided funding to the NVTB, requires local jurisdictions to contribute, from their local funds, a level of funding equal to or exceeding the 30% formula distribution from the NVTB ("Maintenance of Effort"). The Board established a policy to designate \$0.02 per \$100 of assessed value of real estate property taxes to meet the Maintenance of Effort requirement.

Local Gasoline Tax

The County began to receive Local Gasoline Tax revenues in January 1989 with the formation of the Loudoun County Transportation District Commission (LCTDC). In January 1990, the LCTDC was dissolved, and Loudoun County became a member of the Northern Virginia Transportation Commission (NVTC). Local Gasoline Tax revenues are received by the Commonwealth and held in trust by NVTC for Loudoun County. Expenditure of Loudoun County's Local Gasoline Tax revenue is regulated by the Interim Transportation Plan adopted by the former LCTDC on September 11, 1989, which organizes projects by category. Unlike other localities, Loudoun County can spend Local Gasoline Tax revenues for road improvements and bicycle and pedestrian improvements as called for in the Loudoun 2040 CTP as well as on transit programs. Other Northern Virginia jurisdictions use the money solely for WMATA (Metro) expenses. Per Board direction, once Phase 2 of the Dulles Corridor Metrorail Project is complete, 100 percent of the funds will be directed to fund Loudoun County's obligations to WMATA.

The use of Local Gasoline Tax funds has been flexible. Funds have been used to leverage state Revenue Sharing Program funds and private contributions for road construction, to supplement primary and secondary road improvement projects, such as traffic signals, to improve traffic movement, to supplement the Commuter Bus operating costs and for a variety of locally oriented transportation projects that have no other funding source. Beginning in FY 2018, most Local Gasoline Tax funds were set aside to fund the upcoming expenses related to Metrorail. In FY 2019, all Local Gasoline Tax funds will be used for Metrorail-related costs.

Regional Funding Sources

Northern Virginia Transportation Authority (NVTA) Funding

In 2013, the General Assembly passed HB 2313 creating a dedicated revenue source for funding transportation projects through the NVTA. Thirty percent (30%) of the funds, referred to as local funds, are distributed annually to the qualifying jurisdictions using a formula based method. The remaining seventy percent (70%) funds are available to qualifying jurisdictions on a competitive basis to implement regional transportation projects. One of the criteria for eligibility to receive the 70 percent regional funds is that transportation projects for which funding is sought must be included in NVTA's long range transportation plan known as TransAction. Revenues from HB 2313, funded by sales taxes, transient occupancy (lodging) taxes, and grantor's (real estate transfer) taxes, generate an estimated \$300 million annually in local and regional transportation funding to Northern Virginia.

In August 2015, NVTA embarked on a major update to TransAction, which was adopted in October 2017. TransAction provides a multi-modal guide for transportation investments in Northern Virginia and will be the mechanism through which over \$1 billion will be allocated to regional transportation improvements through NVTA's Six-Year Funding Program (SYP). The 70 percent regional NVTA funds allocated on a competitive basis will only be available to Northern Virginia jurisdictions' projects included in TransAction, with jurisdictions to submit projects for funding consideration every two years. Updates to NVTA's SYP will accommodate:

- Project/project phase completions
- Project schedule and budget adjustments (subject to NVTA policies)
- Fluctuations in regional revenues
- Updated NVTA regional priorities

TransAction is anticipated to be updated every five years, with the next scheduled update to be adopted by fall 2022. Consideration is underway for ad-hoc TransAction updates or amendments under exceptional circumstances, subject to NVTA approval and the identification of an acceptable funding source.

Northern Virginia Transportation Commission (NVTC) Transform I-66 Funding

In January 2016, the NVTC and the CTB signed a 40-year memorandum of agreement (MOA) allowing NVTC to use a portion of the toll revenues from the I-66 inside the Beltway project (now referred to as the 66 Commuter Plan) to fund multimodal projects in Northern Virginia. The MOA assigns VDOT, on behalf of the CTB, to control and manage tolling on I-66. Toll revenues will be used and distributed to support the tolling operations and tolling maintenance of the facility, and to fund components selected by NVTC and approved by the CTB for the project, designed to specifically attain the Improvement Goals stated in the MOA. The CTB delegates to NVTC the authority to select and administer the implementation of the components to be funded from the portion of the toll revenues of the facility as provided in the MOA. These projects, designed to benefit toll payers, will ease

travel through this congested corridor. Park and ride lots, bike share stations, express bus service and high-tech transit information screens are among the types of projects eligible for funding. The funding can be used for both capital and operating costs of the facilities, and a call for projects will be solicited on an annual basis.

State Funding Sources

VDOT Six-Year Improvement Program (SYIP) Funding

The Six-Year Improvement Program (SYIP) is the primary mechanism for state transportation funding. During the 2014 Virginia General Assembly Session, HB 2 was enacted which requires the CTB to develop and implement a quantifiable and transparent prioritization process for making funding decisions for projects funded through VDOT or DRPT using the Commonwealth's transportation funds. The program was subsequently renamed "SmartScale: Funding the Right Transportation Projects in Virginia." For each SmartScale cycle, projects must be submitted by September 30 of the calendar year. Once all projects have been submitted, evaluation teams work through December to screen and score all projects and provide project rankings to the CTB in January. The SYIP is updated on an annual basis.

HB 1887, which was enacted during the 2015 General Assembly Session, replaced the current \$500 million annual allocation made by the CTB and corresponding formula and the old "40-30-30" allocation formula to the primary, secondary and urban highways respectively with a new funding formula. HB 1887 provided two main pathways to funding within the SYIP process—the Construction District Grant Program (CDGP) and the High-Priority Projects Program (HPPP). The CDGP is open only to localities and replaces the old "40-30-30" construction fund allocation model with a new formula that allocates funding using the following percentages:

- 45% of funds to the newly established state of good repair purposes;
- 27.5% to the newly established high-priority projects program; and
- 27.5% to the highway construction district grant programs.

The new formula takes effect beginning in FY 2021 but some unallocated dollars will flow through the new formula during a transition period before FY 2020.

The current application cycle for adding SmartScale funded projects into the SYIP follows timeline:

- July – Coordination with Jurisdictions begins for the next round of applications
- August through September – Solicitation of project applications
- September 30 – Deadline for submission of projects
- October through January – applications screened and scored
- January – Preliminary release of rankings
- February through April – CTB consideration of projects to be added to the SYIP
- April through May – CTB Public Meetings on a draft SYIP
- June – CTB adoption of the SYIP

[VDOT Secondary Road Improvement Program \(SRIP\) Funding](#)

The SRIP provides state and federal funds for the construction of secondary road improvements. In Loudoun, these funds have primarily been used to improve or pave unpaved roads. This funding program will expire on July 1, 2020 per HB 1887. Following the full implementation of HB 1887 in FY 2021, there will be no dedicated funds for secondary roads. Counties will have to apply to their respective VDOT district to receive the grant funds for paving of unpaved roads, and proposed projects are required to be ranked through the SmartScale process.

[VDOT Revenue Sharing Program Funding](#)

The Revenue Sharing Program is a dollar-for-dollar cash match to provide additional funding for use by a county, city, or town to construct, maintain, or improve the highway systems within that locality, and for eligible additions in certain counties. Locality funds are matched with state funds with statutory limitations on the amount of state funds authorized per locality. The program is administered by VDOT in cooperation with participating localities under the authority of the Code of Virginia § 33.2-357. An annual allocation of funds for this program is designated by the CTB. Projects may be constructed by VDOT or by the locality under an agreement with VDOT.

[Federal Funding Sources](#)

[Regional Surface Transportation Program \(RSTP\) Funding](#)

RSTP are federal funds and any project using these funds is subject to federal requirements including NEPA, Davis-Bacon Wage Rates, Buy-American, enhanced review of plans and specifications by VDOT and the FHWA. The federal transportation appropriation established several categories of Surface Transportation Program (STP) funding. RSTP funds, which constitute 30 percent of the overall program, flow through VDOT for primary, secondary, and urban road programs and are distributed through a regional allocation process agreed to in the region. This process includes initial allocation of funds to projects through the NVTA with final endorsement by the National Capital Region Transportation Planning Board (TPB). The process to obtain funding is both competitive and complex. Projects must be recommended by the NVTA Policy Committee, and be included in the Constrained Long-Range Plan (CLRP) and Transportation Improvement Program (TIP) by the TPB.

[Congestion Mitigation and Air Quality \(CMAQ\) Improvement Funding](#)

CMAQ funds are federal funds and any project using these funds is subject to federal requirements including NEPA, Davis-Bacon Wage Rates, Buy-American, enhanced review of plans and specifications by VDOT and the FHWA. These funds are distributed to the Commonwealth of Virginia, through VDOT and distributed to local jurisdictions using a formula agreed to in the region. NVTA provides oversight to the CMAQ program. In order to receive CMAQ funding, a project must demonstrate a positive impact on reducing vehicle emissions and improving air quality. CMAQ funds may be used for local

transit projects such as transit service start-up costs, the purchase of vehicles, or bus shelters, as well as certain bicycle and pedestrian facility projects. Also, CMAQ funds for traffic-signal coordination or ridesharing programs require no local match. CMAQ may be used to fund improvements to existing intersections that will reduce congestion and thus lower vehicle emissions.

[Additional Bicycle and Pedestrian Funding Sources](#)

The federal government offers a number of programs that are dedicated to providing funding for most bicycle and pedestrian projects. The programs are diverse and are made available for eligible projects according to their own sets of criteria.

[Private Sector Funding Sources](#)

[The Public-Private Transportation Act of 1995 \(PPTA\)](#)

The PPTA is the legislative framework enabling the Commonwealth of Virginia, qualifying local governments and certain other political entities to enter into agreements authorizing private entities to acquire, construct, improve, maintain, and/or operate qualifying transportation facilities. Loudoun County, in coordination with the CTB, accepted a proposal filed under the PPTA that funded limited access improvements to Route 28, including five interchanges and several sections of the Route 28 parallel roads. The Board also used the PPTA to enter into an agreement with a private developer to design, construct and operate the North Commuter Parking Garage at the Ashburn Metrorail Station.

[Cash and In-Kind Proffers](#)

The Proffer system is a voluntary program governed by the Code of Virginia that allows a private developer to offer conditions as part of a rezoning application to offset the impacts of a proposed development. Proffers include certain in-kind improvements or cash payments to improve the public infrastructure needed to serve new residents or users of the development. In the past, many of the new roads constructed in the County were built by developers pursuant to proffer obligations. However, the County's reliance on developers to construct road improvements resulted in roads being built in a piecemeal fashion that created missing segments and bottlenecks because one development may have met its development threshold that required road improvement to be completed while another site did not. The County has accepted cash proffer contributions that are typically designated for specific road improvements or for regional road improvements in the vicinity of the development. Code of Virginia § 15.2-2303.2 stipulates the requirements for spending cash proffer payments and includes a provision for the alternative use of cash proffer payments referred to as proffer flexing. Administratively, the County's process for spending cash proffers requires the issuance of a proffer determination by Zoning Administration and an amendment to the CIP.

Beginning in 2017, changes to the Code of Virginia significantly impacted the County's ability to accept proffers for residential applications in certain portions of the County. The County will not in any way suggest, request, require or accept any proffered commitment

unless and to the extent such proffers are consistent with County proffer policies, contained in Chapter 6, Mitigating the Impacts of Development, and the proffer guidelines as set forth in the Loudoun 2040 General Plan.

Impact Fees

An impact fee is an assessment or payable amount imposed on new development in order to generate revenue to fund or to recover reasonable costs of public facility improvements, the need for which are generated by new development. The Code of Virginia authorizes Counties to enact an impact fee program for roads. The fee must be based on a formula for road improvements with a specified service area or “traffic shed”. Road impact fees have not been used, in part, because transportation proffers through the rezoning process have been used successfully to construct significant road improvements. A deterrent to using the impact fee enabling legislation is a prohibition from assessing an impact fee on any development that is covered by proffered conditions for any off-site road improvements. Extensive use of proffers in Loudoun has made it difficult to use impact fees. A local jurisdiction can require impact fees from ministerial land development applications, including subdivisions. However, impact fees may not be used in conjunction with the proffer system in the same area of a locality. It is difficult and costly to develop and maintain the program.

Special Tax Districts

Route 28 was improved to a six-lane divided road through the use of a “transportation service district” authorized by the Code of Virginia. A Special Tax District may be created only by resolution of the Board of Supervisors upon the petition of landowners representing at least 51 percent of either the assessed value of land or actual land area within the proposed district that is zoned for commercial or industrial use or is used for such purposes. The Route 28 Highway Transportation Improvement District (HTID) was established by resolutions of the Loudoun and Fairfax County Boards of Supervisors in 1987.

The Route 28 HTID demonstrates that a public-private partnership can construct a major road improvement using this funding technique. The Route 28 improvements were constructed in a short time frame. The District approach allows a major road improvement to be built before development occurs, avoiding congestion and maintaining good levels of service in the corridor. The use of tax districts for future road improvements in other corridors is limited. This technique is only feasible in corridors with substantial potential for commercial and industrial growth.

Community Development Authorities (CDA)

The County may consider petitions for Community Development Authorities (CDAs) from the owners of at least 51 percent of the land area or assessed value of a given tract. CDAs are defined as “a public body politic and corporate and political subdivision of the Commonwealth” by the Virginia Code, and have the power to “finance, fund, plan, establish, construct or reconstruct, enlarge, extend, equip, operate and maintain” infrastructure improvements. These improvements may include “roads, bridges, parking

facilities, curbs, gutters, sidewalks, traffic signals, stormwater management and retention systems, gas and electric lines and street lights.” CDAs are empowered to raise funds through revenue bonds, special taxes, and special assessments on adjoining properties.

[Private-Sector Toll Road Construction](#)

The 14-mile extension of the Dulles Greenway constructed by the Toll Road Corporation of Virginia, a private corporation, opened to traffic in September 1995. The financing for the project was secured by the private sector with rights-of-way obtained through private-sector negotiations and transactions or private-sector proffers from land-development applications. Once the financing and permits were obtained for this project and construction commenced, construction proceeded very rapidly under private-sector management. However, rising toll levels have been and continue to be a public concern. These tolls are regulated by the State Corporation Commission (SCC) and are subject to their review. Ultimately, the Greenway is slated to revert to state control.

[Transit-Specific Funding Sources](#)

[Virginia Department of Rail and Public Transportation \(DRPT\) Managed Programs](#)

DRPT manages the state and federal aid programs that are the largest sources of grant funding for public transit services in Loudoun County. The following descriptions summarize the information about these programs.

State Operating Assistance

The program provides funding for the following eligible operating expenses:

- Administrative costs
- Fuel and lubricants
- Tires
- Maintenance parts and supplies

The financial assistance is allocated among the Virginia providers of public transportation on the basis of total operating expenses incurred during the most recent fiscal year. Typically, 12 to 23 percent of total operating costs have been paid with DRPT in formula funds.

State Capital Assistance

The program provides funding for the purchase, rehabilitation, or improvement of capital assets such as:

- Vehicles
- Safety and security equipment
- Maintenance and operations facilities
- Bus stops and shelters
- Real estate

The state match ratio for the conventional transit program is calculated by dividing the available state funding by the amount needed to support the non-federal share of all eligible projects. Typically, the state funding ratio has varied from 20 to 60 percent.

The State Paratransit (Demand Response) Program is a subset of the Capital Assistance Program. The maximum state participation is 95 percent. All projects are typically matched at the maximum participation ratio.

State Transportation Demand Management (TDM) / Commuter Assistance

The program supports the administrative costs of TDM and Commuter Assistance Programs. Typically, Loudoun County has been funded at a state participation rate of 80 percent. Funding for this program comes from the Transportation Efficiency Improvement Fund (TEIF), another state program. The TEIF funding is used to support both TEIF and TDM/Commuter Assistance projects. The amount of TEIF funding available for both programs has consistently been \$4.0 million annually.

DRPT reviews and rates the applications according to a specified list of criteria. It then includes the recommended applications in the draft Six-Year Improvement Program. The Commonwealth Transportation Board (CTB) releases the draft program for public comment. The CTB then approves the Improvement Program.

Federal Transit Administration (FTA) Section 5311 Rural Areas

This FTA program provides funding for operating and capital expenses for public transportation serving non-urbanized areas or areas of less than 50,000 in population. DRPT is the designated recipient for Virginia's Section 5311 program and is responsible for administering the funds. This is a major source of funding for Route 40, the Purcellville Connector and Loudoun's western On-Demand services, which are operated by Virginia Regional Transit.

The financial assistance is allocated among the Virginia providers of public transportation on the basis of the latest US Census population data for areas with a population less than 50,000. DRPT typically funds 50 percent of net operating expenses and up to 80 percent of eligible capital expenses after the net operating expenses are funded.

Funding Policies

9-2.1 **Funding Sources** The County will seek funding for the construction of the planned transportation facilities as outlined in the Loudoun 2040 CTP through a variety of public and private funding sources, including local, regional, state, and federal funds, public-private partnership funds, private-sector proffer donations, private property owner easements, and citizen donations.

9-2.2 **Funding Allocations** The County will seek its fair share of funding sources, which include, local, regional, state and federal funds. The County will continue to seek innovative funding measures, such as bond financing, special taxing districts, toll road revenues, federal grants, Community Development Authorities (CDAs), and measures envisioned by the Public-Private Transportation Act (PPTA) to assist in

financing roads, bicycle and pedestrian facilities, and transit improvements.

- 9-2.3 **Safety Improvements** The funding of needed safety improvements is a County priority.
- 9-2.4 **Regional Agencies and State Government** The County will continue to work with regional agencies, the Commonwealth Transportation Board, and the General Assembly to ensure that Loudoun County receives its fair share of regional and state funding through all funding mechanisms.
- 9-2.5 **CMAQ Funding** The County will continue to pursue and use federal Congestion Mitigation and Air Quality Improvement (CMAQ) funds and state transit capital and operating funds to increase transit options in the Urban and Suburban Policy Areas. The County will also seek CMAQ funds for eligible bicycle and pedestrian facility projects, traffic signal coordination projects, and ridesharing programs.
- 9-2.6 **Park and Ride Lots** The County will seek funds from a variety of sources including regional, state, federal, and the private-sector contributions, to fund the development of park and ride lots and related transit infrastructure.
- 9-2.7 **Pedestrian Overpasses** The County will support the construction of pedestrian overpasses where needed through a variety of available public-sector funding sources as well as private-sector contributions.
- 9.2-8 **Multiple Funding Sources** Where appropriate, the County will combine funding from two or more funding sources to provide expedited construction schedules for transportation improvements.

Chapter 10 – Implementation of the Plan

The Comprehensive Plan is a component of an ongoing effort to provide transportation services. The Plan serves as the policy basis for future planning efforts, providing the criteria, objectives, and parameters for future transportation efforts by the County. This chapter provides an outline of key issues that should be addressed and future tasks that should be undertaken to fully implement the goals of this plan.

The planned transportation facilities identified in this document generally have not been engineered, funded, or fully analyzed. Therefore, many steps must be taken to reach implementation, including corridor, environmental impact and alignment studies, modifications to land use plans and ordinances, and interjurisdictional coordination. This chapter outlines major tasks that will need to be achieved as the County moves toward implementation of priority planned transportation projects.

Implementation Strategies

The County has identified a series of strategies to implement the transportation goals described in Chapter 2:

1. Enhanced multimodal safety for all system users.

- Complete the build-out of the major road network while ensuring integration with the local road network, encourage connectivity between developments to reduce the overall burden on the major road network, and set tangible, achievable goals demonstrating incremental progress towards that end.
- Ensure that all major projects accommodate travel by vehicles, cyclists, pedestrians, and transit riders as integral elements of the County's transportation system.
- Work with the Virginia Department of Transportation to improve and expand standards and support safety improvement programs for multimodal networks.
- Form a Citizen Bicycle and Pedestrian Advisory Committee to review and improve planning bicycle and pedestrian facilities in the County. Committee will include specific focus on the development of a Rural Trails Plan to include both on-road facilities and off-road corridors including stream valley trails and connections to nearby regional trail networks.
- Define multimodal improvements areas in coordination with the General Plan's land use definitions. These areas will be targeted for small area transportation plans to identify comprehensive system improvements within these areas.
- Develop plans for pilot projects/programs to test the viability of facility improvements.
- Consider revisions to this plan to embrace new technologies, such as autonomously-controlled vehicles, enter the public marketplace, including opportunities for public and private enhancement of these new modes of travel.
- Continually seek to improve safety for drivers, cyclists, and pedestrians through engineering, education, and enforcement, seeking to eliminate all fatalities and major

injuries on County roadways. To accomplish this implementation step, the County will consider becoming a Vision Zero community, acknowledging that traffic deaths and severe injuries are preventable through a modern, multidisciplinary approach to improving traveler safety.

2. A reliable and efficient multi-modal transportation network that manages the travel demands of the County while maintaining fiscal and environmental sustainability.

- Identify priorities that will provide the greatest benefit.
- Prioritize improvements and facilities to complete gaps in the Suburban Policy Area transportation system, including gaps in the bicycle and pedestrian network, to reduce trip lengths, travel times and automobile dependence.
- Employ intelligent transportation systems (ITS) technologies in order to maximize the efficiency of the transportation network.
- Track overall system performance.
- Study opportunities for signed bicycle routes to encourage and facilitate longer-distance bicycle travel in the County.

Maintain cost estimates for common transportation improvements in the County for use by developers, staff, and elected leaders in developing funding plans and evaluating land development applications.

3. Transportation choices that connect people to their communities, employment centers, educational institutions, activity centers, and other amenities.

- Integrate transportation policy with land use policy.
- Expand public outreach and educational programs to promote and encourage the use of transit, bicycle and pedestrian transportation, and ride-sharing, carpooling and vanpooling.
- Support bicycling by encouraging transit operators to offer bike-on-bus racks and bike-on-rail accommodations.
- Promote bicycle safety and education in conjunction with information programs sponsored by partnering agencies.
- Work with the School Board to increase the number of students who can safely bicycle or walk to school by prioritizing “Safe Routes to School” programs.
- Seek opportunities to implement a comprehensive bike share network to connect originating and receiving areas within the County’s activity centers.
- Develop rates and standards for provision of TDM measures, such as provision of dedicated parking spaces and transit service improvements.

- 4. Integration with neighboring jurisdictions to improve regional and statewide connectivity and to attract residents and businesses to Loudoun County.**
 - Fully participate in regional and statewide planning efforts.
 - Engage in neighboring planning and implementation projects to increase the mutual benefit of regional investments.

- 5. Support the growth and potential of enhanced national and international connectivity including consideration of Washington Dulles International Airport and the Silver Line Metrorail Stations.**
 - Coordinate plans and projects with MWAA and WMATA to provide optimal travel opportunities.
 - Focus multimodal development patterns in the areas of the Metrorail Stations to encourage use and benefits of the Metrorail system.
 - Develop transportation networks that support and encourage airport-compatible land uses in the vicinity of Dulles Airport and Leesburg Airport.
 - Educate and engage residents, workers, and visitors to encourage use of Metrorail and associated local bus, bicycling, walking, and ride-sharing options for trips within and outside of the County.

- 6. Context-sensitive planning and design that addresses the different characteristics and needs of the urban, suburban, transition, Towns, JLMA, and rural environments.**
 - Employ context-sensitive design in order to respect historic and environmental features and community character.
 - Link land use and transportation decisions.
 - Respect and encourage shared use of rural roads by pedestrians, equestrians, farm vehicles, bicyclists, and automobiles by making only those improvements necessary for the safety and utility of all users.
 - Support road designs in both residential neighborhoods and commercial areas that integrate multimodal transportation options and enhance adjacent land uses.
 - Refine the transportation network and improve connectivity through the small area plan process, with input from local residents and other community stakeholders, and incorporate small area plans into this document as amendments to the Comprehensive Plan.
 - Adopt a highway noise ordinance and amend the Zoning Ordinance to implement the State Noise Abatement Policy, thereby minimizing future highway noise impacts and qualifying the County for federal and state assistance in the event noise-abatement features are needed to protect existing developments. The County will also seek the authority to require that road improvements proposed by private interests will be required to abide by the same standards.

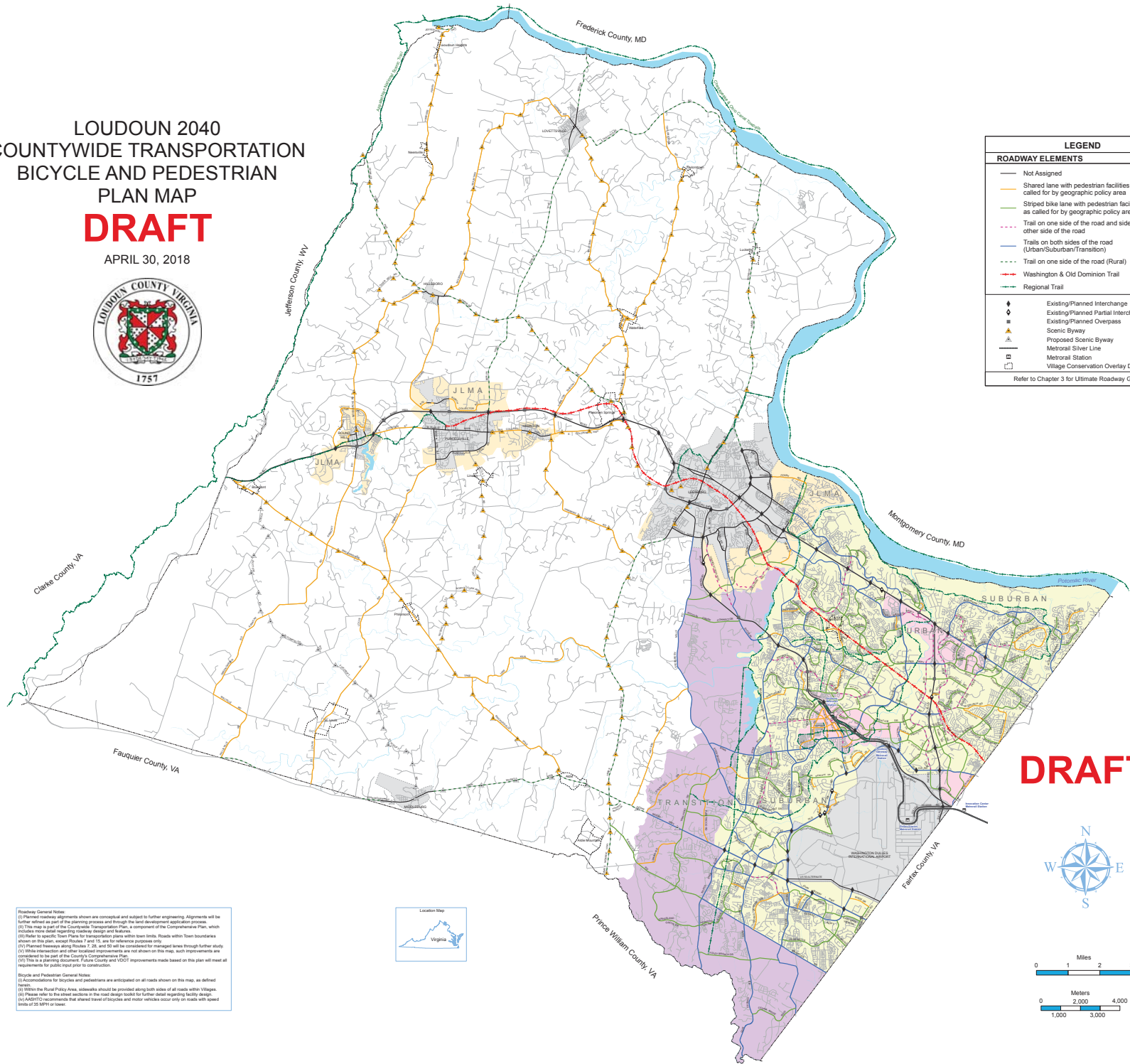
- Work with VDOT, and seek state enabling legislation if necessary, to provide rural road standards for safe travel by all rural road users such as farm vehicles, horses, bicycles and pedestrians. The needs of rural economy users will be a major consideration.

7. A transportation network supportive of the County’s overall vision to support economic development, create vibrant, safe communities and public spaces, and protect natural and heritage resources.

- Comply with all applicable environmental regulations.
- Pursue proffers, special tax districts, business ventures, bonds, other funding sources, or a combination thereof as appropriate.
- Generate and adopt cost metrics for transportation improvements related to development impacts with consideration of plan policies.
- Identify and protect scenic byways and historic routes.
- Present County proposals to state and federal officials.
- Create and maintain maps showing all existing and proffered transportation facilities to use as a guide for identifying gaps and priority improvement areas.
- Adopt a highway noise ordinance in accordance with the State Noise Abatement Policy that outlines the standards for noise abatement that comply with federal requirements.
- Amend the Zoning Ordinance, Facilities Standards Manual, Land Development and Subdivision Ordinance, and other relevant regulations to facilitate implementation of policies within this plan.
- Identify opportunities to amend and update County Ordinances to implement regulatory strategies in conformance with this plan.

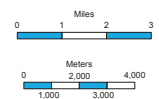
LOUDOUN 2040 COUNTYWIDE TRANSPORTATION BICYCLE AND PEDESTRIAN PLAN MAP **DRAFT**

APRIL 30, 2018



| LEGEND | |
|--|---|
| ROADWAY ELEMENTS | |
| — | Not Assigned |
| — | Shared lane with pedestrian facilities provided as called for by geographic policy area |
| — | Striped bike lane with pedestrian facilities provided as called for by geographic policy area |
| — | Trail on one side of the road and sidewalk on the other side of the road |
| — | Trails on both sides of the road (Urban/Suburban/Transition) |
| — | Trail on one side of the road (Rural) |
| — | Washington & Old Dominion Trail |
| — | Regional Trail |
| ◆ | Existing/Planned Interchange |
| ◆ | Existing/Planned Partial Interchange |
| ▲ | Existing/Planned Overpass |
| ▲ | Scenic Byway |
| ▲ | Proposed Scenic Byway |
| — | Metrorail Silver Line |
| — | Metrorail Station |
| — | Village Conservation Overlay District |
| Refer to Chapter 3 for Ultimate Roadway Geometry | |

DRAFT



Roadway General Notes
 (1) Planned roadway alignments shown are conceptual and subject to further engineering. Alignments will be further refined as part of the planning process and through the land development application process.
 (2) This map is part of the Countywide Transportation Plan, a component of the Comprehensive Plan, which includes more detailed engineering standards and details.
 (3) Refer to specific local plans or transportation plans within each town. Roads within Town boundaries shown on this plan, except Routes 7 and 15, are for reference purposes only.
 (4) Planned features along Routes 7, 28, and 58 will be considered for managed lanes through further study.
 (5) While intersection and other localized improvements are not shown on this map, such improvements are completed to the best of the County's Comprehensive Plan.
 (6) This is a planning document. Future County and VDOT improvements made based on this plan will meet all requirements for public road prior to construction.

Bicycle and Pedestrian General Notes
 (1) Accommodations to bicycles and pedestrians are anticipated on all roads shown on this map, as defined herein.
 (2) Within the Rural Policy Area, sidewalks should be provided along both sides of all roads within Villages.
 (3) Please refer to the street sections in the road design toolkit for further detail regarding facility design.
 (4) AASHTO recommends that shared lanes of bicycles and motor vehicles occur only on roads with speed limits of 35 MPH or lower.



Prince William County, VA

Fauquier County, VA

Clarke County, VA

Fauquier County, VA

Jefferson County, WV

Frederick County, MD

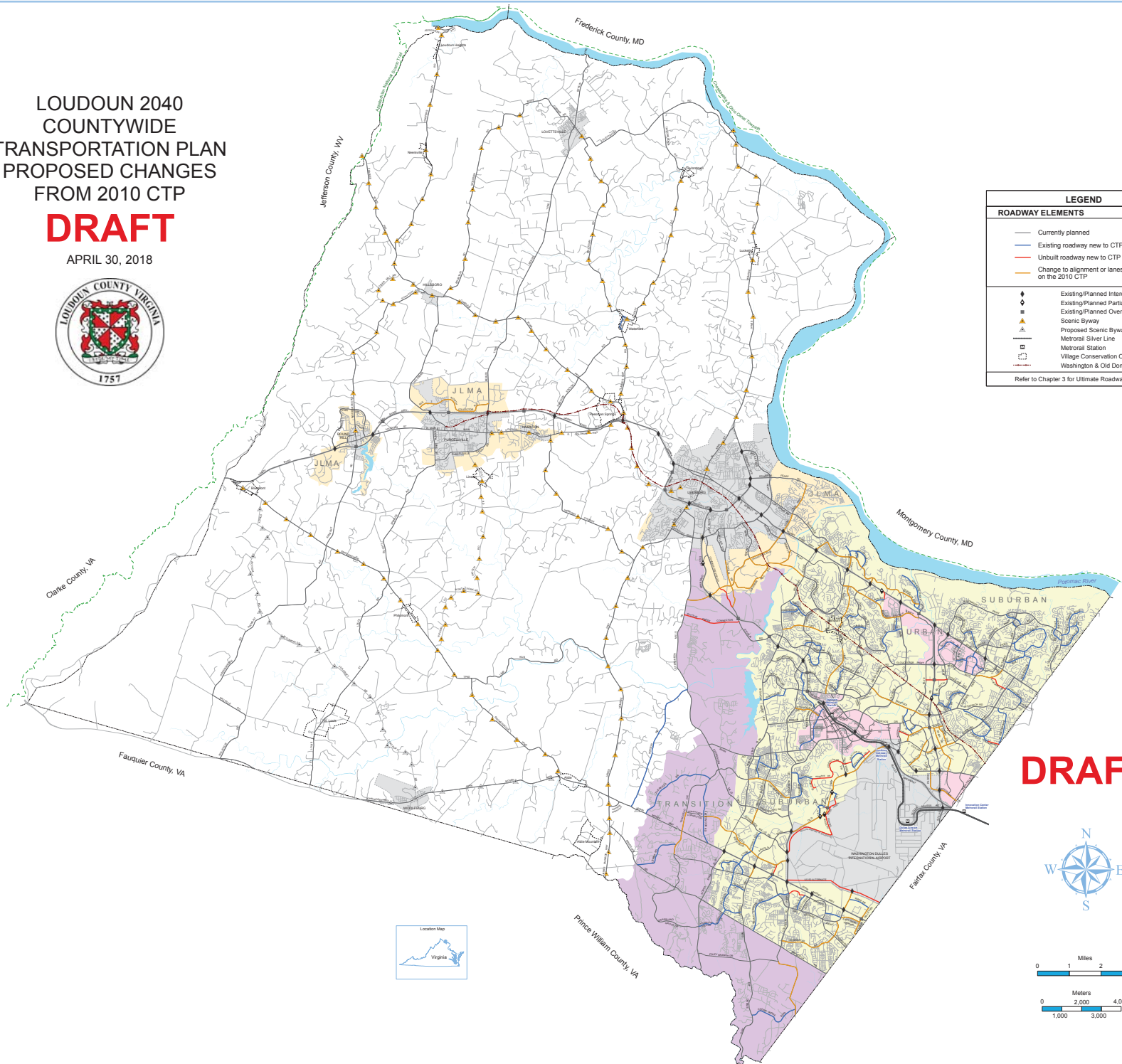
Montgomery County, MD

Fauquier County, VA

LOUDOUN 2040
 COUNTYWIDE
 TRANSPORTATION PLAN
 PROPOSED CHANGES
 FROM 2010 CTP

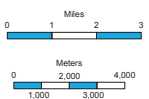
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APRIL 30, 2018



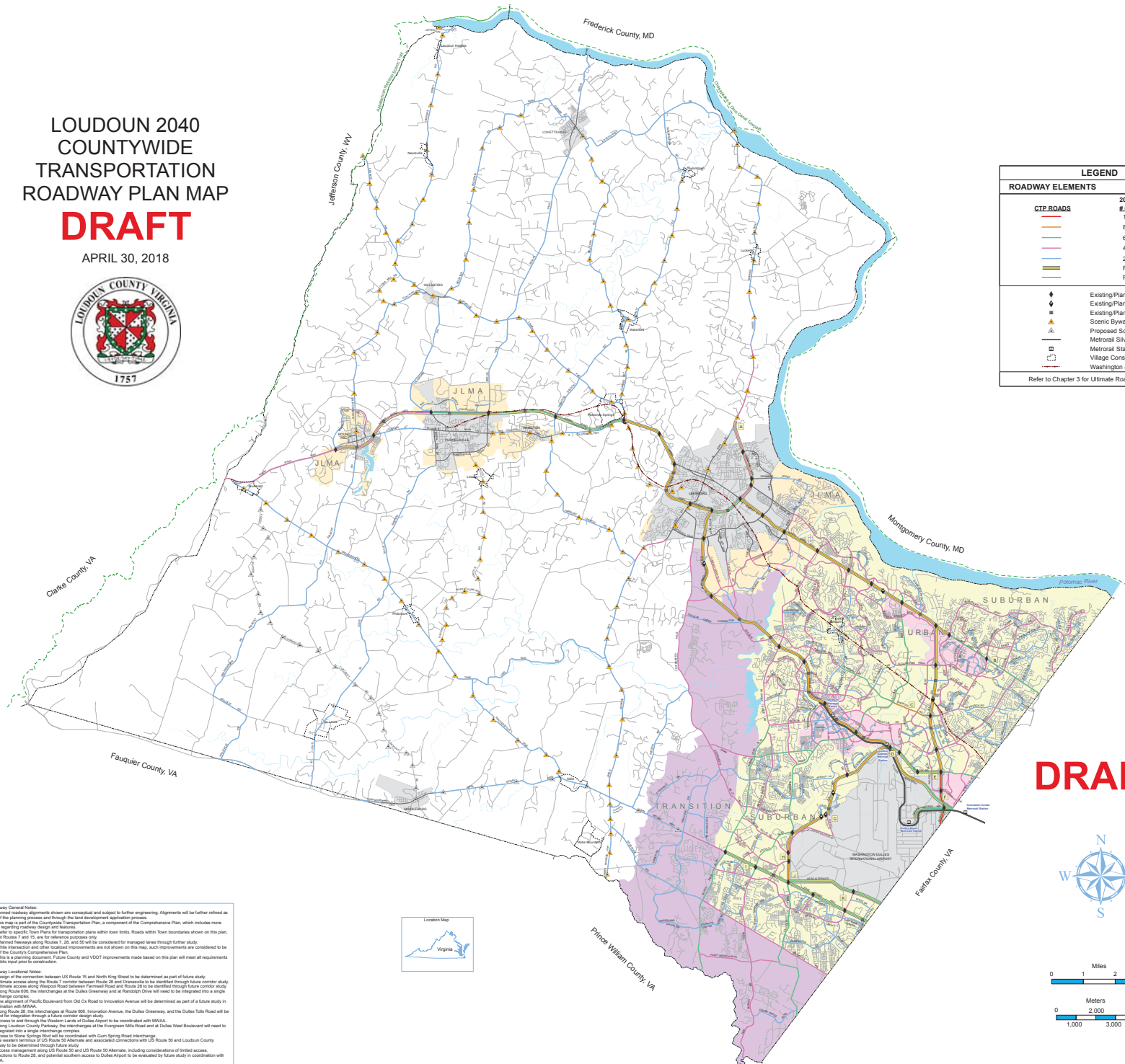
| LEGEND | |
|--|---|
| ROADWAY ELEMENTS | |
| | Currently planned |
| | Existing roadway new to CTP |
| | Unbuilt roadway new to CTP |
| | Change to alignment or lanes on roads shown on the 2010 CTP |
| | Existing/Planned Interchange |
| | Existing/Planned Partial Interchange |
| | Existing/Planned Overpass |
| | Scenic Byway |
| | Proposed Scenic Byway |
| | MetroRail Silver Line |
| | MetroRail Station |
| | Village Conservation Overlay District |
| | Washington & Old Dominion Trail |
| Refer to Chapter 3 for Ultimate Roadway Geometry | |

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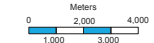
LOUDOUN 2040 COUNTYWIDE TRANSPORTATION ROADWAY PLAN MAP **DRAFT**

APRIL 30, 2018



| LEGEND | |
|--|--|
| ROADWAY ELEMENTS | |
| CTP ROADS | 2040 PLANNED |
| | 10 LANES |
| | 8 Lanes |
| | 6 Lanes |
| | 4 Lanes |
| | 2 Lanes |
| | Freeway <small>(see Note 1)</small> |
| | Refer to Town Plan <small>(see Note 1)</small> |
| | Existing/Planned Interchange |
| | Existing/Planned Partial Interchange |
| | Existing/Planned Overpass |
| | Scenic Byway |
| | Proposed Scenic Byway |
| | Metrorail Silver Line |
| | Metrorail Station |
| | Village Conservation Overlay District |
| | Washington & Old Dominion Trail |
| Refer to Chapter 3 for Ultimate Roadway Geometry | |

DRAFT



Roadway General Notes:

- Planned roadway alignments shown are conceptual and subject to further engineering. Alignments will be further refined as part of the planning process and through the land development application process.
- This map is part of the Countywide Transportation Plan, a component of the Comprehensive Plan, which includes more detailed engineering standards and features.
- Not all roads are shown. Future transportation plans within town limits, outside urban boundaries shown on this plan, would be subject to future study.
- For reference purposes only.
- Where shown along Routes 7, 26, and 68 will be considered for managed lanes through future study.
- While intersection and other localized improvements are not shown on this map, such improvements are considered to be part of the County's Comprehensive Plan.
- This is a planning document. Future County and VDOT improvements made based on this plan will meet all requirements for public road open to construction.

Roadway Localized Notes:

- Change of the connection between US Route 15 and North King Street to be determined as part of future study.
- Ultimate access along the Route 7 corridor between Route 26 and Chantrelle to be identified through future corridor study.
- Ultimate access along the Route 28 corridor between Route 26 and Chantrelle to be identified through future corridor study.
- Along Route 606, the interchanges at the Dulles Gateway and at Handgish Drive will need to be integrated into a single interchange corridor.
- The alignment of Dulles Boulevard from Old Dominion Recreation Avenue will be determined as part of a future study in coordination with MVA.
- Along Route 28, the interchanges at Route 606, Innovation Avenue, the Dulles Gateway, and the Dulles Toll Road will be studied for integration through a future corridor design study.
- Access to and through the Western Bank of Dulles Airport to be coordinated with MVA.
- Along Loudoun County Parkway, the interchanges at the Evergreen Mills Road and at Dulles West Boulevard will need to be integrated into a single interchange corridor.
- Access to and through the Western Bank of Dulles Airport to be coordinated with MVA.
- The western terminus of US Route 50 Alternate and associated connections with US Route 50 and Loudoun County Parkway to be determined through future study.
- Access management along US Route 50 and US Route 50 Alternate, including considerations of limited access connections to Route 28, and potential southern access to Dulles Airport to be included in future study in coordination with MVA.



Glossary ~

Access – The ability of the traveler to reach desired destinations. May vary based upon travel mode or development patterns. High-level access refers to adjacency or high-proximity to desired places, while low-level access refers to undesirable travel distances or environments necessary to reach a destination. Inaccessible defines a situation in which a destination cannot reasonably be reached by a particular mode under any practical circumstance.

Accessibility: (1) The extent to which facilities are barrier free and useable by all people. (2) A measure of the ability or ease of all people to travel among various origins and destinations.

Activity Center : An area with high population and concentrated activities which generate a large number of trips (e.g., Central Business District, shopping centers, business or industrial parks, recreational facilities (also known as trip generator).

Alight: To get off a transit vehicle. Plural: “alightings”.

Alley – A private roadway serving more than three (3) private driveways, emanating from a public street or another alley. Does not serve building frontage.

AM Peak (or PM Peak): The morning or evening commute period, about three hours, in which the greatest movement of passengers occurs, generally between home and work; the portion of the morning or evening service period where the greatest level of ridership is experienced and service provided.

Synonyms: AM Rush, Early Peak, Morning Peak, Morning Rush, PM Rush, Late Peak, Evening Peak, Evening Rush, Peak Period

Americans with Disabilities Act of 1990 (ADA): The law passed by Congress in 1990 which makes it illegal to discriminate against people with disabilities in employment, services provided by state and local governments, public and private transportation, public accommodations and telecommunications.

Arterial Road: Generally, a publicly owned and maintained road, designed with restricted access and primarily intended to carry “through” traffic at 45 to 55 miles per hour.

Auto-Oriented Street – A streetscape arranged to provide convenient access primarily to automobiles. This includes frequent driveway access points, building frontages facing away from the street, speed limits greater than 30 MPH, and limited at-grade pedestrian crossing locations.

Auto-Oriented Uses – Any use more likely to draw automobile traffic than foot traffic. Includes uses primarily for cars, such as gas pumps and car wash facilities, as well as uses oriented toward drivers, such as drive-through restaurants and pharmacies, and uses developed to serve drivers more conveniently than pedestrians, such as convenient stores located to the rear of gas pumps.

Avenue – A Major Avenue or Avenue as defined by the DRPT Multimodal System Design Guidelines, Avenues are locally-oriented streets serving to provide a high degree of connectivity and access between and through an urban center.

Bike Lane, Striped – An on-street bike lane that features a single solid striped lane between the vehicular travel way and the curb or on-street parking spaces with a width of at least six (6) feet.

Bike Lane, Buffered – An on-street bike lane that features a curbside bicycle lane and striped buffer zone and two solid stripes between the bicycle lane and the vehicular travel ways. The bicycle lane is at least five (5) feet in width and the buffer zone is at least three (3) feet in width.

Board: To go onto or into a transit vehicle. Plural: “Boardings”.

Boulevard – A Transit Boulevard or Boulevard as defined by the DRPT Multimodal System Design Guidelines, Boulevards serve to provide mobility throughout the area, connecting urban development areas with other neighborhoods and regional connections.

Bus (Motorbus): A rubber-tired, self-propelled, manually-steered vehicle with fuel supply carried on board the vehicle. Types include articulated, charter, circulator, double deck, express, feeder, intercity, medium-size, sightseeing, small, standard-size, subscription, suburban, transit and van.

Bus, Commuter: A bus with front doors only, normally with high-backed seats, and with or without luggage compartments or restroom facilities for use in longer-distance service with relatively few stops.

Synonym: Commuter Coach.

Bus, Express: A bus that operates a portion of the route without stops or with a limited number of stops.

Bus, Feeder: A bus service that picks up and delivers passengers to a rail rapid transit station or express bus stop or terminal.

Bus, Subscription: A commuter bus express service operated for a guaranteed number of patrons from a given area on a prepaid, reserved-seat basis.

Bus, Transit: A bus with front and center doors, normally with a rear-mounted engine, low-back seating, and without luggage compartments or restroom facilities for use in frequent-stop service.

Bus Lane – A managed lane dedicated for use by public transit vehicles. This lane may be exclusive to transit vehicles at all times or only during certain travel periods, as signed. The lane may be incorporated into the vehicular road section or separated by buffers or barriers, or within an exclusive right-of-way.

Bus Rapid Transit (BRT): BRT is essentially transit on rubber wheels rather than rail. It combines the features of conventional buses and a rapid transit system, such as Metrorail. To save time, passengers would pay their fares when they enter the station, not when they board the bus. They would enter low-floor buses through one of several doors, the way subway riders enter a Metrorail car. Buses would run every few minutes and would stop at designated station platforms.

Bus Shelter: A building or other structure constructed near a bus stop, to provide seating and protection from the weather for the convenience of waiting passengers.

Bus Stop: A place where passengers can board or alight from the bus, usually identified by a sign.

Capital: Long-term assets, such as property, buildings, roads, rail lines, and vehicles.

Capital Assistance: Financial assistance for transit capital expenses (not operating costs); such aid may originate with federal, local or state governments.

Capital Costs: Costs of long-term assets of a public transit system such as property, buildings, vehicles, etc.

Capital Improvements Program (CIP): The County's plan for future capital project expenditures. This plan spells out the capital facilities that the County plans to finance, including schools, libraries, parks, etc.

Capital Project: Construction and/or procurement of district assets, such as transit centers, transit vehicles and track.

Captive Rider: Someone who must use public transportation for his/her travel. Synonym: Transit Dependent

Carpool: An arrangement where people share the use and cost of a privately owned automobile in traveling to and from pre-arranged destinations.

Circulator – A public transit service that serves a small area, often traveling in a circular, rather than linear, route. Serves to connect riders within a localized area, or to a transit center where more substantial transit services are offered.

Chicane: A form of curb extensions that alternate from one side of the street to the other. A traffic calming technique.

Choice Rider: A rider who chooses to ride public transit but could otherwise take another travel mode.

Commuter - A person who travels regularly between home and work or school.

Choker: Facing curb extensions that narrow the street at a particular location. A traffic calming technique.

Clean Air Attainment Area: Area with concentrations of criteria pollutants that are below the levels established by the National Ambient Air Quality Standards (NAAQS) are considered either attainment or unclassifiable areas.

Collector Road: A road into which local roads funnel and which, in turn, carries traffic to an arterial road. Ideally a collector road would have few private entrances accessing it directly.

Commuter Rail: Long-haul rail passenger service operating between metropolitan and suburban areas, whether within or across the geographical boundaries of a state, usually characterized by reduced fares for multiple rides, and commutation tickets for regular, recurring riders. Also known as “regional rail” or “suburban rail.”

Comprehensive Plan: The Loudoun 2040 General Plan for the County and its supporting components, including the Loudoun 2040 Countywide Transportation Plan. Every County in Virginia must have a Comprehensive Plan, which spells out policies for future development in order to ensure orderly growth and the protection of the public health and welfare. The Comprehensive Plan may consist of a number of components, such as local area plans, service plans, and strategic plans.

Connectivity: The provision of multiple, parallel, and redundant travel ways within a network to provide for integration, mobility, and access. High connectivity describes a high level of integration, mobility, and access, while low connectivity describes a lack of options and access, disintegration and limited mobility.

Context Sensitive Design: A project development approach that promotes the involvement of all relevant stakeholders in the development of a transportation facility that fits its physical setting and also reflects concerns for scenic, aesthetic, historic, and environmental resources while providing for transportation safety and mobility.

Controlled Access: Access onto divided roadways concentrated at median crossovers. Individual parcel access highly discouraged, with access provided through interparcel connections and consolidated access points.

Corridor: A broad geographical band that follows a general directional flow connecting major sources of trips that may contain a number of streets, highways and transit route alignments.

dB(A) Leq (h): A measurement of highway traffic noise. dB (A) is the A-weighted levels, or decibels adjusted to approximate the way that an average person hears sound. Leq is the constant, average sound level. Highways that cause noise levels to be experienced at exterior residential locations above 67 dB (A) Leq and at exterior commercial locations above 72 dB (A) Leq are considered to have a negative impact and should be mitigated as part of roadway improvement projects.

Deadhead: There are two types of deadhead or non-revenue bus travel time:
(1) Bus travel to or from the garage and a terminus point where revenue service begins or ends; (2) A bus’ travel between the end of service on one route to the beginning of another.
Synonyms: Non-Revenue Time

Demand Responsive Transportation Services: Door to door transit service, usually by a small 13-passenger shuttle bus whereby a person telephones to schedule a pickup during operating hours. Also called “Dial-a-Ride.”

Design Speed: Recommended speed, which sets the design standards for new and/or improved road sections. The design speed should be flexible to minimize the impact of the improvement on the existing corridor, while maintaining safety.

Dial-a-Ride: See "Demand Responsive Transportation Services."

Disabled: As defined by the Americans with Disabilities Act (ADA); a person who has a physical or mental impairment that substantially limits one or more major life activities, a person who has a history or record of such an impairment, or a person who is perceived by others as having such an impairment.

DRPT Multimodal System Design Guidelines – A set of transportation design standards developed by the Virginia Department of Rail and Public Transportation for implementation within urban areas and applied through approvals from the Virginia Department of Transportation.

Elevated rail: Rail that runs on a grade-separated guideway on a structure that provides overhead clearance for vehicles running on the terrain below.

Environmental Impact Statement (EIS): The document prepared as part of the National Environmental Policy Act (NEPA) process. A Draft EIS (DEIS), followed by a public hearing and final EIS (FEIS) are prepared. Occasionally, a Supplemental DEIS is prepared to address a change in circumstance. These documents are the result of a systematic, comprehensive review process designed to identify and evaluate the potential impacts of a project.

Express Service: Express service is deployed in one of two general configurations:

(1) A service generally connecting residential areas and activity centers via a high speed, non-stop connection, e.g., a freeway, or exclusive right-of-way such as a dedicated busway with limited stops at each end for collection and distribution. Residential collection can be exclusively or partially undertaken using park-and-ride facilities.

(2) Service operated non-stop over a portion of an arterial in conjunction with other local services. The need for such service arises where passenger demand between points on a corridor is high enough to separate demand and support dedicated express trips.

Synonyms: Rapids (1 or 2), Commuter Express (1), Flyers (1)

Fare: Payment in coins, bills, tickets, tokens or various electronic media (such as SmarTrip Cards) collected for transit rides.

Fare Box: A device that accepts the coins, bills, tickets and tokens given by passengers as payment for rides.

Farebox Recovery Ratio: A measure of the proportion of transit operating expenses covered by passenger fares. It is calculated by dividing a transit operator's fare box revenue by its total operating expenses.

Synonyms: Fare Recovery Ratio

Farebox Revenue: The value of cash, tickets and pass receipts given by passengers as payment for public transit rides.

Fare Collection System: The method by which fares are collected and accounted for in a public transportation system.

Fare Structure: The system set up to determine how much is to be paid by various passengers using the system at any given time.

Federal Transit Administration (FTA, formerly UMTA, Urban Mass Transit Administration): A part of the U.S. Department of Transportation (DOT) which administers the federal program of financial assistance to public transit.

Feeder Service: Service that picks up and delivers passengers to a regional mode at a rail station, express bus stop, transit center, terminal, Park-and-Ride, or other transfer facility.

Fiscal Year (FY): The yearly accounting period for the Loudoun County and State of Virginia government which begins July 1 and ends on the following June 30. The fiscal year is designated by the calendar year in which it ends (e.g., FY 2004 is from May 1, 2003 to September 30, 2004).

Fixed Route: Transit service provided on a repetitive, fixed-schedule basis along a specific route, with vehicles stopping to pick up passengers at and deliver passengers to specific locations.

Fixed Route Transit Service: Bus service on a fixed route and fixed schedule. Loudoun Transit in Leesburg is an example of a fixed-route transit service.

Formula Funds: Funds distributed or apportioned to qualifying recipients on the basis of formulas described in law; e.g., funds in the Section 18 program for Small Urban and Rural Transit Assistance, which are distributed to each state based on the state's percentage of national rural population. See also "Section 9."

Garage: The place where revenue vehicles are stored and maintained and from where they are dispatched and recovered for the delivery of scheduled service.

Synonyms: Barn, Base, Depot, District, Division, O/M Facility (ops/maint), Yard

Grid of Streets – An interconnected roadway network with parallel and redundant streets meeting at frequent intervals, commonly featured within an urban area.

Headway: The scheduled time interval between any two revenue vehicles operating in the same direction on a route. Headways may be LOAD driven, that is, developed on the basis of demand and loading standards or, POLICY based, i.e., dictated by policy decisions such as service every 30 minutes during the peak periods and every 60 minutes during the base period.
Synonyms: Frequency, Schedule, Vehicle Spacing

Heavy Rail: High-speed, passenger rail cars operating singly or in trains of two or more cars on fixed rails in separate rights-of-way from which all other vehicular and foot traffic are excluded. Also known as “rapid rail,” “subway,” “elevated (railway),” or “metropolitan railway (metro).”

Heritage Resource: Any historic, architectural, archeological, or scenic site, structure, landscape or object that has cultural significance to the community.

High Occupancy Vehicle (HOV): Vehicles that can carry more than two persons. Examples of high occupancy vehicles are a bus, vanpool and carpool. These vehicles sometimes have exclusive traffic lanes called "HOV lanes," "busways," "transitways" or "commuter lanes."

High-Occupancy Vehicle (HOV) Lane – A managed lane dedicated for use by vehicles with two (2) or more passengers. This lane may be exclusive to qualifying vehicles at all times or only during certain travel periods, as signed. The lane may be incorporated into the vehicular road section or separated by buffers or barriers.

HOT Lane: A traffic lane in a street or highway on which vehicles with less than the criteria number of occupants is charged a toll, and vehicles at or above the criteria number of occupants is charged no toll or a reduced toll.

Induced Travel Demand: Traffic growth produced by the addition of capacity in the transportation system or a reduction in the price of travel.

Intelligent Transportation Systems: The application of current and evolving technology (particularly computer and communications technology) to transportation systems, and the careful integration of system functions, to provide efficient and effective solutions to multi-modal transportation problems.

Interchange: An intersection of two roadways where the through traffic lanes are vertically separated by grade (i.e. one roadway travels over or under the other). Turn movements between the intersecting roadways occur via ramps.

Joint Development: Ventures undertaken by the public and private sectors for development of land around transit stations or stops.

Joint Land Management Area (JLMA): The growth area surrounding an incorporated town and served by public water and sewer or projected to be served in the near future. The JLMA is planned cooperatively by the County and the Towns. The boundary of the JLMA marks the edge of utility service and distinguishes between significantly different land uses and thus is an urban growth boundary.

Landscape Buffer – A space between the roadway curb and the sidewalk that may feature grass, shrubs, and trees along with other physical with streetscape elements.

Level of Service (LOS): A qualitative measure describing operational conditions within a traffic stream, generally in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. Traffic flow conditions are divided into six levels of service (LOS) ranging from LOS “A” (ideal, free flow) through LOS “F” (breakdown). The Northern Virginia Transportation Coordinating Council (TCC) coined a seventh LOS “G”, to describe the breakdown in travel conditions over an expanded peak period.

Light Rail: Lightweight passenger rail cars operating singly (or in short, usually two-car, trains) on fixed rails in right-of-way that is not separated from other traffic for much of the way. Light rail vehicles are driven electrically with power being drawn from an overhead electric line via a trolley or a pantograph. Also known as “streetcar,” “tramway,” or “trolley car.”

Light Rail Transit (LRT): An electric railway with a “light volume” traffic capacity compared with heavy rail. Light rail may use shared or exclusive rights-of-way, high or low platform loading and multi-car trains or single cars.
Synonyms: Streetcar, trolley car and tramway

Limited Access: Access onto roadway restricted to grade separated interchanges. No at-grade access is allowed.

Local Access: Relatively unrestricted individual parcel access directly onto roadway. Individual residential parcel access highly discouraged, with access provided through interparcel connections and consolidated access points.

Local/Secondary Road: A public, state-owned and maintained road designed for direct access from individual lots to subdivision and rural collector roads.

Local Street – As defined by the DRPT Multimodal System Design Guidelines, Local Streets serve to provide access through neighborhoods and feature traffic calming applications to enhance the pedestrian-oriented feel of the street.

Major Collector: A roadway that carries traffic through the county, provides a connection between arterials, and is accessed by minor collectors and/or rural secondary roads.

Minor Arterial: A roadway that serves commuter traffic with access from major and minor collectors.

Minor Collector: A roadway that carries traffic from local subdivision streets and rural secondary roads to major collectors and/or arterials.

Mixed-Use Development – A development with multiple uses seamlessly integrated in the design and development. In regard to transportation, features an internal street network that allows different uses to be accessed on foot, by bicycle, or via transit without easy recognition by the traveler that the uses have changed. Often features retail and/or office uses surrounded by residential uses in order to create a town center concept.

Mobility – The distance a person can reasonably travel from an origin point within a certain timeframe. Indifferent to the desired destination. May be impacted by barriers to travel, such as limited-access roadways, traffic congestion, or lack of infrastructure.

Mode: A particular form of travel (e.g., bus commuter, rail, train, bicycle, walking or automobile).

Mode Split: The proportion of people that use each of the various modes of transportation. Also describes the process of allocating the proportion of people using modes. Frequently used to describe the percentage of people using private automobiles as opposed to the percentage using public transportation.

Model: An analytical tool (often mathematical) used by transportation planners to assist in making forecasts of land use, economic activity, and travel activity.

Multimodal System – A transportation system that features primary elements for multiple travel modes, providing connectivity to destinations within the area through true travel options and related supportive development.

Multimodal Street (Complete Street) – A street that contains elements to allow multiple primary modes of travel.

Multimodal Through Corridor – As defined by the DRPT Multimodal System Design Guidelines, Multimodal Through Corridors provide higher-speed regional access to and through an area and are intended to freely move substantial traffic volumes in order to decrease congestion on other roadways.

Multimodal Transportation – A transportation system element that provides opportunities for modal transfers and use of multiple transportation modes. Examples include on-street and structured parking, transit stops and stations, bike and car share services, bike racks, and park-and-ride facilities.

National Environmental Policy Act of 1969 (NEPA): Federal law that requires that any major federal action or policy that has a significant impact on the environment will require the preparation of an EIS. The EIS must address:

- the environmental impact of the proposed action,
- any adverse environmental effects which cannot be avoided should the proposal be implemented,
- alternatives to the proposed action,
- the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity,
- and any irreversible and irretrievable commitments of resources which would be involved in the proposed action

should it be implemented.

Network: The configuration of streets or transit routes and stops that constitutes the total system.

Non-attainment area: An area designated by the EPA and federal law under the Clean Air Act that does not meet federal pollution standards. Area with concentrations of one or more criteria pollutants in a geographic area that are found to exceed the regulated or 'threshold' level for one or more of the NAAQS, the area may be classified as a nonattainment area.

Off-Peak: Non-rush periods of the day when travel activity is generally lower and less transit service is scheduled.

Operating: Maintaining the ongoing functions of an agency or service. "Operating expenses" include wages, benefits, supplies, fuel and services. "Operating assistance" is used to pay for the costs of providing public transit service.

Operating Assistance: Financial assistance for transit operating expenses (not capital costs); such aid may originate with federal, local or state governments.

Operating Cost/Operating Expense: The total costs to operate and maintain a transit system including labor, fuel, maintenance, wages and salaries, employee benefits, taxes, etc.

Operating Deficit: The sum of all operating expenses minus operating revenues.

Operating Revenue: Receipts derived from or for the operation of transit service, including fare box revenue, revenue from advertising, interest and charter bus service and operating assistance from governments.

Operator: An employee of a transit system who spends his or her working day in the operation of a vehicle, e.g., bus driver, streetcar motorman, trolley coach operator, cablecar gripman, rapid transit train motorman, conductor, etc.

Optimal Traffic Circulation Pattern – Roadway development scheme that optimizes and equalizes vehicular and pedestrian access throughout a site that features fluid internal connections and connections to adjacent roadways and developments to limit funneling of traffic and access limitations.

Origin: The location of the beginning of a trip or the zone in which a trip begins. Also known as a "Trip End".

Paratransit: Comparable transportation service required by the Americans with Disabilities Act (ADA) of 1990 for individuals with disabilities who are unable to use fixed-route transportation systems.

Park-and-Ride: A parking area for automobile drivers who then board vehicles, shuttles or carpools from these locations.

Passenger: A person who rides a transportation vehicle, excluding the driver.

Passenger Miles: A measure of service utilization which represents the cumulative sum of the distances ridden by each passenger. It is normally calculated by summation of the passenger load times the distance between individual bus stops. For example, ten passengers riding in a transit vehicle for two miles equals 20 passenger miles.

Passenger Revenue: Fares paid by passenger traveling aboard transit vehicles. Synonyms: Farebox Revenue

Passenger Trips: The number of rides taken by people using a public transportation system in a given time period. Synonyms: Ridership

Pave-in-place: The Commonwealth's pave-in-place program allows the county to pave gravel roads within a narrow, forty-foot right-of-way for those roads carrying between 50 and 750 vehicles per day, in a manner that is sensitive to the rural character of the roadway.

Peak Hour/Peak Period: The period with the highest ridership during the entire service day, generally referring to either the peak hour or peak several hours (peak period).
Synonyms: Commission Hour

Pedestrian Corridor – All controlled-access Multimodal Through Corridors, all Boulevards, and all Avenues within the Silver Line Policy Area.

Pedestrian-Oriented Street – A street typology featuring elements that encourage pedestrian activity, including wide sidewalks, continuous street frontage with primary building entrances, active plazas and parks, frequent crosswalks, and speed limits of 30 MPH or below.

Performance Criteria: Threshold measures (such as ridership, cost, cost per rider, etc.) that indicate the utilization and cost-effectiveness of proposed transit services are sufficient to justify investment.

Premium Transit – Public transit that features high-quality elements including, but not limited to, dedicated guideways, enhanced transit shelters, off-board ticketing, and special branding.

Primary Roads/Routes: Roads owned by the Virginia Department of Transportation whose construction and/or maintenance is funded through the Virginia Transportation Development Program (VTDP). Primary roads generally serve a relatively large volume of regional traffic flow and range from route numbers 1 to 599 in the VDOT Primary Road system.

Principal Arterial: A roadway that serves regional and intrastate traffic with access from minor arterials and major collectors.

Private Sector Contributions: Funds provided by private entities towards the construction of transportation improvements that serve a public purpose; examples include special tax districts, private sector toll road construction, bond financing for transportation projects and impact fees.

Proffered Condition/Proffer: A voluntary promise or commitment given in writing by a developer to construct certain improvements, to make certain donations, or to develop property subject to specified conditions to mitigate the impact of the proposed development land and to develop the property in accord with the Comprehensive Plan.

Program: (1) verb, to assign funds to a project; (2) noun, a system of funding for implementing transportation projects or policies.

The Public-Private Transportation Act of 1995 (PPTA): The legislative framework enabling the Commonwealth of Virginia, qualifying local governments and certain other political entities to enter into agreements authorizing private entities to acquire, construct, improve, maintain, and/or operate qualifying transportation facilities.

Public Street – A street maintained by the Virginia Department of Public Transportation (VDOT).

Public Transportation: Transportation by bus, rail, or other conveyance, either publicly or privately owned, which provides to the public general or special service on a regular and continuing basis. Also known as "mass transportation," "mass transit" and "transit."

Rail, Commuter: Long-haul rail passenger service operating between metropolitan and suburban areas, whether within or across the geographical boundaries of a state, usually characterized by reduced fares for multiple rides, and commutation tickets for regular, recurring riders. Also known as "regional rail" or "suburban rail."

Raised crosswalk: A location where the crossing elevation is slightly higher than the roadway elevation. A traffic calming technique.

Rapid Transit: Rail or motorbus transit service operating completely separate from all modes of transportation on an exclusive right-of-way.

Recovery Time: Recovery time is distinct from layover, although they are usually combined together. Recovery time is a planned time allowance between the arrival time of a just completed trip and the departure time of the next trip in order to allow the route to return to schedule if traffic, loading, or other conditions have made the trip arrive late. Recovery time is considered as reserve running time and typically, the operator will remain on duty during the recovery period.
Synonyms: Layover Time

Revenue: Receipts derived from or for the operation of transit service including farebox revenue, revenue from other commercial sources, and operating assistance from governments. Farebox revenue includes all fare, transfer charges, and zone charges paid by transit passengers.

Revenue Miles: Miles operated by vehicles available for passenger service.

Revenue Vehicle Hour: The measure of scheduled hours of service available to passengers for transport on the routes, equivalent to one transit vehicle traveling in one hour in revenue service, excluding deadhead hours but including recovery/layover time. Calculated for each route.

Reverse Commute: Movement in a direction opposite to the main flow of travel, such as from the Central City to a suburb during the morning commute hour.

Ridesharing: A form of transportation, other than public transit, in which more than one person shares in the use of the vehicle, such as a van or car, to make a trip.

Ridership: Number of rides taken by people on a public transportation system in a given time period. Synonym: Passenger Trips

Right-of-Way (ROW, R/W): The land over which a public road, rail line, or bicycle/pedestrian infrastructure is built. An exclusive right-of-way is a road, lane, or other right-of-way designated exclusively for a specific purpose or for a particular group of users, such as light rail vehicles or buses.

Roundabout: An unsignalized circular intersection of two or more roadways where the entering traffic yields to circulating traffic.

Roundabout Interchange: A roundabout interchange is a freeway-to-street or a street-to-street interchange that contains at least one roundabout.

Route: A specified path taken by a transit vehicle usually designated by a number or a name, along which passengers are picked up or discharged. Synonyms: Line

Rural Provider: An entity that provides transit service outside of urbanized areas.

Secondary Roads/Routes: VDOT roads with route numbers 600 and above which include a wide variety of facilities.

Scenic Highway: A road located within a protected corridor and having recreational, historic or scenic interest.

Schedule: From the transit agency (not the public timetable), a document that, at a minimum, shows the time of each revenue trip through the designated time points. Many properties include additional information such as route descriptions, deadhead times and amounts, interline information, run numbers, block numbers, etc. Synonyms: Headway, Master Schedule, Timetable, Operating Schedule, Recap/ Supervisor's Guide

Scheduling: The planning of vehicle arrivals and departures and the operators for these vehicles to meet consumer demand along specified routes.

Secondary Road: A road owned by VDOT whose construction and/or maintenance is funded through the Virginia Secondary Road Improvement Program (SRIP).

Service Area: A geographic area provided with transit services. Service area is now defined consistent with ADA requirements.

Service Hours: The time from the first scheduled pickup to the last scheduled drop-off; the basis of payment for contracted transit service in Loudoun County.

Service Road – A private roadway serving three (3) or fewer private driveways, emanating from a public street or an alley. Provides access to loading docks and trash collection areas. Does not serve building frontage.

Service Standards: A benchmark by which service operations performance is evaluated.

Shared Lane – A roadway travel lane shared by vehicles and bicycles, with signage and/or pavement markings to indicate this situation.

Shared-Use Path – See trails.

Shuttle: A public or private vehicle that travels back and forth over a particular route, especially a short route or one that provides connections between transportation systems, employment centers, etc.
Small Bus - See "Bus, Small."

Speed Bump: A raised hump in the paved surface of a street that extends across the street, usually not more than five inches high. A traffic calming technique.

Subsidy: Funds granted by federal, state or local government.

Trail – An asphalt trail with a minimum width of 10 feet along roadways and 16 feet away from roadways designed to serve pedestrians and cyclists.

Traffic Calming: Measures to reduce the negative effects of motor vehicle use, alter driver behavior and improve conditions for non-motorized street users. Traffic calming includes both physical measures and non-physical measures (community education and enforcement). See also choker, chicane, raised crosswalk, traffic circle or roundabouts, and speed bump.

Transfer: A slip of paper issued to a passenger that gives him or her the right to change from one transit vehicle to another according to specified limitations.

Transit: A shared mode of transportation, which often operates on a fixed route and fixed schedule, and is available to all who pay the fare; however, demand responsive transportation, which does not operate on a fixed route or fixed schedule is also a form of transit. Other examples include bus, light rail, and heavy rail. See "Public Transportation."

Transit Center – A premium transit station featuring elements to serve multiple transit vehicles, boarding and alighting passengers, waiting passengers, and modal transfers. May feature amenities including retail space, climate control, taxi stands, or aesthetic prominence.

Transit Corridor: A broad geographic band that follows a general route alignment such as a roadway or rail right-of-way and includes a service area within that band that would be accessible to the transit system.

Transit Dependent: Someone who must use public transportation for his/her travel.
Synonym: Captive Rider

Transit Friendly Design: Design of roadways and streetscapes that facilitates transit use, such as pull-off areas for buses, adequate sidewalks or shoulders for safe passenger waiting and departing, and street design that allows for turning and circulation of buses throughout the development.

Transit-Priority Street – A street designed with transit elements such as bus lanes, bus bays, bus stops and/or special traffic signals to facilitate the movement of transit vehicles and encourage transit ridership. Usually feature the highest density of transit routes and frequencies.

Transit Node: An area designated per the Loudoun County Revised General Plan as a focal point for transit service and transit-supportive land uses.

Transit-Oriented Development (TOD) – A development served by, or planned to be served by, frequent transit service that is designed in a compact and dense urban form that facilitates convenient and comfortable bicycle and pedestrian access to applicable transit stations, drawing travelers to the transit station area, and supporting the continued operation and growth of the transit system in the vicinity of the development.

Transit Station: Structures that house both passengers and transportation systems operations and equipment.

Transit Stop: A location along the street or transit line that has simple facilities such as signage and shelters.

Transit System: An organization (public or private) providing local or regional multi-occupancy-vehicle passenger service. Organizations that provide service under contract to another agency are generally not counted as separate systems.

Transportation Analysis Zones (TAZ): The geographic unit of analysis in a four-step model for travel demand. Usually, an urban area is divided into hundreds or thousands of transportation analysis zones (TAZs).

Transportation Demand Management (TDM) – Techniques and concepts applied to transportation systems to decrease congestion during peak periods, encourage more sustainable travel patterns, and educate commuters about travel options. Common methods including carpooling, transit use, flexible schedules, and telework.

Travel Demand Forecasting Model: A computer program based on a series of mathematical equations that simulates the performance of the transportation system given a set of land use conditions. It estimates trip generation (how much travel), trip distribution (who goes where), mode choice (how people travel), and route choice. It provides decision makers with information related to questions such as:

- Which land use scenario yields the least amount of travel by private automobile?
- Where will traffic congestion likely appear?
- How will future traffic congestion levels be affected by various potential land use and development scenarios?
- What types of transportation investments will most improve future mobility?
- How many people will use public transit or car for their trip to work?

Trip: The one-way operation of a revenue vehicle between two terminal points on a route. Trips are generally noted as inbound, outbound, eastbound, westbound, etc. to identify directionality when being discussed or printed. Synonyms: Journey, One-Way Trip

Trip Reduction – A modal shift from private vehicle to public transportation, cycling, or walking assumed as part of a traffic impact analysis.

Urban Area – A higher-density area that has at least eight (8) dwelling units per acre and features urban elements such as street grids, optimized traffic circulation patterns, multimodal streets, and encouragement of transit-use, walking, and cycling.

Urbanized Area (UZA): An U.S. Bureau of Census-designated area of 50,000 or more inhabitants consisting of a central city or two adjacent cities plus surrounding densely settled territory, but excluding the rural portion of cities.

VDOT Road Design Manual Appendix B (2) – The enabling design manual for the DRPT Multimodal System Design Standards.

Vehicle Miles: The number of miles traveled by a vehicle, usually calculated by mode.

Virginia Byway: A Virginia Byway is defined as a road, designated as such by the Commonwealth Transportation Board (CTB) having relatively high aesthetic or cultural value, leading to or within areas of historical, natural or recreational significance.

Vision Zero: A commitment to eliminate all transportation related fatalities and severe injuries, while increasing safe, healthy, equitable mobility for all.

Walkshed – The walking distance from a transit station as measured by the most direct route provided. May be used to measure reductions to estimated automobile trip generation and density that may be served by transit.

Wide Curb Lane: An outside travel lane provided for bicyclists with a width of at least 14 feet; also referred to as a wide outside lane or shared lane, and typically does not include bikeway designation.

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