Crozet
Master Plan

ADOPTED MONTH XX, YEAR

October 20, 2021 Working Draft
Prepared by: Albemarle County Planning Staff

Crozet Master Plan

ALBEMARLE COUNTY, VIRGINIA

ADOPTED MONTH ##, YEAR

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Introduction

About This Plan

This Master Plan document provides long-range policy direction for land use, transportation, and parks and green systems in the Crozet Development Area. It includes related recommendations for housing, economic development, historic, cultural, and natural resources, as well as rural connections. This Plan serves as a guide for elected and other public officials and County staff by establishing recommended policies and priorities. The Plan is used for funding allocation, such as Capital Improvement Program funding, and to evaluate development proposals that require legislative review and approval. Each Chapter includes specific and actionable recommendations to implement the Goals. These recommendations are further detailed in the final Implementation Chapter of the Plan. The Plan expresses the community's vision and priorities by identifying centers of activity, guiding new development and redevelopment, creating a multimodal connected network, and enhancing parks and natural resources.

Crozet is one of Albemarle County's five Development Areas, also known as Growth Areas. Each Development Area has its own Master Plan, which is adopted as part of the County's Comprehensive Plan. Crozet is designated as a 'Community' in the Comprehensive Plan, as it is not adjacent to any other Development Areas or the Urban Ring. It is expected to include a variety of land uses and housing types. Crozet is surrounded by the Rural Area and is near a variety of regional amenities, including Shenandoah National Park and the Blue Ridge Tunnel. Crozet has multiple centers of activity with shops, restaurants, offices, and parks, including: The Square, Old Trail Village, Music Today/Starr Hill, Clover Lawn, and Crozet Park.

(Above) Prior to the COVID-19 pandemic, County staff held pop-ups and office hours around Crozet. A pop-up at the 2019 Crozet Trails Crew 5K collected feedback on where community members tend to gather and spend time in Crozet.

Community Engagement and Plan Drafting

The Plan was developed through a community-engaged process that began in Fall 2019 and was completed in Fall 2021. During Phase 1, community members identified concerns, hopes, and priorities for Crozet through a series of workshops. Community feedback was used to draft guiding principles for each of the Plan's four chapters and to list focus areas for continued discussion. Community members worked with staff and elected and appointed officials during Phase 2 to co-create strategies to address the challenges and goals within each focus area. While the first several workshops of Phase 2 were in-person, the remainder of Phase 2 and all subsequent Plan engagement was implemented virtually due to the COVID-19 pandemic. Virtual engagement included both virtual public meetings and online questionnaires.

Conceptual recommendations were refined during Phase 3 for specific policy and project recommendations for land use, transportation, and conservation. During the final Phase 4, the full Plan was drafted, reviewed, and adopted. This phase included work sessions on each Chapter with the Planning Commission and the Board of Supervisors. Community members provided input on prioritizing projects during Implementation workshops, which informed the final Implementation Chapter. See the Appendix "Community Engagement and Feedback Summary" for a detailed summary of the community engagement process.

Due to the COVID-19 pandemic, beginning in spring 2020, much of the community engagement for the Master Plan update was conducted virtually through Crozet Community Advisory Committee meetings and community workshops using Zoom webinars and a digital engagement hub at PublicInput.com for online questionnaires.

Guiding Principles

Transportation

Create a multimodal transportation network that is safe and accessible for all community members, regardless of age, race, income, and ability.

Land Use

Support and strengthen Crozet's history as a vibrant community, while ensuring that new and infill development is compatible in scale and design and provides housing choice for all community members. Allow and encourage a variety of employment options, services, commercial and retail areas, and housing types.

Conservation

Enhance Crozet's natural beauty, existing natural resources, and the surrounding rural areas with an integrated network of parks and gathering spaces, trails, and natural areas that offer increased opportunities for outdoor recreation and protect natural resources.

Implementation

Provide strategic & timely support for community partnerships, local economic development, policy changes, and capital investments to support a changing Crozet.

Historic Context

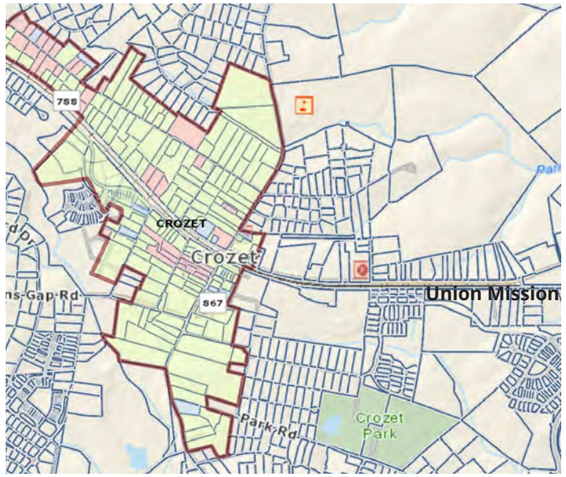
Pre-History and Early Settlement (1737-1899)

Crozet was originally known as 'Wayland's Crossing', named after the Wayland family. The Waylands were early land-owners and farmers in the area. From the mid 1700's until the late 1800's, the area was primarily farmland. While exact locations are unknown, the Monacan tribe is documented as living within Albemarle County, and may have historically been present in the Crozet area. Route 250 (Rockfish Gap Turnpike) was established as a major east-west connection chartered by the General Assembly in 1828. Communities such as Brownsville formed along the turnpike surrounding taverns, stores, and crossroads that supported travelers.

Wayland's Crossing was later renamed "Crozet" for Colonel B. Claudius Crozet (1789-1864). Crozet was a civil engineer and was the chief engineer for the railroad Blue Ridge Tunnel in nearby Afton. In 1876, the Chesapeake and Ohio Railroad (C+O) established a whistle stop in Crozet. This stop was requested by local farmers and by the Miller Manual Labor School (now the Miller School), founded the same year. The C+O stop drove related improvements including upgrading the road between the Miller School and Crozet (now Crozet Avenue). This resulted in both population and industry growth. The downtown Crozet area grew around the depot established for the C+O, which still exists today as the Crozet Artisan Depot (5791 Three Notch'D Road).

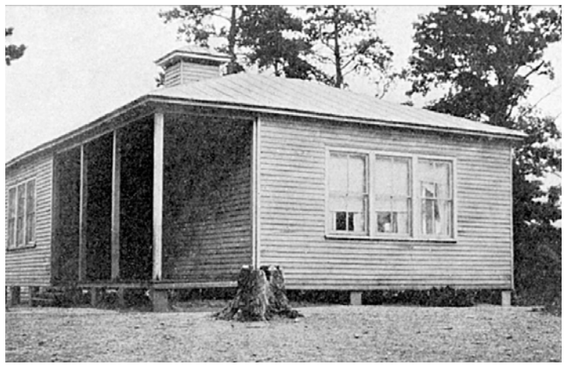
One of the earliest Crozet neighborhoods developed along St. George Avenue. Many properties started as farms, and were later developed due to the proximity to the railroad depot in the late 1800's and early 1900's. Pleasant Green farm is an example of a larger farm that was later developed after the railroad depot was established. Around 1815, Benjamin Ficklin purchased 1,300 acres of land (making up much of present-day Crozet) and established the Pleasant Green Farm. In the early to mid 1800's, enslaved laborers farmed fruit, tobacco, and livestock at the Pleasant Green Farm. As industry and job opportunities expanded, this land was divided and sold to provide more space for businesses and housing.

There is one National Register Historic District within the Crozet Development Area ('Crozet'; mainly along portions of Crozet Avenue and St. George Avenue) and one adjacent to the west in the Rural Area ('Greenwood-Afton Rural'). Both of these districts include properties and history that date back to the 1800's. The Yancey Mills (or Hillsboro) community dates back to the 1830's and had grown significantly by the Civil War. These rural communities were often settled around community assets such as churches or schools. After the Civil War, rural free black communities were established. One such community was Free Town, a portion of which still exists at Free Town Lane on the southern side of Route 250.



The map above shows the boundaries of the National Register Historic District in Crozet, outlined in red. Parcels with contributing (historic) structures are shown in light green. Parcels that are within the Historic District but that do not have historic structures are shown in light red. Parcels that need to be re-evaluated are shown in light blue.

The Union Mission neighborhood, to the east of the Historic District, is also labeled.



(Above) The former Union Mission schoolhouse, which was used from 1916 to 1960. The building was razed in 1984.

Early 20th Century (1900-1940's)

In the early 1900's, the orchard industry was a significant part of Crozet's employment and local economy. In the 1930's, Crozet produced more Albemarle Pippin and Winesap apples than anywhere else in the state and was known as the Peach Capital of Virginia. Crozet's location along Western Albemarle's transportation corridor also contributed to its economic development. Other significant businesses during this time included the Barnes Lumber Company, hotels, blacksmiths, millers, carpenters, automobile dealers, and apple-packing sheds.

Several existing buildings in Crozet are associated with its fruit production history. In 1912, the present-day English Meadows assisted living was built as a cold storage facility for fruit. The building adjacent to Crozet Pizza (5796 Three Notch'D Road) was the Crozet Cooperage Company and Fruit Grower's Building, which supplied crates and barrels for the orchard industry. Present-day Crozet Pizza was the office for that business.

As the orchard and other industries grew, demand for housing continued, as did the selling and subdividing of larger farm properties. Areas such as Hill Top Street and Myrtle Street were developed as subdivisions concurrent with the growth of the Barnes Lumber company and in anticipation of additional industry growth in Crozet. Homes were constructed along Railroad Avenue to serve as worker's housing for railroad and orchard employees.

Postwar Crozet (1950's +)

After the decline of the orchard industry in the 1930's and 40's, Crozet's economy shifted in the early 1950's to manufacturing, with the opening of Morton Frozen Foods/ConAgra and Acme Visible Records. The economic center of Crozet shifted east of the downtown area and took a larger and more suburban form. These businesses were adjacent to the railroad, but were more dependent on automobiles to transport workers and trucks for exporting goods. Many buildings that were previously used to store apples and peaches were converted into commercial buildings and housing units. At one point, Morton Frozen foods was the largest employer in Albemarle County. These industries faded over time, with Acme Visible records closing in 2001 and subsequently requiring environmental remediation. The main Acme manufacturing building was torn down in 2013 to provide access to the soil and groundwater for remediation. Today, the Morton Frozen Foods building is home to MusicToday and Starr Hill Brewery.

Union Mission

The Union Mission community, located in eastern Crozet along Three Notch'D Road, has existed for most of Crozet's history, yet it has often been left out of the historic narrative. This corridor east of the old railroad depot developed at the same time as Downtown Crozet in the early 1900s. However, this corridor was not included in the Crozet Historic District nomination due to "a lack of integrity caused by a loss of its historic setting, feeling, and association with the development and growth of the African-American community in Crozet."

While this historically African American community spanned much of Three Notch'D Road, the area near Union Mission Baptist Church (organized in 1913) was one of its centers. Edgar Wesley, one of the church's founders and trustees, and his wife Maggie lived in a home across the street from the church, where they operated a small store next to their home. The store was a space where meetings of fraternal societies such as the Odd Fellows were held, and the Wesley family provided classroom space inside their home. This classroom space was used until the Crozet Elementary School for African Americans opened next to the church in 1916. This school space was especially important, as opportunities for education for African-American students lagged behind their white counterparts.

The Union Mission area included community leaders, educators, and business owners. As development and redevelopment in this area continues, it is important to preserve these histories that are less well-known or do not meet federal standards for "architectural significance".

Crozet Schools

Prior to 1900, much of the schooling within Crozet was done informally by private tutors. Starting in the 1900's, changes to schools in Crozet were made to establish a more formal public school system for white students. Early improvements to schools were funded in part by Crozet community members. Crozet School on St. George Avenue was completed in 1907. As more white students enrolled, Crozet School reached capacity, and elementary and high school classes were moved to an expanded location in 1924 at the present-day Old Crozet School. In 1953, white high school classes were consolidated at Albemarle High School.

The Crozet Elementary School for African-Americans was established in 1916, nine years after the Crozet School. Edgar Wesley's daughters Bertha, Emma, and Annie Belle taught at this school, which taught students

through the seventh grade. For high school, Crozet's African-American students attended the Albemarle Training School on Hydraulic Road until 1951, when Jackson P. Burley High School on Rose Hill Drive (City of Charlottesville) replaced the Training School. Burley High School then consolidated all African-American high school classes in both the City and the County. African-American students were later consolidated with Rosenwald schools in Greenwood and Ivy to Virginia L. Murray Elementary in 1960.

Although the U.S. Supreme Court's 1954 ruling on Brown vs. Board of Education declared that school segregation is unconstitutional, it would be several years later before Albemarle County and the City of Charlottesville ended school segregation. The County continued to build segregated schools for African-American students through at least 1958, including Virginia L. Murray Elementary near Ivy. Albemarle County Schools did not begin to integrate until 1963 and took another four years to fully integrate.

Today, public school students living in Crozet attend Brownsville or Crozet Elementary School, Henley Middle School, and Western Albemarle High School.

Recent Growth & Master Planning

Since 2004, there has been significant development in Crozet, which has occurred through a combination of rezonings for planned mixed-use communities (such as Old Trail Village and Wickham Pond) as well as by-right residential development. Many of the newer neighborhoods include both single-family detached and single-family attached (townhouses and duplexes) housing units. Several apartment complexes have also been built since 2004, including The Vue and The Summit at Old Trail Village. Less than 10 percent of the total dwelling units in Crozet are multi-family (apartment) units. New commercial developments include the Clover Lawn shopping center on Route 250 and several commercial uses within Old Trail Village Center. Approximately 2,213 units have been built in Crozet in the past 17 years. This number is based on County certificate of occupancy (CO) data for new residential dwelling units.

(Above) The Summit apartments in Old Trail Village.

Crozet's first Master Plan was adopted in 2004 and subsequently updated in 2010. Since the completion of the 2010 update, there has been continued demand for housing in the Crozet Development Area. According to the 2020 Census, between 2010 and 2020 the Crozet Census Designated Place (CDP) population increased from approximately 5,565 to 9,224, alongside the County's overall population increase from approximately 98,970 to 112,395 people. Crozet's population has increased as a proportion of the County's total population, from approximately 4.58 percent in 1980 to 8.21 percent in 2020.

There are a variety of factors driving the population increases in Crozet and other Development Areas, including the Comprehensive Plan's Growth Management Policy and high demand for housing in the area.

The Growth Management Policy emphasizes that infrastructure is needed to support growth in the Development Areas. This includes transportation improvements, housing, parks and recreation, public utilities, public buildings and services (such as libraries), and schools. The Implementation Chapter of this Plan includes recommended Planning, Policy, and Capital projects to support the expected growth in Crozet, the goals of this Plan, and the Comprhensive Plan's Growth Management Policy. Infrastructure capacity is also evaluated with legislative applications, such as rezonings and special use permits.

Type of Unit	Crozet: Percent of Total CO's: 2004 -2020	All Development Areas: Percent of Total CO's: 2004 -2020
Single-Family Detached	54.59	34.59
Single-Family Attached and Townhouses	29.69	28.23
Single-Family Condo	0	3.02
Duplex	1.58	0.57
Multi-Family	13.56	32.56
Mobile Home	0.05	0.32
Accessory Apartment	0.54	0.72

By the Numbers...

***approx.* 12.4%** **of Albemarle County's Development Area population lives in Crozet.**

***approx.* 12.3%** **of Albemarle County's Development Area land is located in Crozet.**

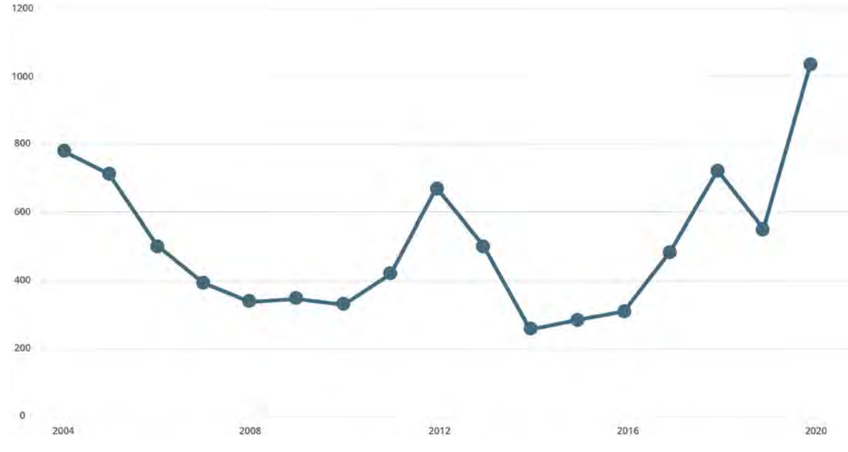
12.8% **The percentage increase in number of dwelling units located in Albemarle County's Development Areas between 2013 and 2019.**

1.8% **The percentage increase in number of dwelling units located in Albemarle County's Rural Areas between 2013 and 2019.**

Certificates of Occupancy Issued in Crozet (2004 - 2020)

(Above) The approximate number of certificates of occupancy for new dwelling units each year in Crozet between 2004 and 2020. The totals range from a low of 61 units in 2008 to a high of 429 units in 2020.

Certificates of Occupancy Issued in Development Areas (2004 - 2020)



(Above) The approximate number of certificates of occupancy for new dwelling units each year in all five of the County's Development Areas between 2004 and 2020. The totals range from a low of 257 units in 2014 to a high of 1,037 units in 2020.

The median number of certificates of occupancy issued each year in the County's Development Areas since 2004 is 483. For Crozet, the median is 109 units. There have been more apartment units constructed in Crozet in recent years, which accounts for the significant increase in certificates of occupancy in 2020 (429 units, 274 of which were multifamily).

Compared with the County's Development Areas as a whole, a higher percentage of single-family detached units have been constructed in Crozet (see table on page 10). Over half of all certificates of occupancy in Crozet from 2004 to 2020 were single-family detached houses.

In all five of the Development Areas, the most prominent unit type built since 2004 has been multi-family (apartments), comprising approximately 32.56 percent of all certificates of occupancy during that time period. For Crozet, over the same time period, 13.56 percent of units built were multi-family.

1957

In the 1950s, Crozet's economy shifted from agriculture to manufacturing and the center of the community shifted east of Downtown, along with it. This area is currently home to MusicToday and Starr Hill Brewery.

1990

In the 1990s, manufacturing in Crozet was waning with the closure of Acme Visible records in 2001. Crozet's first Master Plan was adopted in 2004 and was Albemarle County's first Master Plan.

2020

This 2020 aerial image is a snapshot of nearly present day Crozet. Since 2004, approximately 2,213 certificates of occupancy for new residential dwelling units have been issued in Crozet (based on Albemarle County certificate of occupancy data).

Crozet Today

Demographics

Selected statistics from the 2020 Census estimates (data released August 2021) are shown in the following table for the Crozet Census Designated Place (CDP), which approximates the boundaries of the Development Area, as well as statistics for Albemarle County.

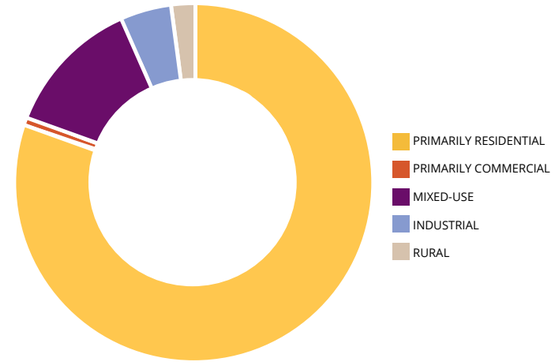
	Crozet CDP (Census Designated Place)	Albemarle County
Population Estimate	9,224	112,395
Median Age	41.5 years	39.1 years
% under 18 years old	28.4%	19.7%
% over 65 years old	17.1%	19.3%
Race	92.6% White 2.5% Black or African American 0% American Indian and Alaska Native 2.2% Asian 1.0% Hispanic or Latino 1.5% two or more races	76.9% White 9.7% Black or African American 0.4% American Indian and Alaska Native 5.5% Asian 5.8% Hispanic or Latino 2.6% two or more races
Poverty Rate	3.0%	6.7%

During the last two decades, Albemarle County's population has grown more diverse and is home to a substantial number of foreign-born residents. As of 2019, nearly a quarter of Albemarle's community members are people of color (Albemarle County Equity Profile). The County's growing diversity requires the County to account for patterns of social clustering (clustering of racial/ethnic groups) and to ensure delivery of equitable and culturally-sensitive services to all County residents.

Notably, the 2020 Census data shown in the table above demonstrates that Crozet is less racially diverse and has a lower poverty rate than Albemarle County as a whole.

Land Use Patterns

Compared with the County's Development Areas as a whole, Crozet has a relatively higher proportion of land zoned for primarily residential uses. Approximately two-thirds of the County's Development Areas are currently zoned for primarily residential uses, while approximately



(Above) Approximate land areas in Crozet dedicated to primarily residential, primarily commercial, mixed use (residential and commercial), industrial, and rural uses.

80 percent of the Crozet Development Area is zoned for residential uses. Additionally, an estimated 50.14 percent of the land area in the Crozet Development Area is zoned Rural Area, R-1, or R-2 Residential. These districts allow residential development at 0.5 units per acre, 1 unit per acre, and 2 units per acre, respectively. The only housing type permitted in the R-1 and R-2 zoning districts is single-family detached.

Housing

	Crozet CDP (Census Designated Place)	Albemarle County
Number of Housing Units	3,843	47,081
Median Housing Value	$378,800	$356,100
Median Gross Rent	$1,437	$1,273

The cost of housing is higher in Albemarle County compared with the U.S., while average housing costs in Crozet are also higher compared with the County overall. The chart above shows selected statistics from internal population estimates and the 2019 American Community Survey 5-year estimates. For comparison, the median housing value in the U.S. is $217,500 and the median gross rent is $1,062.

While there have been recent developments in Crozet with a greater variety of housing types, the predominant housing type is still single-family detached, comprising approximately 58 percent of all housing units in Crozet. In Crozet, approximately 71.7 percent of units are owner-occupied, compared with 63.3 percent for the County as a whole.

According to the 2021 Albemarle County Equity Profile, 42 percent of renters in Albemarle County are cost-burdened or severely cost-burdened, meaning they pay at least 30 percent of their income on housing. The Crozet census tract is one of four census tracts in Albemarle County where the majority of renters (50 percent of 794 renting households) are cost-burdened or severely cost-burdened. Housing costs are one of the primary drivers of rising costs of living in Albemarle County.

There are several housing developments for senior living and assisted living in Crozet, including Crozet Meadows, English Meadows, and the Lodge at Old Trail. Crozet Meadows is managed by the Piedmont Housing Alliance and is income-restricted housing.

Employment and Commuting Patterns

The majority of commuters living in Crozet are driving to locations outside of Crozet to get to work. Only 5.8 percent of Crozet commuters both live and work in the Crozet CDP, compared with 40.3 percent of all Albemarle County commuters. The table below shows the total number of commuters coming into Crozet, out of Crozet, and remaining in Crozet, compared with totals for the County as a whole.

	Crozet CDP (Census Designated Place)	Albemarle County
Number Commuting In	936	36,275
Number Living and Working in Place	192	18,980
Number Commuting Out	3,114	28,101

Source: Census On the Map; Year 2018

Crozet has become a 'bedroom community' for commuters working in the City of Charlottesville and other areas of the County and region, due to the relatively lower number of jobs available in Crozet compared with Charlottesville and other areas of Albemarle. Crozet has a jobs to housing ratio of approximately 0.35, while a balanced jobs to housing ratio would typically be between 1.01 and 1.50. Route 250 and I-64 serve as major commuter routes for community members of Crozet to access Charlottesville and the County's Urban Ring.

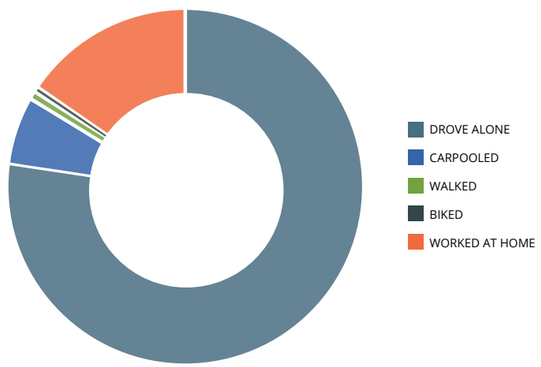
Jobs in Crozet are mainly concentrated in Downtown, Starr Hill/Music Today Employment District, and Old Trail Village. The top five industries, based on the percentage of total employees that are employed by those sectors in Crozet, are Health Care and Social Assistance, Accommodation and Food Services, Retail Trade, Administration and Support, and Other Services.

In January 2020, Downtown Strategies conducted a market analysis of Downtown Crozet. This analysis estimates that there is current demand for approximately 41,000 square feet of retail space within the Barnes Lumber Project area.

Environment

There are many important water resources, habitats, topographic resources, and other natural resources both within the Crozet Development Area and in the surrounding Rural Area. Crozet is located approximately 10 miles from the entrances to Shenandoah National Park and the Blue Ridge Parkway. There are significant sensitive environmental resources within the Development Area, including preserved steep slopes and stream buffers. All streams in Crozet have stream buffers surrounding them, as Crozet is located within a water supply watershed.

The County's Biodiversity Action Plan (BAP) identifies Lickinghole Basin as an 'important site', which includes a small forest block and a variety of plant and animal species. The BAP also includes a 'Conservation Focus Area' just northwest of the Crozet Development Area, where land and forest protection are recommended. The Virginia Department of Environmental Quality has identified the following Crozet waterways as impaired, meaning they do not meet statewide water quality standards: Lickinghole Creek, Slabtown Branch, and an unnamed tributary of Parrot Branch. A Total Maximum Daily Load (TMDL) study is currently underway to address these impaired waterways.More information about existing environmental conditions can be found in the Conservation chapter.



(Right) Means of transportation to work for Crozet commuters. Source: Census On the Map; Year 2018.

Key Challenges & Opportunities

Downtown & Economic Revitalization

With the decline of the commercial fruit business and the closure of manufacturing plants, many of Crozet's largest employers left the Development Area. Today, Crozet is largely a "bedroom community", with a greater number of people than jobs. The mismatch between jobs and population indicates that many community members are commuting to adjacent communities for work, such as the City of Charlottesville or Waynesboro.

With a significant proportion of the population leaving Crozet during regular business hours, fewer people are around to support businesses during the week. This can impact the ability for small, local businesses to succeed. Further, as shown by the census data, the vast majority of commuters are leaving Crozet each day by single occupancy vehicles. This can cause traffic delays and long queues on local and regional roadways, especially during peak travel times. Long commutes are also a contributor to greenhouse gas emissions, with over 50% of the County's emissions coming from transportation sources, as reported in the County's 2018 Greenhouse Gas Emission Inventory.

There is an opportunity, especially with the redevelopment of Downtown, to achieve a more balanced jobs-to-population ratio within Crozet. New jobs within Downtown can help achieve the Land Use Guiding Principle. Co-benefits of adding more jobs within the Crozet Development Area include reduced traffic, cleaner air, and helping to support the County's climate action goal to achieve net zero emissions by the year 2050. However, it is important to acknowledge that many jobs Downtown will be retail and service sector jobs. In order to achieve the benefits of walkable development patterns and centrally located jobs in Crozet, there must be viable housing options for Crozet employees of all income levels.

Housing Choice & Affordability

As described earlier in this Chapter, the median housing value within Crozet is higher than both the County and national median home values. The majority of houses within Crozet are single-family detached homes, which are typically larger and more expensive than most multi-family housing options. Often, in communities with expensive home values, public sector employees and those working in retail or service jobs can have difficulty finding housing they can afford.

Several of the older neighborhoods near Downtown contain smaller, modestly-priced single-family homes. Currently, these neighborhoods are providing affordable homes for residents living there. These homes are vulnerable to being torn down as they are sold and purchased by new owners. This is due to their proximity to Downtown and the rising housing and land values in the area. As growth continues, and as Downtown redevelops, important questions to consider and address include: How can the community support future growth that provides a variety of housing types and levels of affordability? How can affordability of existing homes be maintained? Could creatively designed and appropriately scaled infill development be a solution to support housing near Downtown for current and future residents?

Upholding Community History

Population growth over last 20 years has brought rapid change to the community of Crozet. New residential development has precipitated a rapid transformation of the natural and cultural landscape of the community. With new development, Crozet has also seen the loss of some buildings and homes that were important to the early founding and historic fabric of Crozet.

Efforts have begun to preserve and acknowledge Crozet's history. Several historic buildings in and near Downtown have been rehabilitated and put to new use. There is a National Register Historic District, established in 2009, that covers all of Downtown Crozet and some adjacent streets and neighborhoods. However, the National Historic District designation does not regulate the protection of contributing historic structures from demolition and compliance with guidance for historic protections is voluntary. Furthermore, the Crozet Historic District tells only a partial history of Crozet. Important narratives, such as that of the African American community in Union Mission, were left out

of the District. Union Mission, located just east of Downtown, was home to community leaders, educators, and business owners that were integral to Crozet's history. Union Mission was left out of the historic district because it did not meet certain criteria for its remaining built structures that were identified in a 2008 study.

Additional historic preservation measures are needed to sustain and uphold Crozet's history and to protect important historic structures, landscapes, and stories. Efforts should be expanded to lift up lesser known histories and communities, even when there are not "architecturally significant" structures remaining intact from these communities. Further, it is imperative that identified implementation projects within the Master Plan, such as transportation and parks projects, involve the impacted community members and consider community members' voices and community histories in the planning and design of these projects.

Expanding Transportation Choice & Connectedness

Many neighborhoods in Crozet lack connectedness to other neighborhoods. Several neighborhoods have only one or two entrances onto a main roadway, such as Crozet Avenue, Three Notch'D Road, or Route 250. Crozet lacks a connected street network in many areas due to the topography, the stream network, and the railroad traversing east to west through the Development Area. However, some neighborhoods chose not to provide connections to adjacent streets to reduce "through traffic" on their streets.

The lack of interconnectedness of Crozet streets poses a challenge for multimodal transportation. Offering efficient and dispersed transit service is difficult and backtracking is often necessary when stops are located within disconnected neighborhoods. This, in turn, increases the commute times for transit riders. Disconnected roadways are also a challenge for walking and cycling within Crozet, especially because many of the main roads lack facilities for walkers and cyclists such as sidewalks or bike lanes.

To address this challenge, new road connections should be identified when new development projects are designed and built. The County should also prioritize adding bicycle and pedestrian facilities on main roads, where the majority of users are expected to be. Additionally, the trail network should continue to be built out and utilized as an important piece of the bicycle and pedestrian transportation network of Crozet.

Infrastructure to Support Growth

Rapid population growth has created additional pressure on Crozet infrastructure, such as roads and utilities, as well as community facilities, such as parks and schools. Many of the roads in Crozet were built several decades ago when much of Crozet was comprised of rural farmlands. These aging roads do not meet today's roadway standards for features such as curb and gutter and sidewalks and were never designed to carry the level of traffic that they are currently experiencing. Many of these older roads are within or adjacent to Downtown, an area that has seen a dramatic increase in use over the past two decades.

Crozet schools are also experiencing the effects of rapid population growth. Crozet Elementary schools is currently over capacity and a school expansion project is planned within the current Capital Improvement Program budget. Other area schools are expected to reach capacity soon.

Demands and pressure on community roads and schools is expected to continue with the Downtown redevelopment and as other residential developments, such as Old Trail and Pleasant Green continue to build out. How can the County and County Schools proactively plan for expected growth in the coming years? Can Downtown roadways be retrofitted to meet the needs of current and future residents of Crozet? How can the County retrofit deficient infrastructure to fit the current and future needs of Crozet?

Watershed Protection

The Crozet Development Area is entirely within water supply watersheds for the County and the City of Charlottesville. Portions of northern Crozet, north of Route 240, are within the Beaver Creek Water Supply Watershed, which provides drinking water for Crozet. The remainder of the Crozet Development Area is within the South Fork Rivanna water supply watershed, which supplies drinking water to the County's other Development Areas and the City of Charlottesville. This portion of the Crozet Development Area drains into Lickinghole Creek. The Lickinghole Basin was constructed as a sediment control facility that helps to protect the watershed by detaining sediment from new construction before runoff makes its way downstream into the Mechums River and ultimately the South Fork Rivanna Reservoir.

According to the Department of Environmental Quality (DEQ), there are streams within Crozet that are classified as "impaired", which means that they contain higher levels of pollutants than is found to be acceptable by DEQ. Lickinghole Creek is one of these impaired waterways. Protecting Crozet's waterways is especially important due to its location in drinking water watersheds. Because of this, Crozet is uniquely positioned to be an example of sustainable growth practices. Creative solutions are needed to clean Crozet's impaired waterways and to protect those that are not impaired. Traditional 100-foot wide wooded-buffers are not always possible along Crozet's streams due to its status as a Development Area. Creative solutions and green building and site design practices are essential to protect Crozet's and the County's waterways.

Connecting to Rural & Regional Amenities

Crozet's proximity to rural and regional amenities makes it a destination for tourists, local visitors, and prospective residents alike. It is just a few miles from Shenandoah National Park, the Blue Ridge Parkway, and the Blue Ridge Tunnel. Due to its setting, Crozet has become a recreational destination, drawing road cyclists, mountain bikers, runners, and hikers alike. Crozet is also located in close proximity to popular breweries, farms, and orchards. It offers prominent views of the Blue Ridge Mountains from several vantage points within the community.

Currently, access to nearby destinations is largely limited to automobile travel. Confident road bicyclists often cycle on rural roads around Crozet. However, community members and visitors who do not feel comfortable sharing roads with vehicular traffic must drive to reach the amenities around Crozet. With thoughtful planning and investment, Crozet has the potential to become a cyclist and hiking "hub" for the larger region. With safer facilities connecting bicyclists and walkers to nearby parks, trails, and other destinations, people of all comfort levels will have options for longer trips. Furthermore, providing facilities in town (such as convenient bicycle parking, bicycle repair stations, wayfinding signage, and areas to stop for meals or an overnight stay) could offer both visitors and community members the ability to leave their cars behind to experience the beauty of the region.

Create a multimodal transportation network that is safe and accessible for all community members, regardless of age, race, income, and ability.

Transportation

The map above shows the existing street network (in white) in the Crozet Development Area.

Overview + Background

Transportation Overview

The Transportation Chapter establishes the Guiding Principle, Goals and Recommendations for the streets, transit, and pedestrian and bicycle network in Crozet. The Guiding Principle calls for "a multimodal transportation network that is safe and accessible for all community members, regardless of age, race, income, and ability."

The subsequent pages of the Transportation Chapter identify specific Goals to further the Transportation Guiding Principle. Goals seek to address network connectivity, safety and access for all users, local and regional transit, downtown investment, and regional connectivity. Each Goal is supported with actionable Recommendations. The Future Bicycle and Pedestrian Network, Future Street Network and Connections, Street Typologies, and supporting narrative also serve to reinforce the Guiding Principle and Goals.

The Transportation Chapter closely relates to the Conservation Chapter of the Master Plan, especially as the bicycle and pedestrian network. The Transportation Chapter contains recommendations for the on street bicycle and pedestrian network and the facilities that are parallel and adjacent to the street network. The Conservation Chapter includes recommendations for off-road facilities such as trails and some shared-use paths that are separate and apart from the street network.

Transportation is also highly dependent on Land Use. Albemarle County's Comprehensive Plan highlights the important connection between land use and transportation, especially in reference to the Growth Management Policy. Growth and density are directed into the County's Development Areas, which supports opportunities for multimodal transportation. Concentrating both residential and business growth provides the needed density for public transit and for walkability between residential, commercial, and employment areas.

Enhancing the availability of options for walking, bicycling, and using transit aligns with the recently adopted Albemarle County Climate Action Plan. Providing options for community members to reach destinations without needing to use a single occupancy vehicle supports the County's greenhouse gas emissions reduction goals identified in the Climate Action Plan.

The Recommendations in this chapter are also intended to align with complementary regional planning efforts, including the Thomas Jefferson Planning District Commission's (TJPDC) Jefferson Area Bicycle and Pedestrian Plan and the Charlottesville Albemarle Metropolitan Planning Organization Long Range Transportation Plan, along with other regional transit, transportation demand management, and transportation planning efforts.

Existing Conditions

Throughout the Crozet Master Plan update process, community members identified improving multimodal connectivity as an opportunity and traffic congestion as a concern. Top priorities included enhancing walkability within the Downtown area, around parks and schools, and to and from existing neighborhoods and destinations such as Downtown. Other priorities included addressing traffic delays, increasing safety of the bicycle and pedestrian network, and providing additional multimodal options for commuting.

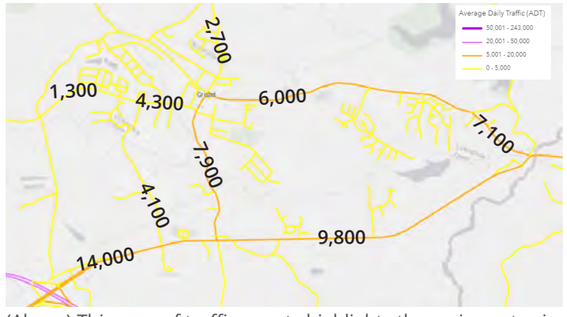
Currently, many of the main travel routes in Crozet lack sufficient bicycle and pedestrian facilities. Crozet Avenue, which serves as the central north to south connection within Crozet, and Three Notch'D Road, which serves as the northern east to west connection, both lack continuous bicycle and pedestrian facilities along their length. These roads carry high volumes of vehicular traffic and are key connections between neighborhoods, Downtown, and other Crozet destinations. The lack of bicycle and pedestrian facilities on these routes is a significant barrier to creating a connected, multimodal transportation network within Crozet.

Gaps within the pedestrian network in existing neighborhoods also create barriers for walking. Missing segments of the sidewalk network, especially in eastern Crozet and within older neighborhoods surrounding Downtown, pose safety concerns for community members who wish to walk to Crozet's destinations.

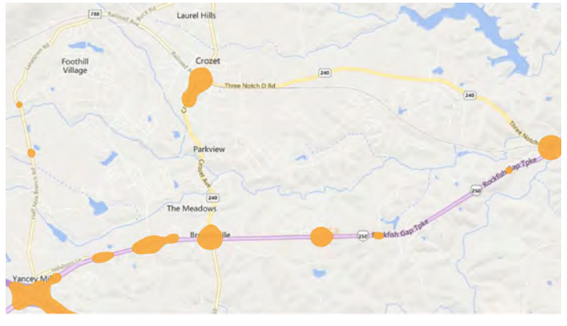
Traffic was also a top concern shared by community members during the Master Plan engagement. Community members raised concerns about traffic congestion along Route 250, especially adjacent to the schools and at the Old Trail Drive and Crozet Avenue intersections. Congestion within Downtown was also a top concern. A Transportation Analysis was completed as part of the Master Planning effort and to help inform future development of the street network within and leading to Crozet Square. The analysis confirmed community members' concerns and identified issues related to the intersections along Route 250 and in Downtown.

Public transit and emerging transportation technology continue to gain importance in Crozet and County-wide. Currently, JAUNT provides commuter service between Crozet and Charlottesville with the Crozet CONNECT routes. In 2019, Crozet participated in a pilot program for an autonomous circulator shuttle. The AVNU (Autonomous Vehicle, Neighborhood Use) provided a transit route to connect neighborhoods to Downtown Crozet. The pilot program has since ended and there is currently no transit service providing routes within Crozet.

In response to the identified deficiencies, the Master Plan calls for intersection improvements in Downtown and on Route 250, additional street connections, and increased bicycle, pedestrian, and transit infrastructure. These recommendations include completing some of the previously identified projects in the 2010 Master Plan, prioritizing bicycle and pedestrian connections for Downtown and Eastern Crozet, and along Crozet Avenue and Three Notch'D Road. Additional intersection improvements based on the Crozet Transportation Analysis are also recommended.

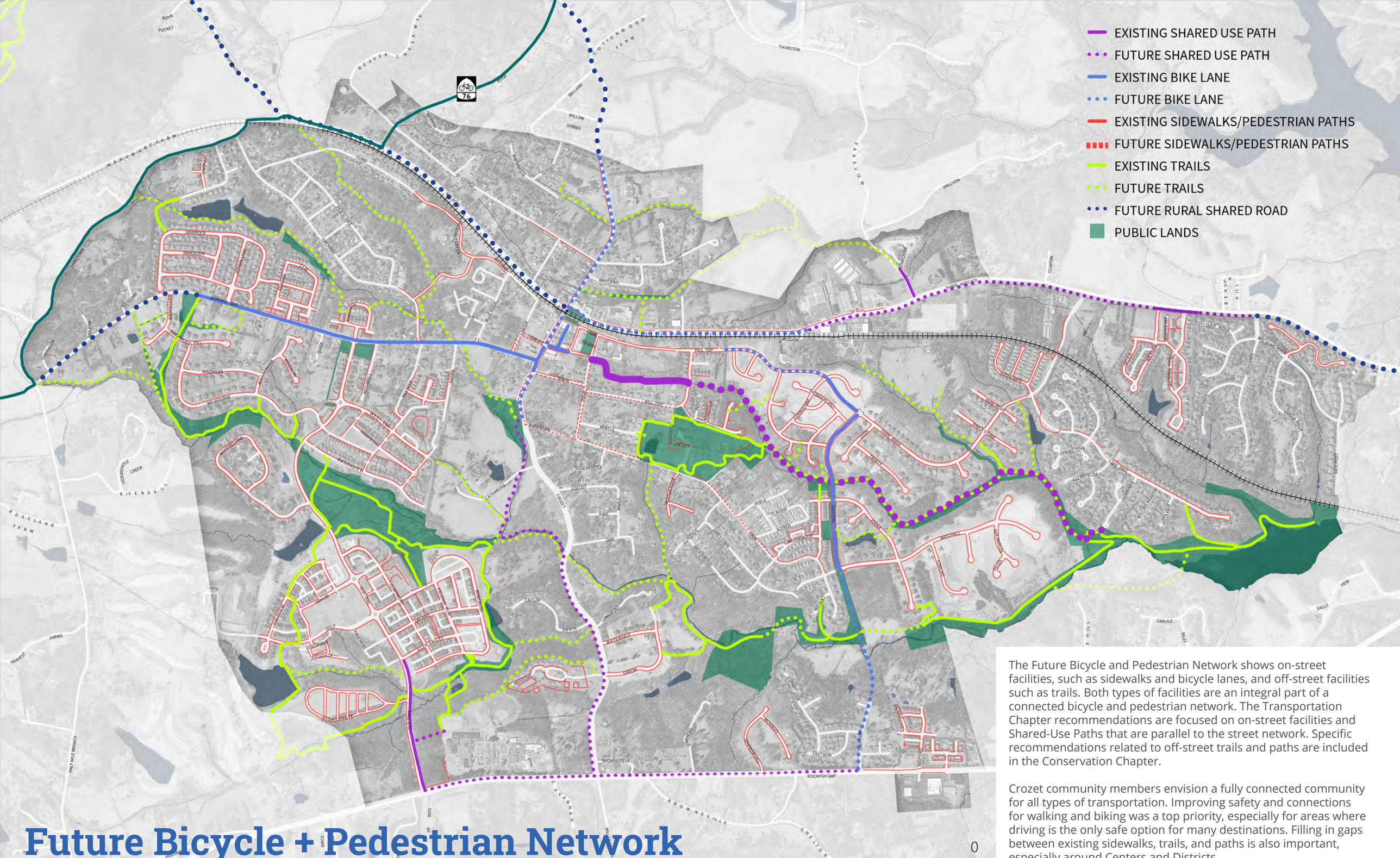


(Above) This map of traffic counts highlights the main routes in Crozet at Three Notch'D Road, Crozet Avenue, and Route 250. Approximately 14,000 vehicles per day travel along Route 250 between I-64 and Crozet Avenue.



(Above) Hot spot analysis of 2014-2020 accident data shows clusters (shown in orange) along Route 250 West, in the Downtown area along Crozet Avenue, and at the railroad underpass.

Future Bicycle + Pedestrian Network



The Future Bicycle and Pedestrian Network shows on-street facilities, such as sidewalks and bicycle lanes, and off-street facilities such as trails. Both types of facilities are an integral part of a connected bicycle and pedestrian network. The Transportation Chapter recommendations are focused on on-street facilities and Shared-Use Paths that are parallel to the street network. Specific recommendations related to off-street trails and paths are included in the Conservation Chapter.

Crozet community members envision a fully connected community for all types of transportation. Improving safety and connections for walking and biking was a top priority, especially for areas where driving is the only safe option for many destinations. Filling in gaps between existing sidewalks, trails, and paths is also important, especially around Centers and Districts.

Future Sidewalks, Trails, and Paths

Sidewalks, paths, and trails play a vital role in urban life. As conduits for pedestrian movement and access, they enhance connectivity and promote physical activity. As public spaces, sidewalks also serve as the front steps to the Crozet community, activating streets socially and economically. For these reasons, maintaining a safe, contiguous, and accessible sidewalk network is a fundamental and necessary investment for Albemarle County.

This Plan proposes a connected pedestrian network within Crozet, with several east-west and north-south routes and an emphasis on connecting to Centers and Districts. There are also proposed connections to rural and regional amenities such as to Mint Springs Park and Bicycle Route 76.

During the Master Plan update process, community members prioritized several areas within Crozet for future pedestrian improvements. Sidewalk connectivity in the Downtown area was identified as the highest priority for new sidewalks. The development of the Crozet Square site will also provide more pedestrian connectivity to and through Downtown in the near future.

Community members also provided input on the need for pedestrian infrastructure in Eastern Crozet, especially from Highlands and Wickham Pond to points west. Much of Three Notch'D Road is currently unsafe for pedestrians, and there are opportunities to connect these neighborhoods to the Starr Hill/Music Today Employment District. Community members also identified the need for pedestrian access along Route 250 to provide safe connections for those traveling to and from nearby schools and the Clover Lawn Village Center.

The Future Bicycle and Pedestrian Network show the high priority pedestrian projects within Crozet. The Implementation chapter lists the projects in order of priority, with some as Catalyst projects and others as longer-term improvements.

Based on community feedback, top priorities for pedestrian and bicycle network improvements include Phase 1 of the Three Notch'D Road Shared-Use Path (connecting Highlands to Park Ridge Drive) and sidewalk connections between Downtown and Crozet Park. The sidewalk connection along Park Road, east of Crozet Park to Brookwood Road was identified as the top priority sidewalk project (Project 2A). Both the Three Notch'D SUP and Park Road sidewalk are identified as Catalyst Projects in the Implementation chapter. Additional information about bike/ped priorities is in the Implementation Chapter of this Plan.

While not listed as an Implementation project, a more formal pedestrian and bicycle connection from Myrtle Street to Crozet Park, where a narrow dirt path currently exists, is also recommended.

Shared-use paths along the north side of Route 250 and along the western side of Crozet Avenue will require additional study to determine their alignments. Future east-west trails may serve as interim solutions for providing pedestrian access for neighborhoods in these areas. Further study and coordination with VDOT will be needed for providing a trail crossing at Crozet Avenue near Chesterfield Landing and The Meadows.

Providing safe and accessible routes for pedestrians and bicyclists may also include new lighting. A lack of lighting may create a barrier to walking or bicycling outside of daylight hours. New lighting should be balanced with the community's desire for protection of dark skies and should be full cutoff lighting when feasible. Currently, the County does not have a requirement for street lighting. Additional lighting recommendations are included in the Land Use Chapter of this Plan.

(Above) A section of Park Road, which currently lacks sidewalks. Park Road was identified by community members as a top priority for future sidewalks projects.

Bicycle Routes & Regional Connections

High quality, safe and connected bicycle facilities have several benefits, including reduced traffic congestion, improved health outcomes for commuters, and increased visibility and sales for commercial businesses. A connected bicycle network that offers both on and off street facilities is needed to support this Chapter's Guiding Principle and to provide opportunities for cyclists of all comfort levels and abilities.

Currently, there are existing bike lanes along Jarman's Gap Road (Jarman Lake Road to Crozet Avenue), Eastern Avenue (Park Ridge Road to Westhall Drive), and Library Avenue. The Future Bicycle and Pedestrian Network proposes bike lanes along Three Notch'D Road from the Employment District to Crozet Avenue North, along portions of Crozet Avenue North, Park Ridge Drive, and the future, unbuilt segments of Eastern Avenue. Sharrows and other traffic calming measures should be added along the portion of Park Ridge Drive from Eastern Avenue to Three Notch'D Road, as the design of the road does not allow for bike lanes.

Bicycle routes that connect to Rural Area amenities and destinations outside of Crozet are expected to be a mix of on-street, shared bicycle facilities, and regional trail routes (shared-use paths). Rural Shared Roads are identified on the Future Bicycle & Pedestrian Network to provide connections to Mint Springs Park and Bicycle Route 76. There is also a recommendation to improve signage to and from Bicycle Route 76 or to consider rerouting the bicycle route through Downtown Crozet.

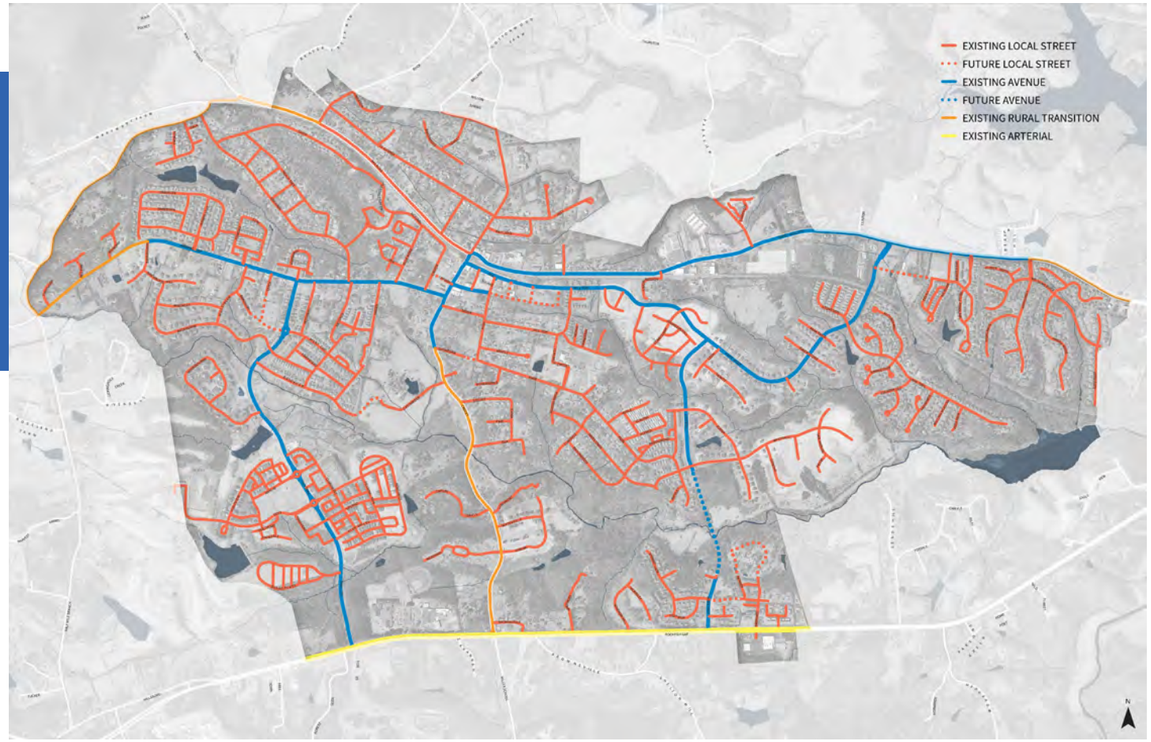
As shown on the Future Bicycle and Pedestrian Network, many of the existing and proposed bicycle routes converge into a hub around Downtown. Bicyclists will be able to travel to and from Downtown using Jarman's Gap Road, Crozet Avenue, Three Notch'D Road, and Eastern Avenue (from extended Park Ridge Drive). Rerouting Bike Route 76 through Downtown or providing wayfinding signage would also support this area as a destination for bicyclists. As Downtown redevelops, adding bicycle parking and storage should be considered. This may be evaluated with future updates to the Downtown Crozet District as well.

The County's Comprehensive Plan includes a recommendation to create a regional trail network, extending from Charlottesville to points west including Crozet and the Blue Ridge Tunnel, called the Three Notched Trail. The Conservation Chapter includes a recommendation to conduct a feasibility study to determine an appropriate route for the Three Notched Trail adjacent to or through Crozet. Based on the findings of this study, additional bicycle routes providing connections to and from this route may be identified.


(Above) Existing bike lanes along Jarman's Gap Road.


(Above) An existing portion of the Three Notch'D Road Shared-Use Path, which will connect Eastern Crozet with Park Ridge Drive and eventually the Starr Hill/Music Today Employment District.

Future Street Network



The map above shows the street typologies for each road in Crozet, as well as future street connections.

Future Streets & Connections

Streetscapes should reflect a unified, "Complete Street" design that balances a wide variety of functions including: pedestrian, bicycle, and vehicular travel, public space, parking and loading, emergency access, stormwater management, and reducing the heat island effect by providing shade with street trees.

The Future Street Network and supporting recommendations in this chapter envision a well-connected street network that can better enable movement within and between Crozet neighborhoods and Centers and Districts. Proposed streets should be Complete Streets, designed for all users – motorists, pedestrians, bicyclists, and transit riders. Streets within new development or streets that are upgraded as part of a redevelopment proposal should also be designed to achieve an interconnected street network and to provide new connections where possible. Existing streets should not be widened to add additional lanes for cars. Street right of ways may be widened to accommodate space for pedestrians and bicyclists, including for bike lanes. Widening streets to add travel lanes for vehicles is typically a short-term and temporary traffic solution. Access to public transit, the ability to walk and bike, connecting the street network, and intersection improvements (such as roundabouts) are more effective for addressing traffic.

To encourage walking, bicycling, and transit, routes should be inviting, safe, and enjoyable. For some destinations, the only feasible option will be to drive. For other trips, community members and visitors may choose to walk, bike, or hop on a bus, if these modes feel like an attractive option. A shaded paved path or a dedicated bicycle lane may be more appealing than driving. The closer people are able to live to destinations, such as shopping, parks, and employment areas, the fewer miles they will need to drive. Reducing trips made by car and total miles traveled also reduces pollution from greenhouse gases and supports the County's Climate Action Plan goals. A 2008 baseline year study for Albemarle County found that nearly half (48%) of all greenhouse gas emissions are from the transportation sector.

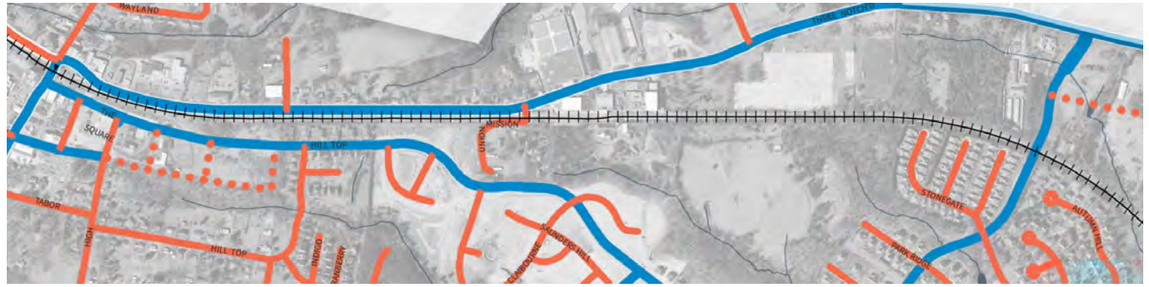
As shown on the Future Street Network, existing and proposed streets are categorized as Arterial, Avenues, Local Streets, or Rural Transition Streets. Within these categories, specific types of pedestrian, bicycle, and parking improvements may vary depending on the context and needs of the area. Additional guidance for each street type are provided in the Street Typology Section.

The Future Street Network shows new streets and new connections. Dotted lines convey the approximate locations of new streets or extended streets. Future streets are expected to be provided if and when the adjacent property develops or redevelops. New street locations are identified for the White Gate Farm property, north of Liberty Hall, at Cathaross Lane, and between Bradburry Court, West End Drive and Jarman's Gap Road. These streets are all expected to be Local Streets, and final alignments should be determined concurrent with development.

A connection at Dunvegan Lane to Park Road is a recommended improvement from the Transportation Analysis. This connection would enhance connectivity and better distribute traffic and reduce nearby queueing and delays in the Downtown area. This two-lane local street should provide sidewalks and be accessible from a left turn lane on Crozet Avenue. An interim improvement in this area could include converting Tabor Street into a right in and right out at Crozet Avenue.

Additional street "connections" should also be provided in areas where streets currently stub out or where there is an obvious opportunity for improved connectivity with streets ending just shy of an adjacent roadway. These connections are expected to be made if and when adjacent properties redevelop. Examples of future connections include: Millstream Drive to Jarman's Gap Road, Rosthwell Lane to West End Drive, Killdeer Lane to Killdeer Lane, Haden Lane to Haden Terrace, Agatha Ridge Court to Jamestown Road, and Jamestown Road to Westhall Drive.

Where there are conflicts between future streets and existing or proposed trails, trail connectivity should be retained. On low traffic roadways, trail connectivity could be provided with at grade crossings, however for higher traffic roadways such as avenues, additional facilities such as crosswalks, signalization, trail tunnels, or bridges should be provided. Appropriate facilities for trail crossings should be determined in consultation with VDOT.



The map above shows the study area for Recommendation 1D of this chapter, to conduct a feasibility study to determine if an additional railroad crossing is possible in northern Crozet, between Downtown Crozet and Park Ridge Drive.

The maps above show the approximate locations of future additional street connections where streets currently stub out or there are streets that nearly connect. These connections are expected if future redevelopment occurs.

Intersection Improvements

The Crozet Transportation Analysis was completed by the consulting firm EPR, PC as part of this Master Plan update. The Transportation Analysis evaluates future conditions for the year 2045. The study evaluated intersections in Downtown Crozet and along the Route 250 corridor to determine how future development and traffic volumes will affect wait times, the length of car lines at intersections (queueing), and the overall level of service (LOS). The analysis proposes alternatives to address these issues, such as roundabouts, road connections, and turn lanes.

In Downtown, the study focused on intersections along Crozet Avenue between Tabor Street and Three Notch'D Road. The study found that there are some existing queueing issues on Crozet Avenue, and that this will continue to be the most significant future traffic issue in this area. Analysis of alternatives found that signals, even with the addition of turn lanes, or realignment of roads were not feasible; however, improving street connections and revising the Jarman's Gap and Crozet Avenue intersection would resolve future queueing issues.

Along Route 250, the study focused on the following intersections with Route 250: Old Trail Drive, the Schools, and Crozet Avenue/Miller School Road. The existing conditions analysis showed that there are current issues with queueing around the Schools (including Western Albemarle High School) and lower levels of service at Crozet Avenue. Future queueing and level of service issues can be addressed by adding roundabouts at these intersections.

Images shown on the following pages demonstrate what these proposed improvements could look like once completed. These images are conceptual, and the exact dimensions and layout will be determined during each project's design and construction.

Downtown Crozet

The conceptual image (shown on the following page) demonstrates a potential configuration of a 'quadrant' intersection improvement on Crozet Avenue at Library Avenue. Left turns at Jarman's Gap Road/Crozet Avenue intersection, Library Avenue, and the connector street are restricted to improve the flow of traffic and reduce queueing. Further design work is needed for a finalized layout. While other intersection improvements were considered at this location, the quadrant intersection was found to provide a scale appropriate for Downtown and preserve more of the existing parking area for the adjacent church property. Coordination with affected and adjacent property owners would be needed during the design phase of work. This improvement could be phased, with the roundabout at Library Avenue constructed first.

The image above depicts Downtown Crozet, with potential 'quadrant' intersection on Crozet Avenue at Jarman's Gap Road and Library Avenue, alongside redevelopment of the Plaza.

The image below is a street-level view of a potential roundabout at Library Avenue and Crozet Avenue with bike lanes, pedestrian improvements and street trees.

The conceptual image above shows potential sidewalks and pedestrian crosswalks along Three Notch'D Road, outside of Starr Hill/Music Today.

Route 250

The Crozet Transportation Analysis found that the addition of three potential roundabouts along Route 250 at Henley Middle School/Brownsville Elementary School, Old Trail Drive, and Crozet Avenue/Miller School Road would address future queueing and delay issues. Further design work is needed to determine a finalized layout. Additional study for pedestrian safety improvements is needed at Old Trail Drive and Route 250 at the crosswalk to Western Albemarle High School to enhance connectivity with the School.

Three Notch'D Road/ Crozet Avenue

The Crozet Transportation Analysis did not find significant level of service or queueing issues at the Three Notch'D Road and Crozet Avenue intersection and did not result in any specific intersection recommendations. There is not sufficient area within the existing public right of way for a roundabout, and any intersection expansion would cause significant impacts to adjacent properties. The recommended intersection and connectivity improvements in Downtown are expected to sufficiently resolve future traffic issues in this area. Additionally, this Chapter recommends studying the possibility of an additional railroad crossing between Downtown and the Park Ridge Drive/240 intersection. An additional railroad crossing would help distribute traffic, or at a minimum, provide an additional bicycle and pedestrian connection between Route 240 and points south.

(Above) A Local Street in the Wickham Pond neighborhood, with sidewalks, street trees, and street parking.

(Above) Portions of St. George Avenue have sidewalks and vehicular parking, while other sections do not have sidewalks or curb and gutter. As redevelopment/infill development occurs or funding is available, sidewalks should be constructed in aging neighborhoods to support a well-connected and safe pedestrian network.

(Left) Library Avenue is an example of an Avenue in a mixed-use environment, that provides facilities for pedestrians, cyclists, and vehicles, as well as on-street vehicular parking.

Street Typologies

The Future Street Network proposes a hierarchy of streets based on capacity (how many people, cars, bikes, and buses it can accommodate) and function. The scale and design of streets should be both a reflection of a street's capacity and its role in the overall network. A street that can be designed to hold a high amount of traffic may serve different functions along its length.

Avenues

Avenues are intermediate-sized and medium capacity streets with low to moderate vehicular speeds. Examples of Avenues in Crozet are Jarman's Gap Road, Old Trail Drive, Eastern Avenue, and Three Notch'D Road. Avenues have two travel lanes but should be designed to carry a significant volume of both automobile and bicycle and pedestrian traffic. Avenues should have dedicated bicycle and pedestrian infrastructure, or a nearby parallel or alternative route.

The Future Street Network does not propose any new Avenue road connections, other than the planned Eastern Avenue connection from Westhall Drive to Cory Farm Road. Bicycle and pedestrian improvements are recommended for Crozet's Avenues, especially along Three Notch'D Road. There is an existing sidewalk on the north side of Three Notch'D Road from Music Today to the railroad bridge in Downtown Crozet. A future shared-use path would connect the eastern neighborhoods to Starr Hill/Music Today, with bike lanes completing the rest of the connection to Downtown.

Local Streets

Local Streets are low-capacity, low vehicular speed streets that form the majority of Crozet's street network. Examples of Local Streets in Crozet include Wickham Pond Drive, Claremont Lane, Orchard Drive, and Park Road. Future local streets and additional connections are identified on the Future Street Network, which build greater connectivity between residential neighborhoods and commercial areas. A well-connected local street network can help distribute traffic and provide multiple routes to destinations.

Local streets should have dedicated sidewalks but typically do not need dedicated bicycle facilities due to the low volume and low speed of traffic.

Locations for new Local Streets on the Future Street Network are conceptual. Final locations will be determined during the design and construction phases of future development and redevelopment.

Rural Transition Roads

Rural Transition Roads are medium-to-high capacity roads with moderate vehicular speeds that reflect edge conditions of the Development Area. These streets are designed with respect for the rural character of the area, but still contribute to bicycle and pedestrian connectivity in Crozet.

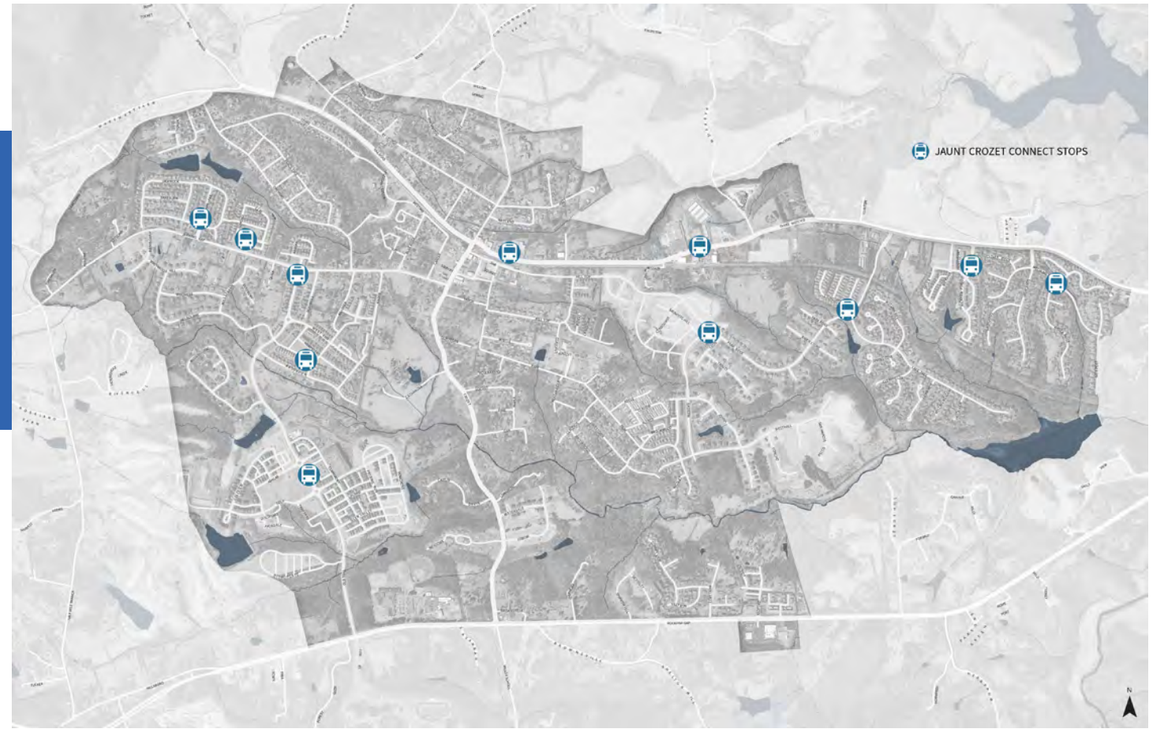
The photo rendering above demonstrates potential improvements on Rural Transition Roads that provide safer facilities for cyclists. Where there is sufficient right-of-way, additional shoulder width should be provided to create a dedicated bicycle lane. Where site limitations prevent a separate bike lane, signage and sharrows may be used.

(Above) Route 250, alongside the Liberty Hall Neighborhood and Clover Lawn Village Center is the only Arterial in Crozet.

There are four Rural Transition Road segments called for in Crozet: the western edge of Jarman's Gap Road, the eastern portion of Three Notch'D Road, Crozet Avenue from Dunvegan Lane to Route 250, and Lanetown Road with a portion of Railroad Avenue included. The western portion of Jarman's Gap Road connects to Bike Route 76 at Lanetown Road. Future improvements of these streets should balance pedestrian and bicycle safety with the rural character of the roads. Improvements could be coordinated with VDOT projects such as paving, shoulder widening, and maintenance.

Arterials

Arterials are high-capacity and higher vehicular speed roads that can accommodate long-distance trips and connect multiple localities within a region. The only Arterial road in Crozet is Route 250 along the southern Development Area boundary. Route 250 is designated as a State Scenic Byway and is within the County's Entrance Corridor Overlay District. Specific land use and landscape buffer recommendations are included in the Land Use Chapter of this Master Plan. A shared-use path is recommended from Clover Lawn Village Center to Old Trail Drive along Route 250, providing connectivity between neighborhoods, schools, and commercial areas.



The map above shows the existing Crozet CONNECT bus stops in the Crozet Development Area.

Transit and Transportation Demand Management

JAUNT's Crozet Connect route currently provides commuter service between Crozet and the City of Charlottesville. JAUNT's criteria for transit stops include: sufficient housing density for more trips to be served; sidewalks or paths to access stops; and road connectivity for efficient routes. JAUNT serves five counties, including Albemarle, and provides demand response transit and ADA transit service. JAUNT's services are especially important for providing affordable transit service to community members in the Rural Area, including those who may not have access to a vehicle.

During the engagement process, Crozet community members prioritized the factors they consider when choosing to ride transit, which include (in order from most important to least important): frequency of service, stop locations, and length of trip time. Public transit improvements in Crozet should include a focus on providing transit stops in designated Centers and Districts, ensuring transit stops have sufficient shelter and infrastructure, providing bicycle storage both on buses and at transit stops, and establishing permanent routes with frequent, reliable service.

Emerging technology and related forms of transit will continue to become available. In 2019, the autonomous AVNU Circulator Shuttle pilot program in Crozet provided routes through Old Trail Village and Downtown Crozet. This pilot showed the potential for autonomous circulator routes to reduce the need for single-occupancy vehicles, allow riders to park further away from their destination, and provide options for community members that are unable to drive. Continued coordination with transit providers, as outlined in Goal 3 of this Chapter, will be needed to enhance and expand transit routes and options.

Downtown Crozet Parking Study

As part of the Crozet Master Plan update, the consulting firm Kimley Horn completed a Downtown Crozet Parking Study. This study included analysis of existing parking conditions and inventory, utilization of existing parking, and short and long-term recommendations for accommodating future demand. The study found that parking supply within Downtown Crozet (which includes areas currently zoned DCD) is typically underutilized, with a system-wide utilization of 47% during the weekday peak and 30% during the Saturday evening peak period.

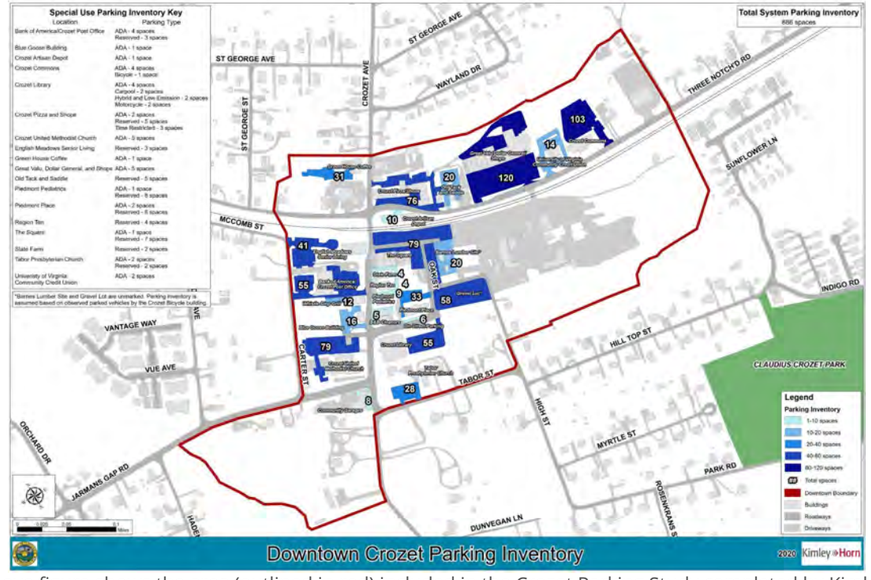
There are a total of 886 parking spaces in the study area, and 198 of those spaces are public (22 percent). The study found that there is a perception that there is less parking than is actually available, due to the concentration of demand around the Square, Piedmont Plaza, and Crozet Pizza/shops. Many of the gravel lots are also underutilized, especially with the lack of signage.

The study found that as redevelopment of the Square occurs, there may not be sufficient parking without additional parking strategies and improvements. The parking study recommends shared parking between Downtown businesses and uses as a parking mitigation strategy. This approach would leverage the existing private surface lots that are currently underutilized.

Other parking mitigation strategies recommended by the study include providing a shuttle service (which could include autonomous vehicles), improving wayfinding signage (paired with bicycle and pedestrian infrastructure), and implementing shared valet parking zones. These types of strategies can help reduce the total area dedicated to surface parking, which reduces impervious surface area. Longer-term parking mitigation could involve new public parking lots or public structured parking. Site selection would need to consider access and presence of sidewalks and the cost per space relative to other mitigation measures such as transit and shuttle service. New and upgraded parking areas should incorporate canopy trees, rain gardens, pervious pavers, and other methods as feasible to reduce heat island effects and manage stormwater runoff. Covered parking could also be designed to accommodate solar panels when feasible.

New or improved parking areas should also incorporate public electric vehicle (EV) charging stations. EV's and hybrid vehicles are expected to continue to grow in popularity and will increase the demand for charging stations. Updates to the DCD Zoning District should consider accommodations for EV charging stations.

Prior to the redevelopment of Downtown, the County should work with local businesses and the developer of Crozet Square to pursue shared parking opportunities within existing surface lots Downtown. Wayfinding signage should be used to identify locations of publicly available parking for visitors.



The above figure shows the area (outlined in red) included in the Crozet Parking Study completed by Kimley Horn. The figure also shows the number of existing parking spaces in the downtown area.

Transportation Guiding Principle

Create a multimodal transportation network that is safe and accessible for all community members, regardless of age, race, income, and ability.

Goal 1: Establish a connected network of complete streets that provide safe, convenient, inviting, and viable transportation choices for all users.

A. Design and construct the roundabout at the intersection of Route 250 and Crozet Avenue. Provide opportunities for community feedback to guide final intersection designs and project phasing.

B. Design and construct the roundabouts at the intersections of Route 250 and Old Trail Drive and at the Henley/Brownsville school entrances. Provide opportunities for community feedback to guide final intersection designs and project phasing.

C. Complete construction of Eastern Avenue, including a stream crossing of Lickinghole Creek.

D. Conduct a feasibility study on an additional railroad crossing between Downtown Crozet and the Park Ridge Drive and Three Notch'D Road intersection. Ensure that Union Mission community members are actively engaged in the ongoing process of establishing a new crossing with safe and convenient access.

E. Provide a street connection at Dunvegan Lane, connecting Park Road and Crozet Avenue.

F. Complete a Corridor Design for Park Road to determine the needed bicycle and pedestrian facilities to provide safe and convenient access through this corridor.

Goal 2: Establish sidewalks, paths, trails, bike lanes, and other improvements to provide safety and access for all users.

A. Construct priority segments of the sidewalk network shown on the Future Bicycle & Pedestrian Network Plan as funding becomes available, including missing segments of sidewalk along Crozet Avenue, Park Road, High Street, Tabor Street, and Hilltop Street.

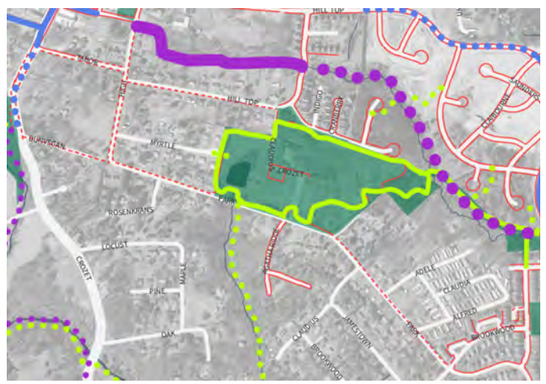
B. Conduct a feasibility study to determine a north-south alignment for a shared-use path (SUP) along or parallel to Crozet Avenue to provide a connection between Route 250 and the Crozet Connector Trail.

C. Provide traffic calming measures on Park Ridge Drive between Three Notch'D Road and Eastern Avenue in coordination with VDOT. Measures could include restriping, landscaping, bicycle sharrows, and mini roundabouts at intersections.

D. Through a combination of new development and County-initiated capital projects, construct a shared-use path along the south side of Three Notch'D Road, with the first phase connecting the Wickham Pond and Highlands neighborhoods to Park Ridge Drive, and the second phase connecting to the Employment District.

E. Through a combination of new development and County-initiated capital projects, construct a shared-use path along the north side of Route 250.

F. Establish safe pedestrian connections (sidewalks or shared-use paths) as funding is available, or redevelopment/rezonings occur in historic and aging neighborhoods, especially within the Downtown Neighborhoods.



The above map shows the future sidewalk projects (dotted red lines) in Recommendation 2A. These are prioritized in the Implementation Chapter of this Plan.

It should be noted that the recommended sidewalks and paths for Recommendation 2F are not shown on the Future Bicycle and Pedestrian Network Plan, as their alignments and locations are not yet determined.

Goal 3: Expand local and regional transit service, infrastructure, and options.

A. Work with local transit providers to develop a transit plan to identify stop locations and infrastructure needs to establish permanent transit service within Crozet and commuter routes to and from Crozet. Prioritize providing transit infrastructure within identified centers, especially Downtown, to support local businesses and decrease reliance on parking and roadways.

B. Through the rezoning and redevelopment process, secure sites and infrastructure for future transit stops (as identified in transit plans) to include sheltered waiting areas, benches, and wayfinding signage.

C. Work with BRITE Transit to add a future Afton Express stop at the I-64/Exit 107 park & ride lot, once completed.

Goal 4: Support the redevelopment of Downtown with appropriate transportation infrastructure improvements.

A. In coordination with community members and relevant partners and agencies, design and construct improvements to High Street from Tabor Street to Library Avenue. Use the Crozet Transportation Analysis study recommendations for guidance, ensure improvements provide safe pedestrian and bicycle connections, and consider if a phased approach is appropriate.

B. In coordination with community members and relevant partners and agencies, design and construct intersection improvements within Downtown, including the 'quadrant' intersection and improvements to Tabor Street. Use the Crozet Transportation Analysis study recommendations for guidance, ensure improvements provide safe pedestrian and bicycle connections, and consider if a phased approach is appropriate.

C. Concurrent with the redevelopment of Crozet Square, pursue shared parking agreements with private surface lot owners near Downtown to support the Downtown redevelopment. Use the Parking Study as a guide to inform this effort.

D. Pursue additional parking solutions concurrent with future phases of Crozet Square redevelopment and completion of the project, such as shuttle service, valet, and/or permanent parking facilities. Use the Parking Study as a guide to inform this effort.

Goal 5: Provide safe bicycle and pedestrian routes to nearby County Parks in the Rural Area and other regional amenities.

A. Upgrade Railroad Avenue and Mint Springs Road to a Rural Shared Road and add signage to provide a formal connection for cyclists to Mint Springs Park.

B. Provide a more formal connection to Bicycle Route 76 by upgrading Jarman's Gap to a Rural Shared Road west of where the existing bicycle lane ends.

C. Provide signage directing cyclists using Bicycle Route 76 to Downtown Crozet. As part of this initiative, explore opportunities to reroute Bicycle Route 76 through Downtown Crozet.

D. Work with VDOT to coordinate shoulder widening, pavement markings, and signage on identified Rural Shared Roads during routine paving and maintenance work.

Support and strengthen Crozet's history as a vibrant community, while ensuring that new and infill development is compatible in scale and design, and provides housing choice for all community members. Allow and encourage a variety of employment options, services, commercial and retail areas, and housing types.

Land Use

Overview + Background

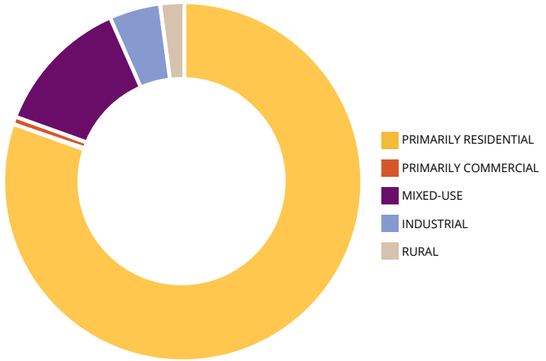
Land Use Overview

The Land Use Chapter establishes the future vision for development patterns and uses within Crozet over the next 20 years. Crozet community members, business owners, and stakeholders have shared their vision for how they would like to see the community grow and evolve. This Land Use Chapter is a reflection of the community input and the County's Comprehensive Plan, which sets the overarching vision for the County as a whole. The Comprehensive Plan, and supporting growth management policy, direct growth and density into the designated Development Areas to preserve the County's Rural Areas and to prevent premature expansion of the Development Areas.

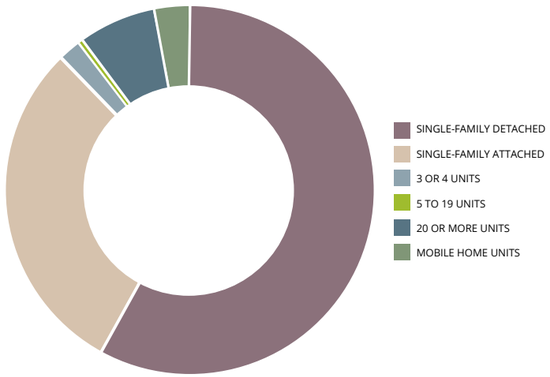
The Guiding Principle for Land Use within Crozet is:

> *"Support and strengthen Crozet's history as a vibrant community, while ensuring that new and infill development is compatible in scale and design and provides housing choice for all community members. Allow and encourage a variety of employment options, services, commercial and retail areas and housing types."*

The subsequent pages of the Land Use Chapter identify specific Goals to further the Guiding Principle. Goals cover the topics of Downtown revitalization, housing choice for all income levels, sustaining and supporting existing and historic neighborhoods, maintaining the rural edge, and amplifying Crozet's culture and history. Each Goal is supported with actionable Recommendations. The Future Land Use Plan, land use guidance, design principles, and supporting narrative also serve to reinforce the Land Use Guiding Principle and Goals and provide additional guidance for future development and investment within Crozet.



The above chart shows land uses in Crozet by current Zoning District, based on the uses allowed in each District. Approximately 80 percent of the land area in Crozet is primarily residential.



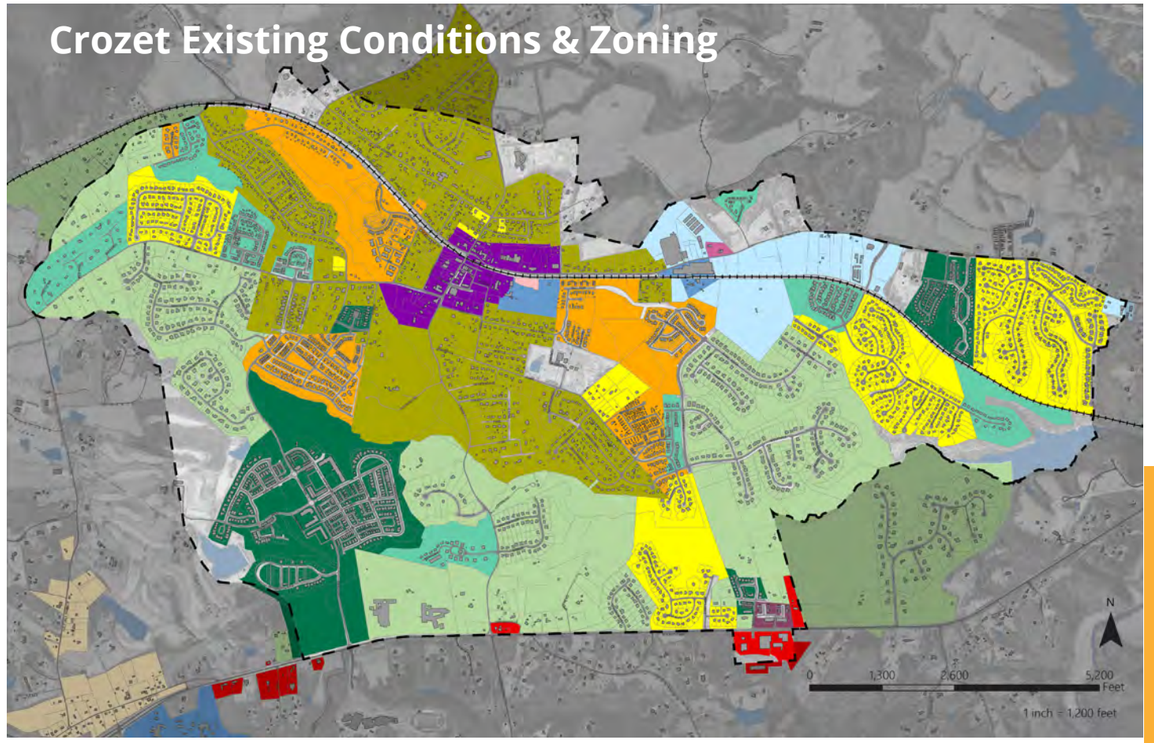
The above chart shows the distribution of housing unit types in Crozet. Approximately 58 percent of all units in this Development Area are single-family detached.

Existing Conditions & Future Growth

The majority of Crozet is designated for residential development, but much of the land is already developed or built out. There are few remaining large vacant parcels within Crozet that do not already have pending site development applications under review.

Infill of existing areas is likely to become a more significant portion of future housing development in Crozet. Throughout the course of the Master Planning process, the community has expressed a desire to support affordable housing; infill and development of smaller vacant sites presents an opportunity to support this desire.

Downtown Crozet is in the process of redeveloping into a mixed-use residential, office, and commercial-retail hub within the heart of Crozet. It provides an additional opportunity for housing choices for the community. It will also provide social gathering space for community members and visitors. With this redevelopment, Downtown is poised to continue to grow and evolve into the historic and cultural heart of Crozet.



The map above shows the current zoning for the Crozet Development Area. This master plan update aims to minimize inconsistencies between the Plan's long-range vision and current zoning.

- Rural Areas (RA)
- Village Residential
- R1 Residential
- R2 Residential
- R4 Residential
- R6 Residential
- R10 Residential
- Heavy Industry (HI)
- Planned Residential Development (PRD)
- Neighborhood Model District (NMD)
- C1 Commercial
- HC Highway Commercial
- Planned Development Shopping Center (PDSC)
- Downtown Crozet District (DCD)
- Light Industry (LI)

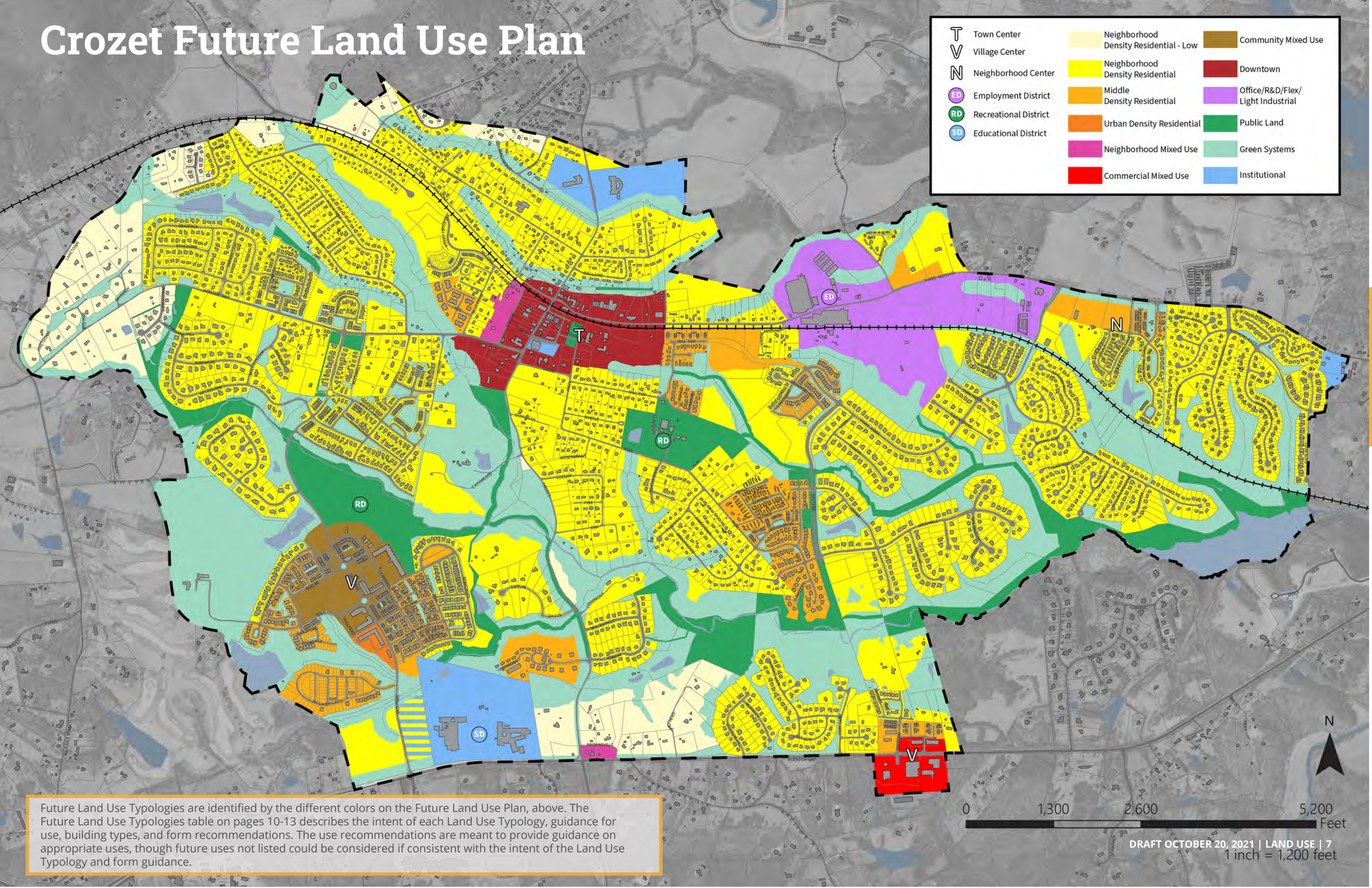
Rural Context

Crozet's setting as a satellite community separate from the County's urban ring Development Areas makes it important that the community develop in a way that provides a mix of housing types, commercial, and employment uses. Its location as a satellite community also means that it is surrounded on all sides by the County's designated Rural Area. This rural context is important to community members who have identified a desire for Crozet to grow in a way that maintains a distinct rural edge and a visual connection to Blue Ridge Mountains and surrounding landscape.

Land Use & Existing Zoning

The Future Land Use Plan has been updated to minimize inconsistencies between the long-range vision and by-right development scenarios (i.e. the current zoning) that are not subject to review by the Planning Commission and Board of Supervisors. Part of this effort to bring consistency included reviewing and updating parcels that were designated entirely as Greenspace on the 2010 Land Use Plan. Many of the 2010 Greenspace parcels are under private ownership, are not planned for future Parks, and have portions of land that are not hindered by critical resources. The updated 2021 Future Land Use Plan shows an updated Land Use designation for many of these properties on areas that are outside of critical resources.

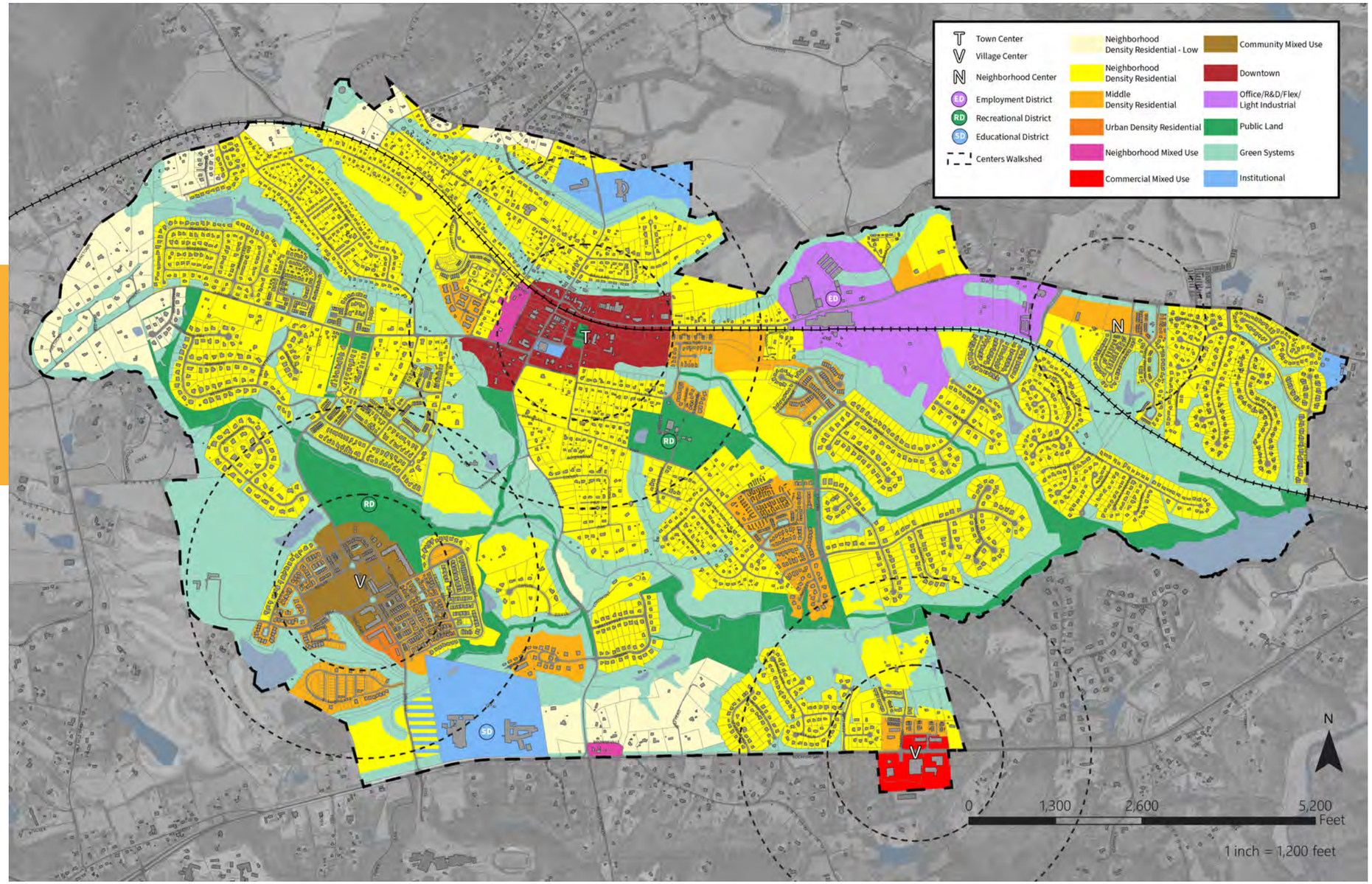
Crozet Future Land Use Plan



Future Land Use Typologies are identified by the different colors on the Future Land Use Plan, above. The Future Land Use Typologies table on pages 10-13 describes the intent of each Land Use Typology, guidance for use, building types, and form recommendations. The use recommendations are meant to provide guidance on appropriate uses, though future uses not listed could be considered if consistent with the intent of the Land Use Typology and form guidance.

1 inch = 1,200 feet

Crozet Centers & Districts



The Future Land Use Plan identifies multiple Centers and Districts within Crozet. Centers are intended to be nodes of activity that feature a dense mixture of uses that foster a sense of community for residents, employees, and visitors to Crozet. Districts lack a core area and the urban form of a Center, but their regional importance indicates that they should have multimodal connectivity to other Centers and amenities.

The Land Use Table on pages 10-13 illustrates the expectations for development in Crozet. The Future Land Use Typologies Table describes the intent for each Land Use as well as recommendations for primary and secondary uses. The use recommendations are meant to provide guidance on appropriate uses, though future uses not listed could be considered, if consistent with the intent and form guidance. Recommendations for building type, form, height, and massing are also provided in the table.

Additional urban design guidance and example development patterns are provided on pages 14-15. For those areas within Centers and Districts, additional guidance is provided in the Centers and Districts section on pages 16-23.

One property within Crozet has a split land use designation (shown as hatched yellow and blue). This property is Block 19 within the Old Trail Village development and was designated as entirely Neighborhood Density Residential in the 2010 Master Plan. The current approved zoning for this Block allows between 12 and 90 dwelling units. The property owner has expressed interest in amending the existing approved zoning to allow for institutional uses on the property. Since the property is adjacent to the Brownsville Elementary/Henley Middle Schools site and Educational District, institutional uses within this Block would be appropriate. The split designation of Neighborhood Density Residential and Institutional allows for potential future institutional uses, residential uses under existing approved zoning, or a mix of both.

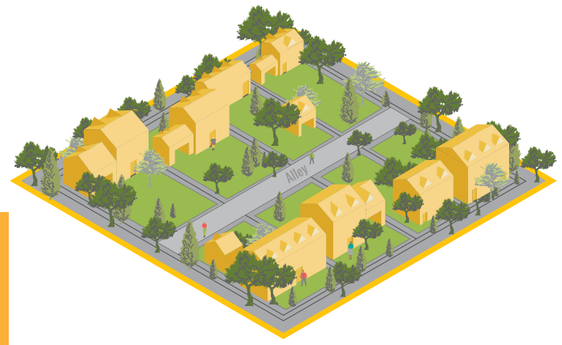
Future Land Use Typologies

	Neighborhood Density Residential (Low)	Neighborhood Density Residential		Middle Density Residential	Urban Density Residential
Intent	Existing residential areas with density of less than 2 units per acre and areas for future low density development.	Low-density residential development patterns with neighborhood-scale commercial, retail, and institutional uses.		Low to mid-density residential and small-scale non-residential uses such as commercial and institutional uses; intended to encourage a variety of housing types, encourage smaller housing units that are naturally more affordable, and to promote housing choice and affordability.	Medium to high-density residential development supported by small to medium scale commercial, retail, and institutional uses.
Primary Use	• Residential at a density of less than 2 units per acre	• Residential at a density of 3-6 units per acre		• Residential densities in the range of 6-12 units per acre are recommended. Residential density of up to 18 units per acre could be considered to accommodate additional affordable housing (beyond any baseline affordability requirements); or to allow for construction of small-scale housing types: bungalow courts, small and medium multiplexes, accessory dwelling units, live/work units, small single family cottages, and tiny houses.* *see housing types descriptions in Appendix	• Residential at a density of 12-34 units per acre • Religious assembly uses • Schools and child care • Institutional
Secondary Use	• Religious assembly uses • Schools and child care • Institutional	• Religious assembly uses • Schools and child care • Institutional • Commercial/retail		• Religious assembly uses • Schools and child care • Institutional • Commercial/retail	• Commercial/retail • Offices
Building Type & Form Guidance	Residential: single-family detached and accessory dwellings.	Residential: townhomes, single-family attached, single-family detached, accessory dwellings. Commercial/retail/office/institutional: uses should be located in small buildings or as part of mixed-use buildings with small shop-fronts along streets.		Residential forms including but not limited to: small and medium multiplexes, live/work units, bungalow courts, accessory dwellings, single family cottages and other similarly scaled residential development. Townhouses and single family detached units are allowable building forms, though smaller unit types on smaller lots are encouraged to increase affordability. Large multiplexes are not recommended within this land use. A mix of housing types should be provided with developments over 20 units, though exceptions can be made for developments providing predominantly small-scale housing types referenced in Primary Uses.	Residential: multifamily, townhomes, single-family attached encouraged; single-family detached should be secondary. Commercial/retail/office/institutional: uses should be located in small buildings or as part of mixed-use buildings, with small shop-fronts along streets.
Height & Massing	• Up to 3 stories • Suggested maximum building footprints for non-residential: 15,000 sq. ft.	• Up to 3 stories • Suggested maximum building footprints: • Commercial/retail: 5,000 sq. ft. • Office/Institutional: 20,000 sq. ft.		• Up to 3 stories • Suggested maximum building footprints: • Commercial/retail: 5,000 sq. ft. • Office/Institutional: 20,000 sq. ft. • Residential single use building: 12,000 sq. ft.	• Up to 4 stories • Suggested maximum building footprints: • Commercial/retail: 8,000 sq. ft. • Office/Institutional: 25,000 sq. ft.
Prioritized Design Principles	• Pedestrian & bicycle connectivity. • Access to parks, amenities, and green systems. • Maintain clear boundaries with the Rural Areas.	• Pedestrian & bicycle connectivity. • Access to parks, amenities, and green systems. • Maintain clear boundaries with the Rural Areas.		• Provide a mixture of housing types and affordability. • Bicycle and pedestrian connectivity. • Access to parks, amenities, and green systems.	• Provide a mixture of housing types and affordability. • Promote density of uses and compact development, including infill and redevelopment. • Access to parks, amenities, and green systems.

	Neighborhood Mixed Use	Community Mixed Use	Commercial Mixed Use	Downtown		Office/R&D/Flex/ Light Industrial	Green Systems	Public Land	Institutional
Intent	Mixed use development with neighborhood-serving retail and service uses for nearby residential areas. Residential development supported by small to medium scale commercial/ retail uses.	Mixed use development with a mix of medium to high-density residential, commercial, retail, office, and other uses that serve the community, with a high intensity of uses expected in a walkable development pattern.	Commercial/retail, service, and automobile-oriented uses, with infill residential or employment-generating uses encouraged.	This designation is applied to the most intensely developed area in the heart of Crozet. It is intended to be a mixed use area providing for employment, service, and residential uses.		Employment-generating uses and basic industries meant to bolster economic development goals, supported by secondary commercial/retail, and residential uses to serve employees.	Areas providing ecosystem and cultural services (including recreation), critical environmental resources, and areas held in common ownership in existing developments.	Existing and proposed publicly-owned or publicly-accessible parks and greenway systems and recreational and natural areas for active, passive, or social recreational use.	Development consisting primarily of government buildings, schools, public safety facilities, public utilities, and major healthcare facilities, or unprogrammed government property.
Primary Use	• Residential at a density of up to 18 units per acre • Commercial/retail • Offices • Religious assembly uses • Schools and child care • Institutional	• Commercial/retail • Offices • Residential at a density of 6-34 units per acre • Religious assembly uses • Schools and child care • Institutional • Hotels/conference facilities	• Commercial/retail • Wholesale businesses • Hotels/conference facilities • Auto-commercial sales & services • Religious assembly uses • Schools and child care	• Offices • Commercial/retail • Institutional		• Offices • Research and development • Flex spaces • Light industrial	• Sensitive environmental features including stream buffers, floodplains, and steep slopes • Privately-owned open space with passive and/or active recreation amenities, parks, playgrounds, outdoor sitting areas, plazas, etc. • Natural areas	• Parks and greenway systems that are accessible to the public • Recreational and natural areas that are publicly-owned	• Schools, colleges, universities, and ancillary facilities • Fire stations, hospitals, libraries • Public facilities and major utilities
Secondary Use	• Auto-commercial sales & services within a building • Office/R&D/Flex/Light Industrial	• Office/R&D/Flex/Light Industrial • Existing auto-commercial sales & services	• Office/R&D/Flex/Light Industrial • Residential at a density of 6-34 units per acre • Institutional	• Residential at a density of up to 36 units per acre • Hotels/conference facilities • R&D/Flex/LI • Religious assembly uses • Schools and child care		• Commercial/retail • Residential at a density of 6-34 units per acre • Institutional			• Offices supporting primary uses • Nursing homes, assisted living facilities, convalescent homes
Building Type & Form Guidance	Residential: multifamily, townhomes, single-family attached, live/work. Commercial/retail/office/ institutional: uses should be located in small buildings or as part of mixed-use buildings, with small shop fronts along streets.	Mixed use buildings with active ground-story uses along street fronts encouraged. Commercial/retail/office/ institutional: large scale uses should locate in multi-story buildings with small shop-fronts along streets. Single use buildings should be constructed to allow future conversion to active ground-story uses along main streets Residential: multi-family encouraged; townhouses and single-family attached should be secondary. Flex/Light Industrial activities and uses should be located inside of buildings.	Mixed-use buildings and developments encouraged. Single-use commercial buildings acceptable, with future conversion to ground story active uses along main streets encouraged. Flex/Light Industrial activities and uses should be located inside of buildings.	Residential: multifamily, preferably within mixed use buildings and live/work units. Commercial/Office: Mixed-use buildings and developments encouraged. Single-use commercial or residential buildings acceptable, with future conversion to ground story active uses along main streets encouraged. Flex/Light Industrial activities and uses should be located inside of buildings.		Mixed-use buildings and developments encouraged with active ground-story uses along main streets. Single-use office/R&D/Flex buildings acceptable. Light Industrial uses and activities should be located inside of buildings.	Few buildings expected, although community-serving uses such as neighborhood recreational amenities can be considered.	Few buildings expected, although community-serving uses such as public recreational amenities can be considered.	Building types dependent on use, mixed use encouraged in public facilities where appropriate.
Height & Massing	• 1-3 stories, with 2-3 stories encouraged • Suggested maximum single use building footprints: • Commercial/retail: 15,000 sq. ft. • Office/R&D/Flex/LI/ Institutional: 25,000 sq. ft.	• 2-4 stories (up to 5 by additional consideration) • Blocks should be 300-400 feet in length • Stepback/facade breaks should be incorporated to protect areas identified for viewshed protection	• Up to 4 stories (up to 5 by additional consideration) • Blocks should be 300-400 feet in length	• 2-4 stories (up to 6 by additional consideration) • Blocks should be 200-400 feet in length		• Up to 4 stories (up to 5 by additional consideration) • Blocks should be 300-400 feet in length • Stepback/facade breaks should be incorporated to protect areas identified for viewshed protection	• 1-2 stories • Buildings and amenity areas should avoid critical environmental resources	• Building design guidance should be vetted through a park master planning process • Buildings and amenity areas should avoid critical environmental resources	• Up to 4 stories (up to 5 by additional consideration) • Building height and massing should be respectful of adjacent neighborhoods and areas identified for viewshed protection.
Prioritized Design Principles	• Human-scaled development. • Block-scale development within centers and interconnected streets. • Pedestrian & bicycle connectivity.	• Block-scale development within centers and interconnected streets. • Promote density of uses and compact development, including infill and redevelopment. • Human-scaled development.	• Relegate parking to the side and rear of buildings. • Promote appropriate scale, massing and enclosure. • Block-scale development and interconnected streets.	• Promote density of uses and compact development, including infill and redevelopment. • Block-scale development and interconnected streets. • Human-scaled development.		• Promote density of uses and compact development, including infill and redevelopment. • Access to parks, amenities, and green systems. • Site design accommodates multi-modal transportation infrastructure.	• Interconnectivity to other areas of open space, parks, greenways, and recreational amenities. • Respecting existing terrain and careful grading/re-grading of terrain. • Preserve natural systems where shown in the Master Plan.	• Interconnectivity to other areas of open space, parks, greenways, and recreational amenities. • Respecting existing terrain and careful grading/re-grading of terrain. • Preserve natural systems where shown in the Master Plan.	• Connections to open space, parks, greenways, and recreational amenities. • Site design accommodates multi-modal transportation infrastructure. • Promote density of uses and infill redevelopment.

Urban Design Guidance

This guidance illustrates the appropriate form and scale of development within each category and highlights prioritized design principles that will be necessary for achieving the desired form. All future developments are also expected to comply with the applicable Neighborhood Model principles identified in the Comprehensive Plan.



Neighborhood Density Residential

- Pedestrian & bicycle connectivity.
- Access to parks, amenities, and green systems.
- Maintain clear boundaries with the Rural Areas.

Middle Density Residential

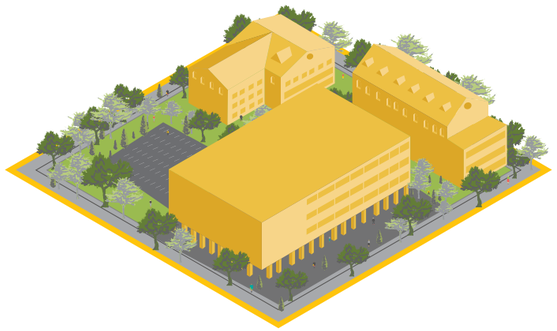
- Provide a mixture of housing types and affordability, with a focus on affordable housing and smaller housing types that are naturally more affordable.
- Pedestrian & bicycle connectivity.
- Access to parks, amenities, and green systems.

Urban Density Residential

- Provide a mixture of housing types and affordability.
- Promote density of uses and compact development, including infill and redevelopment.
- Access to parks, amenities, and green systems.

Downtown

- Mixture of uses, including employment, service, and residential.
- Walkable, multi-story buildings with active ground floor uses.
- Promote density of uses and compact development, including infill and redevelopment.
- Human-scale development.

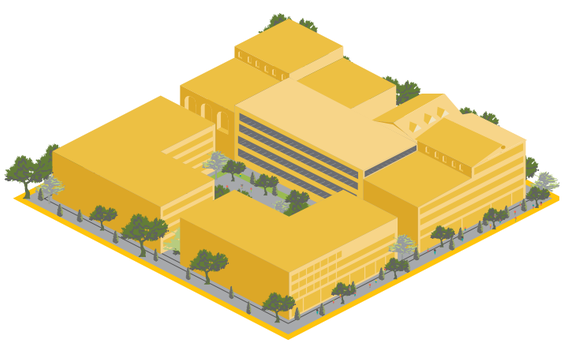


Office/R&D/Flex/Light Industrial

- Promote density of uses and compact development, including infill and redevelopment.
- Access to parks, amenities, and green systems.
- Site design accommodates multi-modal transportation infrastructure.

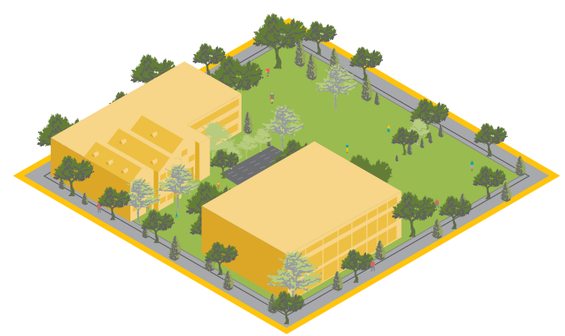
Neighborhood Mixed Use

- Provide small-to-medium scale, neighborhood-serving commercial, retail, and service uses.
- Mixed-use buildings, with active ground-floor uses.
- Human-scale development.



Community Mixed Use

- Block-scale development within centers and interconnected streets.
- Promote density of uses and compact development, including infill and redevelopment.
- Human-scale development.



Commercial Mixed Use

- Relegate parking to the side and rear of buildings.
- Promote appropriate scale, massing and enclosure.
- Block-scale development and interconnected streets.

Centers + Districts

	Town Center (T)	Village Center (V)	Neighborhood Service Center (N)		Recreational District (RD)	Employment District (ED)	Educational District (SD)
Intent	The focal point for cultural and commercial activities for a town or place. Development should promote a mixture of uses in a walkable and compact pattern. The Town Center is expected to be served by transit.	An area with a higher concentration of commercial or cultural activities. Development should promote a mixture of uses in a walkable and compact pattern. The center may be served by transit.	A neighborhood-serving activity center oriented around an improved transit stop or a public amenity, with residential and small-scale commercial uses near the amenity.		Designated amenity spaces of regional importance; intended to provide opportunities for active, passive, and social recreation for the community.	An area with employment-generating uses supporting basic industries and economic development goals; secondary residential, commercial, and retail uses that support employees and community members.	A designated school or college campus of regional importance; Educational districts serve as key community gathering spaces for both students and members of the public living in the surrounding areas.
Walkshed / Multimodal Service Area	1/4 to 1/2 mile radius from center	1/4 to 1/2 mile radius from center	1/4 mile radius from center		Park boundaries and any adjacent or related greenways, public amenity spaces, or public uses	Concentrated areas with Office/R&D/Flex/ Light Industrial land use designations and any connected or related employment uses	School property boundaries and any adjacent/related public facilities
Core Area	Generally 1/4 mile radius from Center and adjacent areas/parcels	Generally 1/4 mile radius from Center and adjacent areas/ parcels	Not applicable		Not applicable	Not applicable	Not applicable
Building Type	Vertical mixed-use buildings are strongly encouraged within the core. Single-use buildings should be constructed to allow ground-story commercial/retail along street frontages.	Vertical mixed-use strongly encouraged within the core. Single-use buildings should be constructed to allow ground-story commercial/retail along street frontages.	Vertical mixed-use buildings are encouraged. Buildings should be constructed to allow ground-story commercial/retail along street frontages, adjacent to transit, and public amenities.		Few buildings expected. Community centers, indoor recreational centers, and other community-serving buildings may be appropriate.	All Light Industrial activities should be located inside of buildings. Vertical mixed-use buildings encouraged for infill and redevelopment. Horizontal mixed-use buildings permitted if no residential units are proposed.	Building types should be consistent with underlying land use. Single use buildings are expected, but districts often serve as community gathering spaces outside of school hours; such uses should be allowed and encouraged through building and site design.
Use	• Use should be consistent with underlying land use. • Active ground-story uses strongly encouraged along streets and public spaces in the Core. Where active uses are not feasible (due to market conditions or other circumstances), other uses may be permitted if form allows for future conversion to ground-story active uses.	• Use should be consistent with underlying land use. • Active ground-story uses strongly encouraged along streets and public spaces in the Core. Where active uses are not feasible (due to market conditions or other circumstances), other uses may be permitted if form allows for future conversion to ground-story active uses.	• Use should be consistent with underlying land use. • Secondary uses such as retail, commercial service, and office encouraged to locate in Center. • Active ground-story uses strongly encouraged adjacent to transit and public amenities.		• Use should be consistent with underlying land use and supportive of goals and recommendations from the Conservation Chapter.	• Use should be consistent with underlying land use. • Uses supportive of the County's Economic Development goals are strongly encouraged.	• Use should be consistent with underlying land use and supportive of goals and recommendations from the Land Use, Transportation, and Conservation Chapters.
Form & Site Design Guidance	• 2-4 stories within Core areas, up to 6 by additional consideration. • Blocks in the Core should be 200-300 feet in length. • Bike/ped connections between center and adjacent neighborhoods should be provided and an improved transit stop should be provided in the Core. • All parking should be relegated; structured parking strongly encouraged in Core.	• 2-4 stories. • Massing, height, and stepbacks should be consistent with any localized recommendations (such as viewshed protection or screening from adjacent areas, etc.) • Bike/ped connections between adjacent areas such as Districts, existing neighborhoods, and proposed developments should be provided. • Parking should be relegated to the side and rear of buildings.	• 2-4 stories. • Massing, height, and stepbacks should be consistent with any localized recommendations (such as viewshed protection or screening from adjacent areas, etc.). • Bike/ped connections between the adjacent districts, existing neighborhoods, and proposed developments should be provided. • Parking should be relegated to the side and rear of buildings.		• Where development does occur, respecting existing terrain and careful grading/re-grading of terrain is expected. • Buildings and amenity areas should avoid critical environmental resources.	• 2-4 stories (up to 6 by additional consideration). • Massing, height, and stepbacks should be consistent with any localized recommendations (such as viewshed protection or screening from adjacent areas, etc.). • Relegated and structured parking encouraged.	• Bicycle and pedestrian connections between adjacent areas such as existing neighborhoods, adjacent centers or districts should be provided. • Massing, height, and stepbacks should be consistent with any localized recommendations (such as viewshed protection or screening from adjacent areas, etc.).

Town Center: Downtown Crozet

(above) The Square in Downtown Crozet is an iconic, focal point of the community, with a variety of retail, service and office uses.

Town Centers are intended to serve as the focal point for cultural and commercial activities and promote a mixture of uses. Town Centers should be accessible by walking, bicycling, or taking transit. The most intense activities are concentrated within a quarter-mile radius of the defined center point, which for Downtown Crozet is The Plaza public park. Within the core, vertical mixed-use buildings and active ground-story uses are strongly encouraged.

Downtown Crozet is the only Town Center within the Crozet Development area. The core area of this Center includes Crozet Square, the Library, Piedmont Place, the Crozet Pizza plaza, Great Valu plaza, and adjacent residential neighborhoods to the north and south.

Most of the area within the core of the Town Center is zoned Downtown Crozet District (DCD). The form guidelines for the Town Center are intended to reflect the requirements of the DCD and continue to encourage compact and mixed-use development.

The first phase of the Crozet Square rezoning was approved in 2019, which rezoned the former Barnes Lumber property to DCD. The Crozet Square rezoning features The Plaza as the focal point of Downtown. The street system will connect Park Ridge Drive, High Street, and Library Avenue to Crozet Square. The existing Crozet Connector Trail will also be extended as a shared-use path to Crozet Square. Crozet Square will provide additional retail, commercial, office, and residential uses in Downtown Crozet, consistent with the DCD urban form requirements.

There are several residential neighborhoods within the half-mile walkshed of Downtown Crozet, including neighborhoods at Hilltop and High Streets, neighborhoods along Blue Ridge Avenue and Carter Street, and neighborhoods along St George Avenue. Enhanced pedestrian and bicycle connectivity is needed to better connect these neighborhoods to Downtown and promote walkability.

In the near term, the residential neighborhoods within the quarter mile walkshed of Downtown that are designated for Neighborhood Density Residential are recommended for two future planning efforts: a Naturally Occurring Affordable Housing Study and an Architectural and Cultural Resources Study (Projects 2A & 3A). More study and neighborhood outreach is needed (as described in the Downtown Design Guidance section) to determine appropriate levels of infill and redevelopment for these neighborhoods.

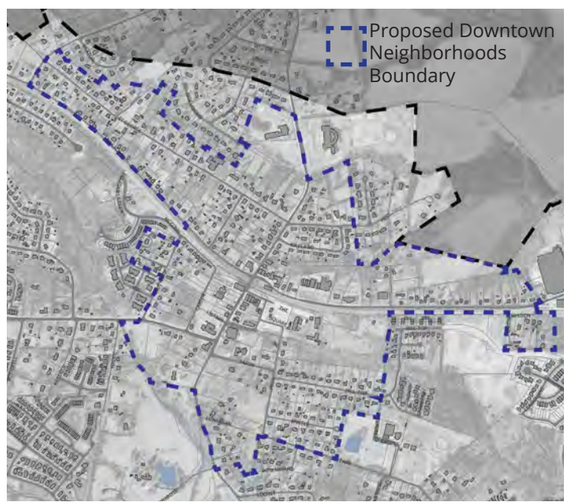
Non-residential uses within the Downtown core should decrease in scale and intensity as they transition toward primarily residential neighborhoods. Though the Downtown Land Use Typology calls for residential uses to be secondary and within mixed use buildings, it should be noted that the current retail market within Crozet may not support vertical mixed use for the entire Downtown area. Smaller live/work units, townhouses, and multiplexes may be appropriate in some areas, especially around the edges of Downtown, adjacent to existing residential neighborhoods.

Downtown Design Guidance

The neighborhoods surrounding Downtown reflect the long and varied history of Crozet. Within these neighborhoods one can see a diverse collection of building types and architectural styles that reflect the community's growth and development from its early settlement to the present. Architectural styles that range in date from the early 19th century to the present are visible as one traverses west of Downtown along Blue Ridge Avenue and Carter Street, north along Railroad and St George Avenue, east along Three Notch'D Road to Union Mission, and south to Hilltop Street and surrounding neighborhoods.

Downtown and areas west are part of the National Register Historic District. This area was selected as a Historic district due to the "integrity of location, design, setting, materials, workmanship, feeling, and association" of the structures within this area through a study that was conducted in 2008-2009.
The eastern neighborhoods within the boundary shown on the map, though not officially part of the National Register Historic District, still tell an important story about Crozet's past. The working-class housing constructed for workers at Barnes Lumber along Hill Top Street and the heart of the African American community within Crozet in Union Mission are important to the fabric and history of Crozet, and more work is needed to develop strategies to honor this history.

Crozet community members have expressed a desire to protect the Downtown Neighborhoods and fear that their location close to Downtown makes these areas vulnerable to teardowns and the loss of this important historic fabric of Crozet. Additionally, several of these neighborhoods provide naturally occurring affordable housing stock for the community, with modestly sized and priced homes.



Given these neighborhoods' location close to Downtown, these areas could also provide an opportunity for additional infill development, if designed appropriately. Consideration could be given to allowing additional density for accessory dwellings and conversion of existing homes to multiple units to provide additional affordable or workforce housing. More study and neighborhood engagement are needed to determine the appropriate tool(s) for neighborhood preservation near Downtown.

Possible methods could include the development of design guidelines to guide future development, a new historic overlay zoning district, or a zoning update to allow appropriate scaled infill and redevelopment within these neighborhoods, while still addressing impacts such as parking and pedestrian infrastructure. Additional outreach will be needed to residents of these neighborhoods before the County proceeds with any implementation steps.

Downtown Crozet District

Recommendation 1B of this Chapter is to update the Downtown Crozet District (DCD) Zoning District to incorporate relevant and updated Downtown design guidelines, to review and update the types of uses that are permitted in the DCD to reflect market demands and the Goals of this Plan, and to incorporate appropriate Climate Action Plan (CAP) measures. The intent of the DCD is to provide '*traditional downtown development*' with '*flexibility and variety of development for retail, service, and civic uses with light industrial and residential uses as secondary uses*'.

While the DCD is a relatively new County Zoning District (adopted in 2013), there have been significant changes to County policies since the DCD was adopted, including the County's first Climate Action Plan (CAP). Updates to the DCD should include regulations that support the County's CAP, which may be in the form of requirements or incentives. Updated regulations for the DCD may include provisions for solar panels (for both buildings and parking areas), bicycle storage, electric vehicle (EV) charging stations, green roofs, and trees and landscaping. Tree and greenery requirements could include the replacement of existing landscaping once new construction is completed, or an offset carbon impact for new development. Parking requirements should be re-evaluated to be consistent with recommendations from the Parking Study (see Transportation Chapter) and with the CAP.

(left) Map of neighborhoods surrounding Downtown Crozet that are important to the history, urban fabric and housing stock in Crozet.

(Above) The 'Bamboo Grove' development was approved through a rezoning application in Fall 2020. The approved density (9 units per acre) exceeds the recommended density in the 2010 Crozet Master Plan (3-6 units per acre). However, the proposal was supported by the community, due to its form, scale, housing types, and inclusion of affordable housing.
Photo Credit: The Housing Lab LLC

Housing Choice in Crozet

Given that much of Crozet's developable land is built out, large residential developments with significant numbers of affordable units are unlikely to be constructed. However, opportunities still exist for smaller-scale infill development that support the Land Use Guiding Principle calling for housing choice for all community members through appropriately scaled developments.

The Future Land Use Plan's density recommendations can disincentivize development of affordable housing. Density, as a singular tool, does not necessarily promote affordable housing. Density ranges do not distinguish between housing types, sizes, or cost, and therefore, by using density as a primary land use criteria, developers are incentivized to build larger, more expensive units to achieve higher returns, especially on properties with lower density ranges. Affordable housing developments within the density range of 3 to 6 units per acre are unlikely to be constructed due to current land values, unless subsidies or additional funding sources are made available to incentivize and support the construction of affordable units.

Creatively designed infill development that provides affordable and workforce housing options are encouraged in Crozet, especially in neighborhoods that are walkable to Downtown, Crozet schools, and the Employment District. Infill developments that preserve existing housing stock, provide Middle Density housing types identified in this Plan, and that are priced within the County's definition of affordable or workforce housing are encouraged. When both the Land Use Goals outlined in this chapter and the County's housing policy are met, it may be appropriate to allow densities to exceed those within recommended density ranges, especially if impacts, such as parking, can be adequately addressed.

Additional housing choice also has benefits for climate action. Smaller units are more energy efficient, which also contributes toward their affordability by reducing utility bills. Providing these types of housing units in more compact and mixed-use forms of development increases the number of trips community members can take without their cars and makes providing public transit more feasible. This type of development typically allows more existing natural areas to be preserved, as lot and unit sizes are smaller and more housing units are able to fit within an area. Housing choice also supports the Growth Management Policy and Objective 4 of the Comprehensive Plan's Development Areas Chapter: "*Use Development Area land efficiently to prevent premature expansion of the Development Areas*".

(above) Old Trail Village is an example of a Village Center in Crozet, with vertically mixed-use buildings, active uses on the ground floor as well as bicycle and pedestrian connections.

Village Center: Old Trail

Village Centers are intended to promote a mixture of uses in a walkable and compact development pattern. These Centers have a higher concentration of commercial or cultural activities. Buildings within the core are encouraged to be mixed-use with active ground floor uses. Development should provide pedestrian and bicycle connections to adjacent neighborhoods. Both Village Centers in Crozet have existing approved mixed-use development.

The Old Trail Village development was approved as a Neighborhood Model District rezoning in 2005 and has been building out over time since then. The Old Trail rezoning allows between 100,000 and 250,000 square feet of non-residential uses. The center point of the Old Trail Village Center is at Old Trail Drive between Blocks 6 and 1, where there is an existing JAUNT transit stop. This central area of Old Trail allows for the most intensive uses, including retail stores, offices, restaurants, and civic and recreational uses. Existing uses include a coffee shop, restaurant, gym, and medical offices. Future mixed-use development in this area will continue to provide connectivity and walkability.

Village Center: Clover Lawn

The development at Clover Lawn was approved over time through several different rezonings. Existing uses include a grocery store, restaurants, a building supply store, and a bank. The south side of the Village Center is entirely commercial and retail development, while the north side also has residential development. The center point is located between the north and south side, as the Center is divided by Route 250.

Enhanced multimodal connectivity should be provided with future development and redevelopment. The extension of Eastern Avenue will provide additional trail and bicycle connections to this Center. The recommended shared-use path along Route 250 from Old Trail Drive to the sidewalks in front of Clover Lawn would also provide access for pedestrians and cyclists. Opportunities for transit to serve this Center should be explored as well as enhanced pedestrian connectivity within the Center. New and infill development should establish a more interconnected street and pedestrian network, and human-scaled, walkable development patterns.

Neighborhood Service Center: Wickham Pond

Neighborhood Service Centers are intended to provide areas of activity that support surrounding residential neighborhoods. Neighborhood Service Centers should contain small-scale, mixed-use development patterns that are compatible with surrounding uses. The focal point of these centers should be an improved transit stop and/or a public amenity space. Neighborhood Service Centers are smaller in size and intensity than Town and Village Centers and have a one-quarter mile walkshed. Development should be pedestrian-scale and walkable from adjacent neighborhoods. Vertical mixed-use buildings with active ground-floor uses are encouraged.

The Wickham Pond future mixed-use area is the only Neighborhood Service Center in the Crozet Development Area. The zoning for Wickham Pond allows up to 16,000 square feet of small-scale retail, commercial, and institutional uses. The center point of the Neighborhood Service Center is located on the undeveloped Wickham Pond property along Route 240. There is an existing JAUNT transit stop on Wickham Pond Drive. Future development in this Center should enhance multimodal connectivity, especially to Park Ridge Drive and the adjacent Employment District. Future development should also provide permanent transit infrastructure to serve eastern Crozet.

Employment Districts

Employment Districts are intended to support the County's economic development initiatives and create investment opportunities in the Development Areas. A central goal of the Employment District is to expand employment opportunities for area residents in high-paying jobs. Expanded employment opportunities in this area could allow more community members to both live and work in Crozet.

The Employment District includes properties along Route 240 between Park Ridge Drive and Union Mission Lane. While the District is not intended to have a hard boundary, it is meant to include those properties shown for Office/R&D/Flex/LI. The primary employment anchors are Music Today e-commerce marketing agency and Starr Hill Brewery. There are several other existing businesses, including self-storage facilities, a medical office, and a car wash.

Specific primary sector industries, businesses consistent with the goals of Project ENABLE (the County's Economic Development Policy), and uses consistent with the underlying Office/R&D/Flex/LI land use should be targeted for this area. Emerging industries and businesses such as green technology and incubator and maker spaces should also be considered. However, this list should not be interpreted to exclude related sectors that support the cultivation and nurture growth of existing businesses.

Approximately 62 acres of the Employment District are part of the former Acme Visible Records site. Chemicals used to paint and finish the products at Acme caused contamination of the soil and groundwater on the property and environmental remediation and continued monitoring of the site is required by the Environmental Protection Agency (EPA). The main manufacturing building on the property was demolished in 2013 to improve site access for the cleanup effort. A building pad and parking lot remain on the site and could offer opportunities for redevelopment. Behind the building pad is a mostly cleared field and some woods.

The EPA prohibits certain uses for the Acme site, including residential uses, schools, and daycare facilities. Continued groundwater monitoring for the site will be required. Future uses on the ACME site could include industrial or commercial redevelopment, dependent upon the timeline of the clean up and if permitted by the EPA.

The potential for community solar should also be explored on the site to support the County's Climate Action Plan goals, either as an interim use, or with the redevelopment of the property. If solar is pursued as an interim use, the array should be designed to allow relocation (such as to the roof of a new building) as to not preclude future development of the property.

There are significant opportunities for infill and new development to occur throughout the Employment District. Development and redevelopment should strive for compact walkable development patterns with an internal street network and multimodal connectivity. Opportunities for rail access should also be explored in conjunction with Buckingham Branch Railroad, should this be determined to be an asset for existing or future industries.

Residential uses could be allowable in the Employment District, especially as a way to provide live/work opportunities for workers employed by businesses in the District. However, residential uses should be clearly secondary to businesses that generate employment. Further, the presence of residential should not preclude future light industrial uses in the District. Residential uses are encouraged to locate on upper stories of mixed use buildings. These uses are not permitted within the Acme site, even with future redevelopment.

Recreational Districts

Recreational Districts are designated amenity spaces of regional importance that are intended to provide opportunities for active, passive, and social recreation. The amenities in these districts support the recreational needs of Crozet and the County as a whole. There are two Recreational Districts in the Crozet Development Area: Crozet Park and Western Park.

Crozet Park is a 22-acre park which is owned by the non-profit organization Claudius Crozet Park, Inc. Park amenities include sports fields and courts, a swimming pool, recreational facility, trails, pavilions, and a dog park. Access to some of the amenities, such as the swimming pool and indoor recreation facilities, requires a paid membership. Crozet Park is also an access point to the Crozet Connector trail. The annual Crozet Arts and Crafts Festival is held at Crozet Park. Maintenance and funding for the park occurs through both private and County (Capital Improvement Program) funds. Future trail and road connectivity will allow community members to walk from Crozet Park to Downtown. Additional opportunities for connectivity with surrounding neighborhoods and existing trails should be explored, including an enhanced and more visible access point to the Crozet Connector Trail.

(above) A portion of the Employment District, along Route 240, in Crozet is comprised of Music Today e-commerce marketing agency and Starr Hill Brewery.


(above) Henley Middle School and Brownsville Elementary School Educational District.

Western Park is a planned 36-acre public park adjacent to Old Trail Village and accessible from Old Trail Drive. Amenities for the park will include sports fields and courts, trails, community gardens, playgrounds, and natural areas. Trails through the park will also connect to Old Trail Village, Henley Middle School and Brownsville Elementary School, and residential neighborhoods to the north.

Educational Districts

Educational Districts are designated schools or college campuses of regional importance that are intended to serve as community gathering spaces for both students and community members. The 50-acre Henley Middle School and Brownsville Elementary School campus on Route 250 is the only Educational District in the Crozet Development Area. Both schools are accessed from a shared entrance at Route 250 and have sports fields and courts, indoor recreation facilities, and trails.

Additional opportunities for students to walk and bike to schools should be explored, consistent with the recommendations in the Transportation and Conservation Chapters of the Master Plan. Trail connections from Old Trail Village to the north and from Old Trail Drive to the west should continue to be provided and enhanced.

The Educational District is located adjacent to the Rural Area boundary, and students in both the Development Area and Rural Area attend the schools within the Crozet Development Area. Additionally, Western Albemarle High School is located across Route 250 in the Rural Area. There are existing traffic concerns along Route 250, especially during peak traffic hours and school drop-off/pick-up. The recommendations in the Transportation Chapter call for roundabouts along Route 250, including at the Henley and Brownsville Schools entrance.

Other Areas

Crozet Avenue Corridor

The Crozet Avenue Corridor (part of Route 240) is the main north-south road in Crozet and connects Three Notch'D Road with Route 250 West. Crozet Avenue is designated as an Avenue street type from Three Notch'D Road to Dunvegan Lane and a Rural Transition street from Dunvegan Lane to Route 250. The Avenue portion of Crozet Ave should have sidewalks, street trees, and enhanced connectivity for pedestrians and cyclists, consistent with recommendations outlined in the Transportation Chapter.

The Rural Transition portion of Crozet Avenue is a two-lane winding section with connections to residential neighborhoods, including Chesterfield Landing and the Meadows. This section of Crozet Avenue is expected to retain its rural character, though future development, consistent with the Future Land Use Plan is expected. Options for bicycle and pedestrian connectivity are more limited in this section, due to topography, right-of-way, and stream crossing challenges. Recommendations in the Transportation Chapter provide potential options for a shared-use path along or parallel to this segment of Crozet Avenue.

Additional residential development along Crozet Avenue is possible based on existing zoning and the Future Land Use Plan. Future development should contribute to any future recommended shared-use path, after the alignment is determined. Additionally, tree preservation should be prioritized with new development, to the extent feasible.

The Crozet Avenue Corridor is the main north-south road in Crozet, with segments designated as an Avenue and a Rural Transition (shown above) near Chesterfield Landing and The Meadows.

Rural Edges

The Crozet Development Area is one of three designated 'communities' in the County's Comprehensive Plan and is entirely surrounded by the Rural Area. Maintaining rural edges to protect scenic resources and respect the adjacent rural context was identified as a priority during the planning process. The Development Area boundary was adjusted in one location during this Master Plan update, which was on the western edge at the Old Trail clubhouse and restaurant. The boundary was adjusted to include the entire clubhouse and restaurant, which are both connected to public utilities, and to more closely follow parcel boundary lines. The existing Green Systems designation was retained.

The majority of the edge areas in Crozet are either residential development, private open space, or public parks. The exception is the Route 250 West boundary. Route 250 is designated a Virginia Scenic Byway, indicating that the road has a "relatively high aesthetic or cultural value, leading to or within areas of historical, natural or recreational significance." The Scenic Byway designation on its own does not require any additional regulations for adjacent properties. Regulations are achieved through the County's Entrance Corridor zoning overlay district, which includes Route 250. Any new development (with the exception of single-family detached houses) within the Entrance Corridor overlay must be reviewed by the Architectural Review Board (ARB) and be consistent with ARB guidelines.

There are a variety of residential, commercial, and industrial uses along Route 250, both within Crozet's Development Area and in the adjacent Rural Area. For properties within the Development Area, a 50-foot landscaped buffer (150 feet at Old Trail Drive) is recommended along the northern edge of Route 250. Any new development or redevelopment should provide this buffer. The Future Land Use Plan should be used to guide development form and uses on Route 250.

In the adjacent Rural Area to the west, existing zoning allows for a variety of commercial and industrial uses. Many of these uses are not consistent with the recommended Rural Area uses in the Comprehensive Plan or with the intent of the Scenic Byway designation. Future development that is not by-right should refer to the Comprehensive Plan recommendations on recommended uses in the Rural Area.

Several roads designated 'Rural Transition' sections help define the Development Area boundary, including Lanetown Road, a portion of Railroad Avenue, and a portion of Three Notch'D Road. Road improvements along these routes should be focused on safety upgrades and providing facilities as recommended in the Transportation Chapter.

Old Crozet School

The County is the current owner of the Old Crozet School building on Crozet Avenue, across from Crozet Elementary School. This facility has been serving the community since 1924, first as a combined elementary and high school, and later as an elementary school until 1990 when Crozet Elementary was completed across the street. Currently, the building is leased to two tenants, the Field School, a private middle school for boys, and Old Crozet School Arts (OCSA). OCSA is a non-profit school for arts instruction. The school is also within the Crozet Historic District as a contributing building.

The Field School is planning to move to a new location in the coming years. As the Field School prepares to relocate, new uses for this property should be considered. The County should solicit community input to help determine an appropriate use of the school building and adjacent grounds. Consideration should be given to uses that support the County's goals for Affordable Housing, school needs, and uses that provide historic and cultural programming.

Any development or redevelopment of the adjacent parcel to the South, which is also owned by the County, should include restoration efforts for the Parrot Branch stream buffer and a trail. Space for a small pocket park or public outdoor civic area should be considered with the reuse of this property in partnership with the future users and/or developers of the property. Sustainability should also be a priority for the reuse of the school and adjacent grounds, as it provides an opportunity to support the County's Climate Action Plan with any retrofit of the school building and the surrounding site design.

(above) The Old Crozet School building.

(above) An existing field on the site, looking toward the stream.

Land Use Guiding Principle

Support and strengthen Crozet's history as a vibrant community, while ensuring that new and infill development is compatible in scale and design and provides housing choice for all community members. Allow and encourage a variety of employment options, services, commercial and retail areas, and housing types.

Goal 1: Support the continued revitalization of Downtown as the historic, cultural, and commercial heart of Crozet with distinctively urban design and support a mixture of uses in Crozet's other designated centers of activity.

A. Provide wayfinding signage Downtown and in other destinations to help visitors and residents navigate area amenities, parking locations, parks, and trails.

B. Conduct a public engagement process to review and update the Downtown Crozet District (DCD) Zoning District requirements to a) evaluate and incorporate appropriate Downtown design guidelines, b) review and update use requirements to reflect market demands and the goals of the Master Plan and c) incorporate appropriate Climate Action Plan (CAP) measures.

C. Work with the Downtown Crozet Initiative (DCI) and other community partners to support programming for Crozet Square and to establish a formal mechanism for long term improvements and maintenance of public amenities such as a Business Improvement District (BID) or special service district.

D. Explore opportunities for community and rooftop solar projects with development Downtown and within the Employment District, especially on buildings with large footprints, parking structures, or as a possible interim use on the Acme property.

Goal 2: Support existing neighborhoods and the historic context of Crozet through ensuring that new and infill development is compatible in design and scale with existing neighborhood fabric and allowing reuse of historic buildings.

A. Downtown Neighborhoods Architectural and Cultural Resources Study (2 Phases):

   i. Phase 1: Using the 2009 Community of Crozet Architectural Resources Study as a starting point, conduct a subsequent study to evaluate the Downtown Neighborhoods not considered in the previous study to create a comprehensive Downtown Neighborhoods Architectural and Cultural Resources study.

   ii. Phase 2: After completion of the Downtown Neighborhoods Architectural and Cultural Resources Study, conduct a public engagement process with residents of the Downtown Neighborhoods to develop actionable strategies to allow appropriate infill and redevelopment within Downtown Neighborhoods while supporting residents' desires for neighborhood preservation.

B. For future legislative proposals along Carter Street, consider impacts to adjacent residential uses, especially noise and lighting impacts.

Goal 3: Provide a variety of housing options that meet the needs of community members at all income levels.

A. Naturally Occurring Affordable Housing Survey and Recommendations (2 Phases):

   i. Phase 1: Conduct a survey of Naturally Occurring Affordable Housing (NOAHs) within Crozet.

   ii. Phase 2: Identify programs and tools to support maintenance/preservation of NOAHs, such as a Housing Rehabilitation Zone.

B. Allow infill development within the Downtown Neighborhoods and other areas that are walkable to centers or schools through the legislative review process. Consider allowing densities higher than the recommended land use for proposals that are consistent with the Land use Goals and Guiding Principle, the County's housing policy, and that are appropriately scaled to the surrounding neighborhood.

C. Implement a priority review process to support development of new affordable and workforce housing within appropriate locations including within and adjacent to Centers and the Employment District.

Goal 4: Maintain a distinct rural edge along Crozet's boundary to provide a visual connection to its cultural heritage as a community nestled in the Blue Ridge Mountains.

A. Work with community members and the Architectural Review Board to develop Corridor-specific design guidelines for the Route 250 West Entrance Corridor.

B. For lighting improvements to public buildings and on public lands, use full cutoff lighting fixtures. For parks and natural areas, consider motion-activated lighting and lighting that is turned off between dawn and dusk.

C. Update the County's lighting requirements in the Zoning Ordinance to reduce lighting spillover, glare, and excessive brightness.

Goal 5: Leverage and amplify Crozet's artisan community, culture, history, and entrepreneurial spirit through creative placemaking projects and partnerships.

A. Increase capacity of the CCAC, local schools, or other community groups to initiate, implement, and manage placemaking projects.

B. Conduct an engagement opportunity to solicit community feedback for the future use of the Old Crozet School and adjacent grounds, with a focus on supporting goals for housing, school needs, green building/site design, and historical and cultural programming.

Conservation

Enhance Crozet's natural beauty, existing environmental resources, and the surrounding rural areas with an integrated network of parks and gathering spaces, trails, and natural areas that offer increased opportunities for outdoor recreation and protect natural resources.

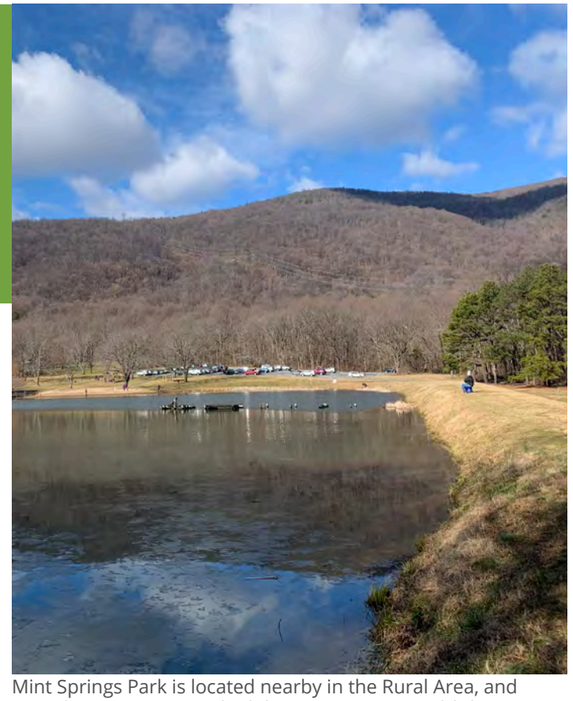
The Lickinghole Basin Natural Area provides a habitat for over 200 species of birds and serves as a sediment basin for stormwater management.

Overview + Background

Conservation Overview

The Conservation Chapter establishes the Guiding Principle, Goals, and Recommendations related to parks, trails, and environmental features in the Crozet Development Area and connections to the surrounding Rural Area. Crozet community members shared their desire to protect natural features in Crozet, such as tree canopy and waterways, and to enhance outdoor recreation opportunities. This Chapter highlights the importance of a connected network of Green Systems, including providing connectivity to the adjacent Rural Area amenities such as the Blue Ridge Mountains and nearby County Parks.

Goals within this Chapter address parks, trails, regional amenities, and natural resources in Crozet. Each goal is supported with actionable recommendations. The Future Parks & Green Systems Plan and supporting narrative also serve to reinforce the Conservation Guiding Principle and Goals.



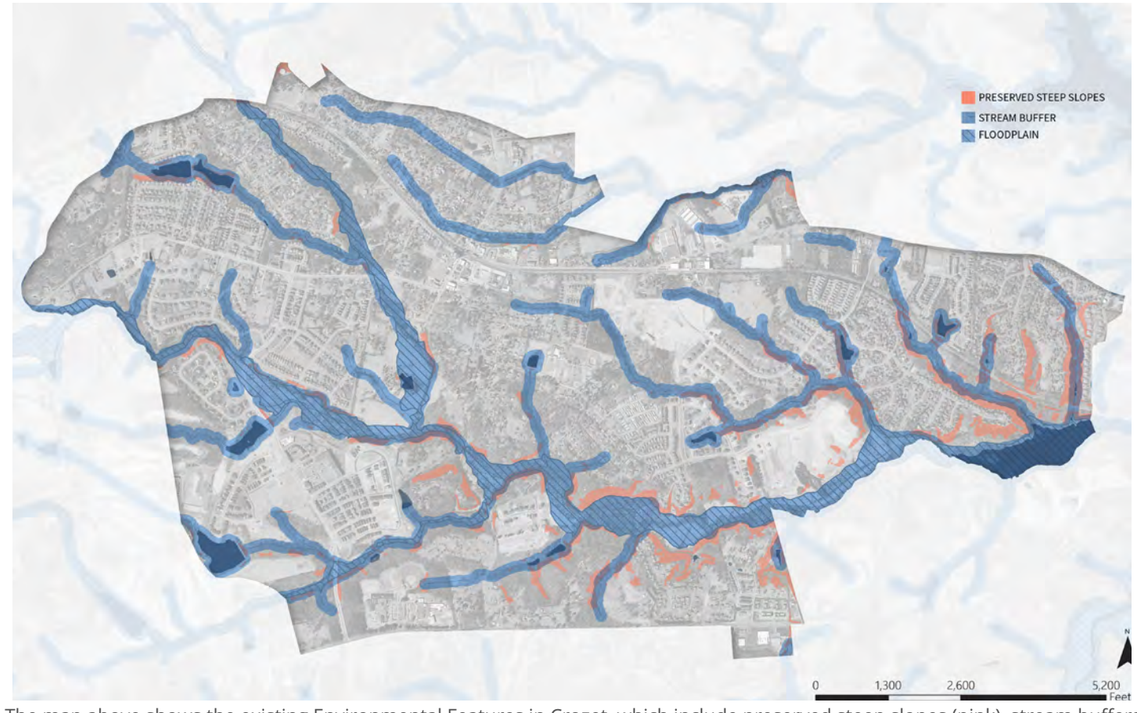
Mint Springs Park is located nearby in the Rural Area, and provides opportunities for hiking, swimming, and fishing.

Existing Conditions and Environmental Features

Crozet is known for its location nestled in the Blue Ridge Mountains as well as its natural, cultural, and scenic resources. Downtown Crozet is located approximately 10 miles from the entrances to Shenandoah National Park and the Blue Ridge Parkway. Nearby County Parks in the Rural Area include Mint Springs Park and the Beaver Creek Reservoir, which is partially managed by the Parks & Recreation Department.

Within the Crozet Development Area there are several public parks that are in various stages of development, such as Crozet Park, the Downtown Plaza, and Western Park. Additional development of Western Park is needed to provide additional recreational opportunities for Crozet community members.

The Crozet Trail system has been building out over the past several years, in large part due to efforts by The Crozet Trails Crew, a volunteer organization that helps plan and build segments of the trail network within Crozet. The Crozet Connector Trail is one such trail that provides connectivity between Lickinghole Basin and Crozet Park. There are still key segments of trails missing in Crozet, especially trail connections providing north-south routes and connections to schools.



The map above shows the existing Environmental Features in Crozet, which include preserved steep slopes (pink), stream buffers (blue), and the 100-year floodplain (hatched blue).

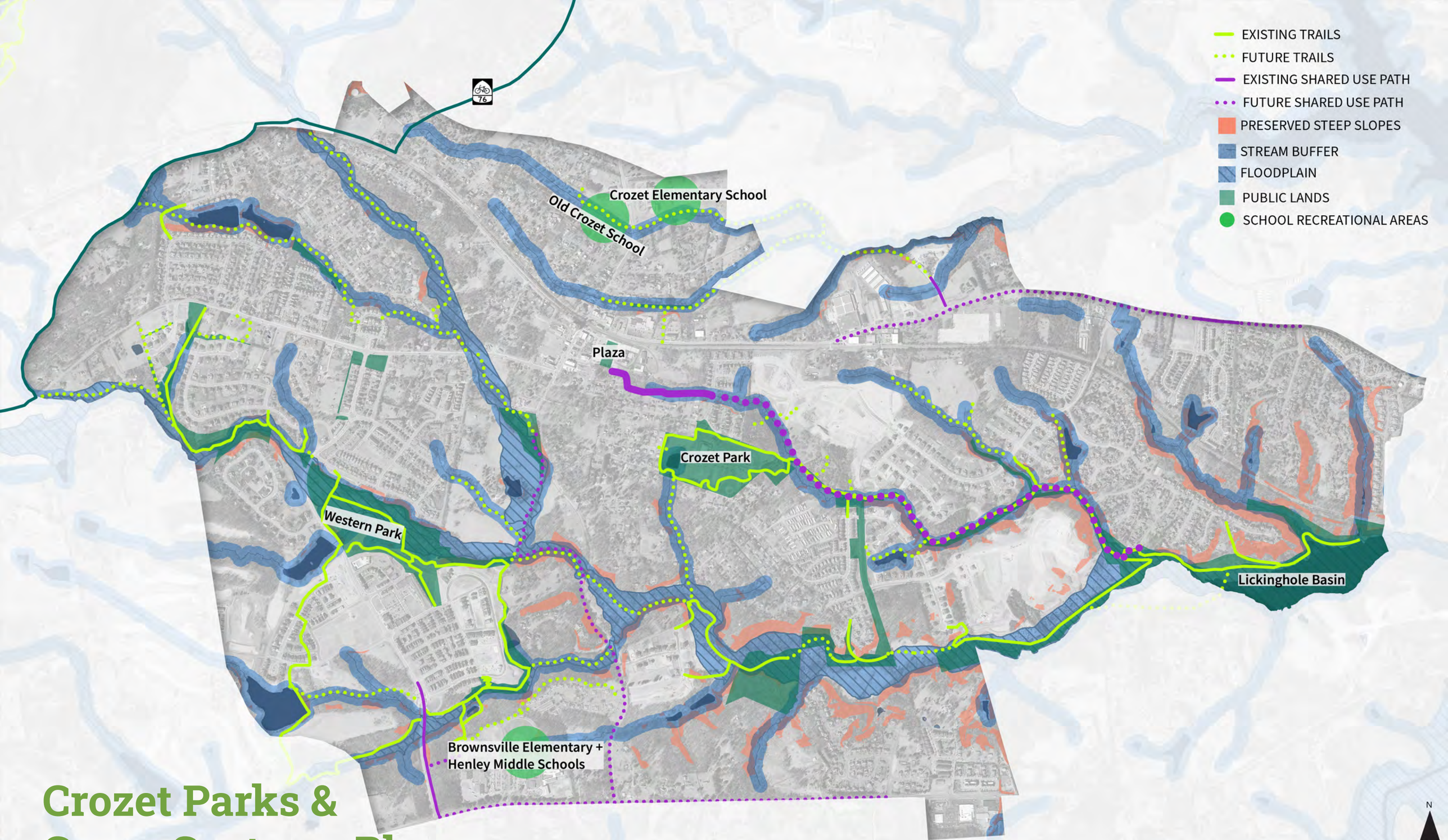
There is a significant network of “Environmental Features” within the Crozet Development Area. Environmental Features consist of land that is within the 100-year floodplain, within stream buffers, or consists of preserved steep slopes.

The County’s Water Protection Ordinance (WPO) regulates stream buffers within the County. The WPO requires 100-foot wide stream buffers on each side of perennial streams within the Development Areas and on each side of both intermittent and perennial streams in the Rural Area and within water supply watersheds. Since Crozet is within a water supply watershed, both perennial and intermittent streams in Crozet have 100-foot stream buffers. Piped portions of streams do not have stream buffers. Buffers are intended to preserve existing vegetation and stream banks.

Development is restricted within the Environmental Features shown on the Parks & Green Systems Plan. Disturbance of these features requires additional design standards and approvals. Recreational amenities and activities may be permitted, and should be sited carefully to protect streams, stream banks, and other waterways.

Protection of Environmental Features and of water quality is especially important as Crozet is within a water supply watershed.

Much of the Crozet Connector Trail follows along waterways.



Crozet Parks & Green Systems Plan

Parks & Trails

The Parks & Green Systems Plan for Crozet shows existing and proposed public parks, publicly-owned and publicly-accessible land, and trails. Future trails are shown with dotted lines. The exact alignment of future connections should be determined in collaboration with Albemarle County Parks and Recreation staff, County Planning staff, and property owners, with consultation from trail groups when appropriate (such as the Crozet Trails Crew). Public lands are shown in dark green and show areas that are publicly-accessible (and usually publicly-owned) for recreational use or natural areas.

Park Typologies

Different types of parks serve different functions and provide unique amenities and experiences to their users. This section of the Master Plan identifies different types of parks and describes their intended function and typical amenities provided. Park master plans should be used to guide individual park designs.

(Above) An example of a Plaza Park Typology.

Plaza

A central amenity space intended to function as the primary outdoor civic space for an area. It is designed to accommodate a range of functions and uses, such as event spaces, social gathering spaces, farmers markets, outdoor learning, food trucks, and more.

Recreational Park

A park that provides a variety of spaces for formal recreation, such as athletic events and gatherings, with sports fields, pavilions, playgrounds, and associated facilities.

(Above) Lickinghole Basin is an example of a Natural Area in Crozet and is home to a variety of wildlife, including the bald eagle.

Natural Area

An area intended to preserve and protect natural resources and to provide opportunities for respite from the surrounding developed environment. Natural Areas should be designed to protect natural resources, such as forest, streams, or wetlands. Natural Area amenities could include trails, walking paths, and passive recreation amenities such as benches and picnic areas.

School Recreational Area

Amenities available at Albemarle County Public Schools (ACPS), such as playgrounds, sports fields, and walking paths. The School Recreational Areas in Crozet are identified on the Parks and Green Systems Plan with light green circles. These amenities are accessible at ACPS' discretion and are not available to the general public during school hours.

(Above) Crozet Elementary School is one of the School Recreational Areas, and includes a playground and athletic fields.

Parks in Crozet

There are four main publicly-accessible parks within the Crozet Development Area: Crozet Park, the Downtown Plaza, Western Park, and Lickinghole Basin Natural Area. Each of these parks serves different recreational needs. Continued build-out and amenity development will occur at The Plaza and Western Park. Expanded amenities, trails, and educational signage may occur over time at Crozet Park and Lickinghole Basin Natural Area.

Crozet Park

(Above) A photo of the existing Crozet Park.

Crozet Park is a 22-acre Recreational Park. While the majority of outdoor amenities and facilities are publicly-accessible, most of the indoor facilities and activities require a paid membership. The non-profit Claudius Crozet Park, Inc. owns the park, except for the County-owned dog park. The Crozet Connector Trail is accessible from the eastern edge of Crozet Park and leads to Lickinghole Basin about 1.5 miles to the east. Eventually the Crozet Connector Trail will also provide a connection between Crozet Park and The Plaza (Downtown) to the east.

Given the many adjacent neighborhoods and parking availability at Crozet Park, it is an ideal access point to the Crozet Connector Trail. Opportunities for enhancing the Park connection to the Crozet Connector Trail should be explored. Potential expansions of amenities may occur at Crozet Park through both private and public funding.

Crozet Park is designated as a Recreational District, and additional information on use, form, site design guidance, and building types can be found in the Land Use Chapter of this Plan.

The Plaza

(Above) A conceptual rendering of the future Downtown Plaza. Credit: Mahan Rykiel Associates and Warren Byrd

The Downtown Plaza is a planned public Plaza that will be completed as part of the Crozet Square redevelopment. As the Downtown area in Crozet continues to expand and add a variety of uses, the Plaza will provide an important gathering space and opportunity for events.

The developer of Crozet Square and Albemarle County have entered into a public-private partnership to develop and design The Plaza. Significant community input was used to determine the final Plaza design, and support for future Plaza programming may be provided by the Downtown Crozet Initiative in partnership with County Parks & Recreation. Crozet Plaza is shown as the center point of the Town Center in this Master Plan's Land Use Chapter, highlighting its importance and location in the core of Downtown.

The drawing above illustrates the future Western Park, as shown in the adopted 2018 Western Park Master Plan.

Western Park

Western Park is a planned 36-acre public County park in Old Trail, located north of Old Trail Village. Old Trail Drive runs along the western edge of the park property, and residential uses and the Old Trail Swim Club surround the other park boundaries. Lickinghole Creek flows through the park, resulting in significant areas of floodplain, stream buffers, and wetland areas. The park property has views of the Blue Ridge Mountains and Shenandoah National Park.

The land for the park, as well as $50,000 for park master planning, were proffered as part of the County's approval for the Old Trail development rezoning in 2005. The original Western Park Master Plan was completed in 2009, and the land was formally dedicated to the County in 2010.

Since that time, there has been additional growth and change within the Crozet Development Area, but the adopted Western Park Master Plan has not been implemented. To ensure the plans for the park were optimal relative to population growth and evolving community needs and expectations, Albemarle County Parks and Recreation led a public process to review and update the Western Park Master Plan. That process,

(Above) A portion of the site of future Western Park, with the Ballard Field/Old Trail neighborhood visible.

completed in 2018, involved additional community engagement activities to evaluate and modify planning and design details, and also took into account a Countywide Recreation Needs Assessment that had recently been completed.

The adopted 2018 Western Park Master Plan includes the development of formal recreational amenities such as athletic fields and playgrounds, as well as more natural areas with trails, meadows, and overlooks for enjoying scenic vistas and wildlife observation.

(Above) A photo of the existing Lickinghole Basin, a Natural Area and sediment basin in Crozet.

Lickinghole Basin

Lickinghole Basin is a public 70-acre Natural Area and sediment basin (for stormwater management) with trail access from adjacent neighborhoods and the Crozet Connector Trail. The Basin and surrounding land are owned by the Rivanna Water and Sewer Authority (RWSA), which also manages the Basin and associated dam. The Basin captures a portion of eroded and disturbed soil that washes off of upland developed areas during rain events, helping to protect the quality of downstream waterways. The Basin is identified as a priority area in the County's Biodiversity Action Plan due to the variety of species and habitats, including over 200 species of birds and a bald eagles' nest.

This Natural Area should continue to be used for trails, bird watching, and other lower intensity recreational activities. It is not an appropriate location for more intensive uses, such as sports fields or vehicular access. New and extended trails should be sited carefully, keeping habitats and sensitive stream banks in mind. Opportunities for educational signage, invasive species management, trail connections, and furnishings, such as benches, should be explored in collaboration with staff from Parks & Recreation, Natural Resources Planning, and RWSA.

Trail Typologies

(Above) A portion of the Crozet Connector Trail.

Trail

A primitive waking path with a typical width of at least 5 feet. Some trails may be narrower, especially "spur trails" which provide connections from main trails to neighborhoods or streets. Surfaces include stone dust, gravel, mulch, or earth.

(Above) A Shared-Use Path outside of the Wickham Pond neighborhood in Crozet.

Shared-Use Path (SUP)

A shared accessible path that is a minimum width of 10 feet with space for both pedestrians and bicyclists. The trail surface is usually paved with asphalt, but can also be crushed gravel. SUPs are ADA-accessible and are shared by people walking, running or riding bikes. They can offer routes not provided by the road network, provide additional recreational opportunities, or serve as a direct commuter route adjacent to a road.

(Above) An existing portion of the Crozet Connector Trail, an important segment of the bicycle and pedestrian network in Crozet.

Trail Connectivity and Improvements

The Crozet Connector Trail is intended to be the 'backbone' of Crozet's off-road pedestrian and bicycle network. The trail will eventually connect Downtown to Crozet Park and Lickinghole Basin. The current surface is a mix of gravel and earth, and the width and grade vary along its length. It is recommended to be upgraded to a shared-use path to provide enhanced accessibility and to serve as a commuter and recreational route between destinations.

Additional east-west trail connectivity should be provided between Lickinghole Basin and Western Park. The final alignment for this connection should be determined with Parks and Recreation staff, Planning staff, property owners, and Crozet community members. A potential crossing at Crozet Avenue (near Chesterfield Landing and the Meadows) will also require VDOT review and approval.

The primary north-south trail route is identified for a future SUP and trail along Crozet Avenue and Powells Creek. Alignment of this route will require further study. This alignment is challenging due to right-of-way and topography constraints.

Currently, there are few formal trailheads in Crozet. Trailheads may include enhanced signage, maps and other information, gateway entrances, and parking. They are intended to serve as clear access points to trails and paths. Crozet Park is currently used as an informal trailhead for the Crozet Connector trail. Additional trailheads and options to enhance the Crozet Park trailhead should be explored.

Other County-Owned Properties

Along with properties such as Western Park and the public schools sites, there are several other County-owned parcels in Crozet. The following three properties have been identified as areas with unique features where additional recommendations can support the goals of this chapter.

Lickinghole Creek Property

The County owns a 15-acre property (Tax Map Parcel 56N-D) to the east of Chesterfield Landing and north of Sparrow Hill, where Lickinghole Creek runs along the northern portion. The Creek is surrounded by a significant stream buffer due to the flood hazard overlay. The property is entirely wooded. There are existing trails through this site, with a trail connection planned to the east to connect to Eastern Avenue and to the natural area at Lickinghole Basin. Trail planning will require careful consideration due to the preserved steep slopes on the site and the need to protect Lickinghole Creek from erosion and damaged stream banks. Stream restoration efforts are needed along the Creek, as there are existing issues with erosion. The stream buffer should be enhanced with plantings and other restoration efforts as needed. Due to the sensitive Environmental Features on this property, the tree canopy should be retained, and it should continue to be used as a natural area with limited improvements.

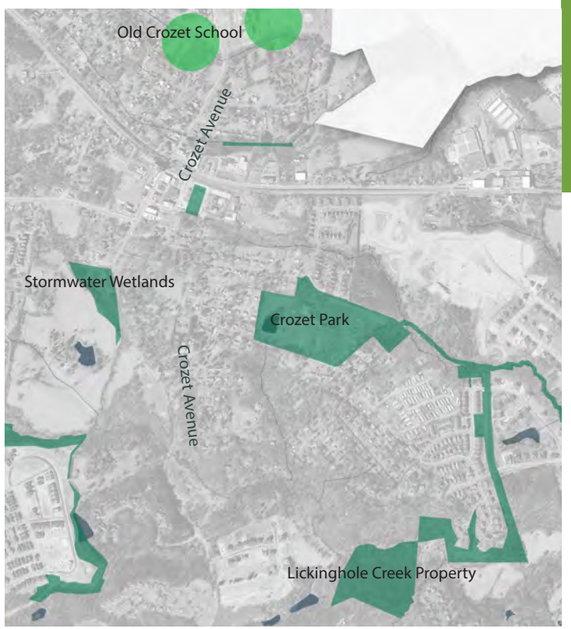
Stormwater Wetlands along Crozet Avenue

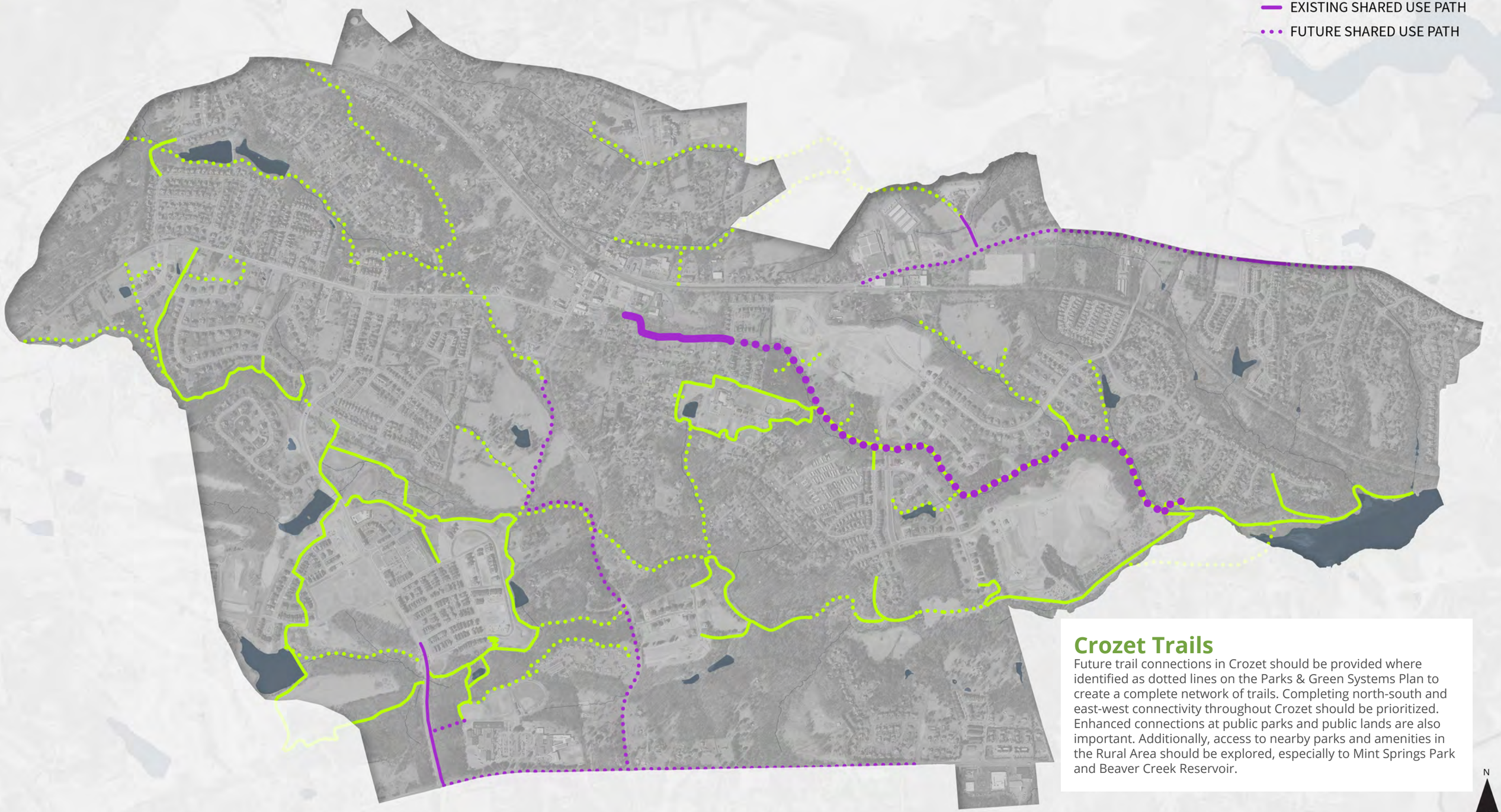
This property (Tax Map Parcel 56-11) is used as a County-owned stormwater management facility. These "stormwater wetlands" help reduce stormwater pollution from 50 acres of Downtown Crozet. Powells Creek runs along the western portion of the site and includes a larger stream buffer due to the additional flood hazard overlay along the creek. There are also preserved steeps slopes on most of the eastern portion of the property along Crozet Avenue. A future trail is recommended through this site and would continue across Jarman's Gap Road along Powells Creek. This property should continue to be used as stormwater wetlands and should be enhanced as a more accessible natural area. Improvements could include seating, additional educational signage, and a trail access point. While this natural area has a different scale and form than most of Crozet's other natural areas, it can still provide access to trails and to wildlife viewing.

Old Crozet School Property

The property directly south of the Old Crozet School (Tax Map Parcel 56-61) is mostly undeveloped and is on the western side of Crozet Avenue North. The Parrot Branch waterway runs along the southern edge of both this site and the Crozet Elementary School property, where there is a 100-foot stream buffer expected on both sides of the stream. A future trail is recommended along Parrot Branch which could eventually connect to Three Notch'D Road and Park View Drive. Restoration efforts are underway for the stream buffer around Parrot Branch on the eastern side of Crozet Avenue, as portions of the 100-foot buffer currently lack forest cover. Additionally, there is a stormwater management facility on the Crozet Elementary School site, just north of Parrot Branch.

As the current tenant of the Old Crozet School prepares to relocate, the County should solicit community input about a future use of the property. Future use should include restoration efforts for the stream buffer, a retrofitted storm water management approach to this property that uses natural elements such as native plants, and other sustainable site design measures. Space for a small pocket park or other outdoor public civic area should also be considered.





Crozet Trails

Future trail connections in Crozet should be provided where identified as dotted lines on the Parks & Green Systems Plan to create a complete network of trails. Completing north-south and east-west connectivity throughout Crozet should be prioritized. Enhanced connections at public parks and public lands are also important. Additionally, access to nearby parks and amenities in the Rural Area should be explored, especially to Mint Springs Park and Beaver Creek Reservoir.

1 inch = 1,200 feet

Biodiversity, Natural Resources, and Green Systems

Green Systems

Crozet's Green Systems consist of public parks, trails, other publicly-accessible lands, and areas referred to as "Environmental Features," which consist of land within the 100-year floodplain, stream buffers, and steep slopes. The Green Systems network, sometimes referred to as a "green infrastructure network", provides a variety of benefits such as improved air quality, water quality protection, flood protection, climate mitigation, and aquatic and terrestrial habitat. Green Systems also provide opportunities for outdoor recreation such as hiking and wildlife observation.

Water Quality

The Virginia Department of Environmental Quality (DEQ) assesses the quality of all surface waters within the state every two years in order to comply with requirements of the U.S. Clean Water Act and Virginia Water Quality Monitoring, Information and Restoration Act. Waters that do not meet DEQ water quality standards are designated as "impaired" and subsequently issued Total Maximum Daily Loads (TMDL) to achieve DEQ water quality standards. Pollution is carried into waterways by runoff from surrounding land areas (non-point sources), direct discharge from a pipe or other conduit (point source), and erosion of stream banks.

DEQ has identified the following waterways as impaired in Crozet: Lickinghole Creek, Slabtown Branch, and an unnamed tributary of Parrot Branch.

DEQ is currently completing a TMDL study for the South Fork Rivanna River watershed, which includes the Crozet Development Area. A TMDL study determines the maximum amount of pollutant allowed to enter a waterbody so that the waterbody will meet water quality standards. The study also identifies the causes of the impairment and a pollutant reduction target.

The final draft of the South Fork Rivanna River watershed study is expected to be approved by EPA in early 2022. The resulting Implementation Plan to decrease non-point source pollution in impaired waterways will provide additional opportunities for federal and state funding and grants. Non-point source pollutant reduction actions are implemented through both regulatory and incentive-based programs. Examples of implementation actions include cost-sharing programs, stormwater management Best Management Practices (BMP's), and educational campaigns. Point source pollutants are regulated through EPA's National Pollutant Discharge Elimination System (NPDES) permits.

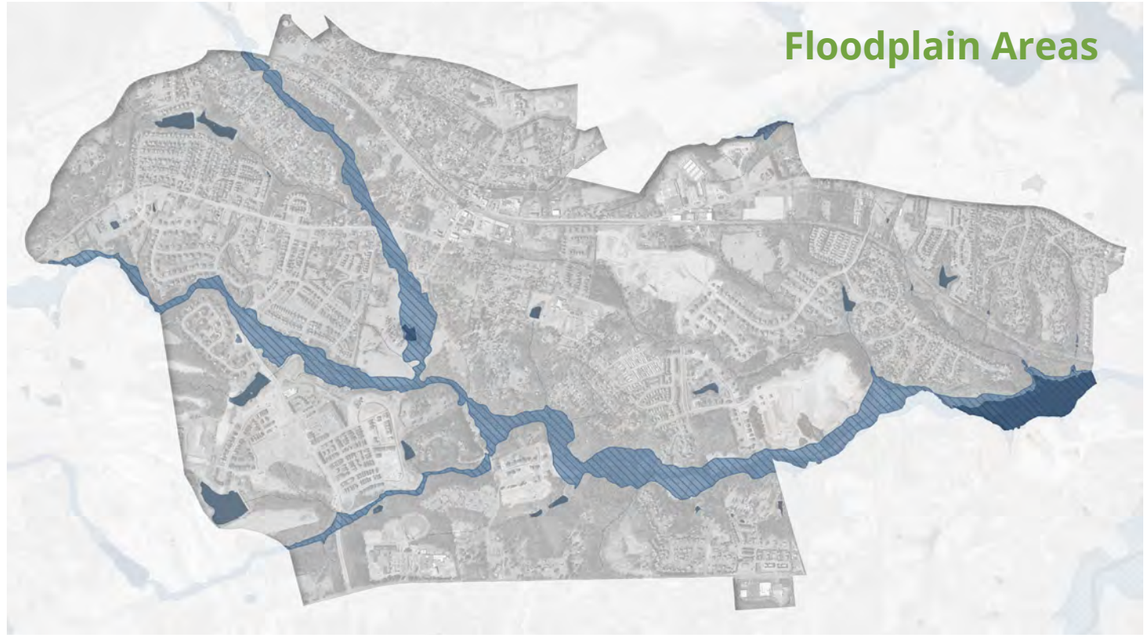
DEQ has found high levels of nitrogen in the unnamed Parrot Branch tributary. Existing septic systems from nearby neighborhoods may be a potential source of nitrogen. While these neighborhoods are within the jurisdictional area for public water and sewer, some homes are still using septic systems. Virginia Department of Health (VDH), Albemarle County Service Authority (ACSA), and Albemarle County should collaborate with property owners to explore options for connecting to public utilities in this area and other areas as needed in the Crozet Development Area.

There are several areas in Crozet where waterways exist without vegetated and established buffers. Most of these areas are neighborhoods where development predates current WPO regulations, such as along St. George Avenue. These waterways are largely located on private, residential property. The County should hire an independent third-party consultant to study this area and confirm the status of these waterways (see Conservation Goal 4). If the consultant finds these waterways should be officially classified as streams, then subsequent recommendations for re-establishing buffers and restoring stream health should be developed, in consultation with property owners.

Stormwater Management

Stormwater management is encouraged to be addressed on-site with development projects, especially by incorporating Low-Impact Development (LID) strategies. Practices that mimic or preserve natural drainage processes, such as bioswales, depressions, and vegetated areas, can help protect Crozet's waterways. DEQ has identified Lickinghole Creek as impaired due to sediment buildup. These techniques also remove pressure from the sediment basin in Lickinghole Basin and slow the rate of sediment accrual there. Additionally, stormwater management provides an added benefit of carbon sequestration.

The County owns existing stormwater wetlands in Crozet's downtown area, to the west of Crozet Avenue. A future trail is recommended through this site, which would connect to Jarman's Gap Road and a future trail network to the north. This property should continue to be used as stormwater wetlands to help manage stormwater runoff and should be enhanced with native plantings and landscapes.



The map above shows areas within the floodplain (blue striped areas) and waterways (dark blue). A floodplain is an area adjacent to a body of water that is susceptible to being inundated by water normally associated with a 100-year flood or storm event. This includes, but is not limited to, Federal Emergency Management Agency (FEMA) designated floodplains.

The map above shows stream buffers within the Crozet Development area (transparent blue) and waterways (dark blue). Stream buffers are areas of land at or near stream banks and/or nontidal wetlands that provide environmental services, such as improving water quality, or are sensitive to changes that may result in water quality degradation. These areas are regulated by Albemarle County's Water Protection Ordinance, and are often referred to as the "WPO buffer".

Biodiversity and Climate Action Planning

Albemarle County's Biodiversity Action Plan (BAP) identifies important species, habitats, and sites within the County and outlines goals and strategies to protect these habitats and species, such as minimizing habitat fragmentation and management of public lands to conserve and enhance biodiversity. The BAP maps large (greater than 100 acre) and small (between 10 and 99 acres) forest blocks throughout the County. A small forest block exists around Lickinghole Basin, which is also identified in the Plan as an important site.

The BAP also identifies a large area of the County, just northwest of the Crozet Development Area, as a "Conservation Focus Area" where land and habitat protection should be prioritized. The Northwest Focus Area includes land within Shenandoah National Park, Bucks Elbow Mountain, and Mint Springs Park. The BAP recommends protection of lands within the focus areas, and where possible, connections among them. The Green Systems Network within Crozet, especially the greenways along Lickinghole and Powells Creek, provide opportunities to preserve and enhance habitat corridors that provide potential connections to the Northwest Conservation Focus Area.

The County's Phase 1 Climate Action Plan (CAP) provides recommendations for reducing greenhouse gas emissions and mitigating the impacts of climate change within Albemarle County, such as protection of publicly-owned forested land and the use of native plant species. The Climate Action Plan discusses the importance of vegetative buffers and forest cover for multiple benefits, including carbon sequestration.

Urban Forestry and Tree Canopy

Urban forests and tree canopies provide an important natural resource to Albemarle County's Development Areas as they have a significant role in mitigating the effects of climate change and urban heat islands. They also reduce stormwater runoff from impervious surfaces and decrease flood risk. Urban forests and tree canopies include trees in parks, natural areas, gardens, river corridors, wetlands, greenways, and in parking lots and along streets.

In addition to their role in providing valuable ecosystem services, trees create an inviting, livable, and healthy atmosphere for community members, businesses, and visitors. Roots from large trees also stabilize soils, reduce sediment runoff, provide habitat for birds and other wildlife, and further enhance the quality of surrounding water systems such as Lickinghole Creek and Powells Creek. Trees in more developed areas, including street trees and trees in parking areas, help reduce the heat island effect of hot pavement in the warmer months and provide shade for pedestrians.

In addition to supporting Goals of the CAP and BAP, protecting and enhancing the tree canopy within forest blocks and sensitive environmental features also supports the Conservation Guiding Principle. It is especially important to preserve native tree canopy in areas with identified forest blocks and areas within the floodplain and stream buffers. The Lickinghole Creek forest block should be protected and enhanced or expanded with additional native tree canopy where possible.

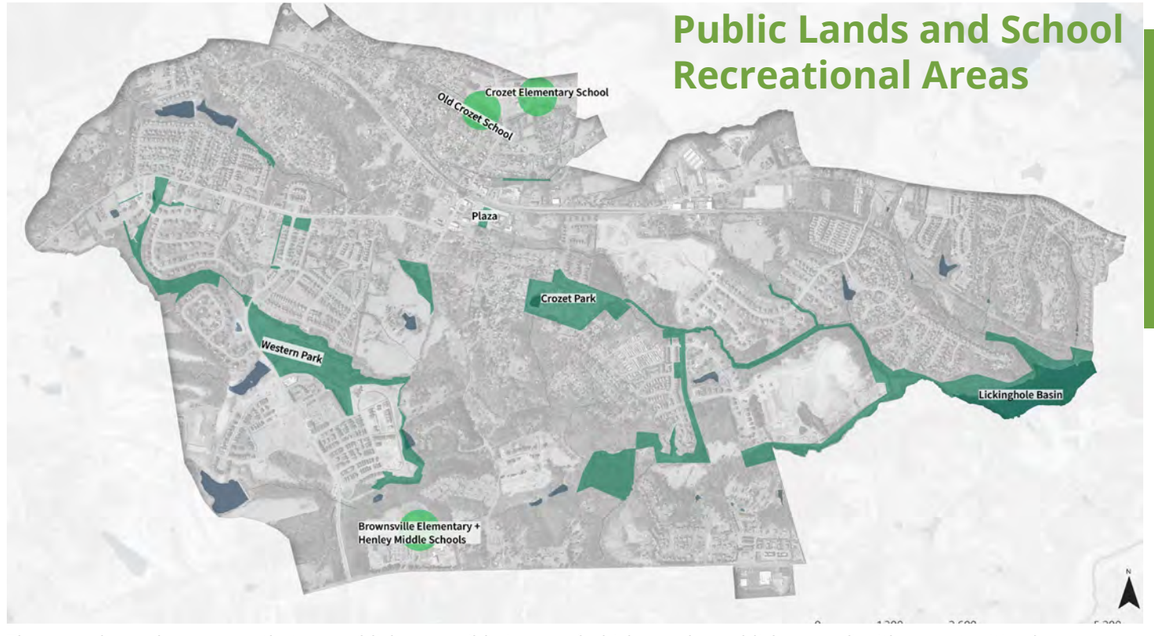
Opportunities for potential future tree canopy enhancement and restoration are shown on the Tree Canopy Map (page 20). Efforts to enhance and expand urban forest cover should be focused in areas that can increase habitat connectivity, such as along and adjacent to the Lickinghole Creek and Powells Creek greenway, areas that can contribute to water quality protection, such as within the floodplain and stream buffers, and those properties that are publicly-owned, such as parks, schools, public lands, and natural areas. Opportunities should also be explored to work with neighborhood associations to enhance tree canopy on their commonly held open space parcels, where no further development is expected, and areas that are shown for Green Systems on the Future Land Use Plan.

Steep Slopes

The majority of the preserved steep slopes in Crozet (and the County's other Development Areas) are along river and streambanks. Protecting these slopes is vital for the health of Crozet's waterways. The County's steep slopes overlay district requires additional design considerations to protect identified steep slopes, downstream lands, and waterways. The intention of this regulation is to prevent movement of soil and rock, excessive stormwater runoff, and degradation of surface water. This Chapter also recommends preserving existing vegetation within stream buffers and floodplain and ensuring careful siting of new trails, which also help protect these steep slopes.

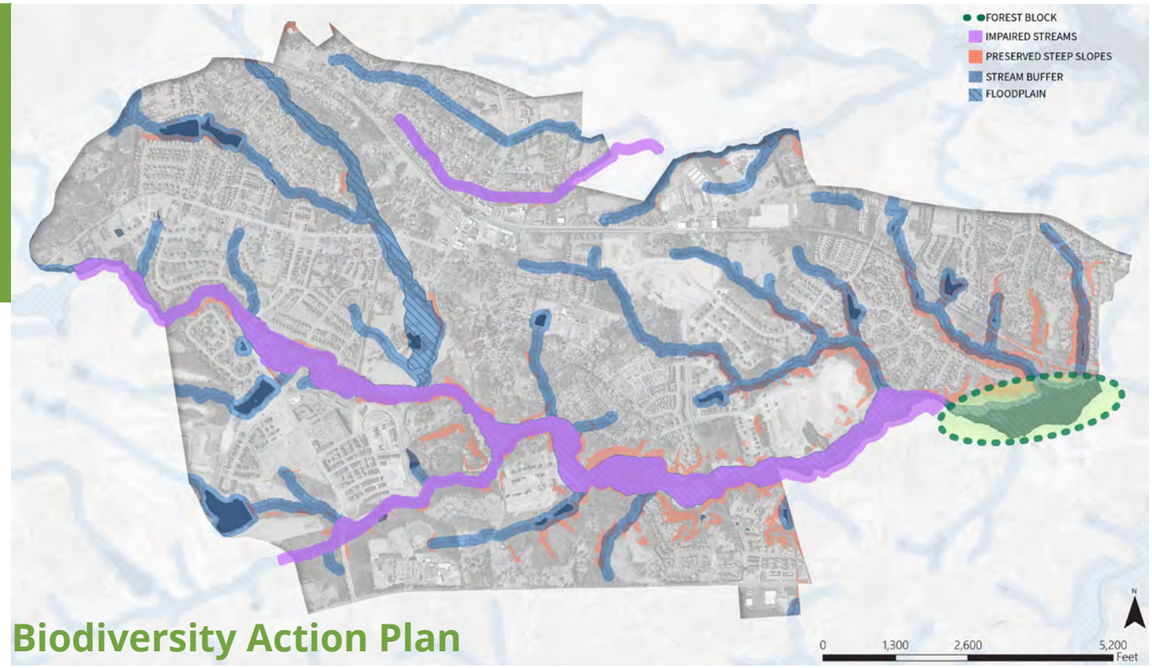
This is an aerial image of the portion of St. George Avenue with a waterway that exists without a vegetated and established stream buffer.

The map above shows areas within preserved steep slopes in light pink. Steep slopes are areas of incline with a 25 percent grade or greater (grade refers to the angle of the incline, where horizontal or flat equals zero). Steep slopes are regulated through a steep slopes overlay district in the Albemarle County Zoning Ordinance.



The map above shows areas that are publicly-accessible (many of which are also publicly-owned) with opportunities for recreation and conservation in Crozet. These areas include publicly-accessible parks and natural areas, publicly-owned land around public trails, and schools. It should be noted that hours of operation and access will vary by location and type of facility or area. For example, County public parks are closed during overnight hours, and School Recreational Areas have limited access during school hours and school activities.

(Above) This map identifies opportunities for potential future tree canopy enhancement and restoration.



Biodiversity Action Plan

This map identifies impaired streams and a small forest block in Crozet from the Albemarle County Biodiversity Action Plan (BAP).

Cultural and Scenic Resources

Heritage and Cultural Tourism

Crozet's location near the Blue Ridge Mountains and Shenandoah National Park and its variety of events, festivals, and activities in both the Development Area and adjacent Rural Area present opportunities for continued and expanded heritage and cultural tourism.

Bike Route 76 is a long-distance bicycling route between the Chesapeake Bay in Virginia and Missouri, and which then continues westward as the TransAmerica Trail, ending in Oregon at the Pacific Ocean. It includes shared roadways, on-road accommodations, and off-road shared-use paths. Bike Route 76 runs along the edge of the Crozet Development Area, including portions of Lanetown Road, Railroad Avenue, and Buck Road. Consideration should be given to either re-route Bike Route 76 through Downtown Crozet (via Jarman's Gap) or to include signage at Jarman's Gap and Lanetown Road for visitors to stop in Downtown Crozet.

Several annual parades and events take place in Downtown Crozet and Crozet Park. These include the twice-annual Crozet Arts and Crafts Festival in the Park, which features local food and beverages, live music, and the sale of local artisanal goods.

Farms and orchards within the Rural Areas adjacent to Crozet, including Chiles Orchard and Henley's Orchard, offer activities including pick your own fruit, live music, and shopping for artisanal goods. Additionally, there are opportunities for locally-grown food within Crozet, such as Decker's Happy Eggs and local produce at the weekly Farmers Market in Downtown. There are also nearby country stores in the surrounding Rural Area with local produce, wine, cider, and baked goods, such as Greenwood Grocery.

Crozet is near several vineyards on the Monticello Wine Trail. There are also breweries in both the Development and Rural Areas. Starr Hill Brewery in Crozet is also part of the "Brew Ridge Trail", which is a self-guided network of local craft breweries within the region. Visitors and locals may use small tour buses to 'hop' to several different nearby wineries and breweries.

(Above) Access to Bike Route 76 along Railroad Avenue in Crozet.

(Above) The Crozet Arts and Crafts Festival in Crozet Park.

(Above) The Crozet Farmers Market.

(Above) Lanetown Road, Crozet

Rural Connections

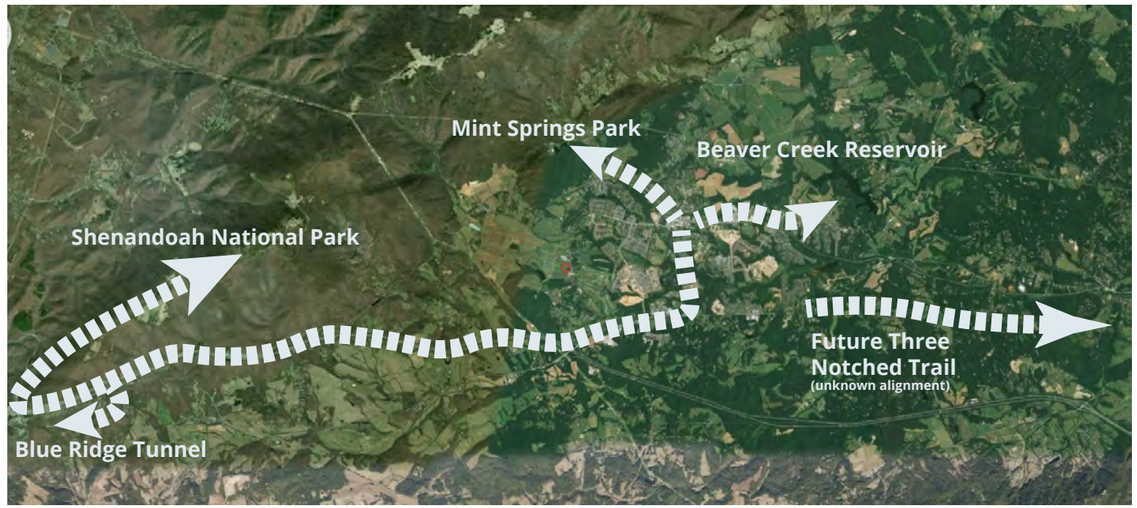
These activities and resources highlight the need for connections between the Development and Rural Areas. The type of connection will depend on the distance from the Development Area and the feasibility of providing pedestrian and bicycle access. The four Rural Shared Road sections recommended in the Transportation Chapter are intended to provide enhanced bicycle access to the nearby Rural Area, including Mint Springs Park. Additional opportunities for trail connections to Beaver Creek Reservoir and Mint Springs Park should be explored.

The County's Comprehensive Plan recommends future trail connections in the Rural Areas adjacent to Crozet. One is the Three Notched Trail connecting the Western Neighborhoods to Charlottesville along Route 250 and a trail connecting Crozet from Half Mile Branch Road to the Blue Ridge Tunnel in Afton. Alignments for these trails will require further study. This chapter recommends a feasibility study in coordination with regional partners to determine the appropriate alignment of this trail network through or adjacent to Crozet.

View Corridors and Vistas

While walking, biking, hiking, driving, and relaxing outdoors in Crozet, the surrounding mountains are often visible. These mountains include the Blue Ridge mountains, Bucks Elbow Mountain, and several smaller peaks. Many of these view corridors and vistas are visible from the public right of way and public parks and trails. Promontory decks are planned for Western Park, which will provide public access points for these views. Views along Lanetown Road, Railroad Avenue, and Buck Road are also important, as they are part of national Bike Route 76. Future development and redevelopment along these roadways and adjacent to Western Park should consider mountain viewsheds and preserve their visibility from the public streets and park to the extent feasible.

(Above) The Blue Ridge Tunnel in nearby Afton.



This map shows potential areas for future regional connectivity, including to the Blue Ridge Tunnel Trail which is within Nelson County and Augusta County.

Conservation Guiding Principle

Enhance Crozet's natural beauty, existing natural resources, and the surrounding rural areas with an integrated network of parks and gathering spaces, trails, and natural areas that offer increased opportunities for outdoor recreation and protect natural resources.

Goal 1: Continue to develop community parks and support expanded opportunities for a variety of outdoor recreation activities in Crozet.

A. Construct Western Park in general accord with the 2018 Western Park Master Plan.

B. Manage Lickinghole Basin and the surrounding area primarily as a Natural Area with passive recreation opportunities and trails that are compatible with Environmental Features and wildlife habitat, such as wetlands and the bald eagle nest.

C. Pursue opportunities for interpretative and educational signage, removal of invasive species, as well as installation of additional site furnishings (e.g. benches) at Lickinghole Basin.

D. Enhance the existing County-owned stormwater wetlands along Crozet Avenue to provide a trail access point, educational signage, site furnishings, and areas for viewing wildlife.

E. Through the development review process and through future Parks and Green Systems Planning efforts, explore opportunities for new trailheads that provide vehicular parking to increase access to Crozet Trails.

Goal 2: Build and maintain an interconnected network of trails that expand recreational opportunities in Crozet and provide alternate routes for travel between neighborhoods and to centers of activity.

A. Extend and upgrade the Crozet Connector Trail to a shared-use path standard from Downtown Crozet to Westhall, creating a multimodal route with a natural aesthetic. If phased, the priority should be to finalize and upgrade the connection between Eastern Avenue and Downtown.

B. Establish a trail along Lickinghole Creek, creating a continuous trail between Lickinghole Basin and Western Park.

C. As opportunities through new development proposals arise, continue to pursue trail connections as shown on the Parks & Green Systems Plan and to provide spur trail connections to new and existing neighborhoods.

Goal 3: Leverage Crozet's proximity to the Blue Ridge Mountains and County Parks in the Rural Area by expanding access to rural and regional amenities.

A. Explore opportunities for trail connections between Crozet Trails to Mint Springs Park and to Beaver Creek Reservoir.

B. In coordination with regional partners (such as VDOT, TJPDC, and community trail groups), conduct a feasibility study to determine the appropriate alignment of the planned Three Notched Trail through or adjacent to Crozet, including a connection between Crozet and the Blue Ridge Tunnel.

Goal 4: Conserve and enhance Crozet's natural resources through natural resources planning, sustainable land management practices, and the use of sustainable and restorative site design practices.

A. As new County-owned parks and trails are constructed or improved, leverage opportunities for installing educational and interpretive signage about biodiversity, ecosystem services, and habitat protection. Explore partnerships with local schools and community groups in this effort.

B. Protect areas with important biodiversity and natural resources through careful siting of trails and other recreational opportunities, especially around Lickinghole Basin and areas identified on the Tree Canopy Map as existing or potential forest blocks.

C. Hire an independent, third-party consultant to study the status of the Parrot Branch tributary stream between Railroad Avenue and St. George Avenue to identify the status of the stream. Based on study findings, develop recommendations for restoring stream health while allowing current uses to continue adjacent to the stream.

D. Continue stream restoration efforts along Parrot Branch on County-owned properties. As part of these improvements, retrofit the existing stormwater management facility at Crozet Elementary School to improve runoff and treatment.

E. Update residential zoning requirements to eliminate cluster and bonus-cluster lot size and frontage requirements to allow for more open space, tree canopy, and stream buffer preservation.

Goal 5: Support County-wide initiatives such as the Climate Action Plan (CAP) and Biodiversity Action Plan (BAP) by identifying areas to enhance and expand tree canopy and other native habitats within Crozet.

A. Explore opportunities to enhance and expand Crozet's urban forest, increase native tree canopy, and restore stream banks and buffers, especially within and adjacent to Powells Creek and Lickinghole Creek Greenways, the Lickinghole Basin Natural Area, and on County-owned parcels such as parks, natural areas, and public lands.

B. Collaborate with willing Homeowners Associations and developers to enhance and expand native tree canopy on their open space parcels, especially those adjacent to the Lickinghole Creek and Powells Creek Greenways.

C. Where possible, reduce mowing in public parks and on County-owned property in Crozet and replace mowed lawns with natural landscapes such as forest, pollinator gardens, and meadows.

D. As opportunities arise, through new development and County-initiated projects, remove invasive species in stream buffers, floodplains and greenways and replace with native planting to improve aquatic ecosystem health, water quality, and riparian habitat quality.

Provide strategic & timely support for community partnerships, local economic development, policy changes, and capital investments to support a changing Crozet.

Implementation

Overview + Background

The Implementation Chapter provides a guide for achieving the vision identified within the Master Plan. Each Master Plan chapter identifies recommendations that are action steps to support the Land Use, Transportation, and Conservation Goals and Guiding Principles. Completion of each the identified recommendations will bring Crozet closer to realizing the Plan vision.

Achieving the Master Plan vision will require sustained commitment from the County, community members, developers, and local partners and organizations. It will require investment in and development of new and upgraded roadways, trails, parks, sidewalks, and bicycle infrastructure. It will also require planning and policy initiatives to develop new designs and regulations for future development and investment.

The Implementation Chapter provides a holistic view of each recommendation within the Plan's Land Use, Transportation, and Conservation Chapters. It identifies community priorities to guide future work and investment and sets expectations so that community members have an understanding of project costs and potential project timelines and sequencing. However, it is important to note that completion of many of the Plan recommendations is dependent upon outside factors such as state funding commitments and availability of County revenues. In addition, circumstances may change over time and community priorities may shift. The list of projects is meant to be used as a guide for future work, with the recognition that present day circumstances may change the need for a project or the County's ability to complete a project within the recommended timeline.

It is important to have continued community engagement on the Implementation recommendations. Opportunities for community engagement should be provided as the recommended projects make their way through the design and funding phases. It is also important to periodically review the project prioritization and to provide an opportunity to revise and update Plan recommendations if major changes are needed.

Types of Projects

This chapter identifies different categories of Plan recommendations. First are the recommendations that have an expected timeline associated with them. These are projects that are expected to have a clear start and completion date and do not involve ongoing or sustained work. These recommendations are broken down into three categories:

Planning projects are detailed analyses, visioning, or design plans focused on an individual project, corridor, or specific geography. Planning projects will allow for more in depth planning and engagement to bring a project from high-level concept to a detailed and actionable plan or design.

Policy projects are those that involve updates to the County's zoning ordinance and development review processes. A necessary step for implementation of the Master Plan Recommendations will be establishing appropriate regulations for new development and to ensure that legislative review projects that meet the Master Plan goals are sufficiently prioritized.

Capital projects are physical projects that require investment and typically some level of design and construction to complete. These projects are public amenities such as parks and trails, and the infrastructure necessary to support growth and development in Crozet, such as sidewalks and intersection improvements. Capital projects can be publicly funded, funded through private development, or through a combination of both private and public funding.

Ongoing Projects

The Master Plan also includes several recommendations that are either ongoing or that have a timeline associated with them that is outside of the County's ability to control. Ongoing projects include those that may be part of a County process, such as development review for proposed zoning map amendments. Other ongoing projects are those that are recommended to support future growth and development, such as parking initiatives for the Downtown redevelopment. The timeline for these initiatives relies on outside applicants and the timing of proposed development. Ongoing projects also include projects that are part of standard County maintenance or that could be incorporated into this work. These projects are described in more detail at the end of this chapter.

Project Prioritization

Planning, Policy, and Capital projects are further categorized based on community priorities and expected completion timelines. These are broken up into two timeline categories: Catalyst and Future Projects.

Catalyst Projects are those expected to be completed or nearly completed within 0 to 10 years of Plan adoption. Catalyst Projects are identified as the community's top priority projects. Catalyst Projects play an important role in achieving the vision outlined in this Plan and are projects that provide critical infrastructure and the highest need planning and policy projects. The selected number and variety of catalyst projects was intentional and reflects those that could be realistically be expected to be completed within this timeline. It is anticipated that most Catalyst Projects can be fully completed within 10 years, but others, especially some of roadway projects that require outside funding sources, may have phases completed or will have made substantial progress towards completion within this timeframe (such as land and funding acquisition).

Future Projects are those that are expected to be completed within 10-20 years of Plan adoption. Future Projects may take longer to complete given cost or timeline considerations, and are projects that, while still important, were identified as lower priorities than Catalyst Projects by community members. County staff will continue to work on implementing these projects as opportunities arise (such as grants, redevelopment, and community partnerships), which may expedite the anticipated timeline in some instances.

The tables for the Catalyst (Page 7) and Future Projects (Page 18) are listed in priority order; however, this order does not necessarily reflect the order that projects will be completed. It is likely that the simpler projects and those with lower cost estimates could be completed sooner than many of the more complex and higher cost projects. Additionally, some of these projects may be incorporated into County-wide efforts, such as updates to the County's Zoning Ordinance, which may also shorten the timeframe for their completion.

State and Federal Funding

Some implementation projects, especially from the Transportation Chapter recommendations, may have opportunities for federal and/or state funding. Funding for transportation programs and projects comes from the Albemarle County general fund, primarily through the County's Capital Improvement Program (CIP), and various state and federal funding programs, such as: SMART Scale, Revenue Sharing, Transportation Alternatives, Highway Safety Improvement Program, and Recreation Access Fund.

Approximately half of all federal and state funds for transportation projects is dispersed through the SMART Scale Program. The applications for projects are submitted by localities and regional entities on a bi-annual schedule. Projects are then scored based on six identified factors. Funding available is split between High Priority Projects, which is a statewide funding pool, and the District Grant Program, where projects only compete against other projects within each VDOT District. The highest scoring projects are awarded funding and the program tends to be highly competitive.

The State and Federal Grant Programs follow two-year cycles. The County prioritizes lists of Transportation projects to identify projects that can and should be applied for under each of the grant programs. Projects include intersection improvements, bicycle and pedestrian infrastructure, bridges and bridge repairs, road connections, and greenway trails. Recommended projects are included in the County's Comprehensive Plan, Development Area Master Plans, Small Area Plans, Corridor Studies, and Greenway Plans. Projects may also be recommended in the Charlottesville-Albemarle Metropolitan Planning Organization's (MPO) Long Range Transportation Plan and the Thomas Jefferson Planning District Commission's (TJPDC) Rural Long Range Transportation Plan.

Many grants have matching requirements from the locality, and typically have specific purposes that the funding needs to be allocated for. For example, the VDOT Revenue Sharing Program requires a 50-50 match between the locality and the state. Additionally, federal and state funding is very competitive. It should be noted that CIP funding is limited and is used for projects across the County, including new public buildings and facilities (such as schools and public safety buildings), major renovation and maintenance of existing buildings and facilities, transportation improvements, parks, stormwater management, and new and replacement equipment.

Project Timing

The Catalyst and Future Project tables also include an estimated Realization Timeframe. **Realization Timeframe** refers to the amount of time that it will take for a project to be completed, from start to finish, when everything is in place for the project, such as funding and land acquisition. Funding and realization timelines for identified transportation projects are estimates based on current State and Federal Transportation funding programs. When outside funding sources are needed (especially for the higher cost projects), timelines are determined by State and Federal processes. Delays are also possible if the County is not able to secure funding for identified projects, which is not uncommon due to the competitive nature of these programs.

Cost Estimates

Cost estimates are general ranges and do not consider outside funding sources (such as state funds, federal funds, grants, etc.) that may reduce the project's cost to the County.

$: <$500,000
$$: $500,000 - $3,000,000
$$$: $3,000,000 - $8,000,000
$$$$: $8,000,000 - $12,000,000
$$$$$: >$12,000,000

The categories above are used in the Implementation Chapter of the Pantops Master Plan and carried forward in this plan for consistency across County planning documents. Projects with a cost less than $500,000 ($) can reasonably be funded by the County. Projects between $500,000 to $3 million ($$) may be funded through the County's Capital Improvement Program (CIP), and/or utilize state, federal, or other grant funds. Projects between $3 million to $12 million ($$$-$$$$) typically require cost sharing or outside funding. Projects that cost more than $12 million ($$$$$) require additional funding through outside sources, such as state, federal, or grant funds.

Project Key

The colors and numbers throughout this document are associated with the draft Crozet Master Plan chapters. Each letter and number combination aligns with recommendations in the draft chapters.

Yellow are from the Land Use Chapter,
Blue are from the Transportation Chapter, and
Green are from the Conservation Chapter.

(Above) Sidewalks and bike lanes that were added along Jarman's Gap Road, based on a recommended implementation project in the 2010 Crozet Master Plan.

Additionally, the symbol shapes throughout this document are associated with the three Project Types:

▲ Planning Projects are shown with a triangle symbol.

⬢ Policy Projects are shown with a hexagon symbol.

● Capital Projects are shown with a circle symbol.

Catalyst Projects

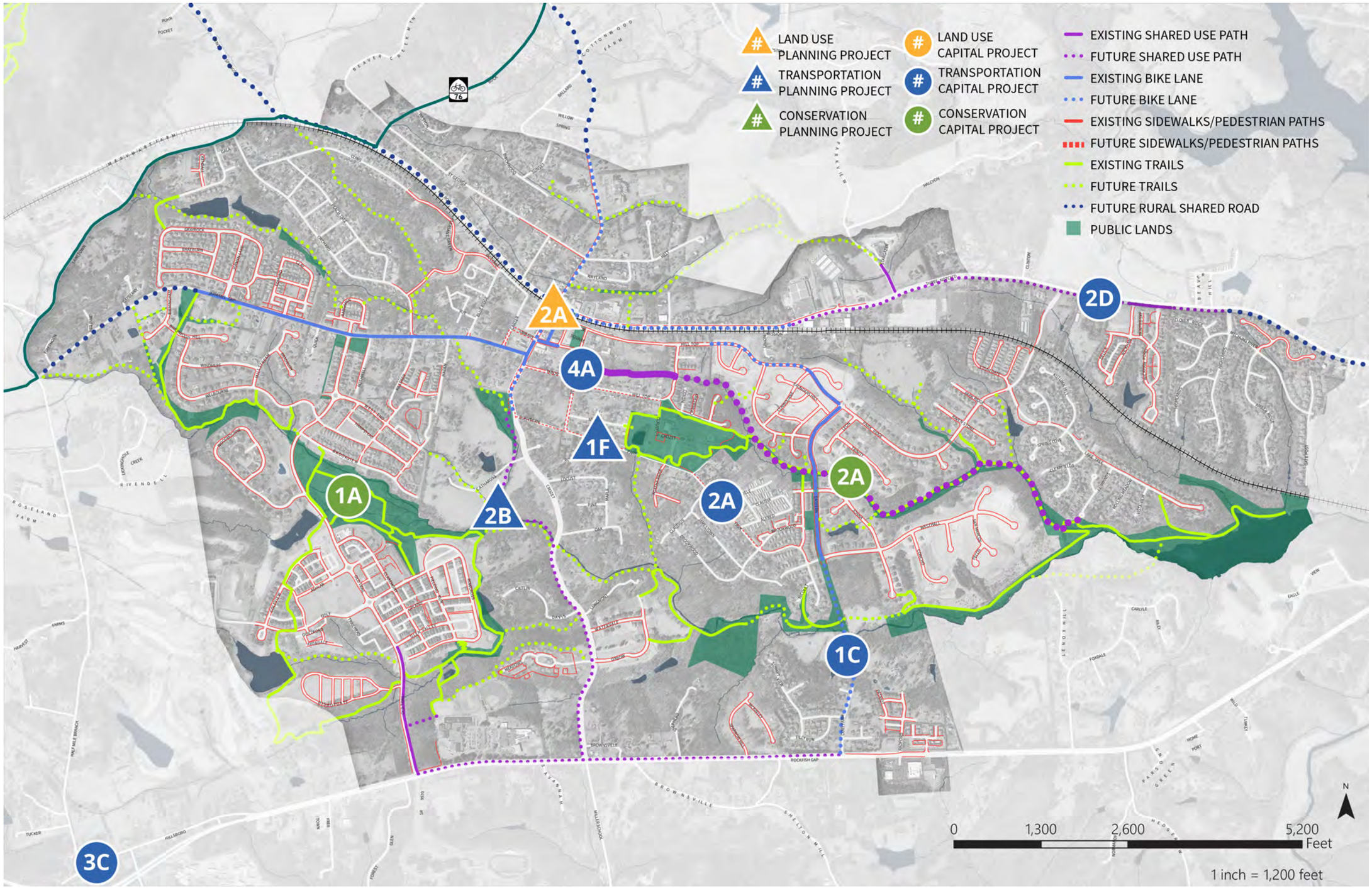
Catalyst Projects: 0 to 10 years

Catalyst projects are identified below. These projects reflect community priorities and play an important role in achieving the vision outlined in this plan. This list includes capital, planning, and policy projects.

Staff anticipates that some projects will be completed within 10 years, while others may have phases completed and/or made substantial progress (such as land and funding acquisition).

Name	Chapter	Number	Recommendation Type	Cost Estimate	Realization Timeframe
Eastern Avenue Construction (including Lickinghole Creek Stream Crossing)	Transportation	1C	Capital	$$$$$	5 years
Crozet Connector Trail Upgrade and Extension	Conservation	2A	Capital	$$	1 year (and ongoing maintenance)
Western Park (Phase 1)	Conservation	1A	Capital	$$	2 -3 years
Downtown Neighborhoods Architectural and Cultural Resources Study	Land Use	2A	Planning	Phase 1: $ Phase 2: $	Phase 1: 1 year Phase 2: 1-2 years
Three Notch'D Road Shared-Use Path (Phase 1)	Transportation	2D	Capital	$$ - $$$	4 years
Three Notched Trail Feasibility Study	Conservation	3B	Planning	$	1 year
Priority Sidewalk Connections	Transportation	2A	Capital	1. $$$ 2. $$ 3. $$$ 4. $$$ 5. $$	3 - 4 years per project
Downtown High Street Improvements	Transportation	4A	Capital	$$	3 years
Park Road Corridor Design	Transportation	1F	Planning	$	1 year
Crozet Avenue Shared-Use Path Feasibility Study	Transportation	2B	Planning	$	1 year
Naturally Occurring Affordable Housing Survey & Recommendations	Land Use	3A	Planning	$	1 year
Affordable/Workforce Housing Priority Review Process	Land Use	3C	Policy	$	1 year
Afton Express Stop	Transportation	3C	Capital	$	1 year

Location of Catalyst Projects



1C Eastern Avenue Construction (including Lickinghole Creek Stream Crossing)

Complete construction of Eastern Avenue including a stream crossing of Lickinghole Creek.

Eastern Avenue was an identified project in the 2010 Crozet Master Plan and has been partially constructed. The 2010 Plan recommended that Eastern Avenue be constructed by developers during new development, with the exception of the Lickinghole Creek crossing, which would need to be a County initiated project. The road is completed between Park Ridge Drive and Westhall Drive. Eastern Avenue will be extended to cross over Lickinghole Creek and connect with Cory Farm Road, completing the connection between Route 240 and Route 250. The alignment has been determined by the County and VDOT. Bike lanes will be continued along this extension of Eastern Avenue. This project has a high cost in part due to the required bridge that will be needed to cross Lickinghole Creek.

This project is currently being evaluated through an alignment study and conceptual design which is funded through the Transportation Leveraging Fund in the CIP. The result of this study, which will produce 30% level design drawings and a conceptual cost estimate, will be used to seek the necessary funding to complete construction on the project. The alignment report was presented to the Board in January and the preferred alignment was selected. This project is being considered for a Revenue Sharing Grant application.

Estimated Cost: ***$$$$$***

Realization Timeframe: ***5 years***

- Existing Avenue
- Future Avenue
- Existing Local Street
- Future Local Street

The map above shows the conceptual route of the recommended Eastern Avenue extension.

2A Crozet Connector Trail Upgrade and Extension

Extend and upgrade the Crozet Connector Trail to a shared use path standard from Downtown Crozet to Westhall, creating a multimodal route with a natural aesthetic. If phased, the priority should be to finalize and upgrade the connection between Eastern Avenue and Downtown.

The Crozet Connector Trail is considered the 'backbone' of the trail system in Crozet. The trail currently connects Crozet Park with the Lickinghole Creek Natural Area and will eventually connect to Crozet Square. Additionally, there are multiple spur trails that provide access to nearby neighborhoods. Upgrading the Crozet Connector to a shared-use path will provide better accessibility to community members and improve current drainage and mud issues. If phased, the priority shared-use path upgrade is between Eastern Avenue and Crozet Square.

Additionally, this project includes improved wayfinding signage for accessing the Crozet Connector Trail from Crozet Park. Although Crozet Park serves as a major access point to the Trail, the connection from the loop trail in Crozet Park to the Crozet Connector is not well-marked. Creating a prominent access point using signage, wayfinding, or similar site improvements will make navigation of the trail system easier for community members and visitors.

Estimated Cost: ***$$*** ***Realization Timeframe:*** ***1 year***

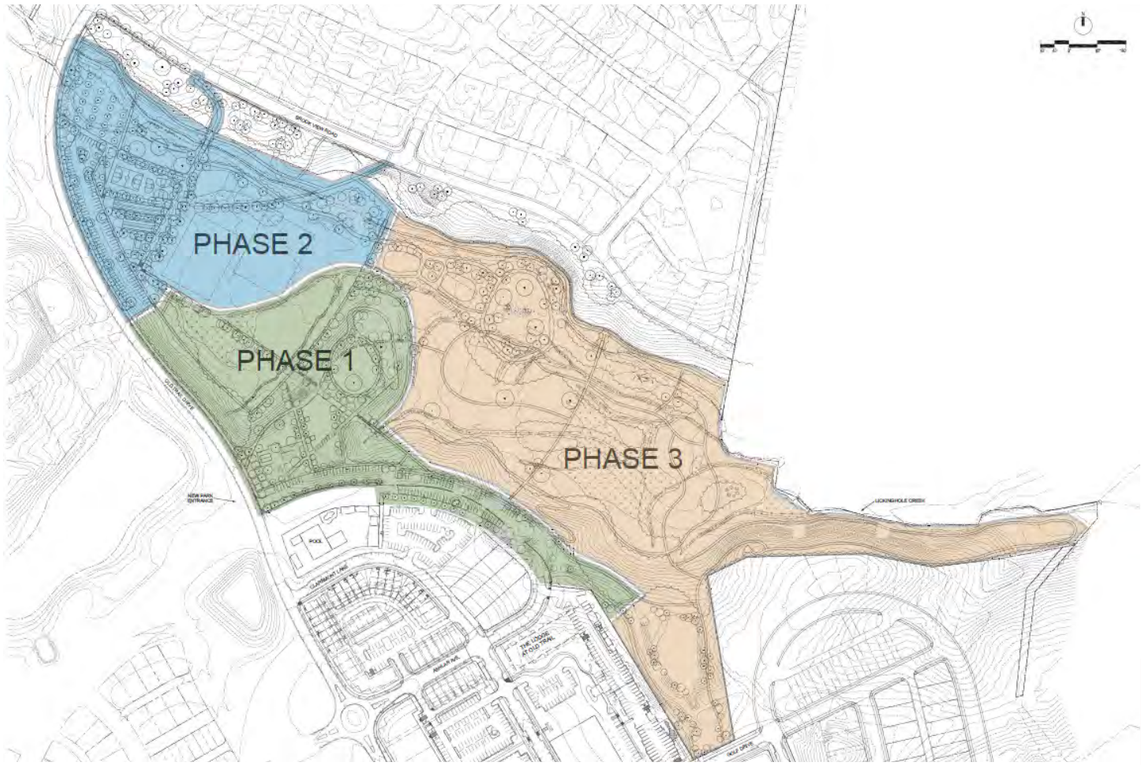
1A Western Park Construction: Phase 1

Construct Western Park in general accord with the 2018 Western Park Master Plan.

Western Park is a planned 36-acre public park to the north of Old Trail Village. Based on the 2018 Western Park Master Plan, the Park will include formal recreational amenities such as sports fields and playgrounds, and more natural areas with trails, meadows, and overlooks. The Park will be developed in phases. The land for the Park and $50,000 were proffered as part of the approval for the Old Trail development rezoning. Phase 1 of Western Park, which includes an access road, parking, playground, and utilities and other infrastructure, is a catalyst project.

The phasing plan for the Western Park Master Plan is shown below.

Estimated Cost: ***$$*** ***Realization Timeframe:*** ***2 - 3 years***



2A Downtown Neighborhoods Architectural and Cultural Resources Study

***Phase 1:** Using the 2009 Community of Crozet Architectural Resources Study as a starting point, conduct a subsequent study to evaluate the Downtown Neighborhoods not considered in the previous study to create a comprehensive Downtown Neighborhoods Architectural and Cultural Resources study.*

***Phase 2:** After completion of the Downtown Neighborhoods Architectural and Cultural Resources Study, conduct a public engagement process with residents of the Downtown Neighborhoods to develop actionable strategies to allow appropriate infill and redevelopment within Downtown Neighborhoods while supporting residents' desires for neighborhood preservation.*

The 2009 Community of Crozet Architectural Resources Study was completed by the consulting firm Arcadia Preservation, LLC. It recommended much of the Downtown Crozet area be submitted for consideration for a National Register Historic District designation. This area was accepted by the federal National Register of Historic Places in November 2012.

Several areas around Downtown Crozet that also have important histories and historic structures were not included in the Historic District, such as the Union Mission neighborhood to the east. Further study with inclusion of these neighborhoods should be completed in the first phase. The map below shows both the approved National Historic District (white) and the proposed Downtown Neighborhoods boundary (red).

Once the Study is completed, opportunities for appropriate infill and redevelopment should be identified through community input. Infill in these neighborhoods, when compatible with the existing scale and form, can provide additional housing choice in a central location with options for multimodal transportation. Options could include design guidelines, a new local historic overlay zoning district, or other zoning ordinance updates.

***Phase 1 Estimated Cost:** $*
***Phase 2 Estimated Cost:** $*

***Phase 1 Realization Timeframe:** 1 year*
***Phase 2 Realization Timeframe:** 1 - 2 years*

(Above) The Crozet Historic District (National Register) is outlined in white, and the proposed Downtown Neighborhoods study area is outlined in red.

2D Three Notch'D Road Shared-Use Path: Phase 1

Through a combination of new development and County-initiated capital projects, construct a shared-use path along the south side of Three Notch'D Road, with the first phase connecting the Wickham Pond and Highlands neighborhoods to Park Ridge Drive, and the second phase connecting to the Employment District.

The eastern-most neighborhoods of Wickham Pond and Highlands do not currently have options for walking or biking safely to the rest of the Crozet Development Area. A shared-use path to accommodate both bike and foot traffic is recommended from the Highlands to the Employment District. The project should be completed in two phases. The first phase will connect the Highlands to Park Ridge Drive, which would provide a connection to other roads, bike lanes, sidewalks, and paths that connect to Downtown and other important locations. The second phase from Park Ridge Drive to the Starr Hill/Music Today Employment Center is included as a Future Project. Properties that develop or redevelop along Three Notch'D Road should provide right-of-way and construct portions of the shared-use path along their properties.

***Phase 1 Estimated Cost:** $$ - $$$*

***Phase 1 Realization Timeframe:** 4 years*

Above: The existing portion of the Three Notch'D Road Shared-Use Path, which is along the front of Wickham Pond.

3B Three Notched Trail Feasibility Study

In coordination with regional partners (such as VDOT, TJPDC, and community trail groups), conduct a feasibility study to determine the appropriate alignment of the planned Three Notched Trail through or adjacent to Crozet, including a connection between Crozet and the Blue Ridge Tunnel.

The Three Notched Trail is a proposed shared-use path that would provide a connection between the Blue Ridge Tunnel in Afton and the City of Charlottesville. This route would also provide access to the trail for the Crozet Development Area. The trail is proposed by the non-profit Rivanna Trails Foundation. It is included in the County's Comprehensive Plan as well. The first step to achieving this trail is to conduct a feasibility study with regional partners (including VDOT, TJPDC, and community trails groups) to determine the appropriate alignment of the proposed trail.

***Estimated Cost:** $*

***Realization Timeframe:** 1 year*

2A Priority Sidewalk Connections

Construct priority segments of the sidewalk network shown on the Future Bicycle & Pedestrian Network Plan as funding becomes available.

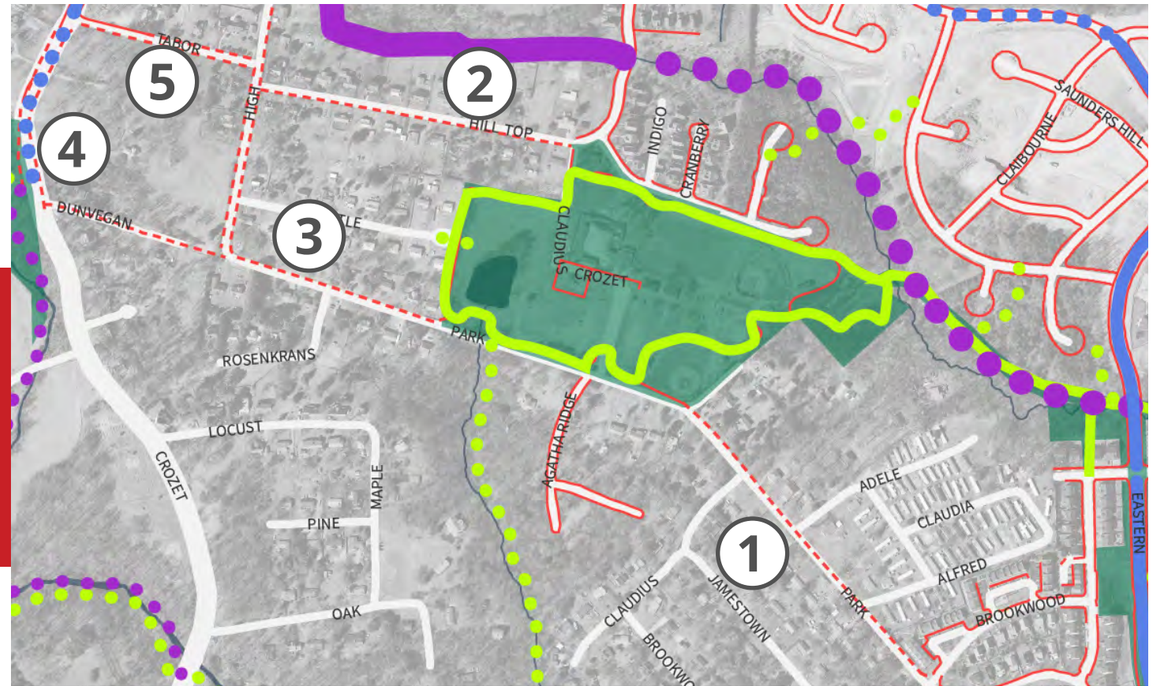
Throughout the engagement process, community members consistently highlighted the need for filling in sidewalk gaps in the Downtown area to provide safe routes for pedestrians. Community members identified areas around the Square, Crozet Park, and nearby neighborhoods as priority areas for sidewalk connections. The map below shows the missing sidewalks in these areas as dotted lines. These have been divided into individual projects for funding and timeline purposes. Based on community input and the need for providing safe access for nearby neighborhoods to Crozet Park (and eventually to Downtown), the sidewalk project for Park Road from Crozet Park to Brookwood Road is the highest priority of the five sidewalk projects. The second highest priority is providing a sidewalk along Hilltop Street from High Street to Indigo Road, to connect Crozet Park and nearby neighborhoods with Downtown. The following Catalyst Projects for sidewalk connections are listed in priority order:

1. Park Road from Crozet Park to Brookwood Road
2. Hilltop Street from High Street to Indigo Road
3. High Street and Park Road from Hilltop Street to Crozet Park
4. Crozet Avenue from Tabor Street to Dunvegan Lane
5. Tabor Street to the existing Hilltop Street path, including pedestrian crossings

Estimated Costs

- ***Park Road from Crozet Park to Brookwood Road: $$$***
- ***Hilltop Street from High Street to Indigo Road: $$***
- ***High Street and Park Road from Hilltop Street to Crozet Park: $$$***
- ***Crozet Avenue from Tabor Street to Dunvegan Lane: $$$***
- ***Tabor Street to the existing Hilltop Street path: $$***

***Realization Timeframes:** 3 - 4 years per project*



4A Downtown High Street Improvements

In coordination with community members and relevant partners and agencies, design and construct improvements to High Street from Tabor Street to Library Ave. Use the Crozet Transportation Analysis study recommendations for guidance, ensure improvements provide safe pedestrian and bicycle connections, and consider if a phased approach is appropriate.

The Crozet Transportation Analysis recommends improving and connecting High Street from Tabor Street to Library Avenue. This should be a two lane local street with sidewalks on the east side of High Street and a crosswalk at Tabor Street. High Street will connect the Square with nearby neighborhoods, where community members can walk to Downtown.

A sidewalk on the west side of High Street should be provided if and when the adjacent properties redevelop.

***Estimated Cost:** $$*

***Realization Timeframe:** 3 years*

(Left) A conceptual drawing of the recommended improvement to High Street from Tabor Street to Library Avenue, using recommendation from the Crozet Transportation Analysis.

1F Park Road Corridor Design

Complete a Corridor Design for Park Road to determine the needed bicycle and pedestrian facilities to provide safe and convenient access through the corridor.

Park Road currently provides vehicular connections to Crozet Park and surrounding neighborhoods. However, there are no bicycle and pedestrian facilities on Park Road. A corridor design will determine the most appropriate type of facilities to provide safe and convenient bicycle and pedestrian access along the corridor, which may be on or off-street facilities (or a combination). Once the Dunvegan Lane connection from Park Road to Crozet Avenue is completed, this corridor will provide an important route for trips to and from Crozet Park, Downtown, and surrounding neighborhoods.

***Estimated Cost:** $*

***Realization Timeframe:** 1 year*

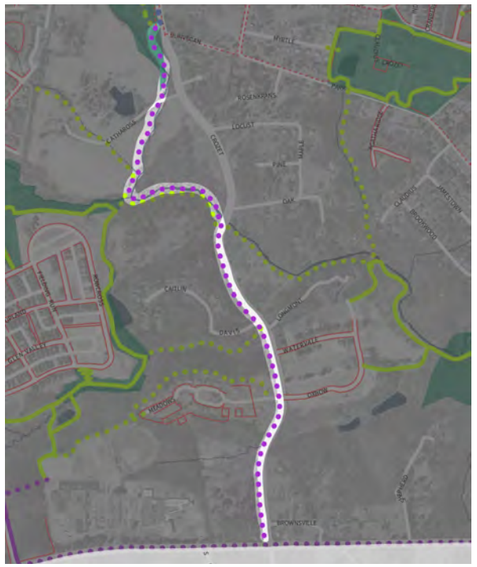
2B Crozet Avenue Shared-Use Path Feasibility Study

Conduct a feasibility study to determine a north-south alignment for a shared-use path (SUP) along or parallel to Crozet Avenue to provide a connection between Route 250 and the Crozet Connector Trail.

Throughout this Plan's engagement process, community members highlighted the importance of establishing both north-south and east-west connections for pedestrians and bicyclists in Crozet. A shared-use path along or near Crozet Avenue would provide a paved connection from the planned Route 250 shared-use path up to the planned bike lanes through Downtown Crozet. The first step of establishing this north-south path is determining the alignment. There are topography and right-of-way challenges that will need to be studied and addressed.

Estimated Cost: ***$***

Realization Timeframe: ***1 year***



(Left) A conceptual alignment of the Crozet Avenue Shared-Use Path.

3A Naturally Occurring Affordable Housing Survey and Recommendations

Phase 1: ***Conduct a survey of Naturally Occurring Affordable Housing (NOAHs) within Crozet.***

Phase 2: ***Identify programs and tools to support maintenance/preservation of NOAHs, such as a Housing Rehabilitation Zone.***

Naturally Occurring Affordable Housing (or NOAHs) refers to existing housing units (owner-occupied or rentals) that are relatively affordable due to their size, age, or other factors. NOAHs are not subsidized or constructed by a public entity. NOAHs are often at risk of being lost due to redevelopment pressures. Throughout the engagement process, community members cited the concern that NOAHs in the Downtown area would be redeveloped and no longer be affordable. Additionally, some NOAH homeowners are unable to afford the needed repairs and maintenance to keep their housing. Once a survey of NOAHs in Crozet has been completed, programs and tools can be used to help maintain and preserve these housing units.

Phase 1 Estimated Cost: ***$***
Phase 2 Estimated Cost: ***$***

Phase 1 Realization Timeframe: ***1 year***
Phase 2 Realization Timeframe: ***1 year***

3C Affordable / Workforce Housing Priority Review Process

Implement a priority review process to support development of new affordable and workforce housing within appropriate locations including within and adjacent to Centers and the Employment District.

Currently, the only process for priority review development projects in the County is for projects that have been identified by the Economic Development Office. A priority review for affordable and workforce housing projects will provide expedited site plan and related review to shorten the timeline to approval. This is especially important for projects seeking tax credits and financing, where there are tight deadlines for grant and tax credit approvals. Priority should be given to projects in appropriate locations and consistent with the land use recommendations of the Master Plan that support this type of housing, including within and adjacent to Centers and the Employment District.

Estimated Cost: ***$***

Realization Timeframe: ***1 year***

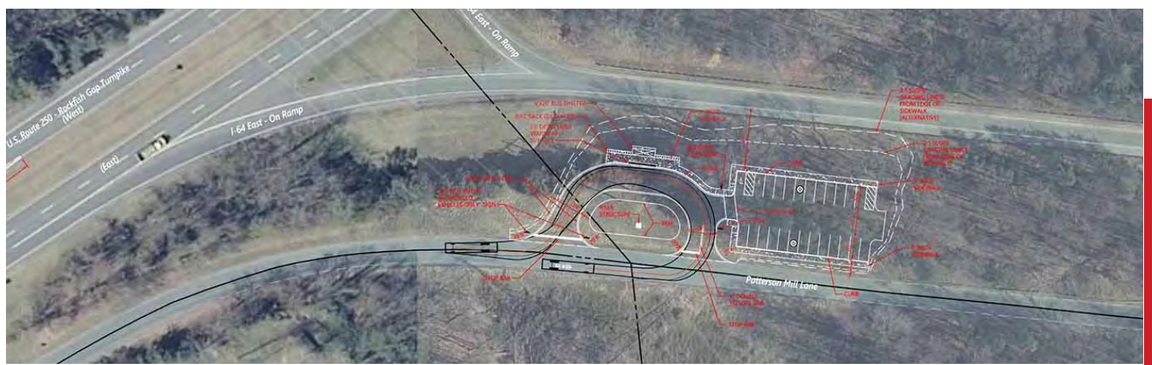
3C Afton Express Stop

Work with BRITE Transit to add a future Afton Express stop at the I-64/Exit 107 park & ride lot, once completed.

Through the TJPDC, the County has submitted a SMART Scale application for funding for a new park and ride lot at the I-64/Exit 107 interchange. This planned lot will provide 25 parking spaces and include a bus turnaround, transit shelter, bike racks, and turn lane improvements. BRITE Transit, which currently serves the Augusta County/ Waynesboro regions, is planning to provide a two-year pilot program for its Afton Express line. This Express route will connect Staunton, Fishersville, Waynesboro, Charlottesville, and Albemarle County. An Afton Express stop should be provided at the Exit 107 Park and Ride lot, which will provide more transit options for commuters. The project is proposed to be funded in the FY22-27 Six-Year Improvement Plan with a total cost of ~$3MM.

Estimated Cost: ***$***

Realization Timeframe: ***1 year***



(Above) A conceptual image of the Park & Ride Lot, shown in Albemarle County's SMART Scale application.

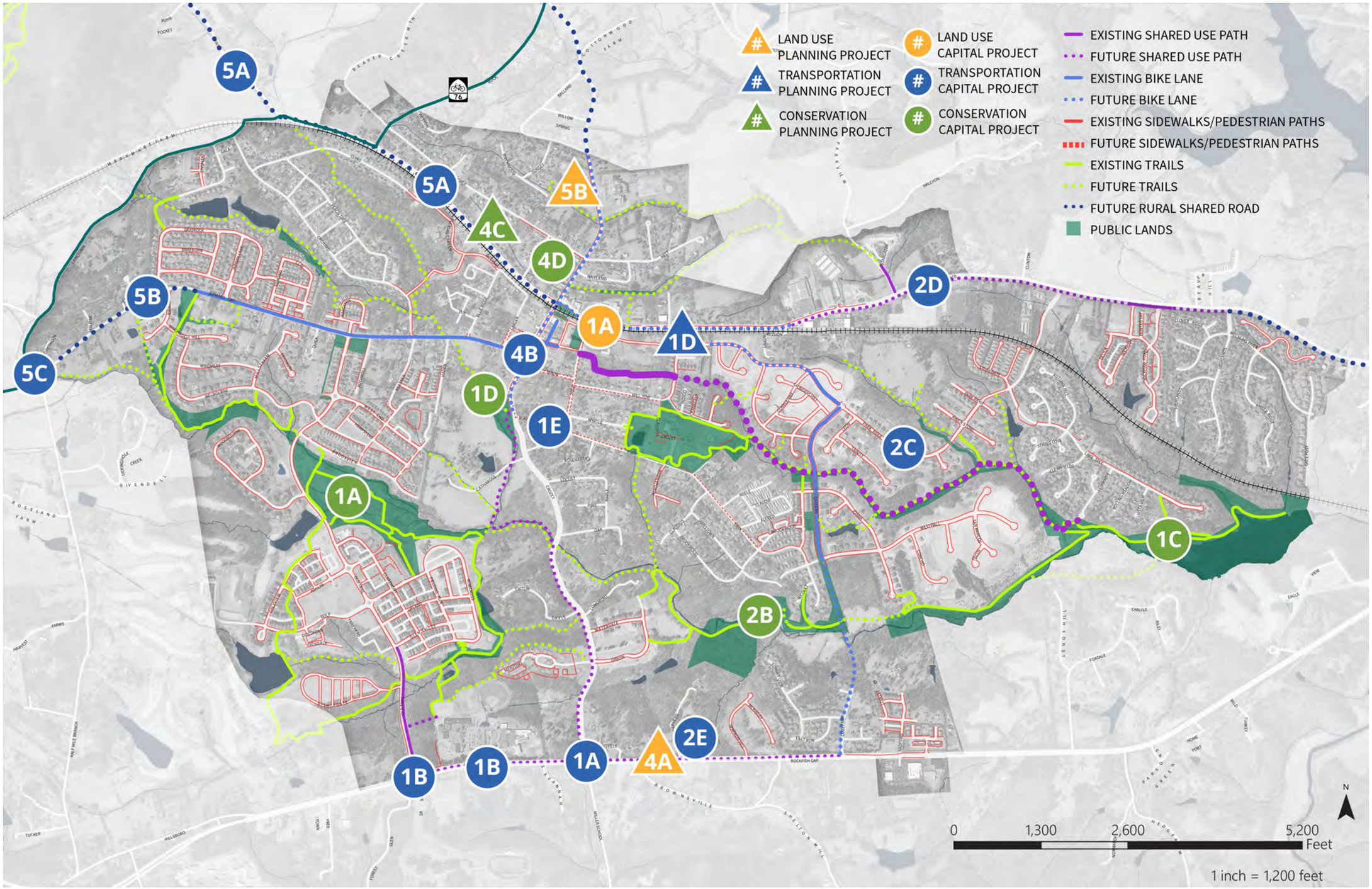
Future Projects

Future Projects: 10-20 years

Future projects may take longer to complete given cost or timeline considerations, and/or are projects that were not identified as a high priority by community members. County staff will continue to work on implementing these projects as opportunities arise (such as grants, redevelopment, and community partnerships), which may expedite the anticipated timeline.

Name	Chapter	Number	Recommendation Type	Cost Estimate	Realization Timeframe
Downtown Crozet District (DCD) Zoning Updates	Land Use	1B	Policy	$	1-2 years
Residential Zoning Update to Allow for Natural Resource Preservation	Conservation	4E	Policy	$	1 year
County Lighting Requirements Update	Land Use	4C	Policy	$	1 year
Crozet Transit Plan	Transportation	3A	Planning	$	1 year
Western Park (Phases 2 - 3)	Conservation	1A	Capital	2. $$ 3. $$	2 - 3 years
Three Notch'D Road Shared-Use Path (Phase 2)	Transportation	2D	Capital	$$	4 years
Downtown Intersection Improvements	Transportation	4B	Capital	$$$	5 years
Downtown Wayfinding Signage	Land Use	1A	Capital	$	1 year
Lickinghole Creek Trail	Conservation	2B	Capital	$ - $$	1 - 2 years (and ongoing maintenance)
Route 250 Roundabouts Old Trail and Henley/ Brownsville Entrances	Transportation	1B	Capital	$$$$ - $$$$$	5 years
Jarmans Gap Road Upgrade to Rural Shared Road	Transportation	5B	Capital	$$	3 years
Railroad Avenue and Mint Springs Road Upgrade to Rural Shared Road	Transportation	5A	Capital	$$	3 years
Parrot Branch Tributary Stream Health Study	Conservation	4C	Planning	$	1 year
Parrot Branch Stream Health Restoration	Conservation	4D	Capital	$	1 year
Route 250 and Crozet Avenue Roundabout	Transportation	1A	Capital	$$$	4 years
Route 250 West Design Guidelines	Land Use	4A	Planning	$	1 year
Railroad Crossing Feasibility Study	Transportation	1D	Planning	$	1 year
Dunvegan Lane Connection	Transportation	1E	Capital	$$$	5 years
Route 250 Shared-Use Path (between Crozet Avenue and Corey Farm)	Transportation	2E	Capital	$$$	5 years
Park Ridge Drive Traffic Calming	Transportation	2C	Capital	$$	5 years
Crozet Avenue Stormwater Management Facility Trail Access Enhancement	Conservation	1D	Capital	$	1 year (and ongoing maintenance)
Lickinghole Basin Interpretive and Educational Signage	Conservation	1C	Capital	$	1 year (and ongoing maintenance)
Old Crozet School Community Engagement	Land Use	5B	Planning	$	1 - 2 years
Bike Route 76 Signage	Transportation	5C	Capital	$	1 year

Location of Future Projects



1B Downtown Crozet District (DCD) Zoning Updates

Conduct a public engagement process to review and update the Downtown Crozet District (DCD) Zoning District requirements to a) evaluate and incorporate appropriate Downtown design guidelines, b) review and update the use requirements to reflect market demands and the goals of the Master Plan, and c) incorporate appropriate Climate Action Plan (CAP) measures.

The majority of the area on the Future Land Use Plan within the 'Downtown' land use designation and within the Town Center is also zoned Downtown Crozet District (DCD - shown in purple on the map below). The DCD was added to the County's Zoning Ordinance in 2013. Since then, plans for the Crozet Square redevelopment have continued to evolve and move forward. The DCD requirements should be evaluated and updated to include appropriate Downtown design guidelines within the zoning regulations. The update should also evaluate which types of housing are most appropriate for Downtown and what level of ground floor commercial uses can be supported by market demands. Lastly, the update should consider appropriate measures to support the County's CAP goals such as green building design, bicycle parking, electric vehicle charging, and landscaping requirements.

Estimated Cost: ***$*** ***Realization Timeframe:*** ***1 - 2 years***

(Above) The map shows the zoning districts for each parcel in Downtown Crozet, and the surrounding neighborhoods. The Downtown Crozet District (DCD) is shown in purple.

4E Residential Zoning Update to Allow for Natural Resource Preservation

Update residential zoning requirements to eliminate cluster and bonus-cluster lot size and frontage requirements to allow for more open space, tree canopy, and stream buffer preservation.

The County's current cluster development and bonus density requirements are found in the Zoning Ordinance (County Code Chapter 18) in Sections 2.2 and 2.4 and within the requirements of applicable residential zoning districts. Cluster development is intended to create more compact forms of residential development that preserve sensitive environmental features and open space. However, the current regulations still require minimum lot sizes and frontage along a street. Eliminating minimum lot size and frontage requirements would allow additional open space to be retained and allow for more creative and sensitive design that promotes the Land Use and Conservation goals of this Plan.

Estimated Cost: ***$*** ***Realization Timeframe:*** ***1 year***

4C County Lighting Requirements Update

Update the County's lighting requirements in the Zoning Ordinance to reduce lighting spillover, glare and excessive brightness.

The County's current outdoor lighting requirements are found in the Zoning Ordinance (County Code Chapter 18) in Section 4.17 and apply to lighting that emits 3,000 or more lumens. Section 4.17 requires all lighting that emits 3,000 or greater lumens to be full cutoff fixtures and limits lighting spillover on public roads and property in rural and residential districts to one-half (0.5) a foot candle. Additional lighting review is required for properties in the Entrance Corridor overlay. These cutoff and foot candle standards have not been revised since 2001. The most recent update was in 2017 to clarify that LED's that emit 3,000 or more lumens are also subject to these standards. Updating these regulations will provide more current requirements that are consistent with today's technology and will also help protect views of dark skies by reducing lighting spillover, glare, and excessive brightness.

Estimated Cost: ***$*** ***Realization Timeframe:*** ***1 year***

3A Crozet Transit Plan

Work with local transit providers to develop a transit plan to identify stop locations and infrastructure needs to establish permanent transit service within Crozet and commuter routes to and from Crozet. Prioritize providing transit infrastructure within identified centers, especially Downtown, to support local businesses and decrease reliance on parking and roadways.

A transit plan is needed to establish permanent transit service within Crozet and to identify opportunities for expansion of existing commuter services. The AVNU autonomous shuttle program demonstrated the potential for transit service within Crozet, connecting identified centers and neighborhoods. The County in partnership with local transit providers should use the plan to identify the infrastructure and funding needed for these enhanced services.

Estimated Cost: ***$*** ***Realization Timeframe:*** ***1 year***

1A Western Park Construction: Phases 2 and 3

Construct Western Park in general accord with the 2018 Western Park Master Plan.

Implementation of the adopted Western Park Master Plan is organized into three main phases. Phase 1 includes park infrastructure such as an entrance and access road, parking, utilities, and stormwater management; as well as park amenities such as a playground, pavilions and restrooms, an overlook, an amphitheater, trails and paths, and landscaping. Phase 2 is planned to have basketball courts, athletic fields, natural play areas, additional parking and restrooms, and trails and paths, including a bridge for crossing Lickinghole Creek. Phase 3 includes natural play areas, a promontory overlook deck, renovation of the community garden, boardwalks, and additional trails and bridges.

Construction of Western Park will be predominantly funded through the County's Capital Improvement Program (CIP). Once funding is in place, completion of Phase 1 is expected to take 1-2 years, Phase 2 is estimated at 2-3 years, and Phase 3 is expected to take 1-2 years. Currently, funding is allocated for a portion of Phase 1 ("Phase 1A"); this sub-phase will include the purchase and installation of playground equipment with a premium rubberized surface, as well as purchase and installation of some site furnishings such as benches, shaded picnic tables, bicycle racks, waste bins, pet waste bins, and hand sanitizer stations. A crushed stone pathway will also be installed. Phase 1A is expected to be completed this Fall (2021).

Some of the planned amenities from the Western Park Master Plan are shown below.

***Estimated Cost:* $$** ***Realization Timeframe:* 2 - 3 years**

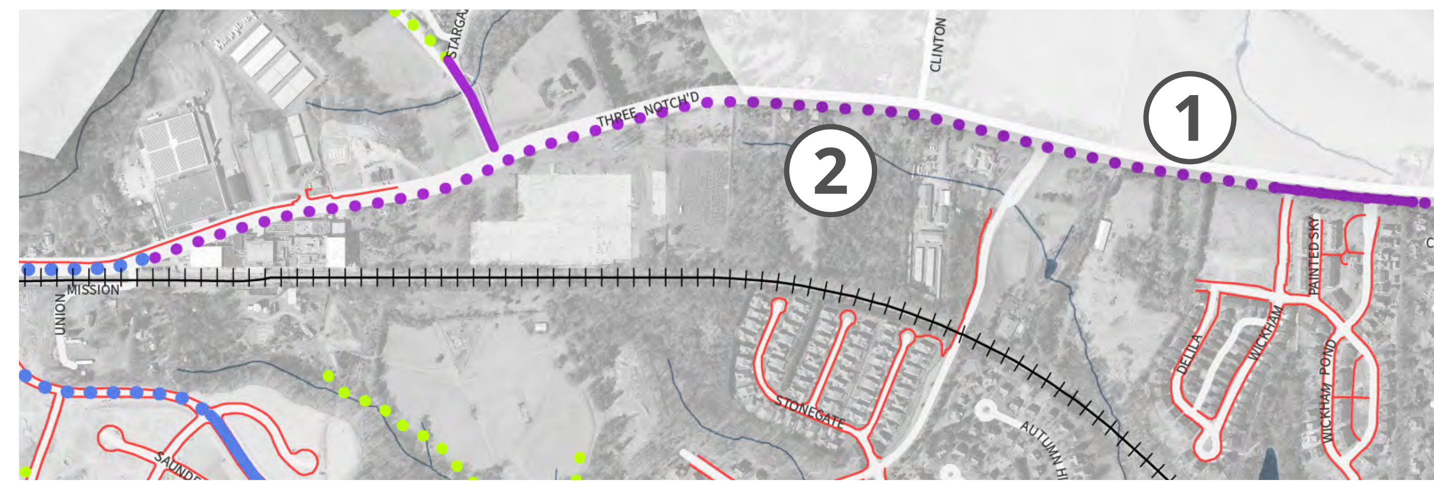
2D Three Notch'D Road Shared-Use Path: Phase 2

Through a combination of new development and County-initiated capital projects, construct a shared-use path along the south side of Three Notch'D Road, with the first phase connecting the Wickham Pond and Highlands neighborhoods to Park Ridge Drive, and the second phase connecting to the Employment District.

The eastern-most neighborhoods of Wickham Pond and Highlands do not currently have options for walking or biking safely to the rest of the Crozet Development Area. A shared-use path to accommodate both bike and foot traffic is recommended from the Highlands to the Employment District. The project should be completed in two phases. The first phase, connecting the Highlands and Wickham Pond neighborhoods to Park Ridge Drive, is a Catalyst Project. The second phase will connect from Park Ridge Drive to the Starr Hill/Music Today Employment Center, which would connect to an existing sidewalk along several plazas and to future planned bike lanes to Downtown. Properties that develop or redevelop along Three Notch'D Road should provide right-of-way and construct portions of the shared-use path along their properties.

***Phase 2 Estimated Cost:* $$** ***Phase 2 Realization Timeframe:* 4 years**

(Below) Phase 2 of the Three Notch'D Road Shared-Use Path, shown with purple dotted lines. This Shared-Use Path would continue from Park Ridge Drive (end of Phase 1) and connect with the Starr Hill/Music Today Employment District.



4B Downtown Intersection Improvements

In coordination with community members and relevant partners and agencies, design and construct intersection improvements within Downtown, including the 'quadrant' intersection. Use the Crozet Transportation Analysis study recommendations for guidance, ensure improvements provide safe pedestrian and bicycle connections, and consider if a phased approach is appropriate.

The Crozet Transportation Analysis provided multiple recommendations for the Downtown area, including intersection improvements and street connections. The main intersection improvement recommended is at Jarman's Gap Road/Crozet Avenue and Crozet Avenue/Library Avenue and is referred to in the Plan as the 'Quadrant'. The Quadrant, along with the proposed street connections, will address future queueing issues in the Downtown area. Renderings are conceptual only, and the final design will need to be determined in coordination with community members and relevant partners and agencies. A phased approach may be used, beginning with the Crozet Avenue/Library Avenue intersection.

Conceptual renderings of these improvements are shown on the following page.

Estimated Cost: ***$$$***

Realization Timeframe: ***5 years***

1A Downtown Wayfinding Signage

Provide wayfinding signage Downtown and in other destinations to help visitors and residents navigate area amenities, parking locations, and parks, and trails.

Providing wayfinding signage in Downtown Crozet, as well as other destinations (such as trailheads and parking locations) will help both community members and visitors navigate the businesses, amenities, and activities in Crozet. Wayfinding signage will be especially helpful as the Square develops and new destinations are created. This project has the potential to be completed within 10 years if Crozet community groups have the capacity to take the lead on this project in partnership with the County. Community engagement and decisionmaking around the wayfinding approach, design, and locations is recommended. Organizations such as the Downtown Crozet Initiative have already begun doing this work and may be an appropriate community partner.

Estimated Cost: ***$***

Realization Timeframe: ***1 year***

2B Lickinghole Creek Trail

Establish a trail along Lickinghole Creek, creating a continuous trail between Lickinghole Basin and Western Park.

Portions of the planned east-west Lickinghole Creek Trail are completed in Crozet, including around Westhall, Chesterfield Landing, and Old Trail. Additional trail connections are needed along the Creek to provide a continuous trail from Lickinghole Basin to Western Park. Any bridges and trails along and across the Creek must be sited carefully, due to the sensitive and sometimes steep stream banks.

Estimated Cost: ***$ - $$*** ***Realization Timeframe:*** ***1 - 2 years***

(Above) Existing and planned portions of the trail along Lickinghole Creek. Note planned alignments are approximate.

1B Route 250 Roundabouts at Old Trail and Henley/Brownsville Entrances

Design and construct the roundabouts at the intersections of Route 250 and Old Trail Drive, and Henley/Brownsville school entrances. Provide opportunities for community feedback to guide final design and project phasing.

The Crozet Transportation Analysis was completed by the consulting firm EPR, PC as part of this Plan update and recommends three roundabouts along Route 250 to address current and future queueing and level of service issues. The recommended roundabouts have been divided into two capital projects due to timing and funding considerations. Two of the intersection improvements recommended by the Transportation Analysis are a roundabout at Old Trail Drive/Route 250 and a roundabout at the Henley Middle/Brownsville Elementary Schools entrance. These roundabouts would improve queueing, which is especially important given the school traffic during pick up/drop off. This project will also provide improvements for pedestrians who need to cross Route 250 to access Western Albemarle High School.

Estimated Cost: ***$$$$ - $$$$$*** ***Realization Timeframe:*** ***5 years***

5B Jarman's Gap Road Upgrade to Rural Shared Road

Provide a more formal connection to Bicycle Route 76 by upgrading Jarman's Gap Road to a Rural Shared Road west of where the existing bicycle lane ends.

Adjacent to the Grayrock development, Jarman's Gap Road transitions from an Avenue to a Rural Shared Road, where the existing bike lanes end. A more formal on-street bicycle connection should be provided from the existing bike lanes to Bike Route 76, which intersects with Jarman's Gap Road at Lanetown Road. Improvements should be coordinated with VDOT projects such as VDOT's paving program for regular maintenance.

Estimated Cost: ***$$*** ***Realization Timeframe:*** ***3 years***

5A Railroad Avenue and Mint Springs Road Upgrade to Rural Shared Road

Upgrade Railroad Avenue and Mint Springs Road to a Rural Shared Road and add signage to provide a formal connection for cyclists to Mint Springs Park.

Rural Shared Roads are medium-to-high capacity roads with moderate vehicular speeds that reflect edge conditions of the Development Area. These roads should respect the existing rural character while enhancing the safety of bicyclists. Improvements should be coordinated with VDOT projects such as VDOT's paving program for regular maintenance. During the engagement process, community members expressed a desire for safer access for cyclists to Mint Springs Park. Upgrading Railroad Avenue and Mint Springs Road to Rural Shared Roads will provide safer on-street facilities for cyclists.

Estimated Cost: ***$$*** ***Realization Timeframe:*** ***3 years***

(Above) A conceptual rendering of a Rural Shared Road.

4C Parrot Branch Tributary Stream Health Study

Hire an independent, third-party consultant to study the status of the Parrot Branch tributary stream between Railroad Avenue and St. George Avenue to identify the status of the stream. Based on study findings, develop recommendations for restoring stream health while allowing current uses to continue adjacent to the stream.

A tributary to Parrot Branch, which is located between St. George Avenue and Railroad Avenue, has been identified by the Virginia Department of Environmental Quality as an impaired stream (shown in purple on map below). Much of the stream is located on residential lots, which were built out prior to the current stream buffer regulations. Therefore, much of the stream lacks a natural buffer around it, and portions of it appear to be piped. An independent, third-party consultant will identify the status and location of the stream and develop recommendations for restoring stream health. This will require coordination with private property owners. The study can identify ways for current uses of the property to continue while still allowing for opportunities to enhance and restore the buffer, such as through native plantings. There are separate stream restoration efforts underway for portions of the tributary on County-owned property.

Estimated Cost: ***$***

Realization Timeframe: ***1 year***

The map above shows the Parrot Branch tributary that is recommended for study in purple.

Impaired Streams

Stream Buffers

4D Parrot Branch Stream Health Restoration

Continue stream restoration efforts along Parrot Branch on County-owned properties. As part of these improvements, retrofit the existing stormwater management facility at Crozet Elementary School to improve runoff and treatment.

The Parrot Branch stream runs along the southern portions of the County-owned Crozet Elementary School and Old Crozet School properties. Restoration efforts for Parrot Branch have already been underway on the Crozet Elementary School property; this restoration will be continued on the Old Crozet School site. Additionally, the stormwater management facility at Crozet Elementary School will be retrofitted to improve stormwater runoff and treatment.

Estimated Cost: ***$ - $$***

Realization Timeframe: ***1 year***

1A Route 250 and Crozet Avenue Roundabout

Design and construct a roundabout at the intersections of Route 250 and Crozet Avenue. Provide opportunities for community feedback to guide final design and project phasing.

The other major roundabout capital project recommended by the Transportation Analysis is a roundabout at the intersection of Route 250 with Crozet Avenue and Miller School Road. This roundabout will address current and future level of service and queueing issues at this intersection. The project will need to consider the potential alignment of shared-use paths along Route 250 and Crozet Avenue.

Estimated Cost: ***$$$***

Realization Timeframe: ***4 years***

4A Route 250 West Design Guidelines

Work with community members and the Architectural Review Board to develop Corridor-specific design guidelines for the Route 250 West Entrance Corridor.

Route 250 West forms one of the Development Area boundaries for Crozet and is also designated as both a County Entrance Corridor and a Virginia Scenic Byway. Currently, the County has general, County-wide Entrance Corridor guidelines that are used to evaluate development proposals within the County's Entrance Corridors; there are not specific guidelines for individual roadways. Corridor-specific guidelines for Route 250 should consider the relevant recommendations in this Plan, including the landscaped buffers recommended in the Future Land Use Plan.

Estimated Cost: ***$***

Realization Timeframe: ***1 year***

← — → Route 250 West

1D Railroad Crossing Feasibility Study

Conduct a feasibility study on an additional railroad crossing between Downtown Crozet and the Park Ridge Drive and Three Notch'D Road intersection. Ensure that Union Mission community members are actively engaged in the ongoing process of establishing a new crossing with safe and convenient access.

While the railroad tracks through northern Crozet are an important part of its development and provide opportunities for additional transportation options, they can also act as a barrier to connections. There are four existing railroad crossings in Crozet. A feasibility study between Downtown and Park Ridge Drive would identify if an additional railroad crossing can be pursued. If so, the study would also determine if a full vehicular and pedestrian/bicycle crossing is feasible, or if only a pedestrian/bicycle crossing would be possible. Community member input will be used to inform the study, especially in the Union Mission neighborhood, where an existing at-grade crossing is present.

Estimated Cost: ***$***

Realization Timeframe: ***1 year***

The map above shows the study area for the recommended Railroad Crossing Feasibility Study.

1E Dunvegan Lane Connection

Provide a street connection at Dunvegan Lane, connecting Park Road and Crozet Avenue.

The Crozet Transportation Analysis recommends providing a street connection at Dunvegan Lane between Park Road and Crozet Avenue. This should be a two lane local street with sidewalks. A left turn lane would likely be needed on Crozet Avenue to access Dunvegan Lane. This connection would provide more options for pedestrians, cyclists, and drivers, and would better distribute traffic in the Downtown area.

Estimated Cost: ***$$$***

Realization Timeframe: ***5 years***

2E Route 250 Shared-Use Path (between Crozet Avenue and Cory Farm)

Through a combination of new development and County-initiated capital projects, construct a shared-use path along the north side of Route 250, between Crozet Avenue and Cory Farm.

A shared-use path along Route 250 will stretch from the existing path at Old Trail Drive to the existing sidewalk at the Clover Lawn Village Center (shown in white below). Community members have provided feedback on the importance of providing safe pedestrian and bicycle access along Route 250 and of connecting neighborhoods with the Schools. Properties that develop or redevelop along Route 250 should provide right-of-way and construct portions of the shared-use path along their properties.

Estimated Cost: ***$$$***

Realization Timeframe: ***5 years***

The white, hatched line above shows the general location of the recommended shared-use path along Route 250.

2C Park Ridge Drive Traffic Calming

Provide traffic calming measures on Park Ridge Drive between Three Notch'D Road and Eastern Avenue in coordination with VDOT. Measures could include restriping, landscaping, bicycle sharrows, and mini roundabouts at intersections.

The portion of Park Ridge Drive from Three Notch'D Road to Eastern Avenue does not have bike lanes and is unable to accommodate bike lanes in the future due to the number of curb cuts for driveways. Traffic calming measures should be provided to improve safety for cyclists. Improvements could include restriping, landscaping, sharrows, and mini roundabouts at intersections. If feasible, improvements should be timed with the construction of the remaining portion of Eastern Avenue.

Estimated Cost: ***$$***

Realization Timeframe: ***5 years***

1D Crozet Avenue Stormwater Wetlands Trail Access Enhancement

Enhance the existing County-owned stormwater wetlands along Crozet Avenue to provide a trail access point, educational signage, site furnishings, and areas for viewing wildlife.

Currently, the County-owned stormwater wetlands on Crozet Avenue is difficult to publicly access, as there are not maintained paths or places to sit. The area will be enhanced to provide a trail access point, additional educational signage, site furnishings, and areas for viewing wildlife. A future trail is recommended through this site and would continue across Jarman's Gap Road along Powells Creek.

Estimated Cost: ***$***

Realization Timeframe: ***1 year***

The existing County-owned stormwater wetlands area recommended for enhancement to provide a trail access point is pictured above.

1C Lickinghole Basin Interpretive and Educational Signage

Pursue opportunities for interpretative and educational signage, removal of invasive species, as well as installation of additional site furnishings (e.g. benches) at Lickinghole Creek Reservoir.

As part of managing Lickinghole Basin as a Natural Area, there are opportunities for interpretive and educational signage, removal of invasive species, and installation of site furnishings (such as benches). With over 200 species of birds present in the Natural Area, adding signage and places to observe wildlife will provide additional amenities and experiences for community members.

Estimated Cost: ***$***

Realization Timeframe: ***1 year***

Examples of signage from other localities are shown above.

5B Old Crozet School Community Engagement

Conduct an engagement opportunity to solicit community feedback for the future use of the Old Crozet School and adjacent grounds, with a focus on supporting goals for housing, school needs, green building/site design, and historical and cultural programming.

The County owns two properties (Tax Map Parcels 56-61 and 56-62) totaling 8.08 acres along Crozet Avenue North and across from Crozet Elementary School. The use of these properties is currently leased to two tenants: the private Field School and the non-profit Old Crozet School Arts. The 'Old Crozet School' building on these properties is also a contributing building within the Historic District. Once the Field School completes its planned move to a different location, community input should be used to identify future uses for this site that support the goals of this Plan. Any development of the site must also include protection and enhancement of the existing stream buffer.

Estimated Cost: ***$***

Realization Timeframe: ***1 - 2 years***

(Above) The Old Crozet School, viewed from the existing field near the stream, facing northeast.

5C Bike Route 76 Signage

Provide signage directing cyclists using Bike Route 76 to Downtown Crozet. As part of this initiative, explore opportunities to reroute Bicycle Route 76 through Downtown Crozet.

National Bike Route 76 runs along the edge of the Crozet Development Area, including portions of Lanetown Road, Railroad Avenue, and Buck Road. Signage should be provided to direct cyclists to Downtown Crozet via Jarman's Gap Road. This provides potential for additional visitors and tourists for Downtown. Based on community feedback, consideration could also be given to rerouting Bike Route 76 through Downtown, and reconnecting via Crozet Avenue North to Buck Road.

Estimated Cost: ***$***

Realization Timeframe: ***2 years***

Ongoing Projects

The following is a list of this Plan's Ongoing Projects. These include projects that may happen with future development or redevelopment, such as the development review process for proposed legislative applications. These also include projects that are part of ongoing County programs and processes, including ongoing maintenance of County land and facilities. Other projects may be completed as funding or partnerships become available, such as pedestrian connections.

Refer to the full text for each Recommendation by its letter and number and corresponding Chapter in the Plan (yellow for Land Use, blue for Transportation, and green for Conservation).

The following are expected outcomes for Ongoing Projects:

- Buildout of a Bicycle and Pedestrian Network
- Strengthened Regional Connectivity
- Protected and Enhanced Natural and Scenic Resources
- Appropriately-Scaled Redevelopment and Infill in Existing Neighborhoods

1E Opportunities for New Trailheads

3A Opportunities for Trail Connections to Mint Springs and Beaver Creek

5A Urban Forestry, Tree Canopy, and Stream Restoration Opportunities

2B Carter Street: Review Considerations for Legislative Review Applications

3B Infill Development within Downtown Neighborhoods

4B Lighting Improvements on Public Buildings and within Public Lands

1D Community and Rooftop Solar Projects

5A Placemaking Projects

3B Future Transit Stops

4C Shared Parking Agreements in Downtown

4D Additional Downtown Parking Solutions

4B New Trail Siting and Alignment

1C Crozet Square Programming and Long Term Maintenance and Improvements of Public Spaces

2F Additional Pedestrian Connections in Historic and Aging Neighborhoods

5D Coordination with VDOT on Rural Shared Road Improvements

1B Manage Lickinghole Basin as a Natural Area with Passive Recreation

1C Lickinghole Basin Interpretive and Educational Signage, Removal of Invasive Species, and Site Furnishings

2C Trail Connections: Parks and Green Systems Plan and Neighborhood Spur Trails

4A Educational and Interpretive Signage for New County Parks and Trails

5B Collaboration with HOA's to Enhance and Expand Native Tree Canopies

5D Removal of Invasive Species

(Above) Solar panels on the Crozet Library.

Appendix

Glossary

Affordable Housing: Albemarle County defines housing as affordable when "combined costs of housing consume no more than 30% of household income, including monthly rent, plus any tenant-paid utilities for renters, and monthly mortgage payments plus property taxes and insurance for homeowners." Albemarle County's Housing Policy establishes income limits to qualify for affordable housing. For affordable rental housing, the maximum amount of gross income a household can early to quality for affordable housing is 60% of Area Media Income (AMI), adjusted for household size. For affordable for-sale units the income limit is 80% of AMI, adjusted for family size.

Area Median Income (AMI): The Area Median Income (AMI) is the midpoint of all of the incomes for a given area. Half of households in a given area have a higher income than the midpoint, and half have an income less than the midpoint.

Basic (or Primary) Industry: An industry or firm that produces goods primarily for consumption by external customers, bringing new revenue into the local economy.

Biodiversity Action Plan: The County's Biodiversity Action Plan (BAP) was adopted in June 2018 and has goals and recommendations for biodiversity to protect significant areas and habitats of biological importance in the County.

Building Footprint: The amount of land area (square footage) a building takes up with its first floor. Largescale commercial uses, such as single-story big-box stores and malls, have large building footprints.

By-right: Development and land uses that can occur by administrative review, commonly referred to as "by-right", rather than by legislative review (involving the Board of Supervisors). If the application or proposal meets the requirements of the County's Zoning Ordinance and other relevant codes, the application must be approved.

Capital Improvement Program (CIP): A budgeting tool that identifies future capital projects and provides a 5-year planning schedule for funding. The CIP schedules improvements for projects such as building repair and maintenance, equipment purchasing and repairs, stormwater management, transportation improvements, and parks and trails.

Climate Action Plan: The County's Phase 1 Climate Action Plan was adopted in October 2020 and includes a target to reduce greenhouse gas emissions in the County by 45 percent from 2008 levels by 2030 and to achieve zero net emissions by 2050. The Plan includes goals, strategies, and actions for Transportation & Land Use, Buildings, Renewable Energy Sourcing, Sustainable Materials Management, and Landscape, Natural Resources & Agriculture.

Complete Streets: Streets designed to safely accommodate all modes of transportation, including bicyclists, pedestrians, motorists, and transit users.

Density (dwelling units/acre): When used in planning, density refers to the concentration of people, buildings, or streets in an area. It is typically expressed in terms of dwelling units per acre. A higher number of units per acre has a greater density than a smaller number.

Dwelling Unit: A single unit providing complete, independent living facilities for one or more persons. Type of dwelling units include: Single-Family Detached (units that do not share any walls with other units, or standalone houses), Single-Family Attached (units that do share walls, such as a townhouse or duplex), and Multi-family (multiple dwelling units within one building or complex, usually in the form of apartments, condos, or multiplexes).

Economic Development: The process through which a community works to make its transaction of goods and services, resources, or market responsiveness more sustainable and resilient.

Ecosystem Services: The processes that nature inherently carries out that provide benefits to humans, such as water and air filtration and flood control.

Façade: The face of a building.

Frontage: The area between a building or parcel and the road, which can include sidewalks, benches, street trees, and outdoor seating in more urban areas.

Flex Space: Space designed for a variety of employment uses, which may include: administrative or other office space, Research & Development (R&D), laboratories, and even small assembly or manufacturing areas.

Grading: The process of ensuring a level base or re-shaping the land to have a specified slope.

Green Infrastructure: Consists of the interconnected network of biologically active land such as forest, streams, marsh, and grassland, that support native species, maintain natural ecological processes, sustain air and water resources, and contribute to health and quality of life.

Growth Management Policy: The County's Growth Management Policy, as described in the County's Comprehensive Plan, directs development into areas identified as 'Growth Areas' (Development Areas) while conserving the remainder of the County for rural uses and protection of natural resources. 5 percent of the County's land area is designated Development Area and the remaining 95 percent is designated Rural Area.

Heat Island Effect: The phenomenon of built and paved surfaces retaining heat and making predominantly urban areas up to 5.4° F hotter than rural areas during the day and up to 22° F hotter during calm nights.

Housing Cost Burdened: A household is considered to be cost burdened when it pays more than 30% of its gross income for housing.

Human Scale: Human scale refers to urban design characteristics for pedestrians, or how a space looks and feels to a person walking through and using it. A buildings' location on the lot in relation to the street, it's height and massing, and architecture all contribute to human scale.

Infill Development: Building in the under-used parcels of already-developed areas, which increases building density and land conservation.

Intermittent Stream: A stream that carries water a considerable portion of the time, but that ceases to flow occasionally or seasonally.

Land Use: The purpose that a lot or group of lots is being used for, such as commercial, institutions (e.g. schools), residential, or office.

Level of Service (LOS): A measurement that looks at a road's performance and provides a measure for traffic flow. Factors analyzed include vehicle speeds, density, and congestion. LOS is typically measured using letters A through F. An "A" rating indicates free-flowing traffic and a "F" rating indicates severe congestion (bumper to bumper).

Mixed-Use: A variety of land use types in the same area or within the same building. For example, a mixed-use building could be one that has stores and restaurants on the ground story and apartments on the upper stories.

Multimodal: Refers to infrastructure that provides accommodations for several different transportation types or modes (e.g. bicycle, transit, etc.).

Naturally Occurring Affordable Housing (NOAHs): Privately owned and operated residential rental properties that maintain low rents without public subsidy, sometimes referred to as NOAHs.

Perennial Stream: A stream that has continuous flow in parts of its stream bed all year, during years of normal rainfall.

Preserved Slopes: Slopes of twenty-five (25) percent or greater within the County's Development areas that are designated for preservation. These slopes are depicted on the County's Zoning Map.

Relegated Parking: Parking that is located behind or to the side of buildings relative to the street. Relegated parking to the side should be set back further than the building and screened from the street.

Research & Development (R&D): Land uses including design, experimentation, development of prototypes, engineering, scientific applications, and administration. This term includes fields such as: medical technology, communication systems, transportation, multimedia, and development of electronic technology, communication systems, or information systems. Development, construction, and testing of prototypes may be associated with this use.

Right-of-Way (ROW): A general term denoting land or property, usually in a strip, acquired for or devoted to a street. This land can include the travel lanes, bike lanes, planting strips, medians, and sidewalks.

Setbacks: The minimum or maximum distance a building must be located from the street, sidewalk, edge of a parcel, or another boundary. Setbacks can be for the front, rear, and sides of a building.

Single-Occupancy Vehicle: A privately-operated vehicle with the driver as the only person in the car.

Stepbacks: A break in the face of a building made by recessing the upper part back further from the lower part. Stepbacks may be required over a certain height or a certain number of stories. They allow more sunlight onto the street below and create a more open overall feeling for pedestrians.

Stormwater Management: Facilities and activities that handle and treat the volume and pollution from water that runs off of impervious surfaces. This can be done through gray infrastructure (pipes and water treatment plants) and green infrastructure (plants and pervious methods).

Stream Buffer: A vegetated area near a stream. This shades and protects the stream for adjacent land uses and stormwater runoff. See Chapter 17 of the County Code for a detailed description of County stream buffer regulations.

Street Capacity: The amount of traffic a street can support. Streets are often measured in terms of their Level of Service (see definition). The capacity or LOS can be improved by creating additional street connections and promoting other types of transportation, such as walking, cycling, and public transit.

Structured Parking: Vehicular parking that is contained within a structure or underneath a structure, as opposed to a surface lot. This includes parking decks, garages and parking underneath a building.

Traffic Calming: Elements of street design that cause cars to drive more slowly than they otherwise would. Examples can include road-bumps, trees, narrow lanes, and building scale.

Virginia Department of Transportation(VDOT): A state agency that manages and maintains public streets in Albemarle County.

Walkshed: An area around a central destination or amenity that is reachable by walking, typically within a ¼ or ½ mile radius.

Wayfinding: A form of real-time "spatial problem solving" through landmarks, architectural clues, lighting, and signage.

Workforce Housing: In Albemarle County, to qualify for workforce rental housing, a household must have a gross income between 60% Area Median Income (AMI) and 100% AMI. To qualify for workforce homeownership opportunities, household income must fall between 80% AMI and 120% AMI.

Zoning District: An area that is designated for certain uses as permitted by the County's Zoning Ordinance. Each parcel in the County has a Zoning District designation.

Zoning Code/Ordinance: A law that determines whether certain uses and designs are allowed within the district in question. It may also regulate form standards, such as lot size, placement, bulk, density, and the height of structures.

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Community Engagement and Feedback Summary

Introduction

A master plan is a collaboratively developed document that describes a community's vision for future development, using text, maps, and diagrams. In Albemarle County, master plans are used to guide future public and private development and to coordinate and prepare more detailed planning activities.

The Crozet Master Plan update process began in fall 2019 and was completed in fall 2021. The two-year planning process was organized into four phases:

- Phase 1: Community Visioning
- Phase 2: Focus Areas and Designing Strategies
- Phase 3: Draft Recommendations
- Phase 4: Plan Draft, Review, and Adoption

The community engagement process was dynamic and iterative, with each phase building upon the previous phase. This approach required participants, County staff, and elected officials to learn, interact and engage through various mediums. Given the COVID-19 pandemic and necessary public health precautions, this process transitioned to predominantly virtual methods in early March 2020 through the completion of the project.

Engagement Goals

One of the ongoing objectives for engagement throughout the master planning process was to provide a variety of opportunities and methods for all types of participants. This objective was frequently challenged in the face of the COVID-19 pandemic, as County staff no longer had opportunities to "meet people where they are" and have face-to-face conversations with community members that have historically been underrepresented in civic processes.

Yet, this challenge also enabled County staff, as well as elected and appointed officials, to leverage new technology and engagement approaches – including webinars, virtual workshops, videos, online questionnaires, and live comments. These methods provided options for community members who have limited opportunities to join in-person to participate in the master plan update process via telephone or online.

Engagement Methods

During the master planning process, community members had the opportunity to engage with County staff, and each other, through the following methods:

- **Community Workshops** – Community workshops were held in-person during Phases 1 and 2, and virtually in subsequent phases. These opportunities were designed to begin with education and information-sharing about planning and development content, followed by interactive small group discussions and activities (in-person) or content sorted by different topics (virtual). The goals of these workshops were to: 1) solicit input and feedback from a broad cross-sector of community members and stakeholders, and 2) for community members to hear from their neighbors throughout Crozet.

- **Crozet Community Advisory Committee (CCAC) Meetings** – The Crozet Community Advisory Committee (CCAC) is a group of members appointed by the Albemarle County Board of Supervisors. CACs are a venue for appointed members to discuss and provide comments on County programs and policies, including long-range planning efforts. Committee members can provide feedback and indicate preferences, though CACs do not have a formal legislative (voting) role in the planning and development process, unlike the Planning Commission and Board of Supervisors (see more about this topic in the "Internal Structure" section below).

- **Community Pop-Ups** – In an effort for County staff to be available for informal and face-to-face conversations, community pop-ups were held at various locations or virtually throughout the process. Community pop-ups took the form of "coffee talks", virtual "office hours", an interactive map at the Crozet 5K, and taking the County's Mobile Engagement Office (a van branded "Let's Talk Albemarle") out to various locations in Crozet. Two tours on transportation and historic areas & housing were also held simultaneously in October 2019. These opportunities enabled information-sharing about the master planning process, one-on-one conversations with County staff, and answering questions about any topics relevant to the Crozet Master Plan.

Monthly Crozet Community Advisory Committee (CCAC) meetings were held throughout the duration of the project. The photo above was taken at the CCAC's May 2019 meeting, where CAC members were invited to share feedback on the 2010 Crozet Master Plan in preparation for the project's start in the fall. CCAC meetings were held virtually as a health and safety precaution in response to the COVID-19 pandemic.

- **Focused Conversations** – Focused conversations were opportunities to learn about, discuss, and reflect on specific topics that evolved from community input during Phase 1. Focused conversations were held on 'Housing' and 'Architecture and Preservation' topics in Phase 2. County staff reached out to professionals in these fields and community members directly affected by or interested in these topics.

- **PublicInput.com Engagement Hub** – Virtual engagement for this project was hosted and documented on PublicInput.com/ImagineCrozet. The virtual community workshops, questionnaires, and opportunities to review draft documents were hosted on this website. This website allowed for a wide variety of question types – ranking, open-ended, multiple choice. Videos, documents, and other project resources were uploaded to this website. Dynamic (changing as input is received) reports were produced for each engagement opportunity.

- **Community Outreach** - Engagement events and opportunities were advertised through several methods, including the Albemarle County website, calendar and email list, through Homeowners Association (HOA) email distribution lists, an email list maintained by the CCAC Chair, flyering, the Crozet Gazette, and the Crozet Community Association (CCA) email list. On occasion, local news stations and newspapers covered local meetings and events.

- **Draft Review and Feedback** – During Phases 3 and 4, draft recommendations and draft chapters were published on the project's virtual engagement hub on PublicInput.com. Hard copies were available at Crozet Library. Community members were invited to provide specific comments and suggested edits throughout the draft documents as well as provide overall comments and feedback. While comments were also received via email by County staff, one of the objectives of this approach was to provide a venue for community members to view all comments and suggested edits and enable an ongoing dialogue.

Organizational Structure

The master planning process was guided by three formal entities: Albemarle County Planning Division staff, the Planning Commission, and the Board of Supervisors.

County staff in the Planning Division of the Community Development Department (CDD) served as the project management team for the update to the Crozet Master Plan.

Staff responsibilities included:

- development and implementation of community engagement methods, including coordination with the Crozet Community Advisory Committee and incorporation of public input;
- technical analysis and plan drafting, in collaboration with consultants, County staff across various divisions and departments, and partner agencies;
- plan production and preparation of draft content for review; and
- facilitation of Planning Commission and Board of Supervisors work sessions and public hearings.

The Planning Commission is a public body established and appointed by the Board of Supervisors, whose primary role is to serve as an advisory body to the Board regarding planning, zoning, land subdivision, and development topics. The Planning Commission provides a recommendation to the Board of Supervisors on amendments to the comprehensive plan, including the Crozet Master Plan.

Albemarle County is governed by a six-member Board of Supervisors, which is elected by voters. The Board of Supervisors takes a decision-making vote on whether long-range planning documents are formally adopted as a Comprehensive Plan Amendment (CPA).

Documentation

Documentation at each phase of the engagement process was critical in defining the direction and priorities for the Crozet Master Plan update. Prior to the COVID-19 pandemic, most engagement opportunities were in-person. County staff prepared graphic and written feedback summaries that were subsequently made available on the Albemarle County website. Crozet Community Advisory Committee meetings were recorded, posted on the County website, and minutes taken by the CCAC secretary. Following the implementation of PublicInput.com in Phase 2, dynamic reports were produced for each engagement opportunity and were available for community members to view online throughout the duration of the project.

Phase 1 | Community Visioning

The first phase of the Crozet Master Plan update, "Community Visioning", began in August 2019 and was completed in December 2019. A primary objective of this first phase of work was to revisit and evaluate the 2010 Crozet Master Plan's guiding principles, given Crozet's growth and development over the last decade. As part of this work, community engagement opportunities were centered around identifying community members' hopes, concerns, and priorities for the future of Crozet. The engagement themes were used to identify "Focus Areas" for Phase 2 and update the 2010 guiding principles.

Phase 1 Engagement Activities

- **Crozet Community Advisory Committee Meeting – Public Participation Process and Phase 1 Schedule Overview** | August 14, 2019 | Crozet Library
- **Imagine Crozet Community Workshop #1** | September 9, 2019 | Western Albemarle High School
- **Coffee Talk #1** | September 19, 2019 | Mudhouse Crozet
- **Imagine Crozet Community Workshop #2** | October 1, 2019 | Western Albemarle High School
- **Crozet Trails Crew 5K Pop-Up** | October 11, 2019 | Claudius Crozet Park
- **Coffee Talk #2** | October 17, 2019 | Grit Coffee Old Trail
- **Crozet Character & Connectivity Tour** | October 26, 2019 | Various locations via Crozet Trolley and CAT Crozet Connect Bus
- **Imagine Crozet Community Workshop #3** | November 7, 2019 | Field School of Charlottesville/ Old Crozet School
- **Coffee Talk #3** | November 21, 2019 | Green House Coffee

Methods

The master plan update process began with a community workshop at Western Albemarle High School on September 9, 2019, and was followed by two community workshops, as well as a series of "pop-up" opportunities including coffee talks and County staff attendance at the Crozet Trails Crew 5K. The first two community workshops were designed with a series of activities, facilitated by County staff. Participants were invited to rotate through each activity with a group of 10-20 community members. This format enabled participants to share their individual perspectives as well as discuss topics in small group formats. In the interim of community workshops, the pop-ups provided community members with an opportunity to have one-on-one conversations with County staff, ask questions, and learn about the project. This was one method that staff used to conduct outreach to Crozet community members new to County civic processes.

Additionally, County staff hosted a "Crozet Character and Connectivity Tour", which utilized the Crozet Trolley and Charlottesville Area Transit's Crozet Connect Bus to tour various sites in Crozet and discuss land use and transportation topics, respectively. Participants registered in advance and selected one tour to attend.

The third community workshop was designed in an "open-house" format with opportunities for community members to share their feedback with staff in one-on-one conversations as well as through an online questionnaire on PublicInput.com. Participants that could not attend in-person, were invited to participate online.

What did we hear?

Throughout Phase 1, County staff heard that participants value their sense of community (as demonstrated through active community organizations and volunteerism), as well as the community's "small town feel" (a phrase repeatedly used by community members). Community members also value Crozet's natural and scenic beauty, access to parks and recreational opportunities, and its proximity to rural areas, farms, wineries, and breweries.

Participants' hopes for the future of Crozet included: retaining its "small town feel"; supporting a connected community with all types of transportation options; a vibrant Downtown; preserving natural resources; and encouraging sustainability.

Participants were concerned that adequate infrastructure has not been provided concurrent with the community's growth over the last ten years, specifically regarding school capacity, vehicular traffic conditions, and safe pedestrian connections near

(Above) In the first phase of the project, community engagement was conducted virtually and in-person. Community workshops were held, including the Connectivity Tour (pictured above) on October 14, 2019. Community members visited various trail, sidewalk, and vehicular sites around Crozet and shared their insight and experiences using them.

Downtown. Additionally, rising housing costs – and thus costs of living – were a significant concern to participants, alongside a desire for a broader range of housing options to expand housing access and socioeconomic diversity. Bungalow courts, small cottages, and multiplexes were identified as housing types compatible in scale and form with existing housing in Crozet. These options provide opportunities for shared gathering spaces and housing at a variety of price points. Preservation of existing historic homes and affordable housing options were also noted as important for the future of Crozet.

In reflecting on the 2010 Crozet Master Plan, participants noted the need for small business development and increased local job opportunities. Technology and sustainability fields (such as renewable energy) were specifically mentioned, as well as jobs that are accessible to workers without advanced degrees. Providing workforce development opportunities, such as apprenticeships and technical education, are methods to support employment of local community members.

Full summaries from each community workshop are available on the Albemarle County website.

How was feedback used?

Phase 1 community input was used to update the Guiding Principles for each chapter of the Crozet Master Plan. These draft principles were shared at the November 7, 2019 community workshop and were updated based on feedback shared both in-person and online.
County staff heard several themes (noted above) across various engagement opportunities and methods. These were used to identify "Focus Areas", which set the foundation for the organization of Phase 2 engagement content – and later refined to become Goals within each master plan chapter.

The focus areas included:

- Transportation
  - o Network connectivity
  - o Safety and access for all users
  - o Local and regional transit
- Land Use
  - o Housing variety and choice
  - o Appropriate design and scale
  - o Mixed-use activity centers
  - o Rural edges
  - o Placemaking, arts and culture
- Conservation
  - o Community parks and outdoor recreation
  - o Trail and greenway connectivity
  - o Access to rural and regional amenities
  - o Natural resource conservation and sustainability

(Above) Crozet community members participate in a pop-up activity at the 2019 Crozet Trails Crew 5K. County staff attended and hosted "pop-ups" around Crozet to spread awareness about the project and provide opportunities for input.

Phase 2 | Focus Areas and Designing Strategies

The second phase of the Crozet Master Plan update, "Focus Areas and Designing Strategies" took place from January until August 2020, with objective of co-creating strategies to address challenges and goals within the Focus Areas (identified during Phase 1). During this phase, County staff facilitated conversations with community members from different neighborhoods in Crozet, housing developers, small business owners, and local organizations. The draft land use content was developed based upon ongoing community engagement, the 2017 Community Survey, and the 2010 Master Plan.

This phase of work took longer than initially anticipated, given the outbreak of the COVID-19 pandemic, beginning in March 2020, which required County staff to transition all engagement and project work online in virtual formats.

Phase 2 Engagement Activities

- **Land Use Community Workshop** | January 13, 2020 | Western Albemarle High School
- **Downtown Crozet Focused Conversation #1**| January 28, 2020 | Piedmont Place
- **Downtown Crozet Focused Conversation #2** | January 29, 2020 | Crozet Library
- **Neighborhoods and Housing Community Workshop** | February 6, 2020 | Western Albemarle High School
- **Housing Focused Conversation** | February 21, 2020 | The Meadows Apartments
- **Architecture & Preservation Focused Conversation** | April 2020 | Virtual via PublicInput.com Engagement Hub
- **Bicycle and Pedestrian Virtual Workshop** | May 2020 | Virtual via PublicInput.com Engagement Hub
- **Crozet Community Advisory Committee – Engagement Plan Update and Land Use Goals** | May 13, 2020 | Virtual via Zoom
- **Roadways and Transit Virtual Workshop** | June 2020 | Virtual via PublicInput.com Engagement Hub
- Conservation Virtual Workshop | June 2020 | Virtual via PublicInput.com Engagement Hub
- **Crozet Community Advisory Committee - Land Use Work Session** | June 10, 2020 | Virtual via Zoom
- **Crozet Community Advisory Committee - Land Use Work Session #2 & Bicycle and Pedestrian Feedback Summary** | June 10, 2020 | Virtual via Zoom
- **Crozet Community Advisory Committee – Conservation Work Session** | August 12, 2020 | Virtual via Zoom

Methods

During Phase 2, two in-person community workshops centered around land use topics were hosted at Western Albemarle High School in January and February 2020. County staff facilitated small group discussions for different geographic areas of Crozet, with topics including center and district classifications, form, density, housing types, and specific land use changes. An online questionnaire replicating in-person content was also made available for those unable to attend.

Two in-person, housing-focused conversations were held at The Meadows – one with local affordable housing developers and nonprofit organizations and the second with community members. These conversations were centered around barriers and opportunities to develop affordable housing. These conversations helped draft specific land use recommendations as well as inform the County's affordable housing policy update.

Beginning in March 2020, all engagement opportunities for the master plan update transitioned to virtual with the Commonwealth of Virginia's State of Emergency due to Novel Coronavirus (COVID-19). One to two workshops were held for each chapter of the master plan: transportation, land use, and conservation. Each online opportunity was followed by discussion(s) with the Crozet Community Advisory Committee. The online questionnaires/virtual workshops were facilitated through the engagement hub on PublicInput.com and CCAC meetings were held via Zoom.

What did we hear?

Transportation

Two online community workshops were hosted on PublicInput.com with the goal of identifying emerging priorities for bicycle, pedestrian, and vehicular connections. Questions were developed to further understand the initial themes from Phase 1 of 1) network connectivity, 2) safety and access for all users, and 3) local and regional transit. A subsequent work session was held with the CCAC to discuss the results from the community workshops and solicit feedback.

The Crozet Connector Trail was identified as an important section of the trail network to upgrade and expand access for strollers, wheelchairs, and novice cyclists (who typically prefer to bike off-street), especially given its ability to connect many neighborhoods to Downtown. Important pedestrian connections in, and connecting to, Downtown were identified, including Tabor Street, Park Road, Crozet Avenue, Three Notch'D Road and Park Ridge Drive (to connect the Highlands, Wickham Pond, and Western Ridge to Downtown Crozet). Streets in Downtown Crozet were identified as the highest priority areas for sidewalk improvements. Several locations with safety concerns or lacking bicycle or pedestrian infrastructure were identified on a map.

(Above) In-person community workshops were held prior to the COVID-19 pandemic, with opportunities for online participation.

Initial results from a parking study and traffic study were shared on the second virtual community workshop for feedback. Participants shared intersections, turning movements, and roadways conditions that where they felt particularly unsafe. There was support for a roundabout at the intersection of Old Trail Drive and Route 250, and several intersections in Downtown Crozet were identified as priorities for street improvements.

In 2019, Crozet saw two new forms of transit: JAUNT's Crozet CONNECT commuter service between Crozet and Charlottesville (which continues to operate), and the temporary AVNU shuttle autonomous vehicle pilot. Frequency of service (or the time between vehicles) and stop location were the most important considerations for participants when choosing to ride transit.

Land Use

Building upon the themes heard in Phase 1, participants at the January (in-person and virtual) community workshops helped to identify classifications for each of the activity centers in Crozet. Downtown, Starr Hill / MusicToday, Clover Lawn, and Old Trail's center and district classifications (as shown in this plan) were identified during this workshop.

At the second community workshop, participants were invited to prioritize planning concepts for Crozet as well as provide input on specific land use changes for "Northern", "Western", "Eastern", and "Southern" Crozet. Participants prioritized walkability in neighborhoods close to centers like Downtown, Old Trail and Clover Lawn, as well as form recommendations that respond to existing neighborhoods and are based upon historic architectural styles and designs. Staff heard that while density and form are interrelated planning concepts, form provides an important link to the appearance of historic development patterns. Density is also important to consider when planning for critical investments, such as schools and roadways.

Participant input on specific land use changes and appropriate housing types for each geographic area of Crozet are available on the Albemarle County website.

In addition to the public workshops, two conversations focused on Downtown Crozet were hosted by County Planning and Economic Development staff, in partnership with the consulting firm Downtown Strategies. The goals of these conversations were to learn about market conditions of Downtown Crozet

from the perpsective of local business owners, property owners, and neighbors. This information was used to inform the market analysis completed by Downtown Strategies in May 2020.

Three work sessions were held with the CCAC to discuss land use content in Phase 2, including the draft Guiding Principles (May 13, 2020), draft conceptual recommendations for land use changes and a Downtown Neighborhoods Overlay (June 20, 2020), a new Middle Density Residential Land Use category (July 8, 2020). These draft conceptual recommendations were developed based on input heard at the January and February community workshops.

An initial concept of a Downtown Neighborhoods Overlay was drafted in response to ongoing concerns about loss of historic homes and future development pressure for homes located adjacent to Downtown Crozet, as well as the desire to preserve existing affordable housing options and provide a broader range of "missing middle" housing types. This was presented and discussed at the June 20, 2020 CCAC meeting. Staff received questions about the implications of the Downtown Neighborhoods Overlay, how it would play a role in the development review process, and whether the Pleasant Green site should be included within the draft Overlay.

At the July 8, 2020 CCAC meeting, a new land use category was recommended by some CAC members related to specific housing types that Crozet community members would like to see in the area. This was based upcoming feedback from in-person workshops during the "Community Visioning" phase. This was drafted into the Middle Density Residential land use category, which was further refined during the subsequent phases.

Conservation
One online workshop was hosted on PublicInput.com with the goal of identifying emerging conservation priorities related to 1) community parks and outdoor recreation, 2) trail and greenway connectivity, 3) access to rural and regional amenities, and 4) natural resource conservation and sustainability. A subsequent CCAC meeting was held to discuss results and hear feedback.

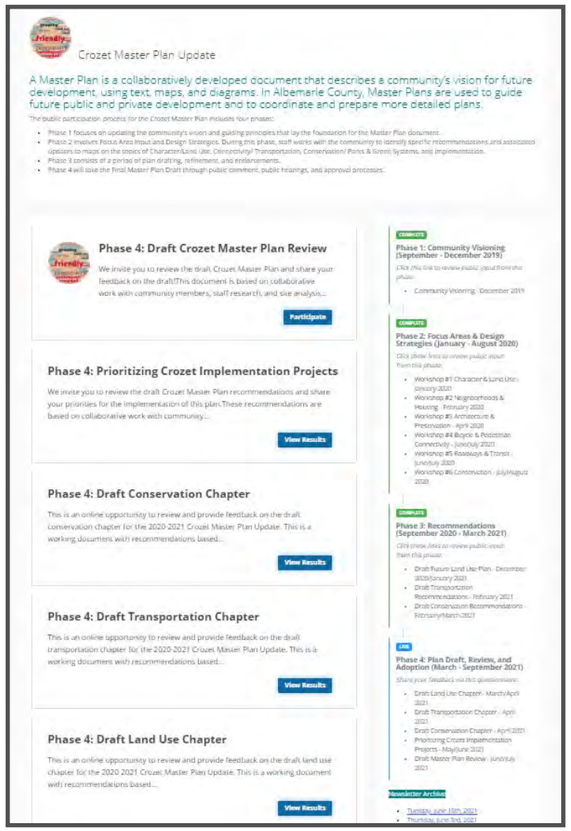
Western Park remained a top priority for community parks (as reflected in the 2010 Master Plan). Lack of sidewalks/paths in neighborhoods and trail conditions (such as mud or standing water) were identified as the greatest barriers to trail access and usage. There was support for installation of a crushed stone surface along the Crozet Connector Trail. This approach meets ADA accessibility guidelines and provides an interim solution by connecting some of Crozet's eastern neighborhoods to Downtown Crozet.

Finally, regional connections to Mint Springs Park, the Three Notched Trail, and the Blue Ridge Tunnel were identified as important, as well as rerouting Bike Route 76 to Downtown Crozet to serve as a tourist destination for cyclists traveling along this route.

Full summaries from each community workshop are available on the Albemarle County website.

How was feedback used?

Community engagement during Phase 2 identified and prioritized conceptual recommendations and implementation projects for each chapter of the master plan. These concepts were further developed and vetted with community members, staff, and appointed and elected officials in Phase 3.



(Above) Beginning in March 2020, all engagement opportunities for the master plan update transitioned to virtual methods due to the "Commonwealth of Virginia's State of Emergency due to Novel Coronavirus (COVID-19)". An online "engagement hub" was hosted on PublicInput.com with a variety of questionnaires and resources, including videos, presentation recordings, draft content, and maps.

Phase 3 | Draft Recommendations

The third phase of the Crozet Master Plan update, "Draft Recommendations", took place from August 2020 through March 2021. The objective of this phase was to refine the conceptual strategies identified in Phase 2 through community workshops and meetings with the Crozet Community Advisory Committee. This resulted in the production of draft maps and recommendations. These maps and recommendations were the foundation for draft chapters produced in the final phase of this project.

The draft land use content generated significant discussion amongst community members, with lack of clear consensus, throughout this phase. Additional meetings with the Crozet Community Advisory Committee and work sessions with the Planning Commission and Board of Supervisors were held in an effort to provide staff with direction on land use maps and recommendations.

Phase 3 Engagement Activities

- **Crozet Community Advisory Committee – Planning Commission Work Session Recap** | September 9, 2020 | Virtual via Zoom
- **Crozet Community Advisory Committee – Land Use Recommendations Special Meeting** | September 23, 2020 | Virtual via Zoom
- **Draft Future Land Use Plan & Recommendations** | September 2020 – February 2021 | Virtual via PublicInput.com Engagement Hub
- **Virtual Office Hours with County Staff** | October 2, 2020 | Virtual via Zoom
- **Crozet Community Advisory Committee Land Use Recommendations Review (Middle Density, Downtown Neighborhoods, and Old Trail)** | November 12, 2020 | Virtual via Zoom
- **Crozet Community Advisory Committee Land Use Discussion** | November 30, 2020 | Virtual via Zoom
- **Crozet Community Advisory Committee Transportation Analysis Overview** | December 9, 2020 | Virtual via Zoom
- **Crozet Community Advisory Committee Transportation Recommendations Review** | January 27, 2021 | Virtual via Zoom
- **Draft Transportation Recommendations** | February 2021 | Virtual via PublicInput.com Engagement Hub
- **Crozet Community Advisory Committee Conservation Recommendations Review** | February 10, 2021 | Virtual via Zoom
- **Draft Conservation Recommendations** | February - March 2021 | Virtual via PublicInput.com Engagement Hub

Methods

With the ongoing COVID-19 pandemic, community engagement continued in virtual formats with online questionnaires through PublicInput.com and meetings held through Zoom. Draft recommendations for each chapter (Land Use, Transportation, and Conservation) were shared via PublicInput.com and presented at CCAC meetings (with recordings made available online for those unable to attend).

County staff also piloted "virtual office hours" to provide an informal setting to learn about the project, share input, and ask questions.

What did we hear?

Transportation
In February 2021, County staff presented draft transportation recommendations at the monthly CCAC meeting and through an online questionnaire on PublicInput.com. In both formats, questions were asked related to sidewalks, trails and bicycle paths, existing roads, proposed roads, and transit in Crozet.

Recommended sidewalk projects were prioritized by participants in the following order: Park Road, Crozet Avenue, Hill Top Street, and High Street. Participants and CCAC members also mentioned Tabor Street and Three Notch'D Road as important sidewalk connections not included on this list. A shared-use path along Crozet Avenue was prioritized as a north-south trail connection in Crozet.

County staff drafted a new street type, 'Rural Shared Roads', to address the need for safe cycling routes throughout Crozet. This street type also retains the rural design of these designated roads. The Rural Shared Roads concept was supported by most online participants and CCAC members.

Interim results from the Crozet Traffic Study, completed by the engineering consulting firm EPR, were shared at this time. The Crozet Traffic Study evaluated future road conditions for the year 2045. Two intersection improvements were evaluated on Crozet Avenue at Jarman's Gap Road and Library Avenue. The recommended "quadrant" concept (shown in this plan) was preferred by most participants.

Land Use
In September 2020, County staff presented draft land use recommendations at the monthly CCAC meeting and through an online questionnaire on PublicInput.com. In both formats, questions were asked related to new land use concepts/categories and specific land use changes in Crozet. Four work sessions with the CCAC were held related to land use. The online land use questionnaire was open and live for responses from September 2020 until February 2021.

Middle Density Residential
The Middle Density Residential land use category was drafted in response to discussion at the July 8, 2020 CCAC meeting, where a new land use category was recommended by some CAC members to encourage specific housing types that Crozet community members would like to see in the area during Phase 1.

The first draft of the Middle Density Residential (MDR) land use category recommended a density range of 6-24 units/acre. During virtual (live and static forms) engagement in September 2020, several CCAC members objected to applying the MDR land use category to areas in Crozet where it would equate to an increase in potential population. This was due to ongoing concerns about infrastructure needs, traffic congestion, and school capacity.

Other CCAC members and the Planning Commission (at a September 2020 work session) supported creating this new land use category as a balanced approach for providing affordable housing in keeping with the scale of development in Crozet.

During the November 30, 2020 CCAC meeting, CCAC members voted against providing their support for the MDR Land Use category. Three members supported the change and 8 members voted against it.

At the January 2021 Planning Commission work session, Commissioners supported the Middle Density Residential land use category with suggested revisions, including further refinement to show how missing middle housing types would be encouraged and revisiting scale of the category. Based on this feedback, staff revised the MDR category to include more guidance on appropriate types of MDR housing and reduced the maximum density from 24 to 18 units per acre.

Downtown Neighborhoods Overlay
The Downtown Neighborhoods Overlay was drafted in response to ongoing concerns about loss of historic homes and future development pressure for homes located adjacent to Downtown Crozet. It also was drafted to preserve existing affordable housing options and provide a broader range of "missing middle" housing types.

Staff received questions about the implications of the Downtown Neighborhoods Overlay, how it would play a role in the development review process, and whether the Pleasant Green site should be included within this Overlay.

CCAC members voted on the Downtown Neighborhoods Overlay at their November 30, 2020 meeting: 3 voted in favor; 7 voted against. Members voted on two proposed changes to the overlay: 1) removing the Pleasant Green property from the boundary, and 2) suggesting that staff modify the infill development provisions to "reduce or eliminate the possibility of developers tearing down existing structures". These suggestions were supported unanimously by all members in attendance.

At the January 2021 Planning Commission work session, Commissioners expressed concerns with the proposed Downtown Neighborhoods Overlay and did not support the inclusion of Pleasant Green. Commissioners felt that additional criteria and requirements were needed, especially for infill development.

In response to this feedback, the Downtown Neighborhoods Overlay was removed from the draft future land use plan and replaced with a text recommendation for a Downtown Neighborhoods Architectural and Cultural Resources study (as this work was outside of the scope of the master plan process). The recommended Downtown Neighborhoods boundary does not include the Pleasant Green neighborhood.

Specific Land Use Changes: White Gate Farm
The property owner of White Gate Farm (TMP 56-91A) requested staff to revisit the property's future land use designation during the Master Plan process. They requested a change from the 2010 Greenspace designation to a category that would allow densities consistent with neighboring properties.

Staff recommended a split designation of Neighborhood Density Residential and Middle Density Residential on the property, consistent with neighboring Wickham Pond's land use. This change was shared at the September CCAC meeting, in response to CCAC members' preferences for housing types such as bungalow courts, fourplexes and townhouses, rather than large footprint apartment buildings.

CCAC members voted on the proposed split designation of White Gate Farm (Middle Density Residential and Neighborhood Density Residential) at the November 30, 2020 meeting. 4 members supported the change and 7 voted against it. CCAC members suggested a change to staff proposal to designate White Gate Farm as Neighborhood Density Residential – Low. 10 committee members were in support of changing the property's Future Land Use designation to Neighborhood Density Residential – Low. 1 member voted against this new proposal.

At the Planning Commission's January 2021 work session, Commissioners provided mixed feedback on the proposed change to the White Gate Farm site and the recommended Neighborhood Service Center in Wickham Pond. Some Commissioners were in favor of the split designation and Neighborhood Center designation, while some others did not provide feedback or felt that the site should not be a Center.

Specific Land Use Changes: Greenspace Designations
Staff began conversations with community members about updating green space designations to distinguish between regulated environmental features (stream buffers, floodplain, steep slopes), public recreation areas, and private property at land use public workshops in January and February 2020 (Phase 2).

Most community members engaged throughout this process supported designating green space with more refined land use categories. This also aligns with recently updated long range planning efforts (Pantops Master Plan, Rio29 Small Area Plan). Community members have shared a desire to preserve existing green space along Route 250 and improve pedestrian connectivity to nearby schools.

There was mixed support for changing land use designations of developable, privately-owned properties with a greenspace designation in the 2010 Master Plan. Staff recommended changing the land uses on these properties to a land use designation that aligns with existing zoning or allows additional development potential. At the November 30, 2020 CCAC meeting members voted on the proposed changes to several of these greenspace parcels, many of which were not supported by the committee (a summary of votes is provided on pages 14-15).

At the Planning Commission January 2021 work session, Commissioners supported a consistent application of the 'Parks and Green Systems' land use category, which should be applied to sensitive environmental features, visual buffers, and areas currently or planned as open/recreational space. It should not be applied to privately-owned, developable properties. This recommended approach was used to update the Future Land Use Plan.

Specific Land Use Changes: Old Trail
The draft Land Use Plan (September 2020) designated portions Old Trail as "Community Mixed Use" – a new land use category that Albemarle County adopted after the 2010 Crozet Master Plan. Some community members that were involved with previous master planning efforts felt that this area was "previously negotiated" and the future land use designation should not change. The developer of Old Trail requested updates to the Land Use Plan to better align with the approved uses and densities within Old Trail (per the approved rezoning).

Community members shared their support for a sports facility along Rt. 250 given its proximity to Old Trail and schools. However, there is mixed support for a future land use map change to allow institutional uses, more broadly, in this area.

At the November 30, 2020 meeting, CCAC members voted on the proposal for Old Trail Village to be designated as a Village Center with the Community Mixed Use Designation. 7 members voted against this change out of concern that this would expand commercial uses in Old Trail; 3 voted in support and 1 member abstained. At least one CAC member and community members in attendance shared the sentiment that Old Trail residents should weigh in on this topic.

During the January 2021 Planning Commission work session, Commissioners expressed support for the future land use designations and Village Center designation as applied to Old Trail Village, while others did not provide feedback. There was mixed feedback on altering the Development Area boundary to include the entire clubhouse and restaurant; some Commissioners requested to review the Development Area boundary adjustment again once it had been applied to the draft future land use plan.

At the March 2021 CCAC meeting, some Old Trail Village community members in attendance expressed concern about the proposed Community Mixed Use designation for Block 26. These attendees felt that this Block should retain its current Urban Density Residential land use category, citing concerns with potential future commercial/retail development.

Conservation
In February and March 2021, County staff presented draft conservation recommendations at the March CCAC meeting and published an online questionnaire on PublicInput.com. In both formats, questions were asked related to parks, trails, regional amenities, and natural resources in Crozet.

County staff proposed a phased approach to construct Western Park, which was supported by most participants. There was acknowledgement that this project was recommended in the previous 2010 Crozet Master Plan.

Additionally, viewsheds and lighting ("dark skies") recommendations were noted by participants as missing from the draft recommendations. Tree preservation and stream restoration were noted as important priorities for this chapter.

How was feedback used?

Community input and feedback was used to refine and draft the content included in the Transportation, Land Use, and Conservation chapters.

As part of this iterative process, County staff developed land use recommendations based on earlier community feedback and goals (Phases 1 and 2). These specific land use recommendations and land use changes were met with little to mixed support from community members, especially in cases where recommendations could result in increased density, vehicular traffic, and/or school capacity. These recommendations and a summary of community feedback was brought to the Planning Commission and Board of Supervisors for input. These two appointed and elected bodies comprise the formal legislative process by which master plans are adopted. They are responsible for ensuring that master plans and small area plans are aligned with the broader Comprehensive Plan and the County's strategic plan.

Phase 4 | Plan Draft, Review and Adoption

The fourth and final phase of the Crozet Master Plan update, "Plan Draft, Review, and Adoption) took place from March through October 2021.

The objectives of this phase were to:

- Incorporate Phase 3 feedback on draft recommendations and develop the draft Master Plan chapters;
- Prioritize draft Master Plan recommendations and gather estimates on timing and cost from relevant County staff and local partners; and
- Facilitate work sessions and public hearings with the Planning Commission and Board of Supervisors.

Phase 4 Engagement Activities

- **Crozet Community Advisory Committee Meeting – Draft Land Use Chapter Overview & Land Use Updates** | March 10, 2021 | Virtual via Zoom
- **Draft Land Use Chapter Review & Feedback** | March – April 2021 | Virtual via PublicInput.com Engagement Hub and Adobe Upload (for line-by-line comments)
- **Crozet Community Advisory Committee Meeting – Draft Transportation and Conservation Chapters Overview** | April 14, 2021 | Virtual via Zoom
- **Draft Transportation and Conservation Chapters Review & Feedback** | April - May 2021 | Virtual via PublicInput.com Engagement Hub and Adobe Upload (for line-by-line comments)
- **Crozet Community Advisory Committee - Land Use Discussion** | May 12, 2021 | Virtual via Zoom
- **Community Pop Ups - Draft Implementation Recommendations** | May 24 and 26, 2021 |
- **Online Questionnaire - Prioritizing Implementation Projects** | May – June 2021 | Virtual via PublicInput.com Engagement Hub
- **Information Session – Prioritizing Crozet Implementation Projects** | May 25, 2021 | Virtual via Zoom, uploaded to Youtube.com
- **Crozet Community Advisory Committee – Implementation Chapter Review** | June 9, 2021 | Virtual via Zoom
- **Draft Crozet Master Plan Review – Online Questionnaire** | June – July 2021 | Virtual via PublicInput.com Engagement Hub and Adobe Upload (for line-by-line comments)
- **Community Pop Ups – Draft Crozet Master Plan** | June 17, 2021 | Crozet Library and Crozet Square
- **Draft Crozet Master Plan Review – Online Questionnaire** |September 2021 | Virtual via PublicInput.com Engagement Hub and Adobe Upload (for line-by-line comments)

Methods

Most community engagement conducted during this final phase of work was virtual. Given increased vaccination rates and reduced cases locally, some in-person, socially distanced engagement opportunities were hosted.

Each draft chapter of the Crozet Master Plan was presented to the CCAC during their monthly meetings, and an online engagement opportunity was provided on PublicInput.com. The online questionnaire provided a comment box for general feedback as well as a link to provide in-line comments and edits via Adobe Creative Cloud. After incorporating comments from participants, County staff revised draft chapters and presented them to the Planning Commission and the Board of Supervisors at work sessions.

In addition to virtual meetings with the CCAC, Planning Commission, and Board of Supervisors, County staff held "community pop-ups" utilizing the "Let's Talk Albemarle" van at various locations in Crozet, including Crozet Library, Crozet Park, Brownsville Market, Mudhouse, and The Square. The goals of these pop-ups were to expand outreach and awareness of the project, provide opportunities to have one-on-one conversations with County staff, share project materials, and ask questions.

(Above) Planning staff collaborated with the County's Communications and Public Engagement office (CAPE) to pilot the County's Mobile Engagement Office with a van branded, "Let's Talk Albemarle". Staff held several pop-ups to solicit input on the implementation chapter and draft Master Plan in various locations.

What did we hear?

Phase 4 of the update process contained a significant amount of content and detail. Below is a summary of recommendations that generated discussion amongst the community and stakeholders. Full summaries from each community workshop are available on the Albemarle County website.

Implementation
During this phase, County staff compiled a list of implementation projects from each of the draft chapters with project descriptions, cost estimates, and timeline estimates. Participants were asked to prioritize these projects within categories (Planning, Policy, and Capital) to help identify "Catalyst" and "Long Term" projects for the Implementation chapter.

Online participants ranked the "Crozet Avenue Shared-Use Path Feasibility Study" as the highest priority planning project; the "Residential Zoning Update to Allow for Natural Resource Preservation" as the highest priority policy project; "Eastern Avenue Construction" as the highest priority capital project (greater than $3 million in cost), and "Downtown/High Street Improvements" as the highest priority capital (less than $3 million in cost). These results were shared with the CCAC, the Planning Commission, and the Board of Supervisors for feedback. Both the CCAC and the Planning Commission noted that the Naturally Occurring Affordable Housing Survey and Downtown Neighborhoods Architectural and Cultural Resources Study should be prioritized as Catalyst projects given the time sensitive nature of these projects. Some CCAC members also advocated for Western Park (all phases) to be identified as a Catalyst project.

Land Use and Middle Density Residential
During the March 10, 2021 CCAC meeting, some CAC members expressed a desire to see the Middle Density Residential (MDR) category applied in additional locations in Crozet. The Planning Commission also shared this feedback at their January 12, 2021 work session. In response, County staff applied the Middle Density Residential land use designation to properties in the Tabor/High Street area. This change was supported by the majority of CCAC members who shared comments about this topic at the May 12, 2021 CCAC meeting. The property owners of this area did not support the MDR designation. This land use change was reflected in the Plan shared with the Planning Commission at the September 14, 2021 public hearing.

At the September 14th public hearing, the Planning Commission recommended removing the MDR designation from the Tabor/High Street area. County staff updated the draft Master Plan document accordingly in advance of the October 20, 2021 Board of Supervisors public hearing.

How was feedback used?

As each of the draft chapters were developed, opportunities to provide comments and feedback were provided (via PublicInput.com, email, telephone, and in-person pop-ups). Feedback on individual chapters was incorporated where possible into the complete draft Crozet Master Plan. Community feedback was shared in summary with the Planning Commission and Board of Supervisors at work sessions, prior to public hearings.

Middle Density Residential Guidance

The Middle Density Residential land use category is intended to encourage housing types that are similar in size and scale to existing neighborhoods in the County, especially those areas that are designated for Neighborhood Density Residential. Due to their size and scale, housing in this category can easily become a part of the fabric of an existing single-family neighborhood without causing abrupt transitions between different housing types and scales of buildings. The Middle Density Residential land use category helps to bridge the gap between single-family housing and multi-level apartment buildings. It helps bridge a gap in building sizes and scales by providing better transitions between building sizes and can also help provide affordable housing options. By encouraging modestly-sized homes in specific areas, the Middle Density Residential category can encourage smaller and more affordable market rate units such as accessory dwelling units, multiplexes, and bungalow courts. In terms of density and scale, the Middle Density Residential category fits between Neighborhood Density Residential and Urban Density Residential.

Intent: Low to mid-density residential and small-scale non-residential uses such as commercial and institutional uses; intended to encourage a variety of housing types, encourage smaller housing units that are naturally more affordable, and to promote housing choice and affordability.

Primary Uses: Residential densities in the range of 6-12 units per acre are recommended. Residential densities of up to 18 units per acre may be considered to accommodate additional affordable housing (beyond any baseline affordability requirements); or to allow for construction of small-scale housing types: bungalow courts, small and medium multiplexes, accessory dwelling units, live/work units, and small single family cottages, tiny houses.*

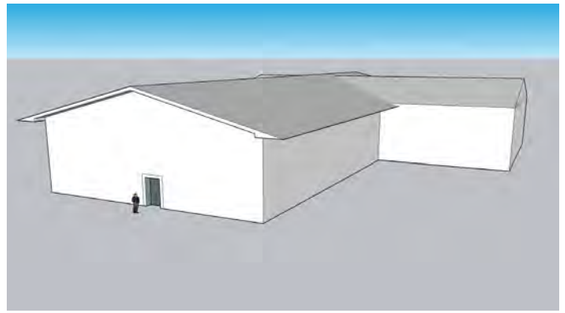
Building & Form Guidance: Residential forms including, but not limited to: small multiplexes, medium multiplexes, live/work units, bungalow courts, accessory dwellings, single family cottages and other similarly scaled residential development. Townhouses and single family detached units are allowable building forms, though smaller unit types on smaller lots are encouraged to increase affordability. Large multiplexes are not recommended within this land use. A mix of housing types should be provided with developments over 20 units, though exceptions can be made for developments providing predominantly small-scale housing types referenced in Primary Uses.

Height & Massing
- Up to 3 stories
- Suggested maximum building footprints:
- Commercial/retail: 5,000 sq. ft.
- Office/Institutional: 20,000 sq. ft.
- Residential single use building: 12,000 sq. ft.

Prioritized Design Principles:
- Provide a mixture of housing types and affordability.
- Bicycle and pedestrian connectivity.
- Access to parks, amenities, and green systems.

*see housing types descriptions for more information

Middle Density Housing Types

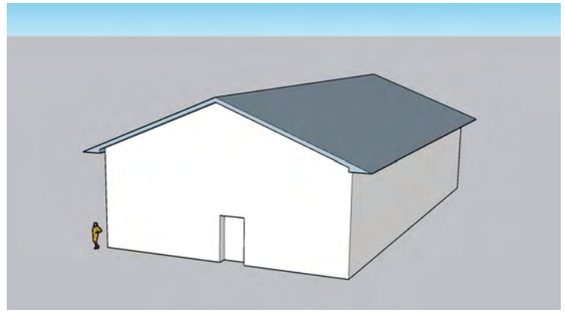


Medium Multiplex

A multiple-family dwelling structure containing 7-12 dwelling units. The units may be arranged side-by-side and/or stacked. Units typically share an entrance along the street.

o Height: Up to 3 stories
o Footprint: Approx. 5,000 to 12,000 sq ft
o Unit size: Approx. 800 to 1,500 sq ft

(Above) An example of a medium multiplex with the appearance of a medium-to-large single-unit house.
Image Credit: missingmiddlehousing.com



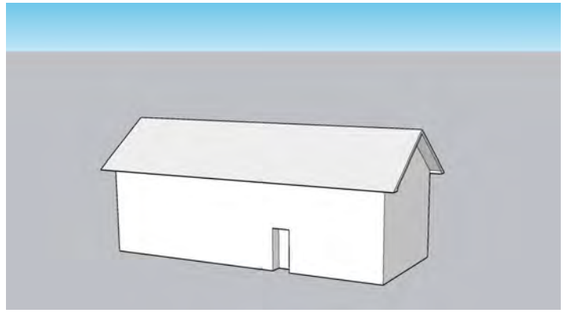
Small Multiplex

A multiple-family dwelling structure containing 2-6 dwelling units. The units may be arranged side-by-side and/or stacked, and are also commonly referred to as a duplex, triplex, or quadruplex.

The units collectively have an appearance similar to a medium to large single-unit house. The structure may include a rear yard and a shared entry from the street.

o Height: Up to 3 stories
o Footprint: Approximately 4,000 to 5,000 sq ft
o Typical unit size: Approx. 800 to 1,200 sq ft

(Right) Examples of small multiplexes with the appearance of medium single-unit houses.
Image Credit (Top): missingmiddlehousing.com

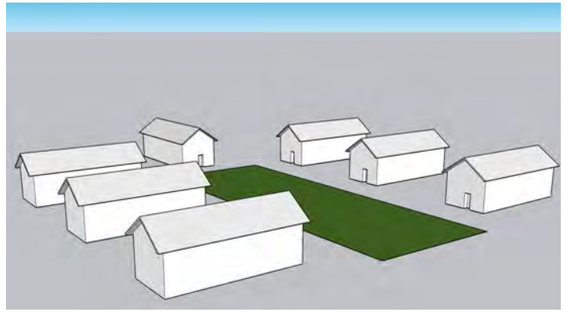


Small single-family cottages

A building containing one dwelling unit that meets the form guidance below:

o Height: 1-2 stories
o Footprint: Approx. 1000 to 1500 sq ft
o Unit size: Approx. 1000 to 1500 sq ft
o Lot size: less than .2 acres

(Above) An example of a small, single-family cottage in Crozet.

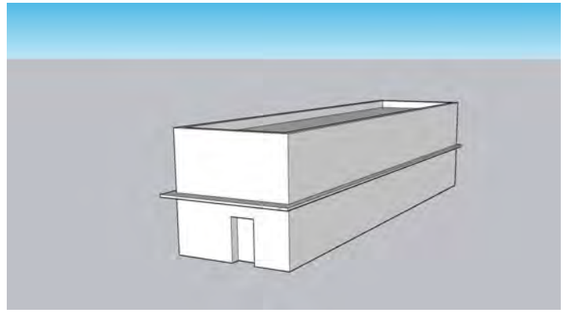


Bungalow / cottage courts

A group of small, typically detached, single-unit structures (may contain duplexes) arranged around a shared amenity space visible from the street. The amenity space is a community-enhancing element, which can be a court or green space and unit entrances should be from the shared space. It replaces the function of a rear yard.

o Height: 1-2 stories
o Area: .25 acres+
o Footprint: Approx. 800 to 1000 sq ft
o Unit size: Approx. 800 to 1,200 sq ft

(Above) An example of a bungalow court.
Photo Credit: Allison Ramsey Architects

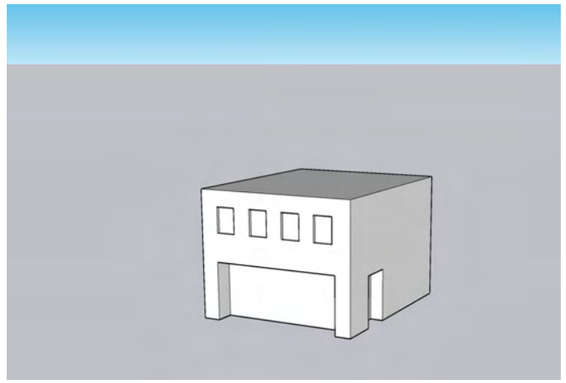


Live/Work Units

An attached or detached structure consisting of one dwelling unit above or behind a fire-separated ground floor space that can accommodate a small-scale non-residential use. The non-residential space and residential unit typically have separate street entrances.

o Height: 2-3 stories;
o Footprint: Approx. 1,000 to 3,000 sq ft
o Unit size: Approx. 1,000 to 3,000 sq ft

(Above) Existing buildings in Downtown Crozet that meet the form recommendations for live/work units.

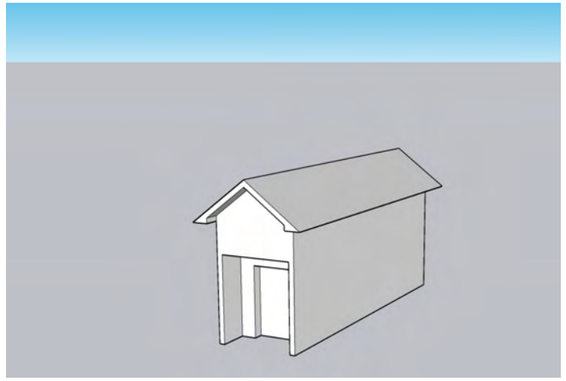


Accessory dwelling units

A secondary dwelling that shares the building lot of a larger, primary house. Accessory dwelling units (ADUs) can be internal/attached, or external/detached.

o Height: 1-2 stories
o Footprint (detached): Approx. 500 to 1000 sq ft
o Unit size: Approx. 800 to 1,200 sq ft

(Above) Existing detached, external accessory dwelling units in Old Trail, Crozet.



Tiny house

A building containing one dwelling unit, meeting the form guidance below:

o Height: 1-1.5 stories
o Unit Size: less than 400 sq ft (state building code)

(Above) An example of a tiny home.

Middle Density Residential Development Scenario

This development scenario provides an overview of how staff and decision makers would apply the recommendations of the Middle Density Residential (MDR) land use designation during the legislative review process. This scenario is intended to provide clarity for developers, County staff, decisionmakers, and community members.

In the scenarios described below, a property owner seeks to rezone their parcel to allow a new development on the property, consistent with the recommendations of Crozet Master Plan.

The following hypothetical development scenarios are considered consistent with the Middle Density Residential Category.

Hypothetical Property Information

- Property size: 5 acres
- Current zoning: R-2, Residential
- Proposed zoning: PRD, Planned Residential Development
- Crozet Master Plan Land Use Designation: Middle Density Residential

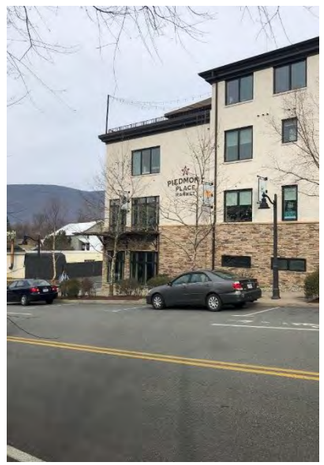
Scenario #1

- Density: 12 dwelling units/acre
- Total dwelling units: 60
- Housing types: a mix of traditional townhouses and single family detached units
- Proffered affordable units: 12 units (20% of total dwelling units)*

Scenario #2

- Density: 18 dwelling units/acre
- Total dwelling units: 90
- Housing types: a mix of 60 traditional townhouses and single family detached units; 30 “middle density” housing types, consistent with housing type recommendations included in this appendix. Proposed housing types include 15 accessory units and 5 three-unit multiplexes.
- Proffered affordable units: 18 out of 90 of the total units (20% of total dwelling units)*

**Affordable housing percentages would be subject to the recommendations of the current Comprehensive Plan Affordable Housing recommendations.*



Downtown Crozet Parking Study

July 2020 | Final

Prepared for

Prepared by

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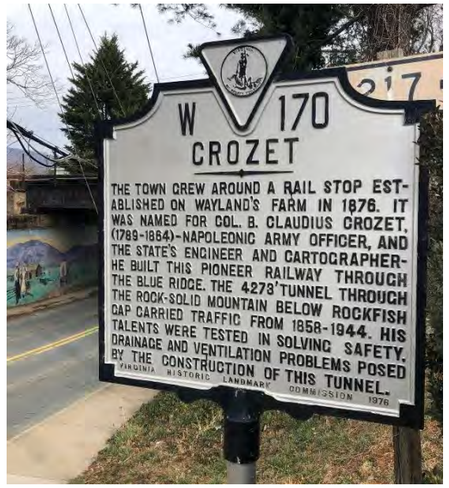
INTRODUCTION

Crozet, Virginia located in Albemarle County, is a small, rural town positioned approximately 12 miles west of Charlottesville and 21 miles east of Staunton. Over the past 15 years, residential development in Crozet has increased due to its proximity to Charlottesville and its designation as a strategic growth area by Albemarle County. Additional change coming to Crozet includes roadway improvements at The Square and redevelopment of the old Barnes Lumber property.

In connection with the County's parallel master planning effort, the town commissioned this parking study to assess existing parking operations, conditions, inventory, and utilization within the Downtown area toward development of recommendations to incorporate into adopted planning policies.



A gap analysis was performed to compare existing parking inventory and utilization to future parking inventory, including projected impacts based on future development and land uses including the Crozet Square and Barnes Lumber property redevelopment projects. Based on the results of this study, opportunities were identified for mitigating impacts of the planned roadway improvements and redevelopment projects to parking inventory and availability within Downtown Crozet.

DATA COLLECTION

Parking Inventory

Kimley-Horn performed an inventory of available on- and off-street parking within the Downtown Crozet study area in January 2020. The limits of the study area are depicted in ***Figure 1*** and described as approximately 250 feet south of Wayland Drive to the north, Firehouse Lane to the east, Tabor Street to the south, and Carter Street to the west.

The parking facilities considered in the study include on- and off- street parking for office, restaurant, retail, religious assembly, and commercial land uses. The study did not consider parking supply for residential land uses or public safety facilities (i.e. fire station). Parking inventory data for the study area is summarized in ***Table 1*** in terms of number of parking spaces, accessible spaces, and parking space restrictions including time restrictions and user types. A total of ***886 parking spaces*** were inventoried within the study area.

The table characterizes parking facilities as either private or public. The vast majority of parking within the study area is private parking, with only 140 public parking spaces. Absent any signed designation, the inventoried gravel lot of 58 spaces was observed to be used as public parking. With these 58 spaces, the total number of public parking spaces within the study area is ***198 parking spaces***, or 22% of the overall inventory.

A parking inventory map is provided in ***Figure 1***, showing the location and quantities of each type of parking available at the parking facilities.

Table 1. Parking Inventory

Downtown Crozet - Parking Inventory					
Facility Name	**Facility Number**	**Private or Public**	**Stall Type**	**Inventory**	**Location**
Community Garages	1	Private	Regular	8	1146 Crozet Avenue
Crozet United Methodist Church	2	Private	Regular	74	1156 Crozet Avenue
			ADA	5	
Blue Goose Building	3	Private	Regular	15	1186 Crozet Avenue
			ADA	1	
Whistle Stop Grill	4	Private	Regular	12	1200 Crozet Avenue
Crozet Post Office/Bank of America	5	Private	Regular	47	1214 Crozet Avenue
			Reserved (Bank)	3	
			ADA	4	
			Loading Zone - Dock	1	
English Meadows Senior Living	6	Private	Regular	37	1214 Crozet Avenue
			Reserved (Transport Vehicles)	2	
			Reserved (Employee of the Month)	1	
			Loading Zone - Dock	1	
Green House Coffee	7	Private	Regular	30	1260 Crozet Avenue
			ADA	1	
Crozet Pizza and Shops	8	Private	Regular	66	5798 Three Notch'd Rd
			ADA	2	
			Timed	3	
			Reserved (Sam's Hot Dog)	2	
			Reserved (Century Link Parking)	3	
Crozet Artisan Depot	9	Private	Regular	9	SE corner of Crozet and Three Notch'd (address not provided in Parcel Mapper)
			ADA	1	
Old Tack and Saddle	10	Private	Regular	15	Just West of Great Valu - 5778 Three Notch'd Rd
			Reserved (Santasha Yoga)	5	
Great Valu, Dollar General, and Shops	11	Private	Regular	115	5734 Three Notch'd Rd
			ADA	5	
University of Virginia Community Credit Union	12	Private	Regular	12	Just East of Great Valu - 5714 Three Notch'd Rd
			ADA	2	

Table 1. Parking Inventory

Downtown Crozet - Parking Inventory					
Facility Name	**Facility Number**	**Private or Public**	**Stall Type**	**Inventory**	**Location**
Crozet Commons	13	Private	Regular	98	5690 Three Notch'd Rd
			ADA	4	
			Bicycle	1	
The Square	14	Public	Regular	71	The Square
			Reserved (Hardware Store)	4	
			Reserved (Parkway Pharmacy)	3	
			ADA (Reserved) (Parkway Pharmacy)	1	
Barnes Lumber Site	15	Private	Unmarked Lot (Crozet Bicycle)	20	Barnes Lumber Site
Gravel Lot	16	Quasi-Public	Unmarked Lot	58	Across from Piedmont Place
State Farm	17	Private	Regular	2	1207 Crozet Avenue
			Reserved	2	
Piedmont Pediatrics	18	Private	ADA	1	1193 Crozet Avenue
			Reserved	8	
Region Ten	19	Private	Reserved	4	1193 Crozet Avenue
B&B Cleaners	20	Private	Regular	5	1189 Crozet Avenue
Crozet Library	21	Public	Regular	45	2020 Library Avenue
			ADA	4	
			Carpool Only	2	
			Motorcycle	2	
			Hybrid and Low-Emission	2	
Piedmont Place	22	Private	Regular	25	2025 Library Avenue
			ADA	2	
			Reserved (Residents)	6	
Tabor Presbyterian Church	23	Private	Regular	24	5804 Tabor Street
			ADA	2	
			Reserved	2	
On-Street Parking - Library Avenue	24	Public	Regular	6	Library Avenue south of Piedmont Place

Parking Utilization

Parking utilization data was collected during one weekday time period (Wednesday 11:00 AM to 1:00 PM) and one weekend time period (Saturday 5:00 PM to 7:00 PM) in February 2020. Albemarle County identified these peak time periods for analysis based on known high parking utilization trends, imbalanced parking usage, and feedback from representatives of the Downtown Crozet Initiative.

Parking utilization represents the number of vehicles present in parking facilities, represented as a percentage. The parking utilization was calculated by parking facility for each time period.

Parking utilization maps, showing the percent occupancy of parking by facility are provided in ***Figure 2 and Figure 3*** for the peak weekday and peak weekend time periods, respectively.

Generally, parking supply within the study area is underutilized, with a system-wide utilization of 47% during the Wednesday midday peak period and 30% during the Saturday evening peak period.

Trends identified from the data also include:

- During the Wednesday 11:00 AM to 1:00 PM timeframe, there was system-wide surplus parking, but demand is spread out over more uses.
- During the Saturday 5:00 PM to 7:00 PM timeframe, there was system-wide surplus parking, but demand is centralized around the Square, Piedmont Place, and Crozet Pizza/Shops, contributing to a perceived parking issue.
- Overall system utilization was lower during the Saturday timeframe than the Wednesday timeframe, in part due to many perimeter parking facilities (office, bank, churches) being nearly empty.

Field Observations

Existing condition observations within the study area were made concurrently with parking inventory and parking utilization data collection. The following observations regarding parking operations were noted:

- Unmarked gravel lots result in an inconsistent utilization of physical space and contribute to variable parking inventory in these facilities. Further, there is a lack of signage indicating whether the gravel lot is permitted parking which may impact utilization.
- There is limited wayfinding signage guiding visitors to businesses and parking within Downtown.

- Steep roadway grades behind the Crozet Pizza and Shops commercial uses contribute to operational challenges. Lower parking utilization was observed in the parking area behind the shops, which may be explained by the accessibility and operational challenges. Additionally, parkers tend to underutilize parking that is not visible from the street in general.
- While there are streetscape elements and bicycle infrastructure within the study area that help promote safe and efficient multimodal activity, driving to downtown destinations appears to be the preferred travel mode.
- An internal site circulation plan is implemented for daycare pick-up at the Crozet United Methodist Church.
- Narrow drive aisles at The Square contribute to circulation challenges.

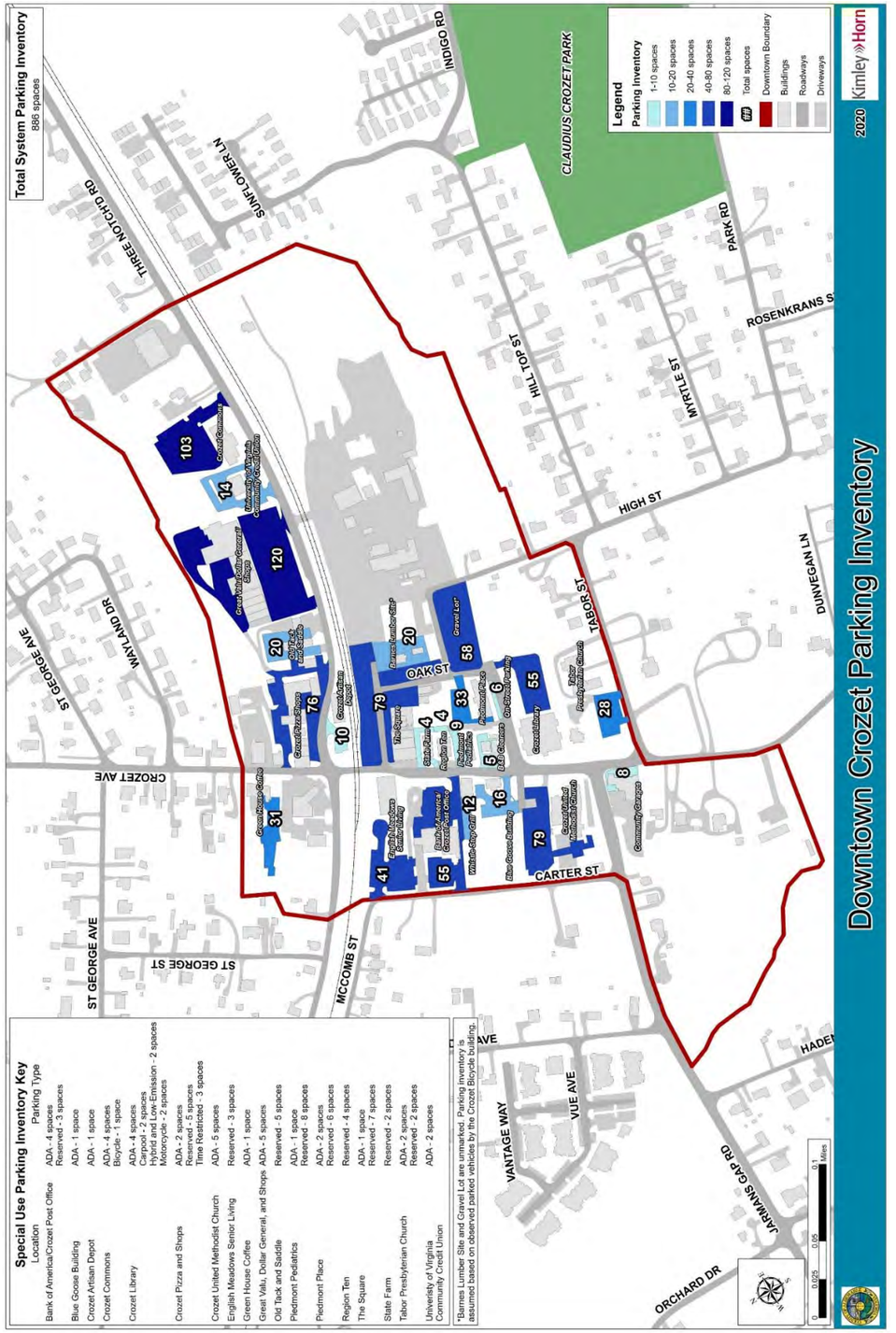


Figure 1. Parking Inventory Map

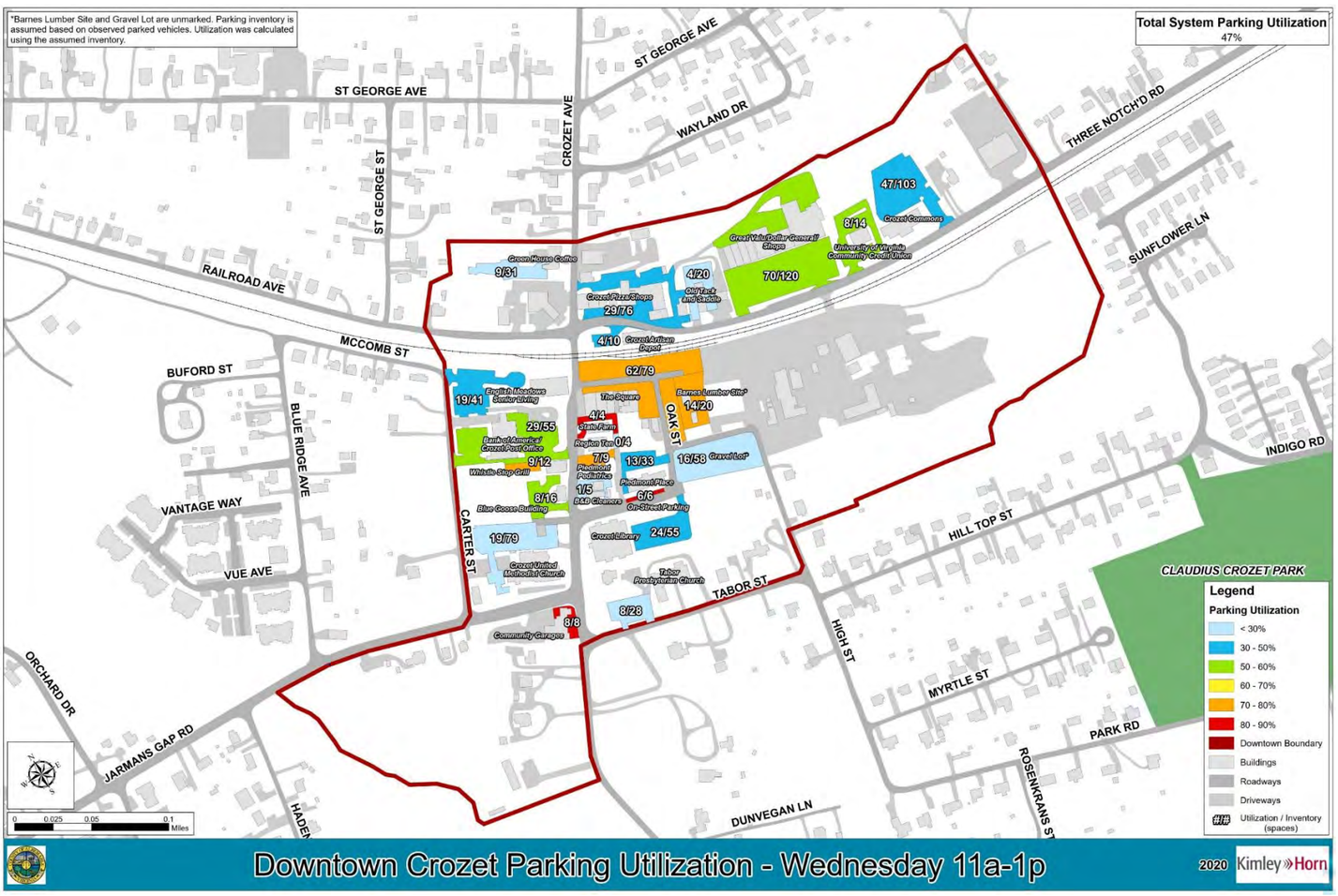


Figure 2. Parking Utilization Map – Wednesday 11:00 AM to 1:00 PM

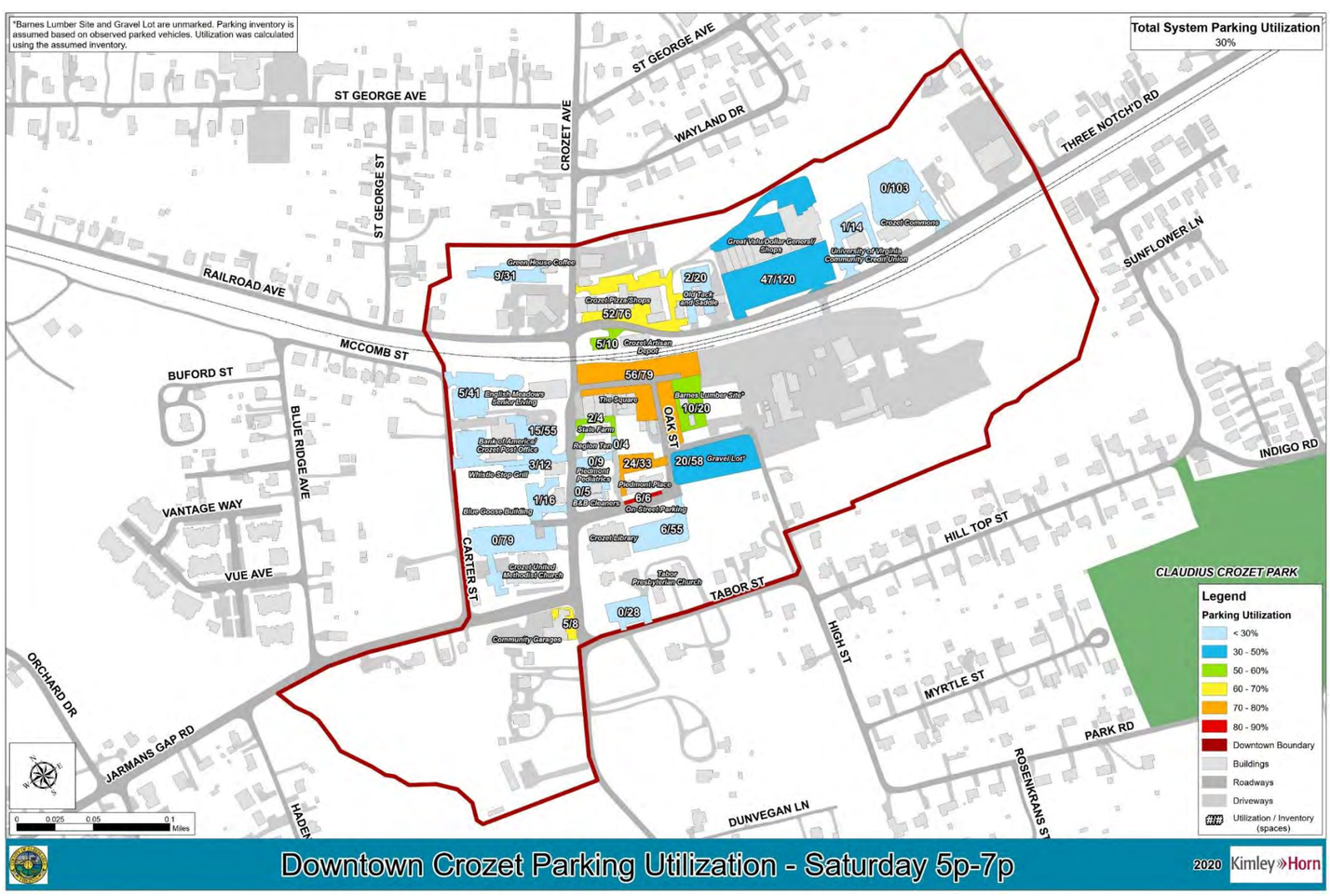


Figure 3. Parking Utilization Map – Saturday 5:00 PM to 7:00 PM

GAP ANALYSIS

A gap analysis was conducted to compare existing parking inventory and utilization to future parking inventory in the Downtown area based upon known, planned redevelopment or roadway changes that will impact parking supply. The gap analysis method uses data to identify areas of Downtown that warrant specific parking mitigation during time periods of highest observed utilization. The analysis is based upon existing parking utilization trends.

Figure 4 shows the percent occupancy of parking by facility during the peak period for each facility, illustrating current conditions under the maximum observed utilization, or the peak of the peak conditions.

Projected Changes to Parking Supply

The following known, planned redevelopment or roadway changes were considered in the gap analysis. A summary of projected changes to parking supply as a result of the changes is provided below.

- ***1193 & 1205 Crozet Avenue Renovation*** – This project includes the renovation of the existing, vacant Region Ten building (1205 Crozet Avenue) into a new restaurant with outdoor seating capacity. Parking supply will be reduced from four spaces to three spaces. This project also includes changes to the existing parking supply at the Piedmont Pediatrics doctor's office (1193 Crozet Avenue), reducing the number of parking spaces from nine to four spaces.
- ***Route 1217 (The Square) Roadway Project*** – This project includes improvements to the existing intersection of Crozet Avenue and The Square and reconstructs the roadway and parking facilities around The Square and along Oak Street to Library Avenue. This project will close off access to the existing gravel parking lot to the east of Oak Street near Piedmont Place. Parking supply will decrease from 157 to 70 parking spaces, a delta of 87 spaces.
- ***Route 1204 (High Street) Extension, Library Avenue Extension and Primary Street Construction*** – This project will construct new roadway to extend Library Avenue to High Street, The Square to Hill Top Street, and High Street Between Library Avenue and The Square. The proposed on-street parking along the new roadway segments will add 67 parking spaces where there are no existing parking facilities.

The limits of the known, planned redevelopment or roadway changes considered in the gap analysis are depicted in ***Figure 5*** as an overlay to the peak utilization data by facility to visualize the projected changes to parking supply and potential impacts to parking operations within the study area. Collectively, these three changes will reduce parking inventory in the study area by approximately 3%.

As the overall system parking supply is not projected to significantly change, existing parking surplus would more than offset the limited loss of parking in the Downtown study area.

However, there are projected impacts to parking conditions in and around The Square and Barnes Lumber property during construction and upon completion of the Barnes Lumber redevelopment that will significantly increase parking demand and utilization in the centralized, high-demand parking area. Short-term, mid-term, and long-term conditions were analyzed and are documented in the subsequent sections.

Near-Term Developments

The potential change in existing parking demand in the surrounding area of the roadway improvements at The Square and redevelopment of the Barnes Lumber property was considered. Parking utilization rates during variable times of day may change during construction of the roadway improvements and near the future development location.

Parking generation was calculated for Phase 1 and Phase 2 of the Barnes Lumber property redevelopment assuming the land use densities provided in ***Table 2,*** as provided by the County.

Table 2. Barnes Lumber Property Redevelopment – Land Use Densities

Barnes Lumber Phase 1	
Land Use	**Density**
Retail/Other Commercial	24,900 SF
Restaurant	12,000 SF
Hospitality/Hotel	30,000 SF (assumes 50 rooms)
Office	20,000 SF
Residential	52 units - (assumes 32 1-bedroom and 20 2-bedroom)
Barnes Lumber Phase 2	
Land Use	**Density**
Commercial	169,050 SF
Residential	120 units - (assumes 72 1-bedroom and 48 2-bedroom)

The Urban Land Institute (ULI) Shared Parking Model is a tool used to determine cumulative parking demand for developments with multiple land uses. The model considers that while each land use generates demand for a certain number of parking spaces, these parking demands fluctuate hour-by-hour, day-by-day, and month-by-month. Because individual land uses may not experience peak parking demand at the same time, the model considers the collective parking demand throughout the day to allow the sharing of parking between these land uses and minimizing of space and resources devoted to parking. Additionally, the ULI Shared Parking Model allows for alternative mode and non-captive ratio adjustments to be made for mixed-use developments, such as the Barnes Lumber property redevelopment, to account for interactions between uses internal to the site.

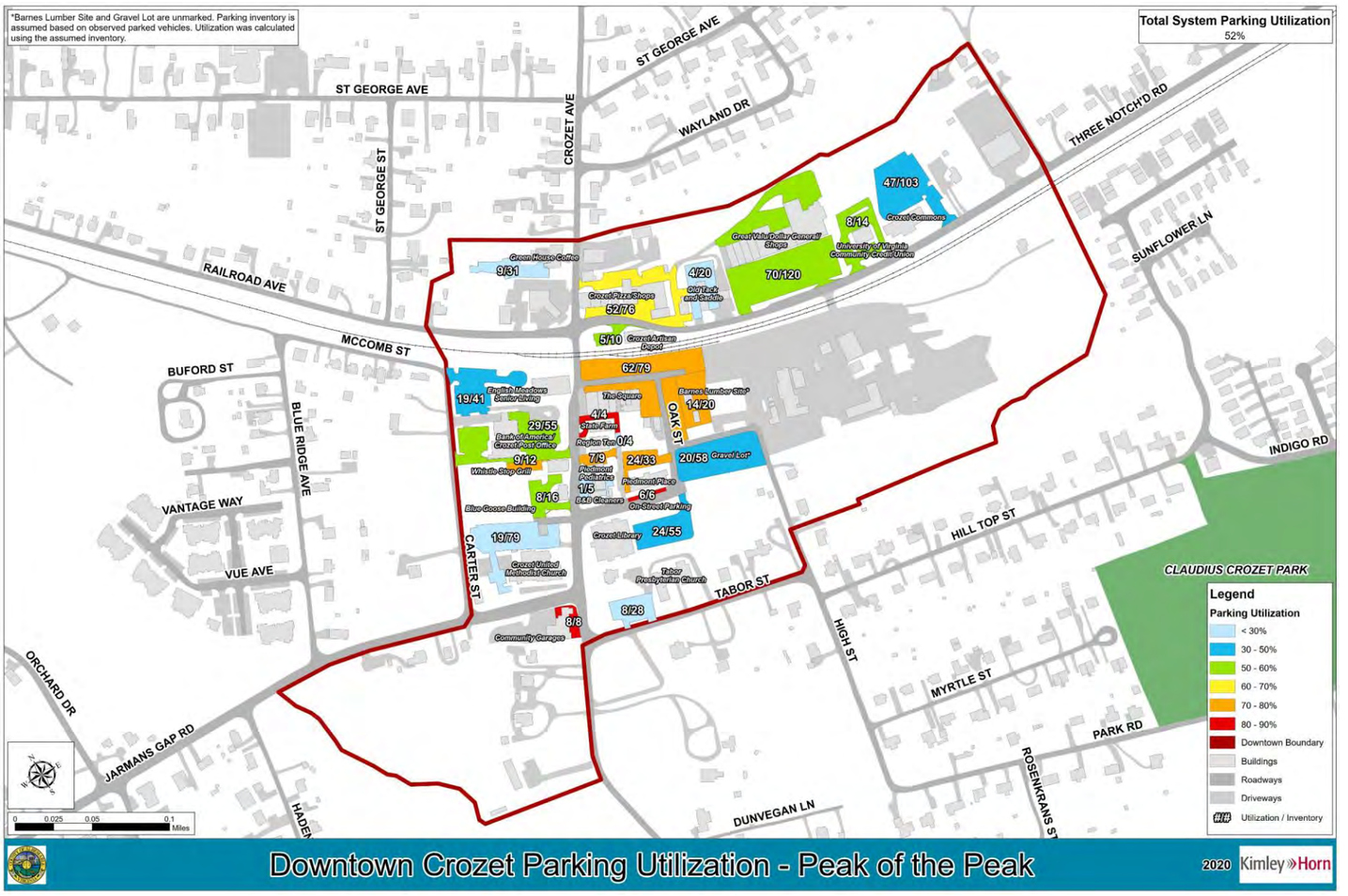


Figure 4. Peak Utilization Map by Facility

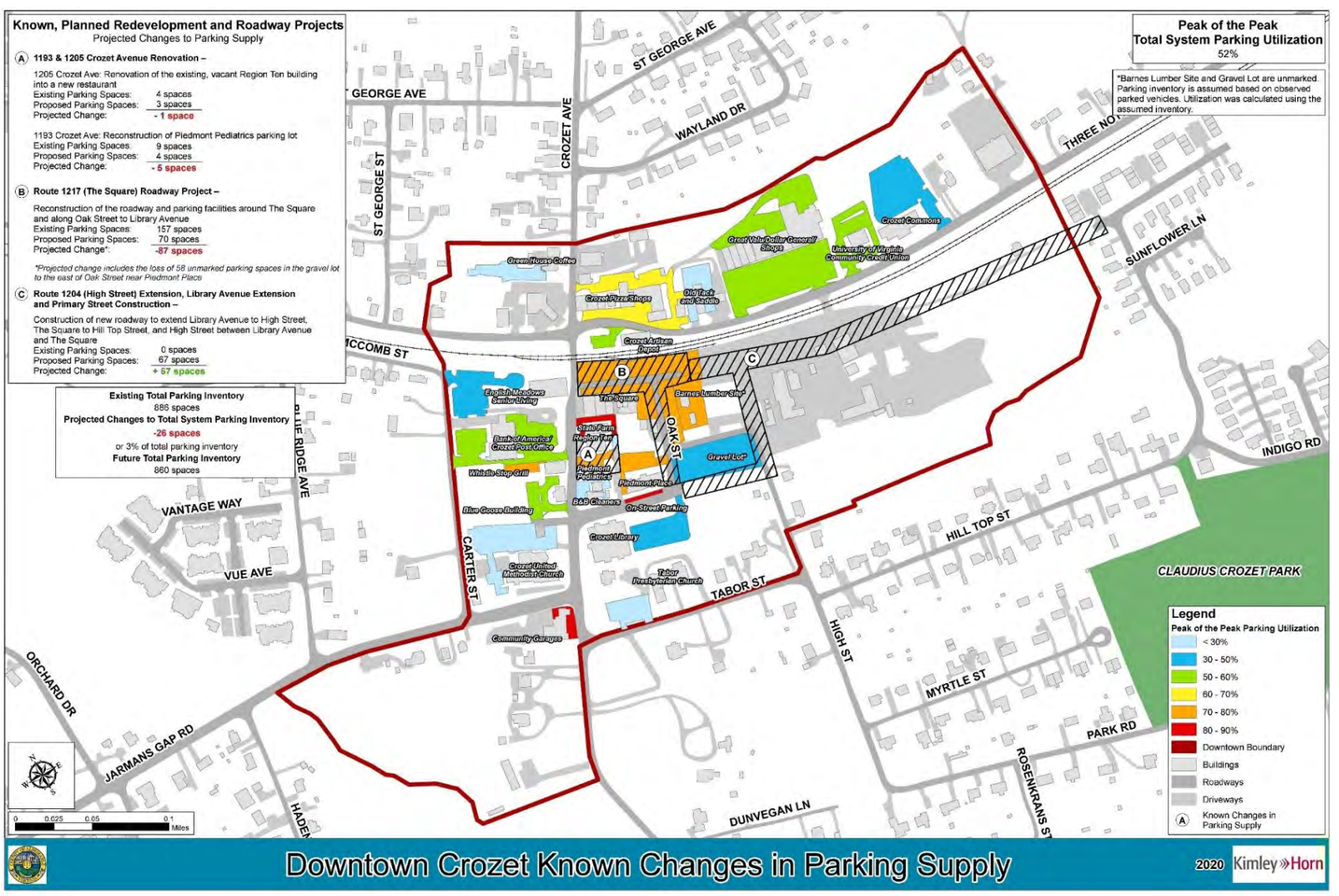


Figure 5. Projected Changes to Parking Supply

ULI shared parking methodologies were applied to the Barnes Lumber property mixed-use development land uses provided to Kimley-Horn, which are summarized in ***Table 2***. ULI time-of-day, weekly, and monthly adjustments were applied to the ULI base parking rates for each proposed land use. Base parking rates for retail, commercial, and restaurant land uses were adjusted for noncaptive ratios. The base parking ratios for the hotel, office, and residential land uses were not adjusted for noncaptive ratios as these uses are primary parking generators. For example, someone shopping at a store or eating at a restaurant would not generate additional parking demand if they already live there or work in a store. However, people parking for the hotel, office, and residential uses are generally not already parked on site. Further, the analysis assumed that residential parking demand would be accommodated via reserved spaces.

Table 3 summarizes the results of the shared parking model for the Barnes Lumber property mixed-use development.

Table 3. Barnes Lumber Property Redevelopment – Parking Generation

Barnes Lumber Redevelopment	Unadjusted Peak Parking Demand (spaces)		Estimated Shared Peak Parking Demand (spaces)	
	Weekday	Weekend	Weekday	Weekend
Phase 1	466	413	370	334
Phase 2*	624	682	613	666

**Based on information provided by the County, Phase 2 of the Barnes Lumber redevelopment is anticipated to include a less-parking intensive blend of commercial land uses. As such, 1 space per 3,000 square feet was assumed as the base parking generation ratio for the commercial land use density.*

With no shared parking assumptions taken, Phase 1 of the development would be expected to generate a peak demand of 466 parking spaces on a weekday and a demand of 413 spaces on a weekend day, representing a sum of each use's peak demand. Applying the shared parking methodology, demand is expected to be 370 parking spaces during the weekday peak period, yielding a total reduction in weekday peak demand of 21% percent. During the weekend peak period, demand is expected to be 334 spaces, which is a reduction of 19% percent.

The benefit of shared parking is less realized by Phase 2 of the development as the residential land use has only a 1% non-captive adjustment to retail/commercial land uses based on ULI base values. As such, demand is expected to be 613 parking spaces during the weekday peak period and 666 spaces during the weekend peak period, which each represent 1% reductions.

Supporting documentation from the ULI Shared Parking Model is provided in ***Appendix A***.

Potential Parking Impacts

To consider how projected changes to parking supply during construction and after completion of roadway improvements and redevelopment in the study area may impact parking utilization and operations, the following short-term, mid-term, and long-term scenarios were assessed.

- ***Short-Term*** – In the short-term, it is assumed that the 1193 & 1205 Crozet Avenue Renovation is complete and that the following three projects are under construction: Route 1217 (The Square) Roadway Project, Route 1204 (High Street) Extension, Library Avenue Extension and Primary Street Construction, and Barnes Lumber property Redevelopment.
- ***Mid-Term*** – Under mid-term conditions, it is assumed that the Route 1217 (The Square) Roadway Project and Barnes Lumber property Phase 1 redevelopment are complete. The Route 1204 (High Street) Extension Library Avenue Extension and Primary Street Construction will be partially complete.
- ***Long-Term*** – Completion of the Route 1204 (High Street) Extension Library Avenue Extension and Primary Street Construction and Phase 2 of the Barnes Lumber property redevelopment is assumed as the long-term scenario.

The assessment considers that parking supply and demand is not simply about parking inventory, but rather the quality and location of parking relative to the location of the demand. As the projected changes to parking supply are centralized around The Square and Barnes Lumber property, the existing parking facilities of The Square, Barnes Lumber property, and nearby gravel lots were considered as existing parking supply for the assessment as opposed to the total Downtown study area parking system. The results are described in the following three sections and summarized in ***Table 4***.

Short-Term

In the short-term, it is assumed that the 1193 & 1205 Crozet Avenue Renovation is complete. The renovation will reduce the existing parking supply from 13 spaces to 7 spaces and potentially increase existing parking demand. The maximum observed parking occupancy was 7 vehicles during peak conditions. As such, the projected change in parking supply for the renovation is not anticipated to displace parked vehicles and the potential increase in future demand was not considered in further analysis.

During construction of the Route 1217 (The Square) Roadway Project, Route 1204 (High Street) Extension, Library Avenue Extension and Primary Street Construction, and Barnes Lumber property redevelopment, a partial closure of The Square/Oak Street (35 spaces assuming a 50% closure) and full closures of the Barnes Lumber site and gravel lot (78 spaces) were assumed. As such, existing parking supply in the area will decrease from 157 spaces to 44 spaces. The maximum observed parking occupancy based on existing parking demand was 96 spaces. ***During the short-term scenario, there is a potential impact of 52 displaced parked vehicles that are not accommodated in or around The Square and Barnes Lumber property.***

Mid-Term

Under mid-term conditions, it is assumed that the Route 1217 (The Square) Roadway Project and Barnes Lumber property Phase 1 redevelopment are complete, which will add 35 spaces and 78 spaces, respectively. The 78 parking spaces associated with the Barnes Lumber property redevelopment in the mid-term are temporary parking spaces.

The Route 1204 (High Street) Extension Library Avenue Extension and Primary Street Construction will be partially complete, which will add 33 parking spaces (assuming a 50% completion).

With the additional of 146 parking spaces in and around The Square and Barnes Lumber property vicinity, existing parking demand can be accommodated. There will be 94 surplus parking spaces based on existing parking demand.

The potential increase in parking demand generated by the Barnes Lumber Phase 1 redevelopment is 370 parking spaces during the peak period. Assuming that 200 parking spaces will be provided on-site the development and there are 94 surplus parking spaces in the vicinity, ***there is a potential impact of 76 new parked vehicles that are not accommodated during the mid-term scenario in or around The Square and Barnes Lumber property.***

Long-Term

Completion of the Route 1204 (High Street) Extension Library Avenue Extension and Primary Street Construction and Phase 2 of the Barnes Lumber property redevelopment is assumed as the long-term scenario. While the Route 1204 (High Street) Extension Library Avenue Extension and Primary Street Construction project will add 34 parking spaces into the system (the remaining 50% of parking to be provided by the project), the completion of the Barnes Lumber redevelopment will remove the 78 temporary parking spaces previously provided. As a result, there will be 146 spaces provided in and around The Square and Barnes Lumber property vicinity.

Similar to the mid-term scenario, existing parking demand can be accommodated by the 146 parking spaces provided while still having 50 surplus parking spaces based on existing parking demand. The potential increase in parking demand generated by the Barnes Lumber Phase 2 redevelopment is 666 parking spaces during the peak period. Assuming that 400 parking spaces will be provided on-site the development and there are 50 surplus parking spaces in the vicinity, ***there is a potential impact of 216 new parked vehicles that are not accommodated during the long-term scenario in or around The Square and Barnes Lumber property.***

Table 4. Potential Parking Impact based on Existing and Future Parking Demand

Scenario	Parking Supply*	Projected Changes to Parking Supply	Existing Peak Parking Demand*	Potential Impact Based on Existing Utilization and Demand	Potential Change in Peak Parking Demand	Estimated On-Site Parking Provided~	Potential Impact Based on Existing Utilization and Future Demand
Short-Term	157 spaces	- 113 spaces = 44 spaces	96 spaces	***52 displaced parked vehicles that are not accommodated***	N/A	N/A	N/A
Mid-Term	44 spaces	+ 146 spaces = 190 spaces	96 spaces	0 parked vehicles displaced (94 space surplus)	370 new parked vehicles	200 spaces	***76 new parked vehicles that are not accommodated***
Long-Term	190 spaces	- 44 spaces = 146 spaces	96 spaces	0 parked vehicles displaced (50 space surplus)	666 new parked vehicles	400 spaces	***216 new parked vehicles that are not accommodated***

**Existing parking inventory and utilization data for the existing parking facilities of The Square, Barnes Lumber property, and nearby gravel lots were considered for the assessment.*
~Data for estimated parking provided on-site the Barnes Lumber redevelopment was provided by the County.

Based on the scenario results and the gap analysis, parking mitigation strategies were identified and are provided in the Recommendations and Implementation Plan sections.

Zoning Ordinance Parking Requirement Comparison

Understanding the current parking requirements compared to parking supply for land uses within the study area is vital to identifying potential impacts that future changes may have on County zoning ordinances and parking requirements. Gross square footage data provided by the County for the land uses associated with the analyzed parking facilities was used to develop a summary of parking space to square foot ratios for the various land uses within the study area.

By reviewing the available data for the overall study area, one parking space is provided for every 270 gross square foot of land use.

System Summary		**1 space / 270 SF**
239,897	886	
total gross square footage	total spaces	

A summary by land use and how the data compares to Albemarle County's current parking requirements is provided in ***Table 5***.

There are 64 spaces in the study area that were not included in the individual land use assessment. The gravel lot (58 spaces) and on-street parking (6 spaces) were not assigned to a land use for the purposes of this comparison.

Table 5. Parking Supply Compared to Parking Requirements by County Zoning Ordinance

Parking Supply by Land Use				Summary of County Zoning Ordinance (Sec. 4.12.6)
Service repair garage		679.63	SF / space	1 space per each employee plus two spaces per each service stall
5,437	8	translates to		
SF	spaces	**1**	**space / 680 SF**	
Religious Assembly		183.16	SF / space	If the assembly area seats more than 100 persons, 1 space per 3 fixed seats or per 75 square feet of area of assembly
19,598	107	translates to		
SF	spaces	**1**	**space / 180 SF**	
Office, Business, Admin, Prof.		254.25	SF / space	1 space per 200 square feet of net office floor area
65,089	256	translates to		
SF	spaces	**1**	**space / 250 SF**	
52,071	*256*	*203.40*	*Net SF / space*	
Net SF (80%)	*spaces*	***0.98***	***space / 200 Net SF***	
Restaurant		138.00	SF / space	13 spaces per 1,000 square feet of gross floor area
5,934	43	translates to		
SF	spaces	**7.25**	**space / 1,000 SF**	
Retail/Services		262.45	SF / space	1 space per each 100 square feet of retail sales area for the first 5,000 square feet and 1 space per each 200 SF of retail sales area above 5,000 square feet
90,807	346	translates to		
SF	spaces	**1**	**space / 260 SF**	
72646	*346*	*209.96*	*Sales SF / space*	
Sales Area SF (80%)	*spaces*	***0.95***	***space / 200 Sales SF***	
Dry Cleaners		383.00	SF / space	1 space per 50 square feet open to the public plus one space per employee
1,915	5	translates to		
SF	spaces	**1**	**space / 380 SF**	
479	*5*	*95.75*	*Open SF / space*	
*SF open to public (25%)**	*spaces*	***0.52***	***space / 50 Open SF***	**25% assumed*
Gift, Craft, Antique Shop		261.30	SF / space	1 space per 200 square feet of gross floor area
2,613	10	translates to		
SF	spaces	**0.77**	**space / 200 SF**	
Residential - DCD		1.00	unit / space	1 space for each dwelling unit having 1 bedroom; 2 spaces for each dwelling unit having 2+ bedrooms
6	6	translates to		
units	spaces	**1**	**space / unit**	
Multi-family for elderly		1085.46	SF / space	1¼ spaces per unit plus one space per employee on the largest shift
44,504	41	translates to		
SF	spaces	**1**	**space / 1,000 SF**	

SF = Square Footage

RECOMMENDATIONS

The construction of roadway improvements and redevelopment in the study area will alter the supply of parking in and around The Square and Barnes Lumber property. Parking users have certain expectations concerning availability and convenience. As the County looks to the future, it needs to meet these expectations within an increasingly limited physical space and a projected increase in parking demand. Below are several parking management recommendations and parking mitigation strategies identified for the study area. The Implementation Plan section provides a timeline for action relative to the short-term, mid-term, and long-term scenarios analyzed.

Parking Management Strategies

Improve Wayfinding

Traditional wayfinding programs aim to provide motorists with directional guidance in order to reduce travel times while navigating and locating destinations and nearby off-street parking. Wayfinding is usually located on key ingress routes in the area to reduce extraneous traffic circulation and to inform unfamiliar visitors of destination and parking locations. Typically, parking wayfinding is combined with other destination-oriented signage in an area in a standardized format. Parking wayfinding is typically used in conjunction with parking facility branding. A well-implemented wayfinding program will help to increase utilization of off-street parking facilities by making the facilities more visible and easier to find.

It is recommended that the County deploy a Downtown Crozet Wayfinding Signage System to consist of directional parking signs and parking identification signs. Directional parking signs are often rectangular, with a circular shape surrounding a capital letter “P” and the text “Public Parking.” The parking identification signs contain the same circular shape surrounding a capital letter “P,” serving as a consistent brand for publicly accessible parking facilities. While the County has limited public parking within the study area, a Wayfinding Signage System should be deployed in conjunction with Shared Use Parking which is described below.

Multimodal Infrastructure and Streetscape Improvements

To continue to enhance and add pedestrian and bicycle infrastructure within the study area, the County should make efforts to incorporate streetscape improvements at and between key parking facilities to increase safety and enhance the overall parking experience. Elements can include sidewalk, marked crosswalks, pedestrian scale lighting, murals or other community street art. The segment of roadway along High Street north of Hill Top Street will be a critical multimodal connection between the Barnes Lumber development and the surrounding community. To ensure walking and biking is a viable mode choice to access Downtown and surrounding businesses and attractions, missing multimodal links such as bike lane segments or sidewalk need to be added to provide connectivity that will foster and improve multimodal comfort and safety.

Convert Unrestricted Parking to Time-Restricted

The application of time restricted parking can help direct users to appropriate parking facilities based on their intended lengths of stay. Time restricted parking can help to deter vehicles from remaining in high demand spaces all day. The need for this management tool does not yet appear to be warranted based on observed utilization trends and land uses within the study area. Based on field observations and the interaction between land uses within the study area, many parkers park for their destination and then leave as opposed to remaining parked in one location for

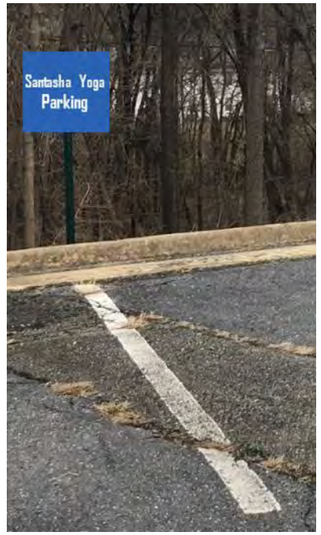
multiple destinations. The conversion of parking spaces from unrestricted to time-restricted is not recommended at this time but may be beneficial when new development and a broader mix of land uses characterize the area and change parking habits. The County should continue to monitor parking demand as redevelopment occurs to assess whether all parking in The Square should be converted to time-restricted parking. Higher turnover, which can be achieved by time restricted parking, is pertinent for sections of the study area where parking supply and demand will be impacted by redevelopment. Longer term users such as visitors to multiple nearby destinations or employees should be redirected to parking spaces that have less priority to serve businesses that rely on high turnover. This often needs to be coupled with effective enforcement to make sure that the parking time regulations are followed.

Parking Mitigation Strategies

Shared Use Parking

Shared parking is a parking management technique that allows off-street parking facilities to be used more efficiently for the benefit of both the users and property owners. Shared parking works on the basis that most privately-dedicated parking facilities are only used at certain times of the day and therefore severely underutilized during other times of the day. Shared parking works best in areas where land uses are within relatively easy walking distance, such as the study area. Adequate signage for wayfinding to the shared use parking is a component of a successful shared use parking system.

Shared parking increases a facility's overall utilization during more periods of the day, thereby maximizing the parking system and reducing the number of new spaces that would otherwise be constructed for a single use. There are several keys to successful implementation, including targeting the right type of development for shared parking, understanding the true parking needs of the developments, ensuring walkability within the shared uses, and creating synergy for the shared approach. The County can play an important role as a facilitator in establishing shared-use opportunities. Bringing information to the table with owners of private and underused parking facilities can lead to access and capacity enhancements in the study area that may be affected by increased parking demand due to future development.



There is an existing shared parking arrangement between the Santasha Yoga studio located in the Crozet Pizza/Shops strip of developments and the adjacent Old Tack and Saddle store. There are five parking spaces within the Old Tack and Saddle parking facility that are signed and designated for Santasha Yoga visitors. Simple signage can make the shared off-street parking accessibility known to customers.

Candidate Shared-Use Parking Locations

Contractual agreements between two property owners will formalize shared parking agreements, explicitly defining hours for which shared use is allowed and outlining expected responsibilities such as insurance, taxes, maintenance, and enforcement. Contractual agreements can be written in a way that provides mutual benefit to each involved party. The use of valet stands is one way

to reduce concerns about insurance and liability because the valet operator will likely have protections in place to insure the facility owner.

Many private off-street parking facilities were significantly under capacity during parking utilization data collection and observations. These private property owners, particularly in areas having high parking demand, should be approached about providing a portion of their parking capacity for use by the public. This would minimize the need for constructing additional public surface lots and parking garages, providing cost and environmental benefits, supporting businesses within Downtown Crozet, and providing an immediate solution to displaced Crozet Square parking demand. The private property owners would retain all liability for their parking facilities.

As outlined in the County Ordinance, Chapter 18 (Zoning), Sec. 4.12.10 (Shared Parking), parking spaces may be shared among two or more uses that typically experience peak parking demands at different times and are located on the same lot or nearby lots. Many times, shared use parking is not permitted and requires special permitting and flexible parking standards. The County already has the permissible ordinance in place.

Candidate off-street shared parking locations were identified within the study area and are outlined in ***Table 6***, providing the location of the parking with its primary land use, hours of operation, and parallel recommendations, if applicable. A map of the locations is provided in ***Figure 6***.

Shared use parking arrangements can be tailored to meet the needs and desires of respective businesses. For instance, certain restrictions, such as time of day (i.e. evening only), can be included on signage to accommodate different agreements. It is recommended that the County facilitate meetings with these business owners to explain, discuss, and encourage shared use parking on both a large and small scale. The number of desired parking spaces listed in ***Table 6*** were identified based on existing utilization so that if shared parking were heavily utilized the overall parking facility utilization would still be less than 80% occupied, and parking lot layout to allow for simple demarcation within a lot.

Table 6. Candidate Shared Use Parking Locations

ID on Map	Off-Street Parking Location	Primary Use	Hours of Operation	Desired Number of Spaces	Parallel Recommendations
A	2020 Library Avenue	Crozet Library	Tuesday – Saturday 10:00 AM to 2:00 PM	22	Wayfinding
B	1156 Crozet Avenue	Crozet United Methodist Church	Tuesday – Friday 9:00 AM to 1:00 PM Sunday 9:00 AM to 12:30 PM	42	N/A
C	1214 Crozet Avenue	Bank of America/Crozet Post Office	Monday-Friday 9:00 AM to 5:00 PM	16	Shared Valet
D	1214 Crozet Avenue	English Meadows Senior Living	Unknown	15	Shared Valet
E	5734 Three Notch'd Road	Great Valu/Dollar General/Shops	Monday-Sunday 8:00 AM to 9:00 PM	22	Shuttle Service
F	5690 Three Notch'd Road	Crozet Commons (Crozet Family Medicine)	Monday-Friday 8:00 AM to 5:00 PM	30	Shuttle Service

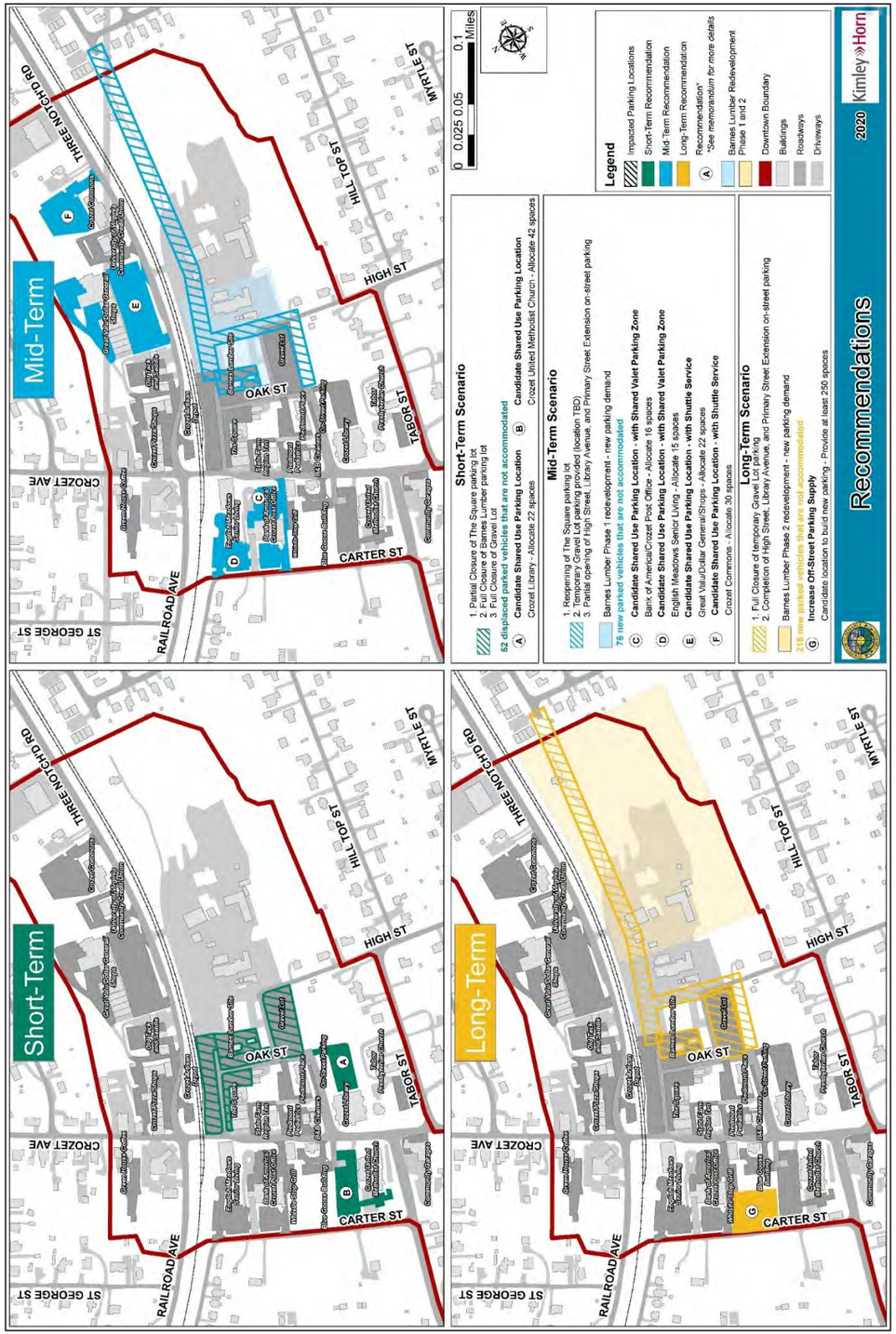


Figure 6. Recommendations

Shared Valet Parking Zones

Valet parking zones are defined as the area of the right-of-way where patrons of a business may set up a temporary, removable structure, or valet parking stand, to offer parking services. It is recommended that a shared valet operation be established at The Square.

A shared valet station limits overall pedestrian and traffic flow disruption and may make shared parking arrangements with the Bank of America/Crozet Post Office and English Meadows Senior Living more palatable as these property owners may have security concerns with allocating a portion of parking to the public. Shared parking is not always embraced by everyone. Many times, property owners are not willing to share their available spaces due to the perception of security issues or vandalism. To overcome these objections, implementing agencies must work with the community and stakeholders to educate and to identify specific problems.

Shuttle Service

To make it easier for visitors to park once and reach multiple destinations, it is recommended that a Downtown Crozet circulator or shuttle service between public or shared use parking and major destinations be provided to help spread out parking demand within the study area. As shown in the parking utilization data, parking facilities located around the perimeter are underutilized. Shared parking arrangements coupled with a shuttle service allows visitors to park further from their end destinations, which increases available supply of viable parking.

The Autonomous Vehicle Neighborhood Use (AVNU) Crozet shuttle service is currently operating as a pilot program with variable fixed routes over the trial period to evaluate performance and mobility use in different areas of Crozet. AVNU is provided through a partnership between Albemarle County, Perrone Robotics, and JAUNT. Albemarle County should explore ways to continue this shuttle service with a route dedicated to connectivity between public or shared use parking locations and primary destinations, such as The Square.

Another example of a similar type of shuttle service is Free Ride Every Day (FRED) offered in Downtown Norfolk. FRED is a free battery-operated vehicle available to complete trips that originate or end in the Downtown Norfolk Improvement District.

Build New Parking

As parking demand increases in the study area, it will become necessary to provide additional public parking supply that is owned and operated by the County. A candidate lot for public parking is identified in ***Figure 6***. The candidate lot was identified as one of the few vacant areas of land in the study area and based on proximity to The Square and locations of higher parking demand.

Based on existing parking utilization data and projected parking demand associated with the Barnes Lumber Redevelopment, an off-street supply of at least 250 parking spaces will help to mitigate parking capacity concerns. As the County investigates other potential sites or considers partnerships with property owners to build new parking supply, the following site characteristics

should be assessed: location, ownership, accessibility, traffic operations and access, multimodal connectivity, the amount of parking can be provided on the site, and cost per space. It is recommended that the County prioritize the identification of a site to build new parking located south of Three Notch'd Road such that multimodal connectivity is provided and accessibility concerns with crossings at Three Notch'd Road and Crozet Avenue are addressed. Other base criteria for a site to accommodate at least 250 parking spaces is a minimum footprint of 180' by 225' to allow for approximately six rows of parking, drive aisles for circulation, and at least two parking levels with 125-150 spaces per level. A feasibility study may be warranted to evaluation potential opportunities and challenges associated with building a new parking facility within Downtown Crozet.

Surface parking lots are not considered the highest and best use of land. If construction of a parking deck is an option, ground level active uses should be provided to activate the space and promote a feeling of safety in the public realm adjacent to the deck.

Parking decks are more costly than surface parking. There are several alternative parking solutions listed below that offer ways to maximize a surface parking lot for additional parking space capacity. An assessment to evaluate cost comparisons of these alternative solutions to a two to three level parking deck is recommended to determine feasibility and appropriateness to candidate sites for building new parking.

- Modular parking structures, such as More Park or ReloPark. These systems are modular, demountable steel and concrete structures with adjustable columns and precast steel planks that nearly double the capacity of parking on a surface lot by installing a second level of parking with a ramp over the existing parking. Currently, the only installations of the More Park system are in Europe and the United Kingdom. While construction time of modular parking structures is less than a traditional parking deck, these solutions often come with long leases and there is currently a lack of proven return on investment.
- Vertical parking solutions, such as car stackers. Where car stackers are installed, cars are parked on top of each other using mechanical pallet systems. Car stackers are often used in large cities or inside buildings where there is a low ceiling height or short depth.
- Stacked parking. Stacked parking, or tandem parking, coupled with valet operations allows for increased parking capacity by blocking in parked vehicles. The first car to park in a tandem space will be blocked in by the second car to park. As such, valet operations are critical to a stacked parking configuration.

IMPLEMENTATION PLAN

The recommendations described above are prioritized relative to the short-term, mid-term, and long-term scenarios analyzed.

- Short-term actions indicate those that should be completed prior to completion of Crozet Square and Barnes Lumber Redevelopment Phase 1.
- Mid-term actions should be completed after completion of Crozet Square and Barnes Lumber Redevelopment Phase 1.
- Long-term actions should take place concurrently or after completion of Barnes Lumber Redevelopment Phase 2.

Short Term Action Items

In the short term, the County should focus on:

- Allocating a portion of parking at Crozet Library to be dedicated public parking
  - This could be accomplished by striping new parking lane lines in a different color to denote public, shared parking spaces versus library use parking spaces
- Facilitating a shared use agreement with Crozet United Methodist Church
- Improving the parking facility wayfinding signage system to encourage utilization of existing off-street parking

Midterm Action Items

In the midterm, the County should work to:

- Facilitate shared use agreements with the Bank of America/Crozet Post Office, English Meadows Senior Living, Great Valu, and Crozet Commons
  - Shared use parking agreements should aim to be as consistent as possible with minimal differences in hours of allowed shared use such that the program is easier to manage by the County and the public understands what is permitted
- Establish a shared valet zone at The Square
- Provide a Downtown Crozet shuttle service

Long Term Action Items

In the long term, the County should consider:

- Continuing enhancements and additions of streetscape elements to encourage multimodes to manage parking demand
- Increasing off-street parking supply by providing a dedicated public parking facility with at least 250 spaces
- Converting unrestricted parking to time-restricted parking in The Square if new parking demand and utilization trends as a result of redevelopment warrant higher turnover

APPENDIX

Downtown Crozet Parking Study

ULI Shared Parking Model Results – Barnes Lumber Phase 1

Shared Parking Demand Summary

Peak Month: DECEMBER -- Peak Period: 1 PM, WEEKDAY

Land Use	Project Data		Weekday					Weekend					Weekday			Weekend		
	Quantity	Unit	Base Ratio	Driving Adj	Non-Captive Ratio	Project Ratio	Unit For Ratio	Base Ratio	Driving Adj	Non-Captive Ratio	Project Ratio	Unit For Ratio	Peak Hr Adj 1 PM	Peak Mo Adj December	Estimated Parking Demand	Peak Hr Adj 12 PM	Peak Mo Adj December	Estimated Parking Demand
Retail																		
Retail (<400 ksf)	24,900	sf GLA	2.90	100%	99%	2.86	ksf GLA	3.20	100%	99%	3.17	ksf GLA	100%	100%	72	100%	100%	79
Employee			0.70	100%	100%	0.70		0.80	100%	100%	0.80		100%	100%	18	100%	100%	20
Food and Beverage																		
Fast Casual/Fast Food	12,000	sf GLA	12.40	100%	84%	10.36	ksf GLA	12.70	100%	87%	11.09	ksf GLA	100%	96%	120	100%	96%	128
Employee			2.00	100%	100%	1.99		2.00	100%	100%	1.99		100%	100%	24	100%	100%	24
Entertainment and Institutions																		
Hotel and Residential																		
Hotel-Business		keys	1.00	59%	100%	0.59	key	1.00	69%	100%	0.69	key	55%	60%	-	55%	60%	-
Hotel-Leisure	50	keys	1.00	50%	100%	0.50	key	1.00	50%	100%	0.50	key	65%	50%	8	65%	50%	8
Hotel Employees	50	keys	0.15	100%	100%	0.15	key	0.15	100%	100%	0.15	key	100%	50%	4	100%	50%	4
Restaurant/Lounge		sf GLA	6.67	63%	90%	3.78	ksf GLA	7.67	54%	30%	1.24	ksf GLA	100%	100%	-	100%	100%	-
Meeting/Banquet (0 to 20 sq ft/key)		sf GLA	0.00	68%	60%	0.00	ksf GLA	0.00	68%	70%	0.00	ksf GLA	65%	100%	-	65%	100%	-
Meeting/Banquet (20 to 50 sq ft/key)		sf GLA	0.00	68%	60%	0.00	ksf GLA	0.00	68%	70%	0.00	ksf GLA	65%	100%	-	65%	100%	-
Meeting/Banquet (50 to 100 sq ft/key)		sf GLA	0.00	68%	60%	0.00	ksf GLA	0.00	68%	70%	0.00	ksf GLA	65%	100%	-	65%	100%	-
Convention (100 to 200 sq ft/key)		sf GLA	0.00	68%	60%	0.00	ksf GLA	5.50	68%	70%	2.62	ksf GLA	100%	100%	-	100%	100%	-
Convention (> 200 sq ft/key)		sf GLA	5.50	68%	60%	2.24	ksf GLA	5.50	68%	70%	2.62	ksf GLA	100%	100%	-	100%	100%	-
Restaurant/Meeting Employees		sf GLA	0.00	100%	100%	0.00	ksf GLA	0.00	100%	100%	0.00	ksf GLA	100%	100%	-	100%	100%	-
Residential, Suburban																0%		
Studio Efficiency		units	0.00	100%	100%	0.00	unit	0.00	100%	100%	0.00	unit	40%	100%	-	68%	100%	-
1 Bedroom	32	units	0.00	100%	100%	0.00	unit	0.00	100%	100%	0.00	unit	40%	100%	-	68%	100%	-
2 Bedrooms	20	units	0.00	100%	100%	0.00	unit	0.00	100%	100%	0.00	unit	40%	100%	-	68%	100%	-
3+ Bedrooms		units	0.00	100%	100%	0.00	unit	0.00	100%	100%	0.00	unit	40%	100%	-	68%	100%	-
Reserved	100%	res spaces	1.19	100%	100%	1.19	unit	1.19	100%	100%	1.19	unit	100%	100%	62	100%	100%	62
Visitor	52	units	0.10	100%	100%	0.10	unit	0.15	100%	100%	0.15	unit	20%	100%	1	20%	100%	2
Office																		
Office <25 ksf	20,000	sf GFA	0.30	100%	100%	0.30	ksf GFA	0.03	100%	100%	0.03	ksf GFA	45%	100%	3	90%	100%	1
Reserved		empl	0.00	100%	100%	0.00		0.00	100%	100%	0.00		100%	100%	-	100%	100%	-
Employee			3.50	100%	98%	3.43		0.35	100%	98%	0.34		85%	100%	58	90%	100%	6
Additional Land Uses																		

Customer/Visitor	204	Customer	218
Employee/Resident	104	Employee/Resident	54
Reserved	62	Reserved	62
Total	370	Total	334

ULI Shared Parking Model Results – Barnes Lumber Phase 2

Shared Parking Demand Summary																			
Peak Month: DECEMBER -- Peak Period: 12 PM, WEEKEND																			
Land Use	Project Data		Weekday					Weekend					Weekday			Weekend		
	Quantity	Unit	Base Ratio	Driving Adj	Non-Captive Ratio	Project Ratio	Unit For Ratio	Base Ratio	Driving Adj	Non-Captive Ratio	Project Ratio	Unit For Ratio	Peak Hr Adj 1 PM	Peak Mo Adj December	Estimated Parking Demand	Peak Hr Adj 12 PM	Peak Mo Adj December	Estimated Parking Demand
Retail																		
Retail (<400 ksf)	130,000	sf GLA	2.90	100%	100%	2.89	ksf GLA	3.20	100%	100%	3.19	ksf GLA	100%	100%	376	100%	100%	415
Employee			0.70	100%	100%	0.70		0.80	100%	100%	0.80		100%	100%	91	100%	100%	104
Food and Beverage																		
Entertainment and Institutions																		
Hotel and Residential																		
Residential, Suburban																0%		
Studio Efficiency		units	0.00	100%	100%	0.00	unit	0.00	100%	100%	0.00	unit	40%	100%	-	68%	100%	-
1 Bedroom	72	units	0.00	100%	100%	0.00	unit	0.00	100%	100%	0.00	unit	40%	100%	-	68%	100%	-
2 Bedrooms	48	units	0.00	100%	100%	0.00	unit	0.00	100%	100%	0.00	unit	40%	100%	-	68%	100%	-
3+ Bedrooms		units	0.00	100%	100%	0.00	unit	0.00	100%	100%	0.00	unit	40%	100%	-	68%	100%	-
Reserved	100%	res spaces	1.20	100%	100%	1.20	unit	1.20	100%	100%	1.20	unit	100%	100%	144	100%	100%	144
Visitor	120	units	0.10	100%	100%	0.10	unit	0.15	100%	100%	0.15	unit	20%	100%	2	20%	100%	4
Office																		
Additional Land Uses																		
													Customer/Visitor		379	Customer		419
													Employee/Resident		91	Employee/Resident		104
													Reserved		144	Reserved		144
													Total		613	Total		666

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Crozet Transportation Study

June 2021

Prepared for

Albemarle County

Prepared by

EPRPC

902 East Jefferson Street, Suite 101, Charlottesville, VA 22902

LPDA
LANDSCAPE ARCHITECTURE
LAND PLANNING

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Executive Summary

The Community of Crozet, Virginia lies within one of Albemarle County's five Development Areas defined in the Albemarle County Comprehensive Plan. Currently Albemarle County is in the process of updating the Master Plan for Crozet. This document provides the vehicular transportation vision for the Crozet Master Plan Update.

Two new roadway connections, Eastern Avenue and Park Ridge Drive, along with the Barnes Lumber development project are expected to have a significant impact on the Crozet transportation network. Eastern Avenue will provide an additional north-south connection between Three Notched Road and Route 250 east of Crozet Avenue. Park Ridge Drive will provide an additional east-west connection between Crozet Avenue and Park Ridge Drive through the Barnes Lumber property. In addition to the Barnes Lumber project, significant development is anticipated in Crozet over the next 25 years.

Based on an evaluation of the existing (2020) and future (2045) land use and roadway network the following improvements are recommended to provide an effective transportation system within the community.

Route 250

To accommodate the expected 2045 traffic volumes, widening Route 250 to two lanes per direction from west of WAHS/Old Trail Drive to west of Crozet Avenue/Miller School Road and installing roundabouts at all three intersections is expected to address the level of service and queueing challenges. Adding turn lanes, single lane roundabouts, or additional through lanes in isolation are not sufficient improvements to accommodate the expected traffic volumes in the future. Based on the *Eastern Avenue Connection Traffic Report* minor turn lane improvements are recommended at the intersection of Cory Farm Road/Route 250.

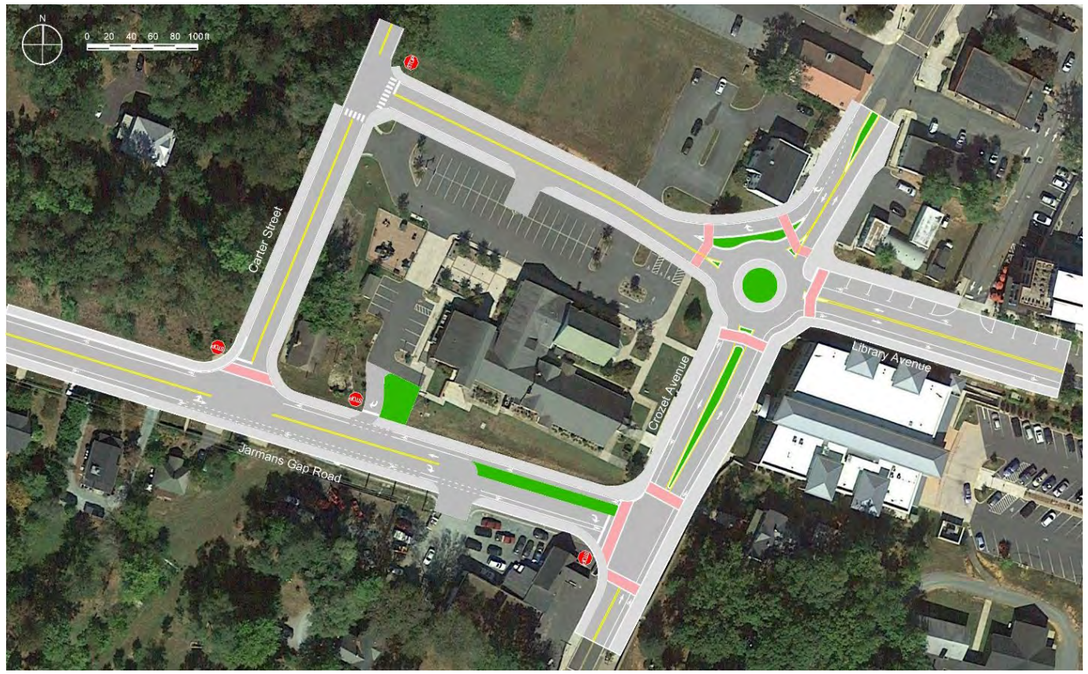
Crozet Avenue and Three Notched Road

Intersection improvements alone will not be sufficient to address the expected 2045 traffic operations challenges. Rather, a combination of alternatives including intersection improvements and a new railroad crossing are needed. Due to the limited right-of-way, railroad bridge to the south, and terrain surrounding the intersection, a clear solution is not apparent. While not planned at this time, if the railroad underpass were to be widened in the future, additional intersection alternatives could be considered in conjunction with a new railroad crossing.

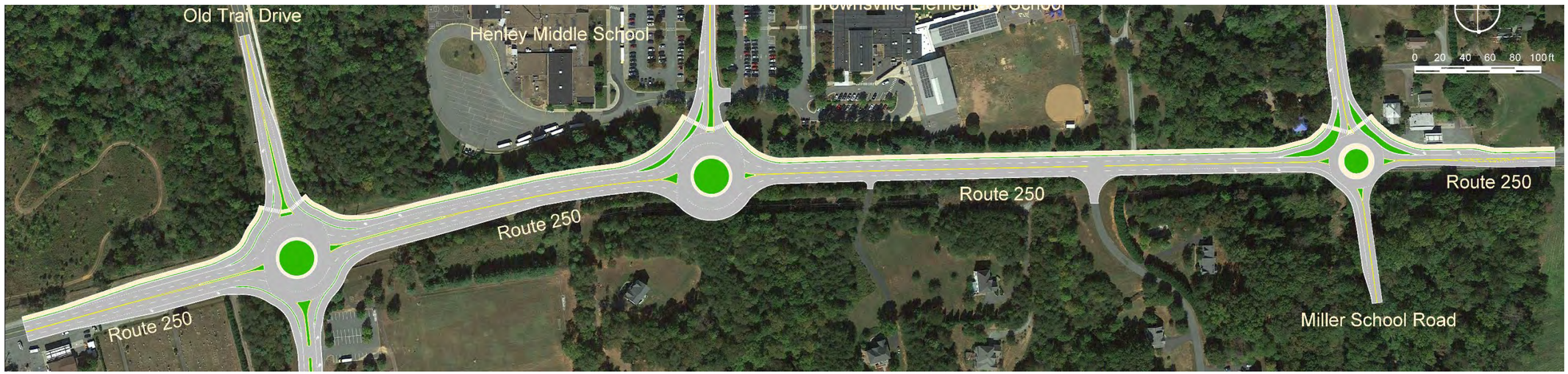
Crozet Avenue and Internal Downtown Intersections

Isolated intersection specific improvements will not be sufficient to address the expected 2045 traffic operations challenges on Crozet Avenue. Rather, a combination of alternatives including a new Dunvegan Lane roadway connection, improved High Street connection, and quadrant intersection are needed. If possible, a new railroad crossing only further improves traffic operations on Crozet Avenue.

Downtown Crozet Quadrant Intersection Improvement



Route 250 Roundabouts and Widening Improvements



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Appendices

Introduction

The community of Crozet, Virginia is located in western Albemarle County between Charlottesville and the Blue Ridge mountains. It lies within one of Albemarle County's five Development Areas defined in the Albemarle County Comprehensive Plan. "The intent (of the Development Areas) is to focus development in the urban areas to create quality living areas, avoid sprawl, improve access to services, and protect the natural and agricultural resources and uses of the rural areas." Each Development Area has its own Master Plan and currently Albemarle County is in the process of updating the plan for Crozet. This document is intended to provide the vehicular transportation vision for the Crozet Master Plan Update.

Included within this document are an evaluation of the existing (2020) and future (2045) roadway network. Changes to both the land use and transportation network are planned within this time frame and considered within the analyses. This report summarizes the methodologies and results of the transportation analysis.

While the focus of this document is on vehicular transportation, improvements to the pedestrian, bicycle, and transit infrastructure and systems in Crozet are critical to provide an effective transportation system within the community.

Study Area

The study area includes the major roadway network within the Crozet Development Area. **Figure 1** provides an illustration of the study area, as well as the intersections this study examines. The study area includes the following existing and potential future intersections.

1. Old Trail Drive and Jarmans Gap Road
2. Old Trail Drive, Route 250, and Western Albemarle High School (WAHS)
3. Henley Middle School (HMS), Brownsville Elementary School (BES), and Route 250
4. Crozet Avenue, Miler School Road, and Route 250
5. Three Notched Road (Route 240) and Crozet Avenue
6. The Square and Crozet Avenue
7. Library Road and Crozet Ave
8. Jarmans Gap Road and Crozet Avenue
9. Tabor Street and Crozet Avenue
10. Cory Farm Road and Route 250 (provided by the Eastern Avenue Design Project)
11. Park Ridge Drive and Three Notched Road (Route 240)
12. Eastern Avenue and Park Ridge Drive
13. The Square and Oak Street
14. Library Avenue and Oak Street
15. The Square and High Street
16. Library Avenue and High Street
17. Tabor Street and High Street
18. Hill Top Street and High Street
19. Dunvegan Lane and High Street
20. Dunvegan Lane and Crozet Avenue
21. Carter Street and Jarmans Gap Road
22. Carter Street and New Roadway

Relevant Development and Transportation Projects

A number of transportation projects have been identified within in the study area and are at various stages of development.

Oak Street and The Square

This locally administered Revenue Sharing project will improve the existing public street and on-street parking for both The Square and Oak Street as shown in **Figure 2**. The key features of this project are below.

- The Square will provide two-way travel.
- At the intersection of Crozet Avenue with The Square access will be limited to right-in/right-out only. Right turns on red will not be permitted due to limited sight distance.
- At the intersection of Crozet Avenue with The Square the traffic signal will remain. Southbound traffic will only stop when pedestrians actuate the signal to cross Crozet Avenue.
- All-way stop control will be provided at the intersection of The Square and Oak Street.
- New sidewalk will be installed in front of the businesses along with ADA improvements.
- Grading and drainage will be improved.

Eastern Avenue Design and Location Study

This project provides a location study and the design of preliminary plans for approximately 3,000 linear feet of roadway and a bridge crossing over Lickinghole Creek. It includes the evaluation and recommendation of a preferred alignment and bridge crossing, development of the conceptual design for the roadway and bridge, an engineer's opinion of probable construction cost to support Albemarle County request for funding, as well as environmental and traffic engineering analysis. The Preliminary Design and Location Study will be completed in the Spring of 2021. **Figure 3** illustrates the alternative alignments considered. Alternative B was recommended as the preferred alternative.

Figure 1 – Study Area

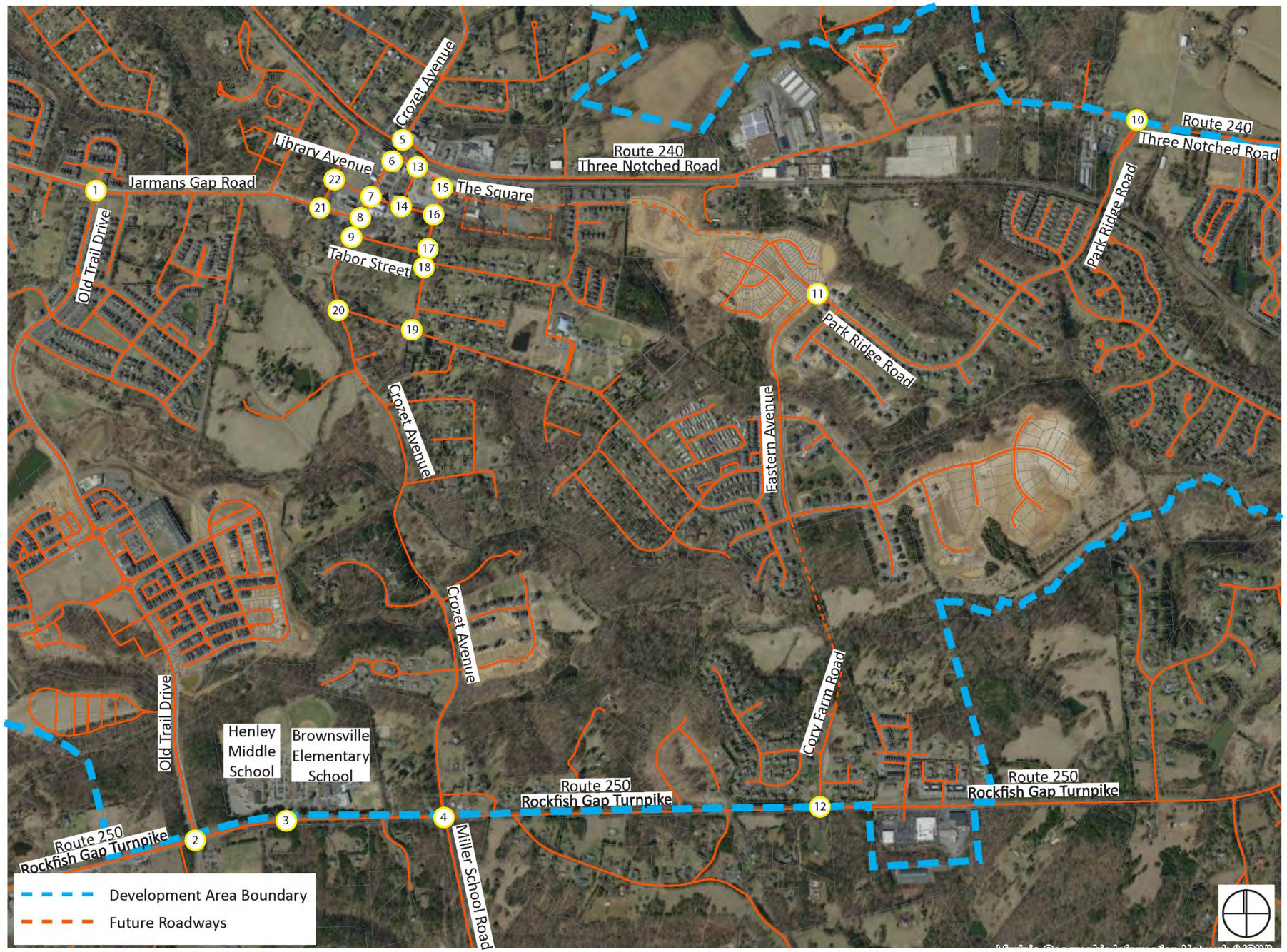


Figure 2 – Oak Street and The Square

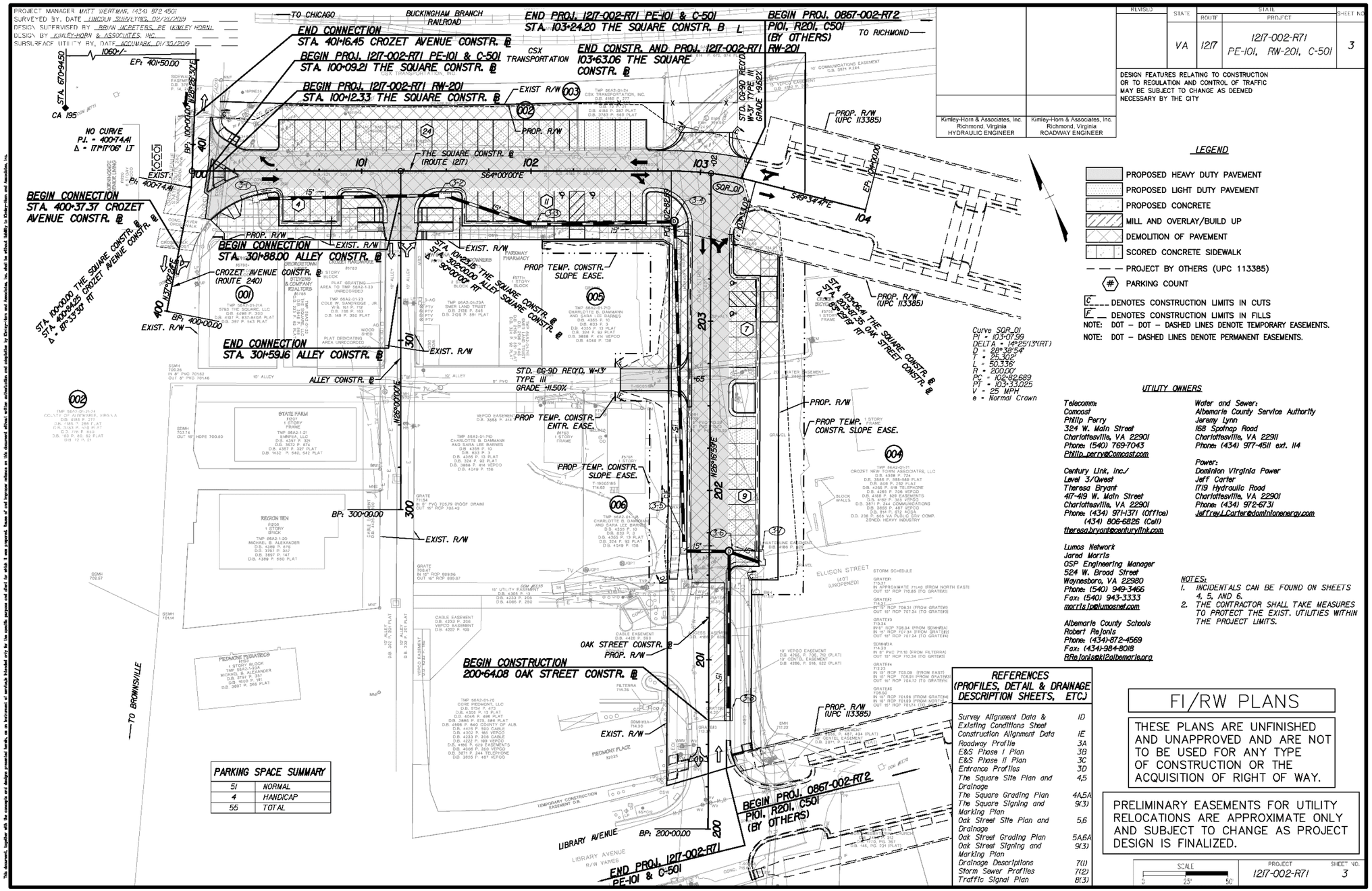
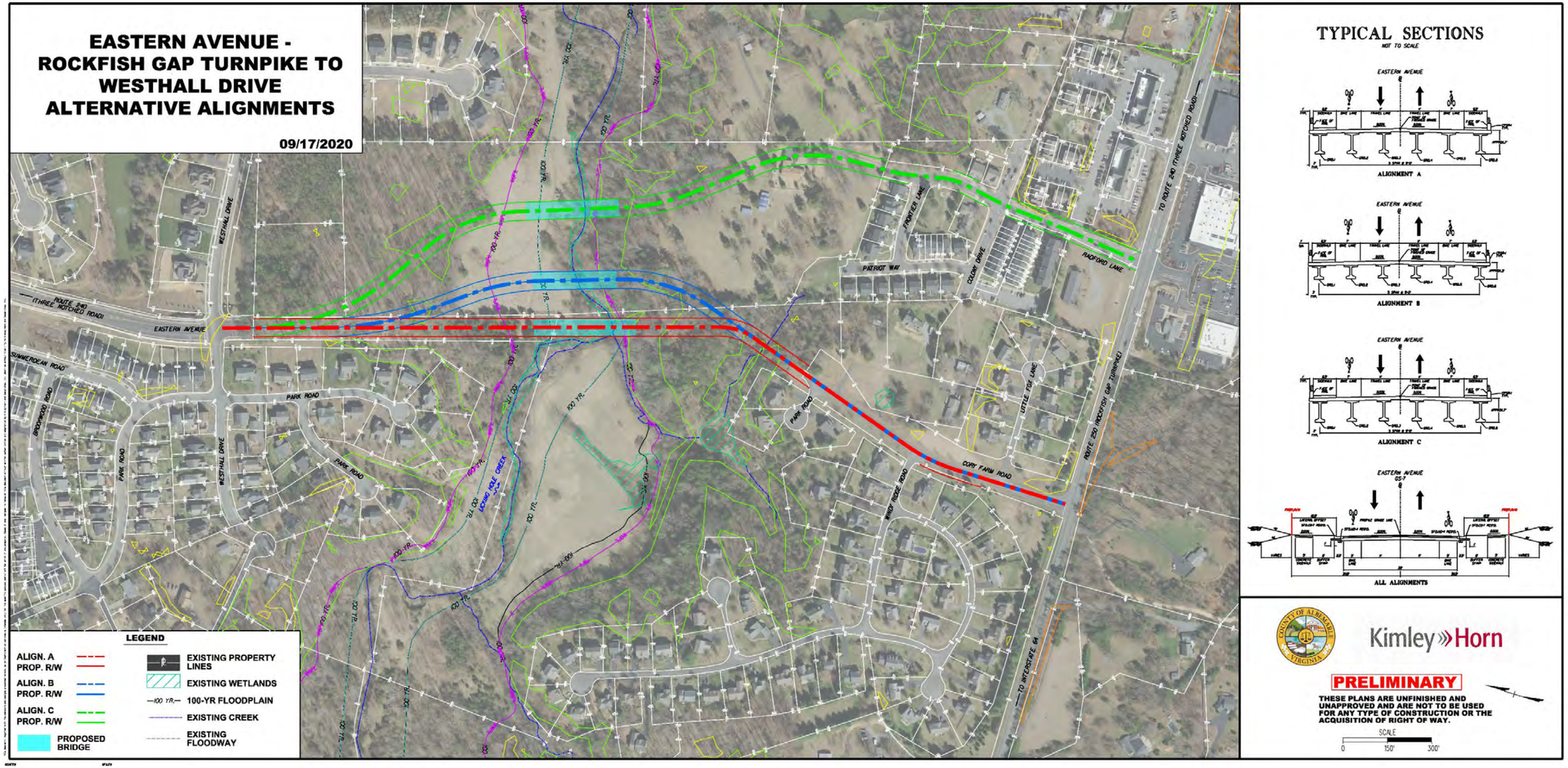


Figure 3 – Eastern Avenue Alternative Alignments



Barnes Lumber

The Barnes Lumber property is located in Downtown Crozet in the area generally bounded by Oak Street to the west, the railroad tracks to the north, and the existing residential area on Hill Top Street to the south and east. The mixed use project consists of two phases. The approved rezoning for Phase 1, illustrated in **Figure 4**, includes the following components.

- Hotel – 30,000 – 40,000 square feet, 50 rooms
- Office – 20,000 square feet
- Residential – 52 units
- Restaurant – 12,000 square feet
- Retail and Commercial Services – 24,900 square feet

Figure 5 illustrates a possible full buildout scenario for the transportation network. However, based on input from Albemarle County staff and the Barnes Lumber development team, the southern roadway between High Street and Hill Top Street was not assumed to connect these two roadways. For purposes of this study, it was assumed that the southern roadway will not connect to High Street nor would it connect to Hill Top Street. The anticipated land use for future phases beyond Phase 1 includes the following components.

- Office – 109,550 square feet
- Residential – 120 units
- Restaurant – 12,000 square feet
- Retail and Commercial Services – 47,500 square feet

Figure 4 – Barnes Lumber Phase 1

Figure 5 – Barnes Lumber Full Buildout Transportation Network

Existing Conditions

Land Use

Albemarle County designated Crozet as a development area in 1971. Also, designated as a Community, Crozet is geographically removed from Charlottesville and is expected to have a town-like character. Over the last 30 years the population of Crozet has grown at a higher rate than the County as a whole.[1]

Roadway Network

All of the study area roadways provide a single travel lane per direction. Additional details about each roadway are included in **Table 1.**

Table 1 – Study Area Roadway Characteristics

Roadway	Functional Classification	Posted Speed Limit (mph)	Bicycle and Pedestrian Facilities
Route 250 (Rockfish Gap Turnpike)	Minor Arterial	45	None
Crozet Avenue (Route 240)	Minor Arterial	25/35	Sidewalks and bike lanes north of Tabor Street
Jarmans Gap Road	Major Collector	25/35	Sidewalk and bike lanes
Three Notch'd Road (Route 240)	Minor Arterial	25/45	Discontinuous sidewalk
Old Trail Drive	Local	25/35	Sidewalks and bike lanes
Park Ridge Drive	Local	25/35	Sidewalks
Eastern Avenue	Local	30	Sidewalks and bike lanes
The Square	Local	not posted	Sidewalk
Library Avenue	Local	not posted	Sidewalks and bike lanes
Tabor Street	Local	25	Discontinuous sidewalk
High Street	Local	25	None
Hill Top Street	Local	25	Asphalt path and sidewalks
Carter Street	Local	25	None

Existing Traffic Volume Development

Due to the change in travel patterns in response to COVID, it was not possible to gather turning movement counts. Rather, a methodology to establish 2020 intersection traffic volumes based on historic traffic counts, studies in Crozet, and trip generation was established for the study intersections. Nearly all of the study intersections were counted at some point over the last nine years. For these intersections, annual growth rates were determined where at least two counts were available, and the most recent count year was 2017 or later. Based on this analysis, a growth rate of 1.54% per year was used to bring all traffic counts to year 2020.

No intersection traffic data was available for the intersections of Cory Farm Road/Route 250 and Park Ridge Drive/Eastern Avenue. Traffic volumes for the intersection of Cory Farm Road/Route 250 were provided by the consulting team for the Eastern Avenue and Bridge Location Study and Design project. Traffic volumes for the intersection of Park Ridge Drive/Eastern Avenue were developed based on trip generation, distribution, and assignment assumptions.

The resulting 2020 traffic volumes are shown in **Figures 6-8** and the details of the 2020 traffic volume development are documented in the *2020 Traffic Volumes Memo* dated July 31,2020 included in **Appendix A**.

[1] Crozet Master Plan, October 13, 2010

Figure 6 – 2020 Existing Peak Hour Traffic Volumes Intersections 1-4

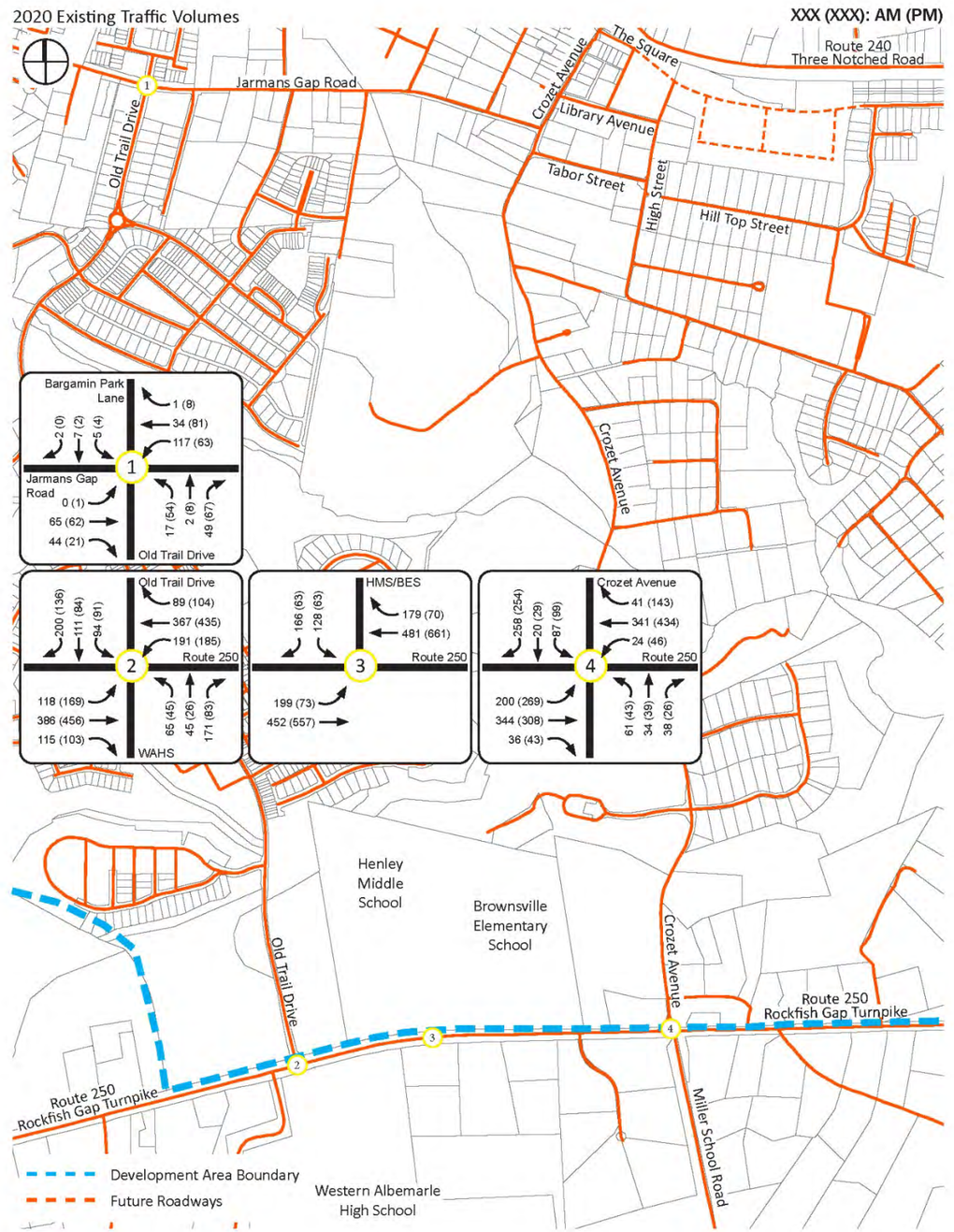


Figure 7 – 2020 Existing Peak Hour Traffic Volumes Intersections 5-9

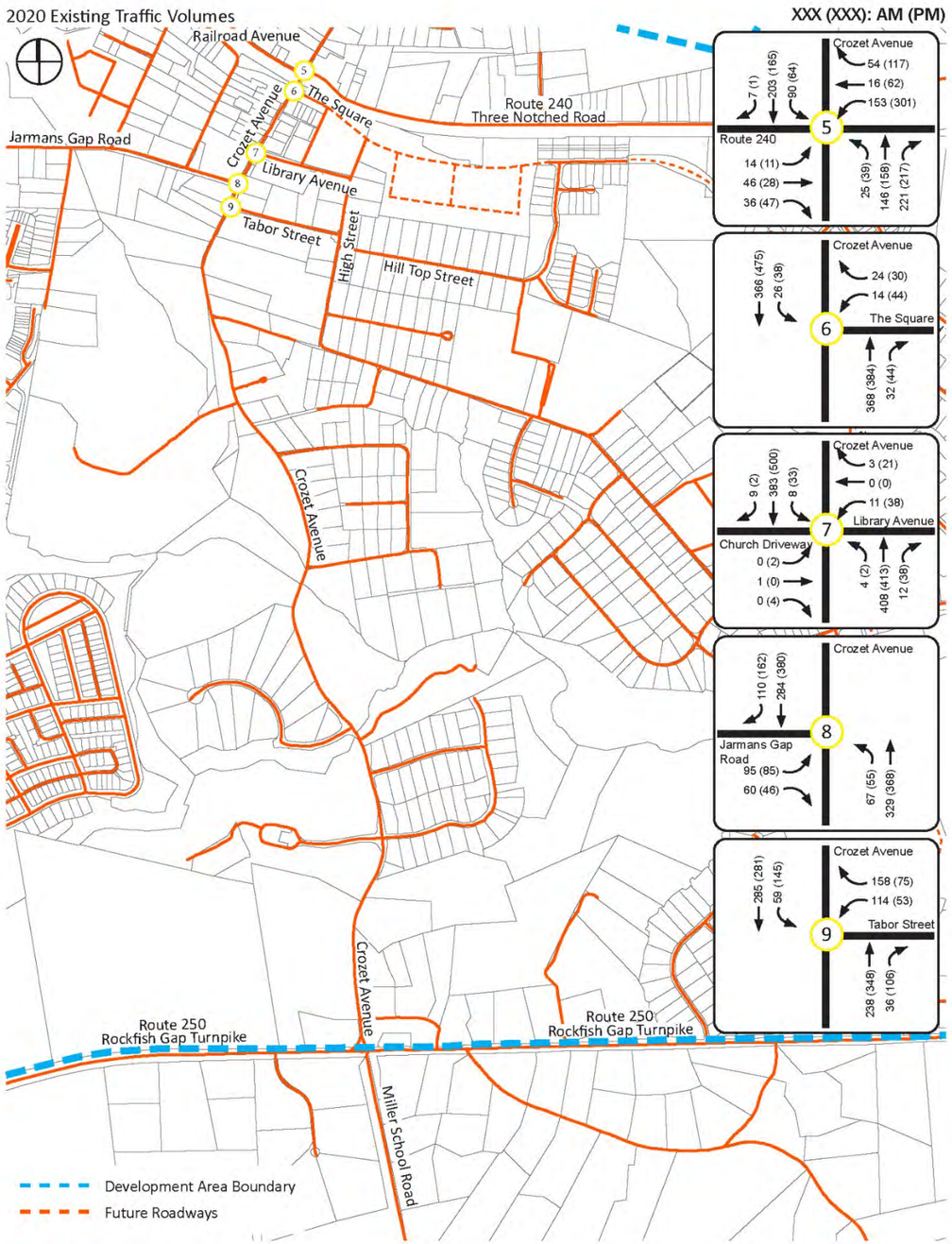
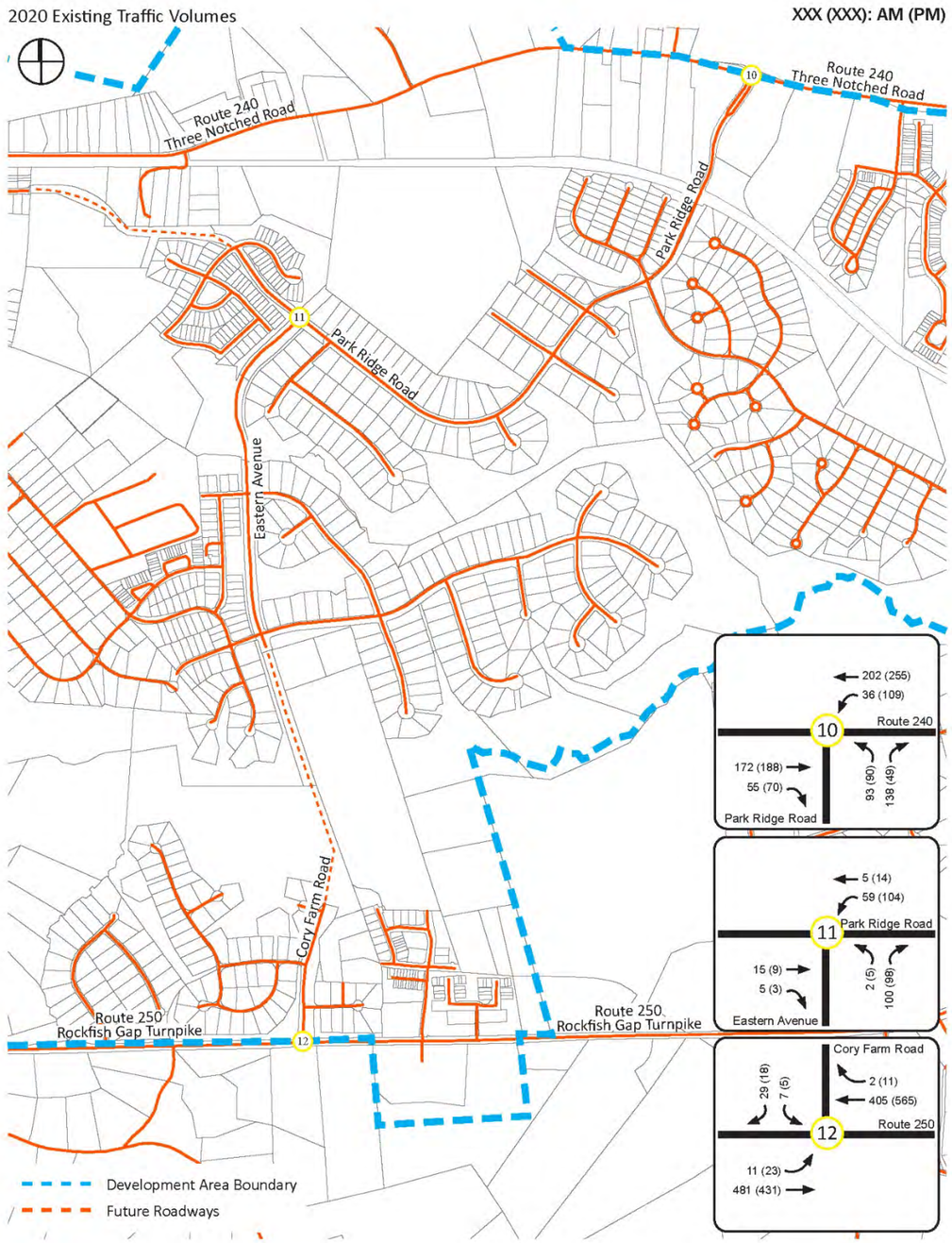


Figure 8 – 2020 Existing Peak Hour Traffic Volumes Intersections 10-12



Traffic Operations Analysis

Traffic Analysis Methodology

The study intersections' traffic operations were evaluated with Synchro/SimTraffic 11.0, a computer-based traffic analysis model that replicates procedures from the *Highway Capacity Manual* (*HCM*) (Transportation Research Board, 2000 and 2010). The average vehicle delays (in seconds) for each turning movement, as well as the Level of Service (LOS) on a scale of A (best) to F (worst) as defined in the *Highway Capacity Manual* were determined and reported with Synchro, and the maximum queue lengths (in feet) for each turning movement were determined and reported with SimTraffic.

Intersection LOS is a qualitative measure of vehicular delay and takes into account a number of conditions related to intersection design and traffic volume, and the perception of those conditions by motorists. Ratings range from A to F, with LOS A indicating little or no average delay and LOS F indicating severe average delays. Typically, LOS A-C are considered acceptable ratings for an intersection, while LOS D-F indicate the potential need for improvements. To note, LOS D (and sometimes LOS E), with greater vehicle delay, are often considered acceptable for more urbanized areas because of the accessibility benefits and higher pedestrian interactions that result from increased density. **Table 2** summarizes the LOS criteria, as specified in *HCM* 2000 and 2010.

Table 2 – Level of Service Criteria

Level of Service (LOS)	Signalized Intersection Control Delay (seconds/vehicle)	Unsignalized Intersection Control Delay (seconds/vehicle)
A	0-10	0-10
B	>10-20	> 10-15
C	>20-35	>15-25
D	>35-55	>25-35
E	>55-80	>35-50
F	>80	>50

Source: Highway Capacity Manual, 6th Edition

In addition to LOS, queuing analysis is used to measure traffic operations at intersections. The maximum queue is the probable furthest distance from the stop bar to the back of the last vehicle waiting at an intersection. This queue represents the length of the line of cars waiting at an intersection (signalized or unsignalized) for an acceptable gap in traffic for the driver to proceed. The length of the queues at each intersection is essential in understanding how adjacent intersections interact with one another. It should be noted that the model considers vehicles traveling below 6.8 mph (10 ft/s) to be part of the queue.

Existing Conditions Traffic Operations

The existing conditions Synchro/SimTraffic models were developed per the existing intersection configurations, existing traffic volumes, and the current VDOT *Traffic Operations and Safety Analysis Manual* (*TOSAM*) guidance. **Tables 3-5** and **Figures 9-14** illustrate the existing conditions analysis results. The Synchro *HCM* reports and SimTraffic queue reports are provided in **Appendices B** and **C**, respectively.

As shown in the tables and figures, the following traffic operations challenges exist today.

Route 250 Intersections

- Route 250 at the schools – The queues on the eastbound approach at WAHS and on the westbound approach at HMS/BES are lengthy and extend beyond the provided storage areas. The side streets, WAHS, Old Trail Drive, and HMS/BES experience LOS E.
- Route 250 at Miller School Road and Crozet Avenue – The southbound and northbound approaches experience LOS E and F, respectively. The southbound and westbound right turn queues extend beyond the provided storage areas.

Crozet Avenue

The queues on Crozet Avenue extend beyond the provided storage areas and through the adjacent intersections and the westbound right turn queue at Three Notched Road extends beyond the provided storage area. All of the intersections and movements currently operate at LOS C or better.

Figure 9 – 2020 Existing Levels of Service and Delays Intersections 1-4

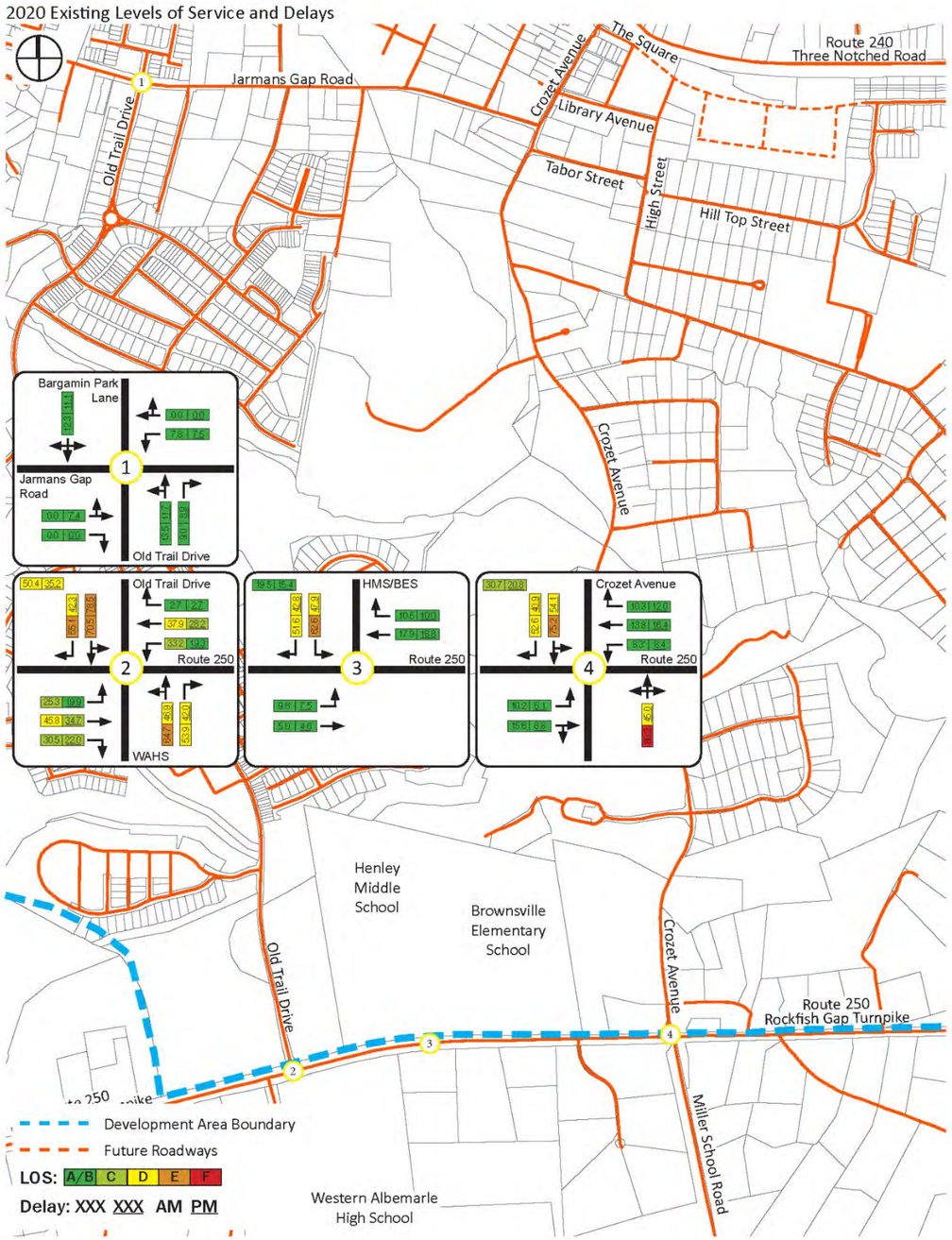


Figure 10 – 2020 Existing Queues Intersections 1-4

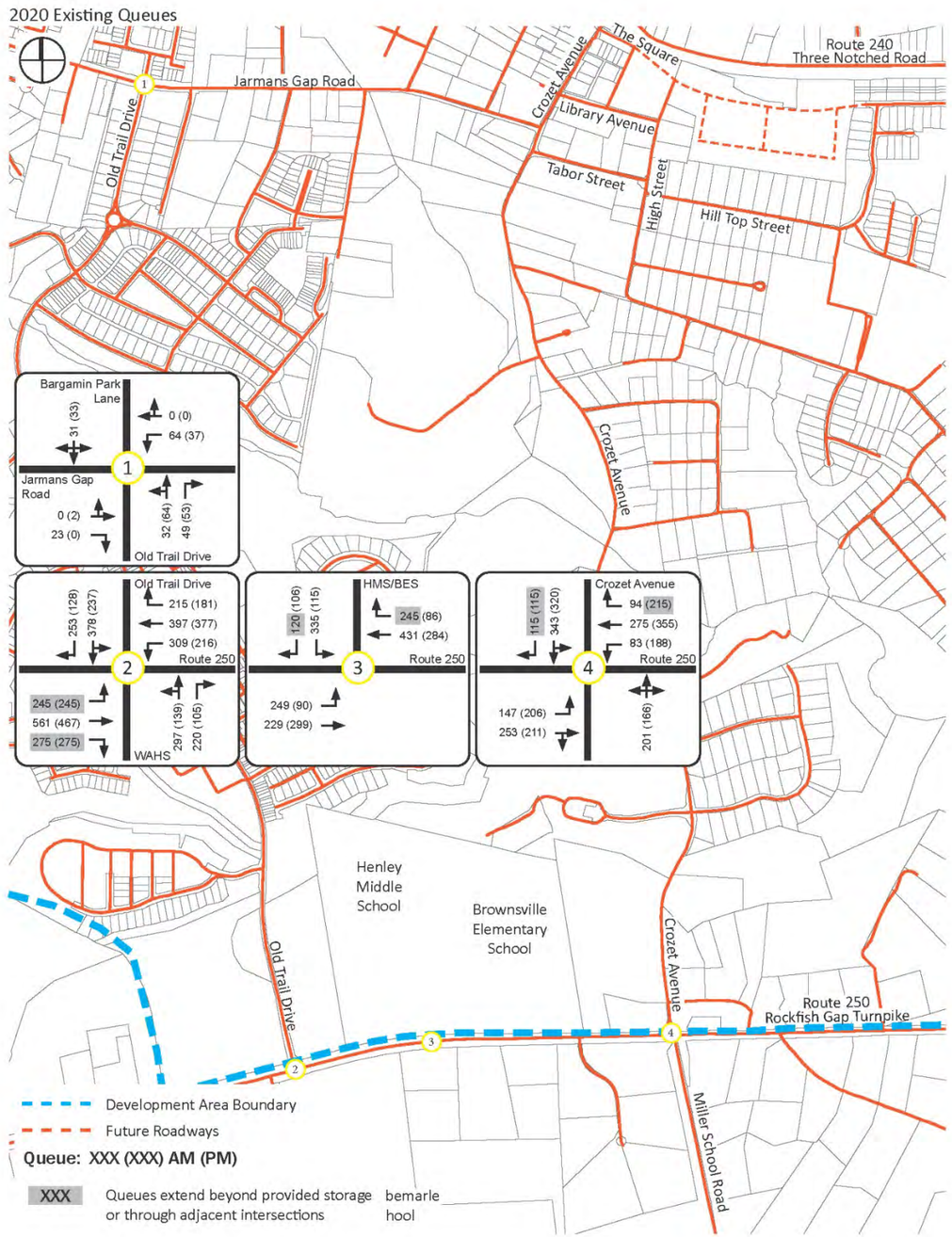


Table 3– 2020 Existing Levels of Service, Delays, and Queues Intersections 1-4

Intersection	Approach	Movement	Storage	Effective Storage	Existing AM			Existing PM		
					LOS	Delay	Queue	LOS	Delay	Queue
1. Jarmans Gap Road/ Old Trail Drive (2-Way Stop)	Jarmans Gap Road EB	EBL/T*	-	-	A	0.0	0	A	7.4	2
		EBR	30	70	A	0.0	23	A	0.0	0
	Jarmans Gap Road EB	WBL	95	160	A	7.8	64	A	7.5	37
		WBT/R	2475	2475	A	0.0	0	A	0.0	0
	Old Trail Drive NB	NBL/T	800	800	B	13.5	32	B	11.7	64
		NBR	180	200	A	9.0	49	A	8.9	53
	Bargamin Park SB	SBL/T/R	-	-	B	12.3	31	B	11.1	33
2. Route 250/ WAHS/Old Trail Drive (Signal)	Route 250 EB	EBL	200	245	C	25.3	245	B	19.9	245
		EBT	-	-	D	45.8	561	C	34.7	467
		EBR	225	275	C	30.5	275	C	22.0	275
	Route 250 WB	WBL	360	420	C	33.2	309	B	19.3	216
		WBT	840	840	D	37.9	397	C	28.2	377
		WBR**	300	350	A	2.7	215	A	2.7	181
	WAHS NB	NBL/T	-	-	E	64.7	297	D	46.9	139
		NBR	175	245	D	53.9	220	D	42.0	105
	Old Trail Drive SB	SBL/T	-	-	E	70.5	378	E	78.5	237
		SBR	200	300	E	55.1	253	D	42.3	128
Intersection			-	-	D	50.4		D	35.2	
3. Route 250/ HMS (Signal)	Route 250 EB	EBL	350	425	A	9.8	249	A	7.5	90
		EBT	840	840	A	5.0	229	A	4.6	299
	Route 250 WB	WBT	1400	1400	B	17.9	431	B	18.8	284
		WBR	175	245	B	10.5	245	A	10.0	86
	HMS SB	SBL	-	-	E	62.6	335	D	47.9	115
		SBR	120	120	D	51.6	120	D	42.8	106
Intersection			-	-	B	19.5		B	15.4	
4. Route 250/ Crozet Avenue/Miller School Road (Signal)	Route 250 EB	EBL	1040	1140	B	10.2	147	A	6.1	206
		EBT/R	1400	1400	B	15.6	253	A	8.8	211
	Route 250 WB	WBL	160	240	A	8.3	83	A	8.4	188
		WBT	-	-	B	13.8	275	B	16.4	355
		WBR	130	215	B	10.3	94	B	12.0	215
	Miller School Road NB	NBL/T/R	-	-	F	80.2	201	D	45.0	166
	Crozet Avenue SB	SBL/T	-	-	E	75.2	343	D	54.1	320
		SBR	70	115	D	52.6	115	D	40.9	115
Intersection			-	-	C	30.7		C	20.8	

* Left turn level of service/delay reported.

** Due to high progression factor, SimTraffic delay reported.

Gray cells indicate queues that extend beyond the effective storage length or queues greater than 500 feet.

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Figure 11 – 2020 Existing Levels of Service and Delays Intersections 5-9

Figure 12 – 2020 Existing Queues Intersections 5-9

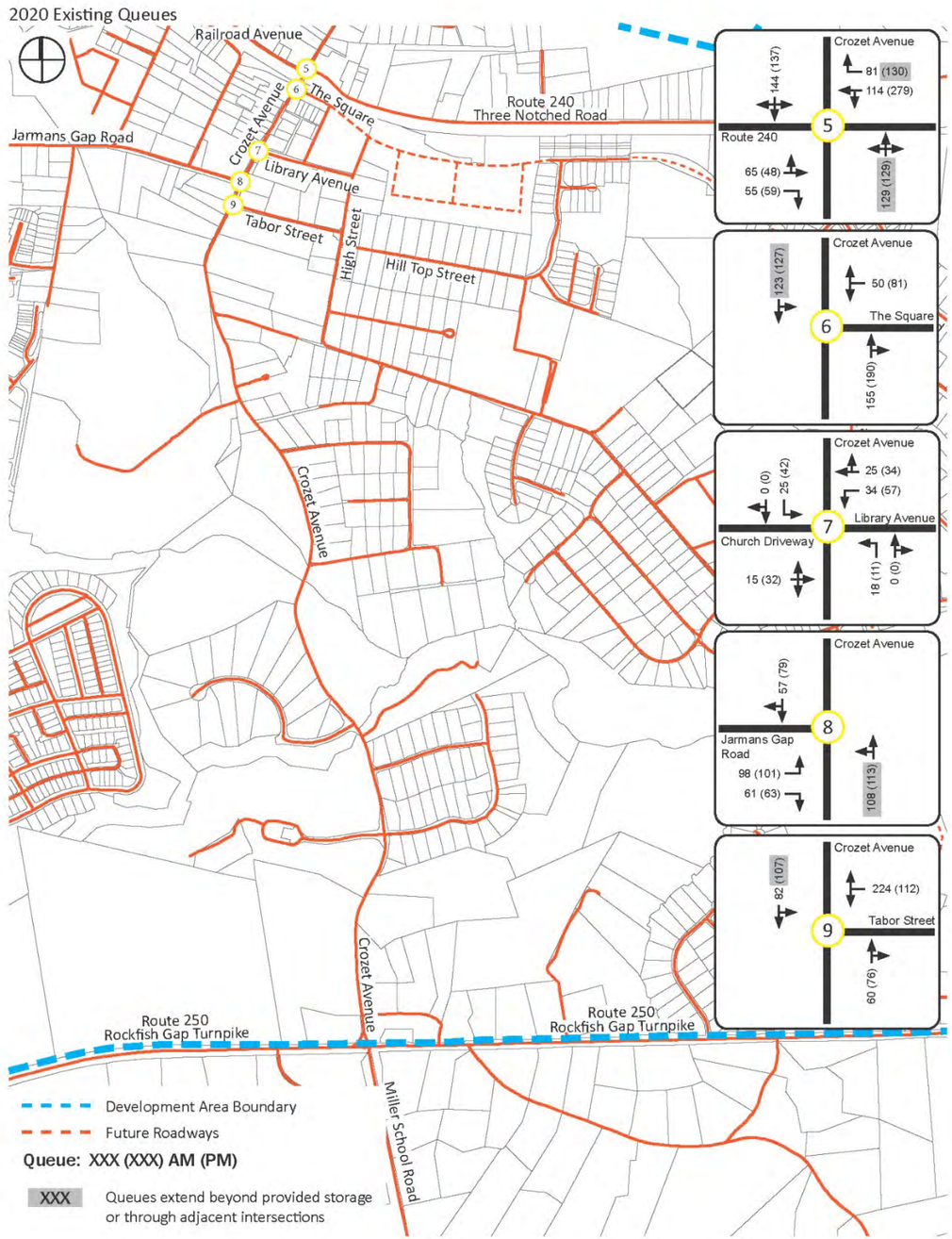

Table 4– 2020 Existing Levels of Service, Delays, and Queues Intersections 5-9

Intersection	Approach	Movement	Storage	Effective Storage	Existing AM			Existing PM		
					LOS	Delay	Queue	LOS	Delay	Queue
5. Crozet Avenue/ Three Notched Road (All-Way Stop)	Railroad Avenue EB	EBL/T	50	90	B	12.2	65	B	11.4	48
		EBR	-	-	B	10.5	55	B	10.5	59
	Three Notched Road WB	WBL/T	-	-	C	16.8	114	D	29.8	279
		WBR	70	130	B	10.4	81	B	10.4	130
	Crozet Avenue NB	NBL/T/R	115	115	D	26.7	129	C	22.9	129
	Crozet Avenue SB	SBL/T/R	-	-	C	19.8	144	C	15.2	137
Intersection			-	-	C	20.7		C	21.5	
6. Crozet Avenue/ The Square (Signal)	The Square WB	WBR	225	225	C	20.5	50	C	21.1	81
	Crozet Avenue NB	NBT/R	375	375	A	3.7	155	A	4.2	190
	Crozet Avenue SB	SBT	115	115	A	3.8	123	A	4.9	127
Intersection			-	-	A	4.5		A	5.8	
7. Crozet Avenue/ Library Avenue (2-Way Stop)	Church EB	EBL/T/R	-	-	C	17.8	15	C	15.5	32
	Library Avenue WB	WBL	300	300	C	15.9	34	C	20.4	57
		WBT/R	115	130	B	10.5	25	B	10.7	34
	Crozet Avenue NB	NBL	50	70	A	8.1	18	A	8.4	11
		NBT/R	180	180	A	0.0	0	A	0.0	0
	Crozet Avenue SB	SBL	50	80	A	8.2	25	A	8.4	42
		SBT/R	375	375	A	0.0	0	A	0.0	0
8. Crozet Avenue/ Jarmans Gap Road (2-Way Stop)	Jarmans Gap Road EB	EBL	325	325	D	30.0	98	D	28.6	101
		EBR	170	285	B	11.4	61	B	11.9	63
	Crozet Avenue NB	NBL/T*	85	85	A	8.7	108	A	8.9	113
	Crozet Avenue SB	SBT/R	180	180	A	0.0	57	A	0.0	79
9. Crozet Avenue/ Tabor Street (2-Way Stop)	Tabor Street WB	WBL/R	750	750	C	20.7	224	C	17.7	112
	Crozet Avenue NB	NBT/R	775	775	A	0.0	60	A	0.0	76
	Crozet Avenue SB	SBL/T*	85	85	A	8.2	82	A	8.9	107

* Left turn level of service/delay reported.

** Due to high progression factor, SimTraffic delay reported.

Gray cells indicate queues that extend beyond the effective storage length or queues greater than 500 feet.

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Figure 13 – 2020 Existing Levels of Service and Delays Intersections 10-12

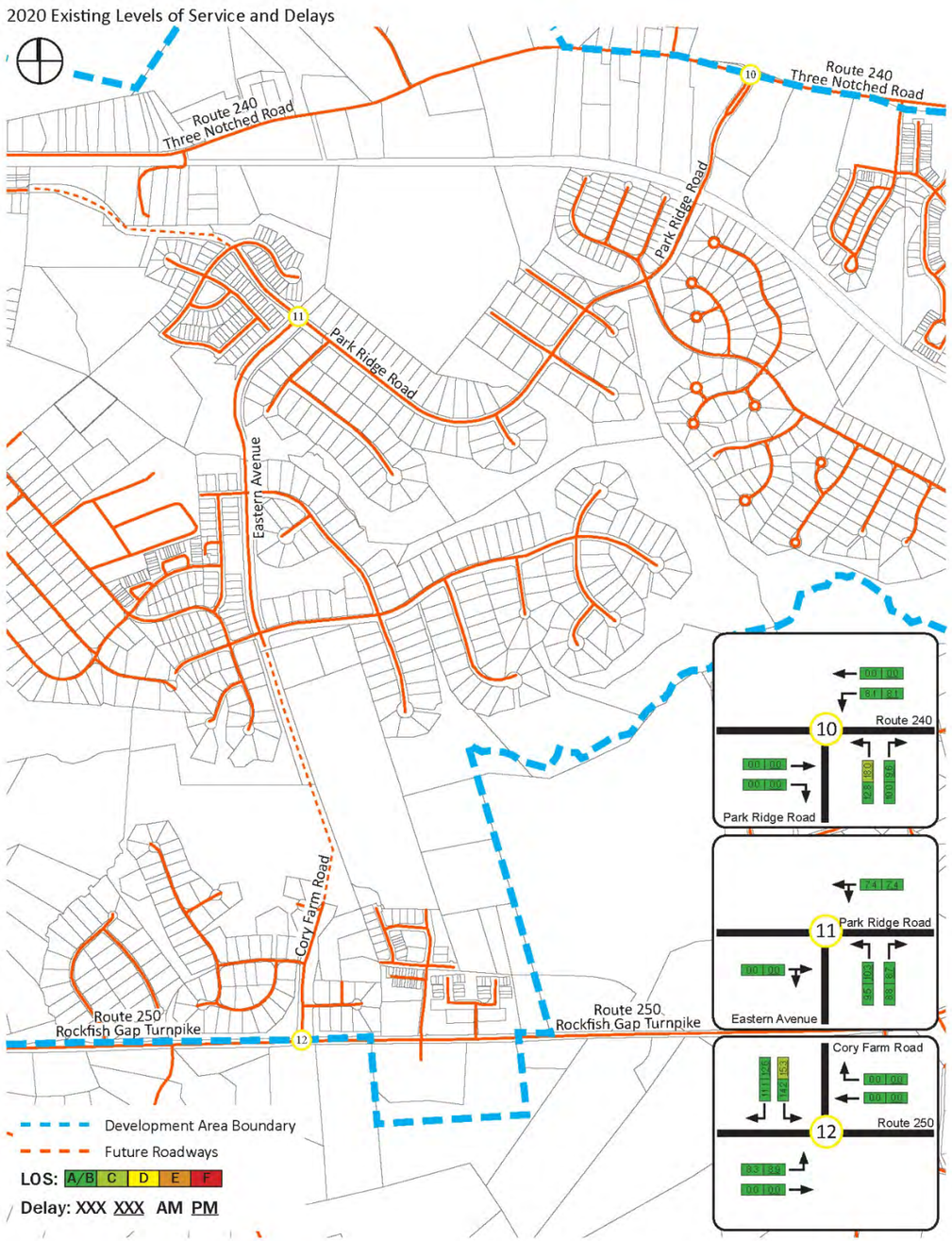

Figure 14 – 2020 Existing Queues Intersections 10-12

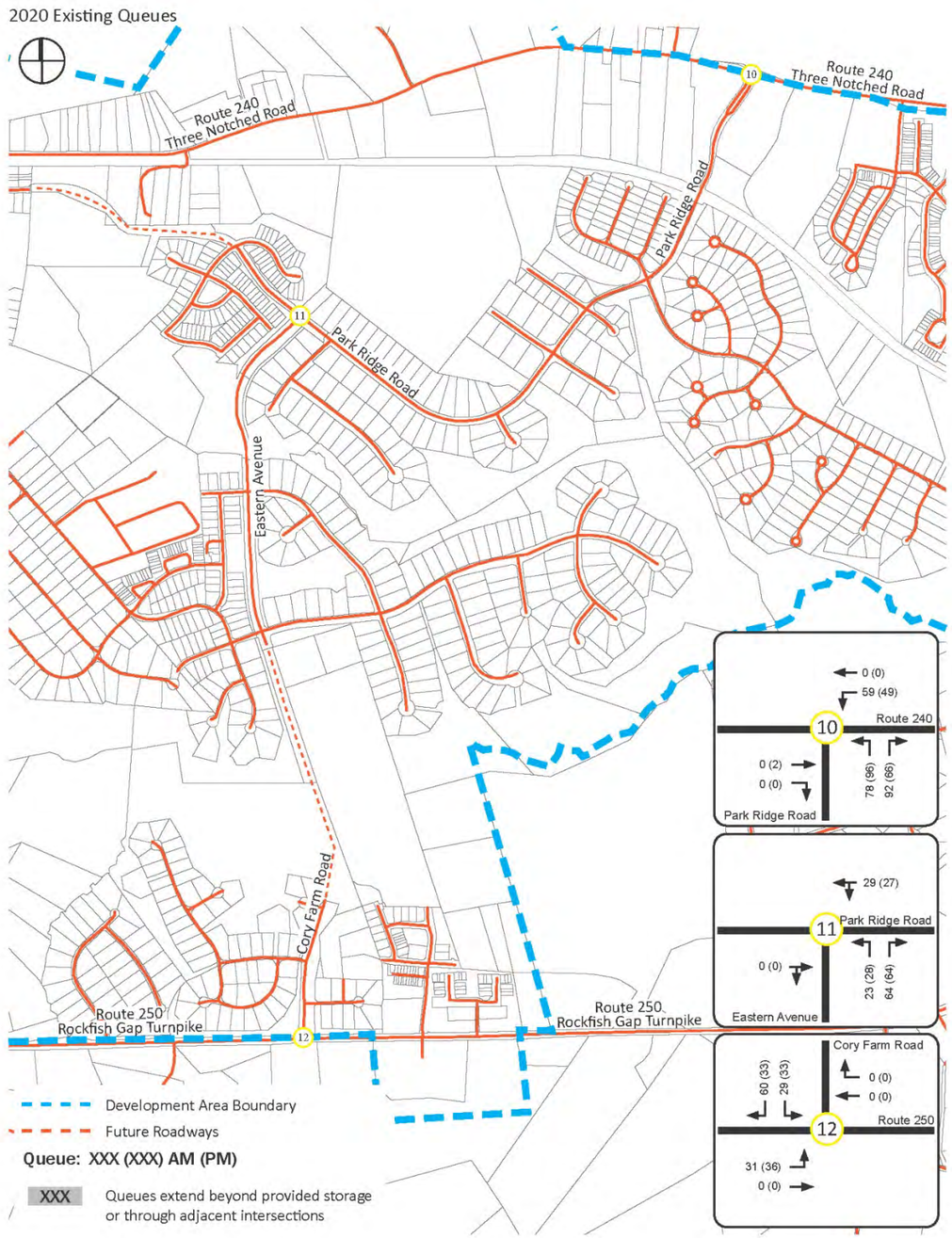

Table 5– 2020 Existing Levels of Service, Delays, and Queues Intersections 10-12

Intersection	Approach	Movement	Storage	Effective Storage	Existing AM			Existing PM		
					LOS	Delay	Queue	LOS	Delay	Queue
10. Three Notched Road/ Park Ridge Drive (2-Way Stop)	Three Notched Road EB	EBT	-	-	A	0.0	0	A	0.0	2
		EBR	160	250	A	0.0	0	A	0.0	0
	Three Notched Road WB	WBL	70	130	A	8.1	59	A	8.1	49
		WBT	-	-	A	0.0	0	A	0.0	0
	Park Ridge Drive NB	NBL	-	-	B	12.8	78	C	18.0	96
		NBR	-	-	B	10.0	92	A	9.6	66
11. Park Ridge Drive/ Eastern Avenue (2-Way Stop)	Park Ridge Drive EB	EBT/R	-	-	A	0.0	0	A	0.0	0
	Park Ridge Drive WB	WBL/T*	-	-	A	7.4	29	A	7.4	27
	Eastern Avenue NB	NBL	-	-	A	9.5	23	B	10.3	28
		NBR	200	300	A	8.8	64	A	8.7	64
12. Route 250/ Cory Farm Road (2-Way Stop)	Route 250 EB	EBL	200	300	A	8.3	31	A	8.9	36
		EBT	-	-	A	0.0	0	A	0.0	0
	Route 250 WB	WBT	-	-	A	0.0	0	A	0.0	0
		WBR	215	310	A	0.0	0	A	0.0	0
	Cory Farm Road SB	SBL	-	-	B	14.2	29	C	15.3	33
		SBR	70	120	B	11.1	60	B	12.6	33

* Left turn level of service/delay reported.

** Due to high progression factor, SimTraffic delay reported.

Gray cells indicate queues that extend beyond the effective storage length or queues greater than 500 feet.

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Future 2045 Traffic Conditions

Future Land Use

The future land use assumptions for the study area are based on the Albemarle County Development Dashboard and Growth Management Report. Potential development was grouped into two categories, projects within the current development pipeline, Pipeline Parcels, and parcels with future development potential not currently in the pipeline, Buildout Parcels. **Figure 15** illustrates the Pipeline and Buildout Parcels. Additional detail regarding the future land use assumptions can be found in **Appendix D**.

Pipeline Parcels

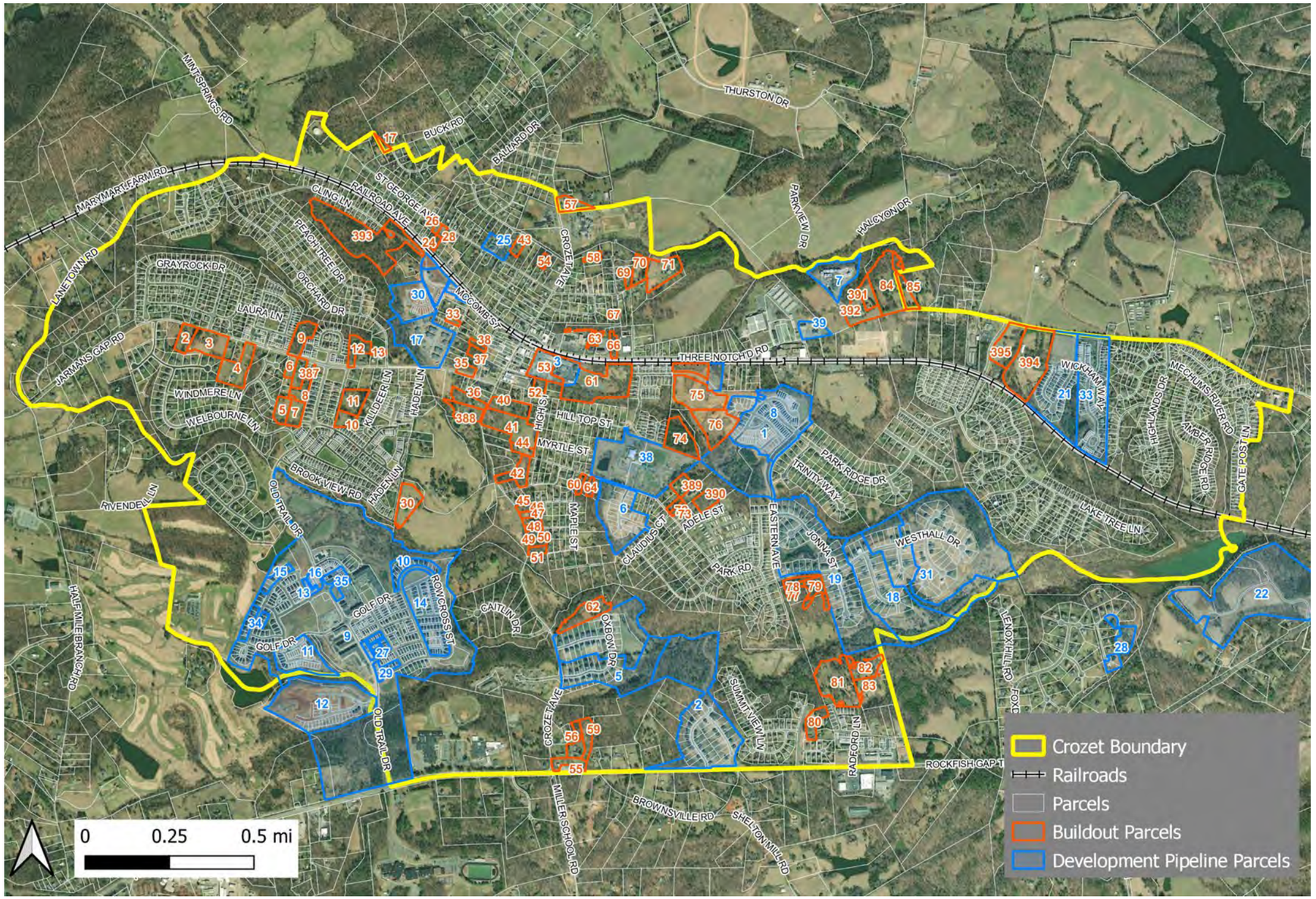
The status of these parcels ranges from site plan submittal to currently under construction and partially occupied. For the partially occupied projects, the level of occupancy was determined based on field visits in the summer of 2020. For each of the parcels the trip generation was determined based on *The Institute of Transportation Engineers Trip Generation Manual, 10th Edition* (ITE) and the trips were distributed based on existing travel patterns, future roadway connections, and engineering judgement.

Buildout Parcels

The buildable area was evaluated for each of these parcels under the 2010 Master Plan's future land use plan and low and high dwelling unit counts were estimated. The exact methodology used to determine the future development potential of these parcels can be found in the *Albemarle County Growth Management Report* dated November 2019.

As for the Pipeline Parcels, for each of these parcels the trip generation was determined based on *ITE* and a distribution of the trips was assumed based on existing travel patterns, future roadway connections, and engineering judgement.

Figure 15 – Pipeline and Buildout Parcels



Future Roadway Network

Future 2045 Traffic Volume Development

By 2045 it is anticipated that Eastern Avenue will connect to Route 250 and the Barnes Lumber property will connect The Square to Hill Top Street and Hill Top Street will continue to the east and connect to Park Ridge Drive as shown in **Figure 16**. With these new roadways, the following intersections, also shown in Figure 16, were added for consideration.

- The Square and Oak Street
- Library Avenue and Oak Street
- The Square and High Street
- Library Avenue and High Street
- Tabor Street and High Street
- Hill Top Street and High Street

Figure 16 – 2045 Roadway Connections and Intersections

To establish the 2045 traffic volumes the 2020 traffic volumes were adjusted to reflect the two new roadways. In addition to the adjusted 2020 traffic volumes, the trips generated by the Pipeline and Buildout Parcels were included in the 2045 volumes. Beyond the Crozet projects identified, it is anticipated that regional traffic will increase on Route 250. To reflect this growth in regional traffic, the 2020 traffic volumes were increased by 0.5% per year on Route 250. The traffic volumes resulting from the future roadway network, future development, and regional growth are shown in **Figures 17-20**.

Figure 17 – 2045 Peak Hour Traffic Volumes Intersections 1-4

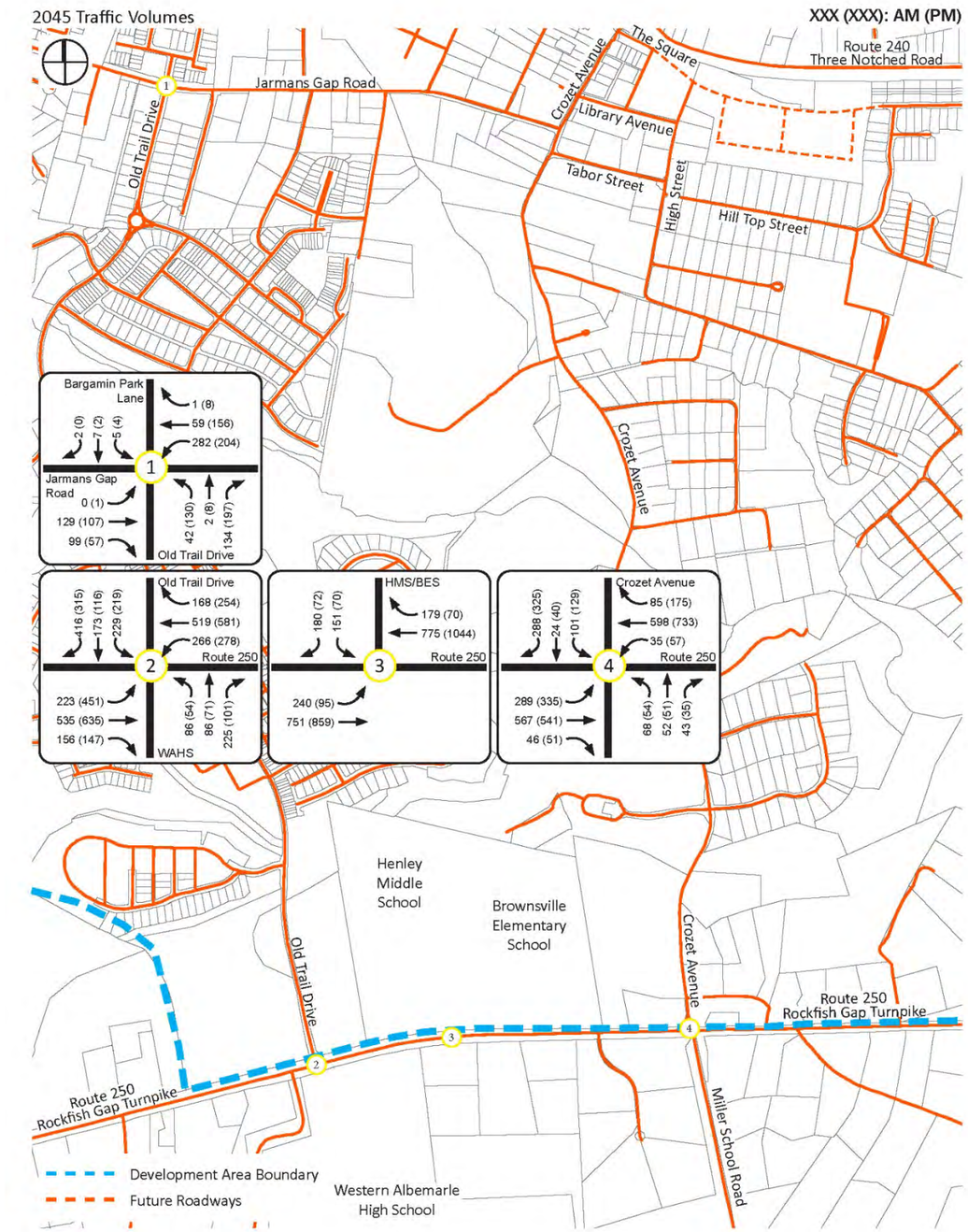


Figure 18 – 2045 Peak Hour Traffic Volumes Intersections 5-9

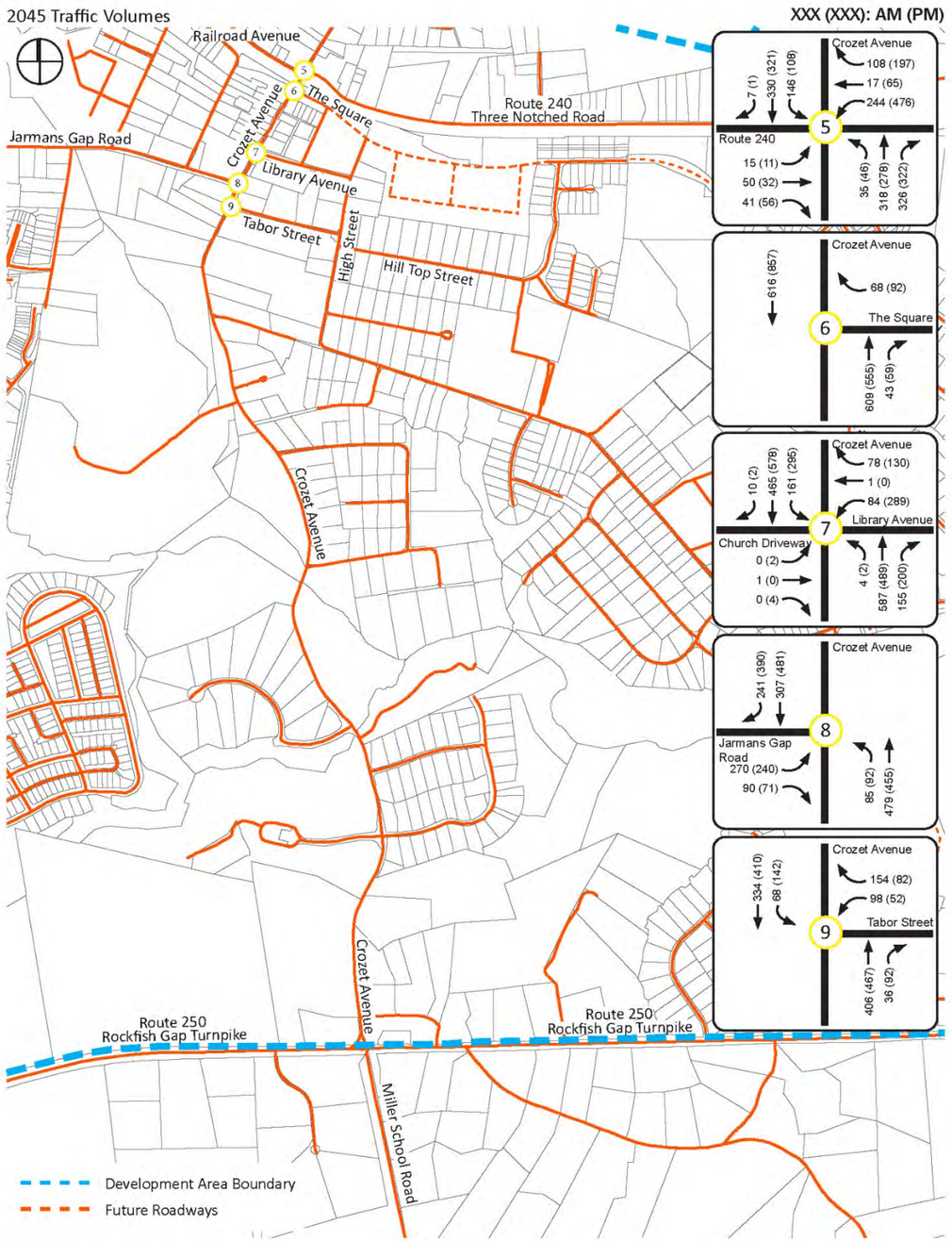


Figure 19 – 2045 Peak Hour Traffic Volumes Intersections 10-12

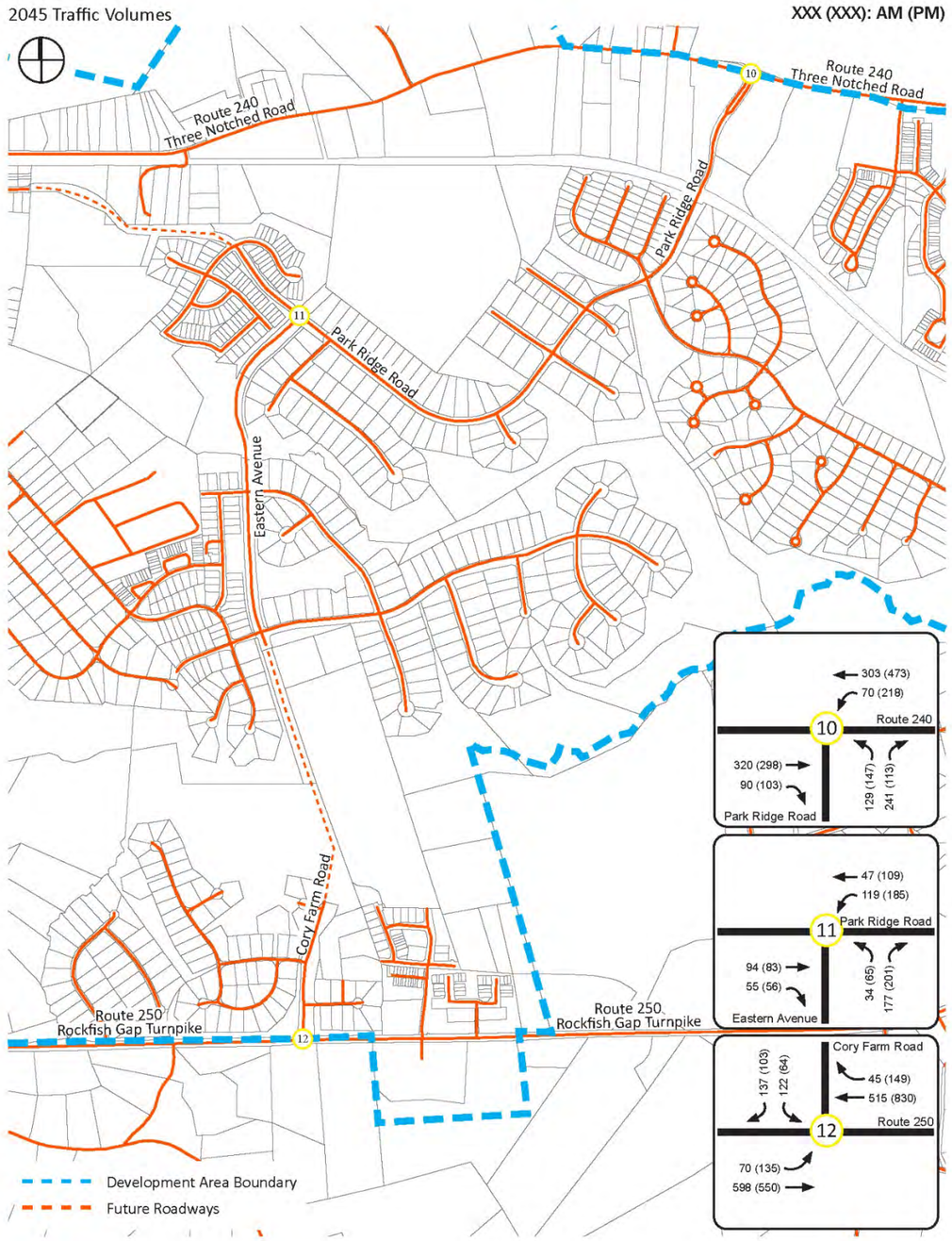
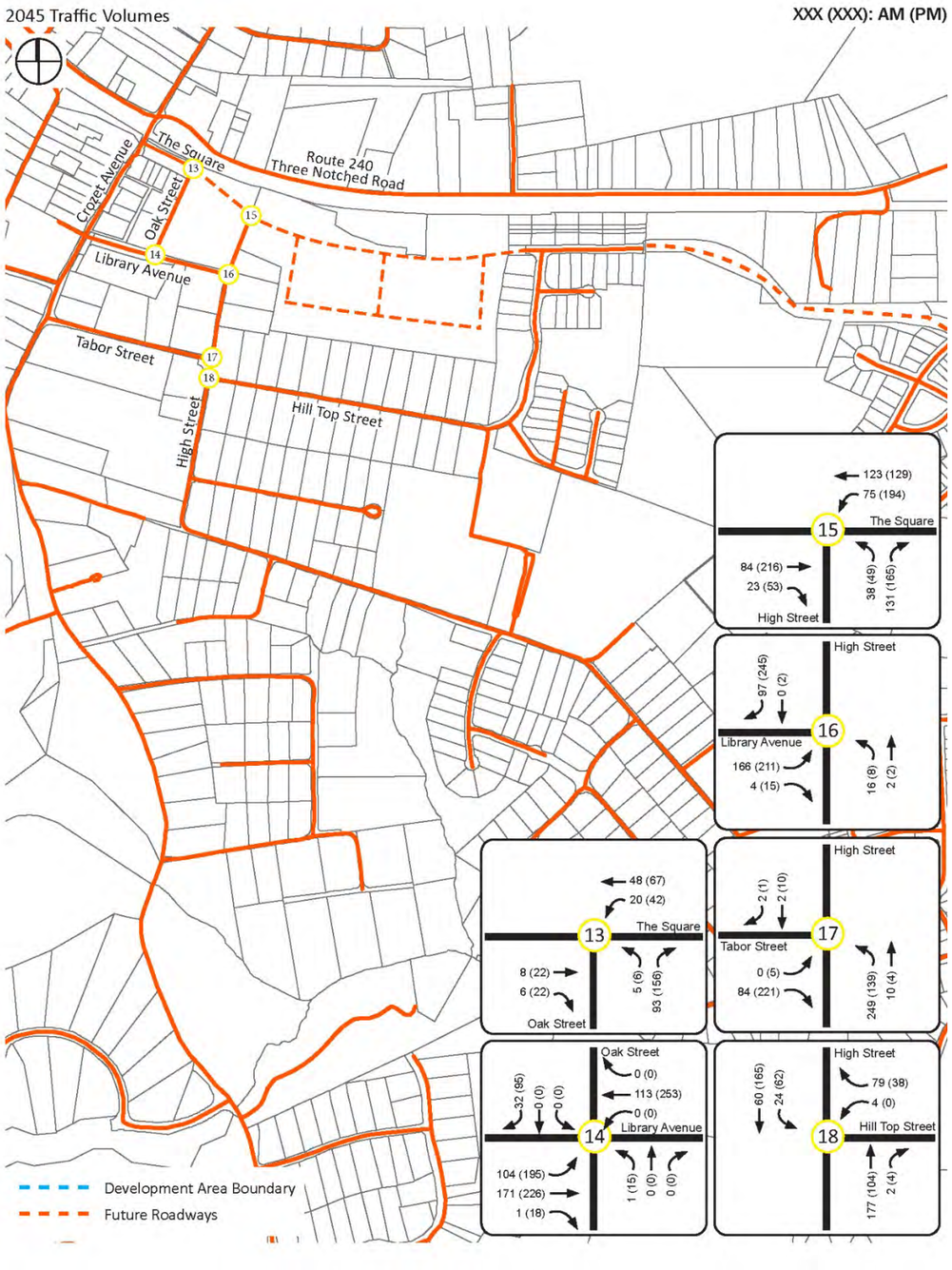


Figure 20 – 2045 Peak Hour Traffic Volumes Intersections 13-18



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Future 2045 Traffic Operations

The study intersections' 2045 traffic operations were evaluated following the same methodology as the 2020 analysis. The 2045 conditions Synchro/SimTraffic models were developed per the existing intersection configurations with the exception of the intersection of Crozet Avenue/The Square. Consistent with the project currently in design, this intersection was assumed to allow right-in/right-out only movements to/from The Square controlled by a traffic signal that only interrupts southbound Crozet Avenue traffic for pedestrians to cross.

For each area of the study, Route 250, Crozet Avenue, etc., a table of the results along with two figures (one illustrating the level of service/delays and the other queueing) are included summarizing the 2045 future conditions analysis. The Synchro *HCM* reports and SimTraffic queue reports are provided in **Appendices E** and **F**, respectively.

Route 250 and Jarmans Gap Road/Old Trail Drive Intersections

As shown in **Table 6** and **Figures 21** and **22**, the following traffic operations challenges are anticipated in 2045 with the existing infrastructure and assumed growth.

- Jarmans Gap Road at Old Trail Drive - The queues at the intersection of Jarmans Gap Road with Crozet Avenue are expected to extend to Old Trail Drive creating lengthy queues on Old Trail Drive at the intersection with Jarmans Gap Road.
- Route 250 at the schools – The queues on all of the approaches at WAHS and Old Trail Drive and on the westbound and southbound approaches at HMS/BES are expected to be very long and extend beyond the provided storage areas. All of the approaches at WAHS/Old Trail Drive and the HMS/BES approach are expected to experience LOS F.
- Route 250 at Crozet Avenue/Miller School Road – The queues on the westbound and southbound approaches are expected to extend beyond the provided storage areas and the westbound through queue is expected to be very long, extending beyond 1,500 feet. Both the northbound and southbound approaches are expected to operate at LOS F.

Table 6 – 2045 Future Levels of Service, Delays, and Queues Intersections 1-4

Intersection	Approach	Movement	Storage	Effective Storage	Future 2045 AM			Future 2045 PM		
					LOS	Delay	Queue	LOS	Delay	Queue
1. Jarmans Gap Road/ Old Trail Drive (2-Way Stop)	Jarmans Gap Road EB	EBL/T*	-	-	A	0.0	755	A	7.6	208
		EBR	30	70	A	0.0	70	A	0.0	33
	Jarmans Gap Road EB	WBL	95	160	A	8.6	97	A	8.1	77
		WBT/R	2475	2475	A	0.0	0	A	0.0	0
	Old Trail Drive NB	NBL/T	800	800	D	25.4	2313	D	32.0	326
		NBR	180	200	A	9.7	200	B	10.0	126
	Bargamin Park SB	SBL/T/R	-	-	C	19.1	74	C	19.6	37
2. Route 250/ WAHS/Old Trail Drive (Signal)	Route 250 EB	EBL	200	245	F	150.7	245	F	163.7	245
		EBT	-	-	F	101.8	> 2000	E	59.5	> 2000
		EBR	225	275	D	36.7	275	C	33.0	275
	Route 250 WB	WBL	360	420	F	107.8	420	F	96.6	420
		WBT	840	840	D	52.7	890	F	106.6	952
		WBR	300	350	B	19.6	350	D	37.5	350
	WAHS NB	NBL/T	-	-	F	169.1	753	F	151.3	438
		NBR	175	245	E	62.5	245	E	78.5	244
	Old Trail Drive SB	SBL/T	-	-	F	136.4	762	F	168.8	608
		SBR	200	300	D	51.1	300	E	69.2	300
Intersection			-	-	F	89.4		F	99.4	
3. Route 250/ HMS (Signal)	Route 250 EB	EBL	350	425	D	52.4	386	C	34.1	154
		EBT	840	840	A	7.5	480	A	4.4	267
	Route 250 WB	WBT	1400	1400	C	30.6	974	B	19.4	1457
		WBR	175	245	A	9.7	245	A	3.3	245
	HMS SB	SBL	-	-	F	84.4	475	F	107.7	268
		SBR	120	120	E	60.0	120	F	81.6	120
Intersection			-	-	C	29.5		B	19.5	
4. Route 250/ Crozet Avenue/Miller School Road (Signal)	Route 250 EB	EBL	1040	1140	B	14.9	252	D	35.9	417
		EBT/R	1400	1400	B	16.8	372	B	18.8	443
	Route 250 WB	WBL	160	240	B	10.8	220	B	14.3	240
		WBT	-	-	C	22.0	564	C	34.6	1574
		WBR	130	215	B	13.0	215	B	19.2	215
	Miller School Road NB	NBL/T/R	-	-	F	94.8	261	F	105.3	308
	Crozet Avenue SB	SBL/T	-	-	F	81.8	430	F	115.2	709
		SBR	70	115	D	54.4	115	E	70.7	115
Intersection			-	-	C	32.2		D	43.5	

* Left turn level of service/delay reported.

** Due to high progression factor, SimTraffic delay reported.

*** Roundabout results reported from Sidra. PM queue results may be much longer due to the blockage of Library Avenue WB at Crozet Avenue/Library Avenue intersection.

**** Given unusual stop sign arrangement, SimTraffic delay reported.

Gray cells indicate queues that extend beyond the effective storage length or queues greater than 500 feet.

Figure 21 – 2045 Levels of Service and Delays Intersections 1-4

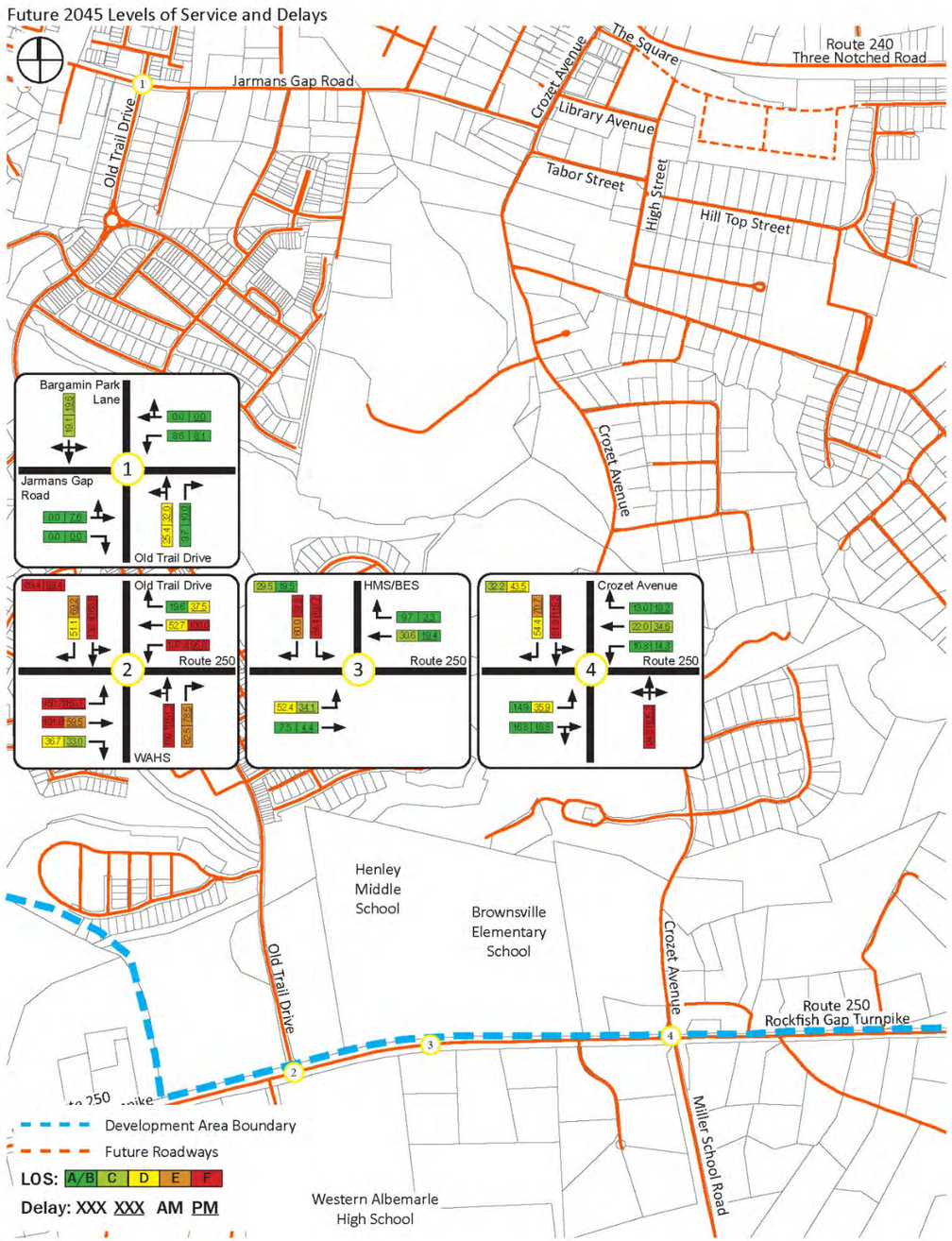
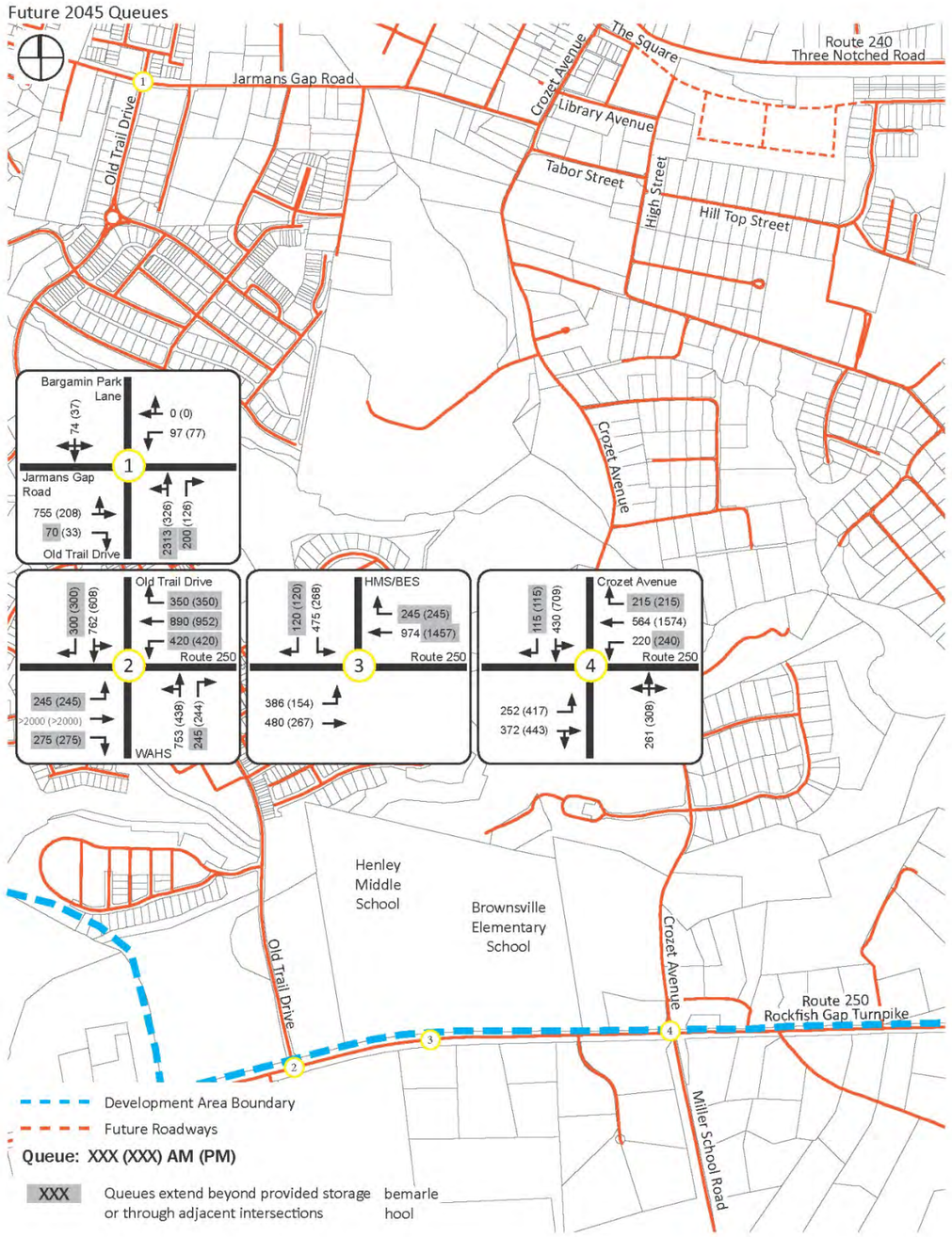


Figure 22 – 2045 Queues Intersections 1-4



Crozet Avenue Intersections

As shown in **Table 7** and **Figures 23** and **24**, the following traffic operations challenges are anticipated in 2045 with the existing infrastructure and assumed growth.

- The queues on Crozet Avenue are expected to extend beyond the provided storage areas and through the adjacent intersections. This is most pronounced at the limits of the corridor including the westbound approach on Three Notched Road (queue > 3,000 feet), northbound approach at Tabor Street (> 1,000 feet), and the eastbound approach on Jarmans Gap Road (> 2,600 feet AM and >1,800 feet PM).
- The westbound Library Avenue queue is expected to extend beyond Oak Street which locks up the internal network within the Barnes Lumber site.
- At least one of the movements on each side street to Crozet Avenue is expected to experience LOS F.

Table 7 – 2045 Future Levels of Service, Delays, and Queues Intersections 5-9

Intersection	Approach	Movement	Storage	Effective Storage	Future 2045 AM			Future 2045 PM		
					LOS	Delay	Queue	LOS	Delay	Queue
5. Crozet Avenue/ Three Notched Road (All-Way Stop)	Railroad Avenue EB	EBL/T	50	90	C	15.5	66	C	15.4	67
		EBR	-	-	B	13.5	65	B	14.8	218
	Three Notched Road WB	WBL/T	-	-	D	30.3	210	F	190.2	3542
		WBR	70	130	B	13.9	130	C	16.4	130
	Crozet Avenue NB	NBL/T/R	115	115	F	227.7	138	F	194.4	139
	Crozet Avenue SB	SBL/T/R	-	-	F	79.7	464	F	64.1	521
Intersection			-	-	F	124.7		F	136.3	
6. Crozet Avenue/ The Square (Signal)	The Square WB	WBR	225	225	C	27.0	121	C	25.3	159
	Crozet Avenue NB	NBT/R	375	375	A	5.7	401	A	6.2	404
	Crozet Avenue SB	SBT	115	115	A	0.8	0	A	1.6	117
Intersection			-	-	A	4.6		A	4.8	
7. Crozet Avenue/ Library Avenue (2-Way Stop)	Church EB	EBL/T/R	-	-	F	50.6	21	F	51.8	39
	Library Avenue WB	WBL	300	300	F	94.8	207	F	1477.3	310
		WBT/R	115	130	B	14.3	127	B	13.8	130
	Crozet Avenue NB	NBL	50	70	A	8.4	35	A	8.6	9
		NBT/R	180	180	A	0.0	178	A	0.0	206
	Crozet Avenue SB	SBL	50	80	B	10.4	74	B	11.0	79
		SBT/R	375	375	A	0.0	78	A	0.0	406
8. Crozet Avenue/ Jarmans Gap Road (2-Way Stop)	Jarmans Gap Road EB	EBL	325	325	F	6525.7	2686	F	597.2	1887
		EBR	170	285	F	51.0	285	C	15.4	262
	Crozet Avenue NB	NBL/T*	85	85	C	19.7	122	B	10.8	117
	Crozet Avenue SB	SBT/R	180	180	A	0.0	199	A	0.0	86
9. Crozet Avenue/ Tabor Street (2-Way Stop)	Tabor Street WB	WBL/R	750	750	C	22.8	544	C	23.9	553
	Crozet Avenue NB	NBT/R	775	775	A	0.0	404	A	0.0	1140
	Crozet Avenue SB	SBL/T*	85	85	A	8.7	93	A	9.4	102

* Left turn level of service/delay reported.

** Due to high progression factor, SimTraffic delay reported.

*** Roundabout results reported from Sidra. PM queue results may be much longer due to the blockage of Library Avenue WB at Crozet Avenue/Library Avenue intersection.

**** Given unusual stop sign arrangement, SimTraffic delay reported.

Gray cells indicate queues that extend beyond the effective storage length or queues greater than 500 feet.

Figure 23 – 2045 Levels of Service and Delays Intersections 5-9

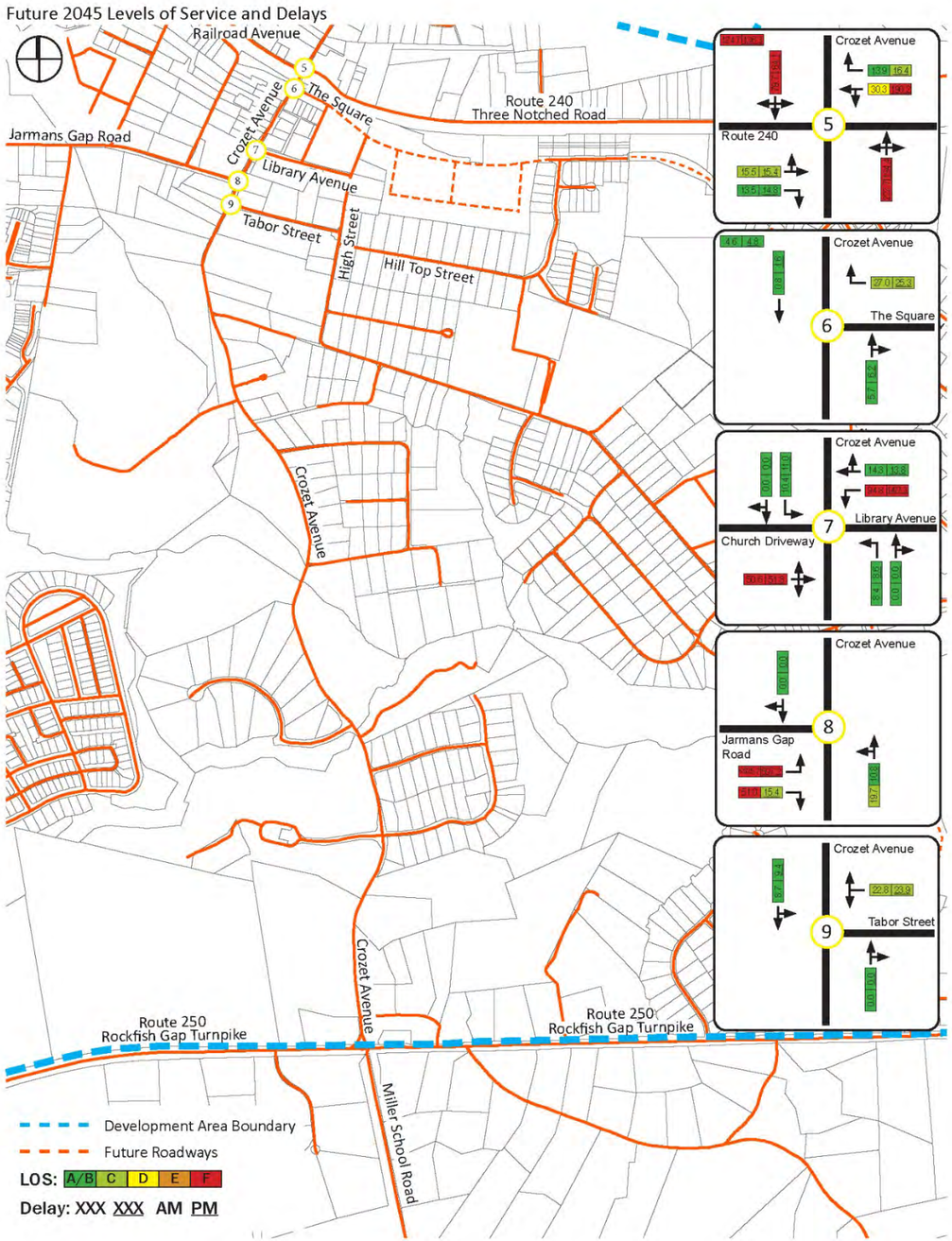
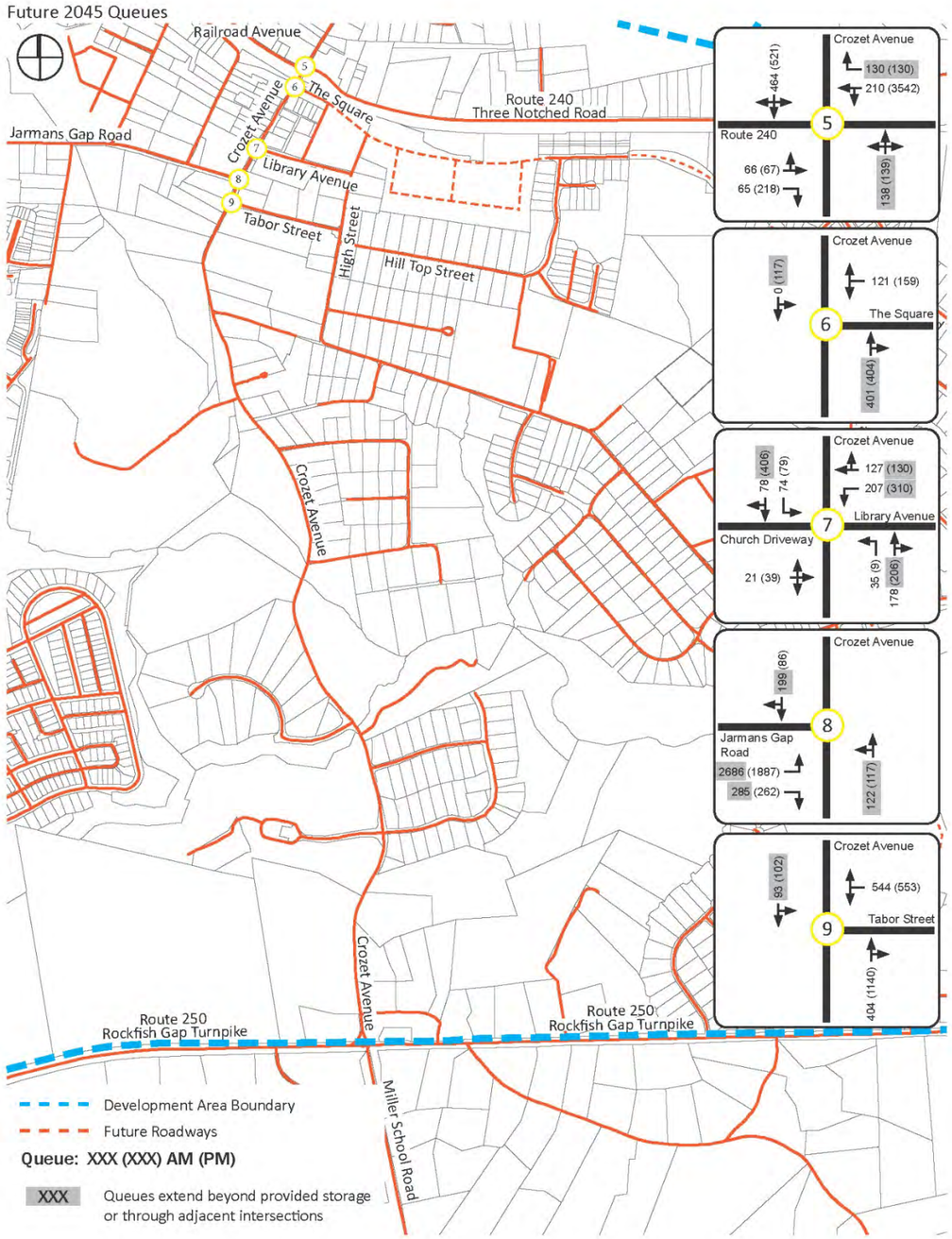


Figure 24 – 2045 Queues Intersections 5-9



Other Intersections

As shown in **Table 8** and **Figures 25** and **26**, the following traffic operations challenges are anticipated in 2045 with the existing infrastructure and assumed growth.

- Three Notched Road at Park Ridge Drive – The northbound left turn movement is expected to experience LOS F.

Table 8 – 2045 Future Levels of Service, Delays, and Queues Intersections 10-12

Intersection	Approach	Movement	Storage	Effective Storage	Future 2045 AM			Future 2045 PM		
					LOS	Delay	Queue	LOS	Delay	Queue
10. Three Notched Road/ Park Ridge Drive (2-Way Stop)	Three Notched Road EB	EBT	-	-	A	0.0	2	A	0.0	3
		EBR	160	250	A	0.0	0	A	0.0	0
	Three Notched Road WB	WBL	70	130	A	8.8	70	A	9.1	78
		WBT	-	-	A	0.0	0	A	0.0	102
	Park Ridge Drive NB	NBL	-	-	C	21.3	116	F	157.4	230
		NBR	-	-	B	12.7	133	B	11.0	102
11. Park Ridge Drive/ Eastern Avenue (2-Way Stop)	Park Ridge Drive EB	EBT/R	-	-	A	0.0	17	A	0.0	18
	Park Ridge Drive WB	WBL/T*	-	-	A	7.8	90	A	7.9	105
	Eastern Avenue NB	NBL	-	-	B	12.5	45	C	16.9	66
		NBR	200	300	B	10.0	74	B	10.1	85
12. Route 250/ Cory Farm Road (2-Way Stop)	Route 250 EB	EBL	200	300	A	9.0	60	B	12.1	110
		EBT	-	-	A	0.0	0	A	0.0	0
	Route 250 WB	WBT	-	-	A	0.0	0	A	0.0	4
		WBR	215	310	A	0.0	2	A	0.0	29
	Cory Farm Road SB	SBL	-	-	D	27.9	190	D	34.7	223
		SBR	70	120	B	14.5	120	C	21.0	119

* Left turn level of service/delay reported.

** Due to high progression factor, SimTraffic delay reported.

*** Roundabout results reported from Sidra. PM queue results may be much longer due to the blockage of Library Avenue WB at Crozet Avenue/Library Avenue intersection.

**** Given unusual stop sign arrangement, SimTraffic delay reported.

Gray cells indicate queues that extend beyond the effective storage length or queues greater than 500 feet.

Figure 25 – 2045 Levels of Service and Delays Intersections 10-12

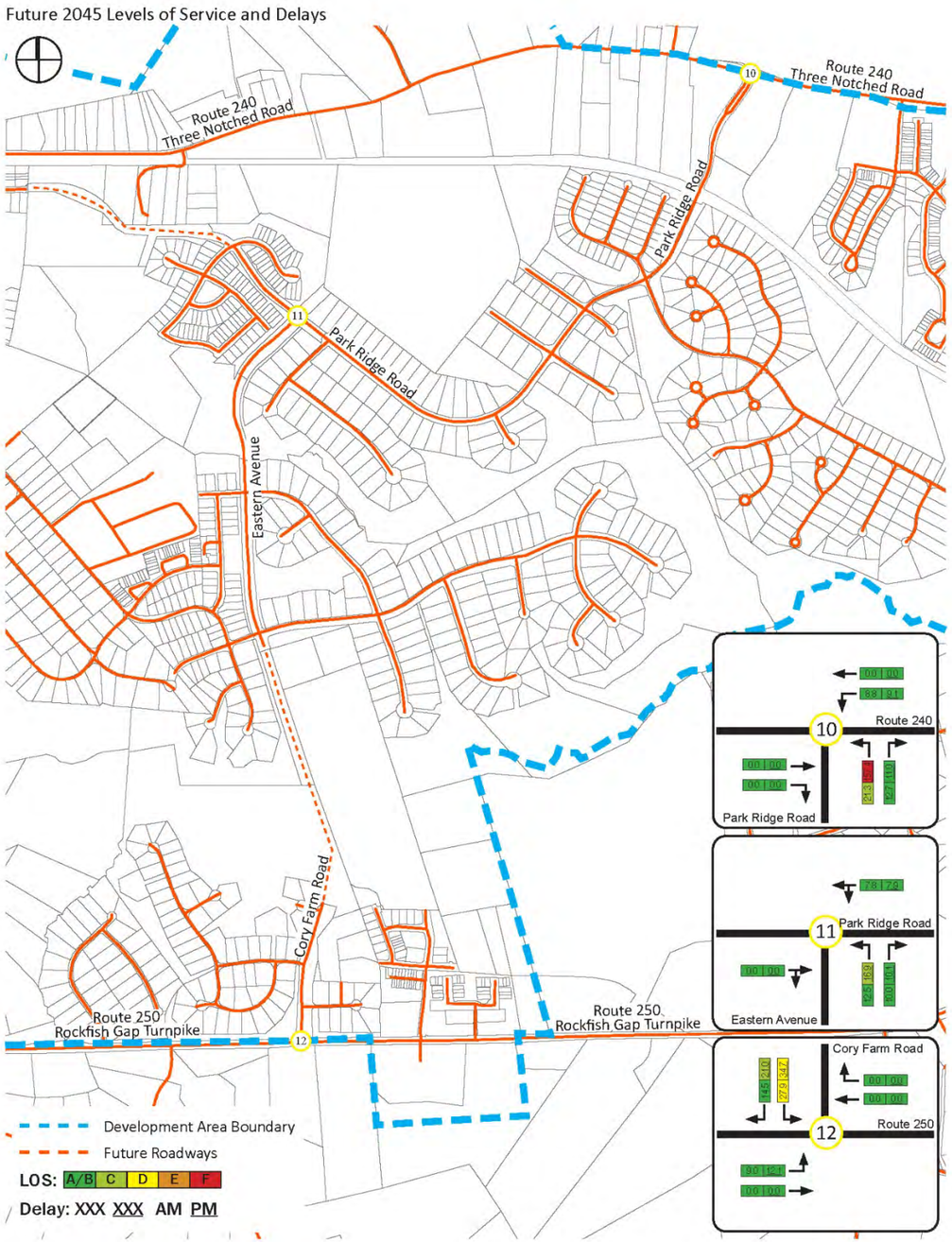
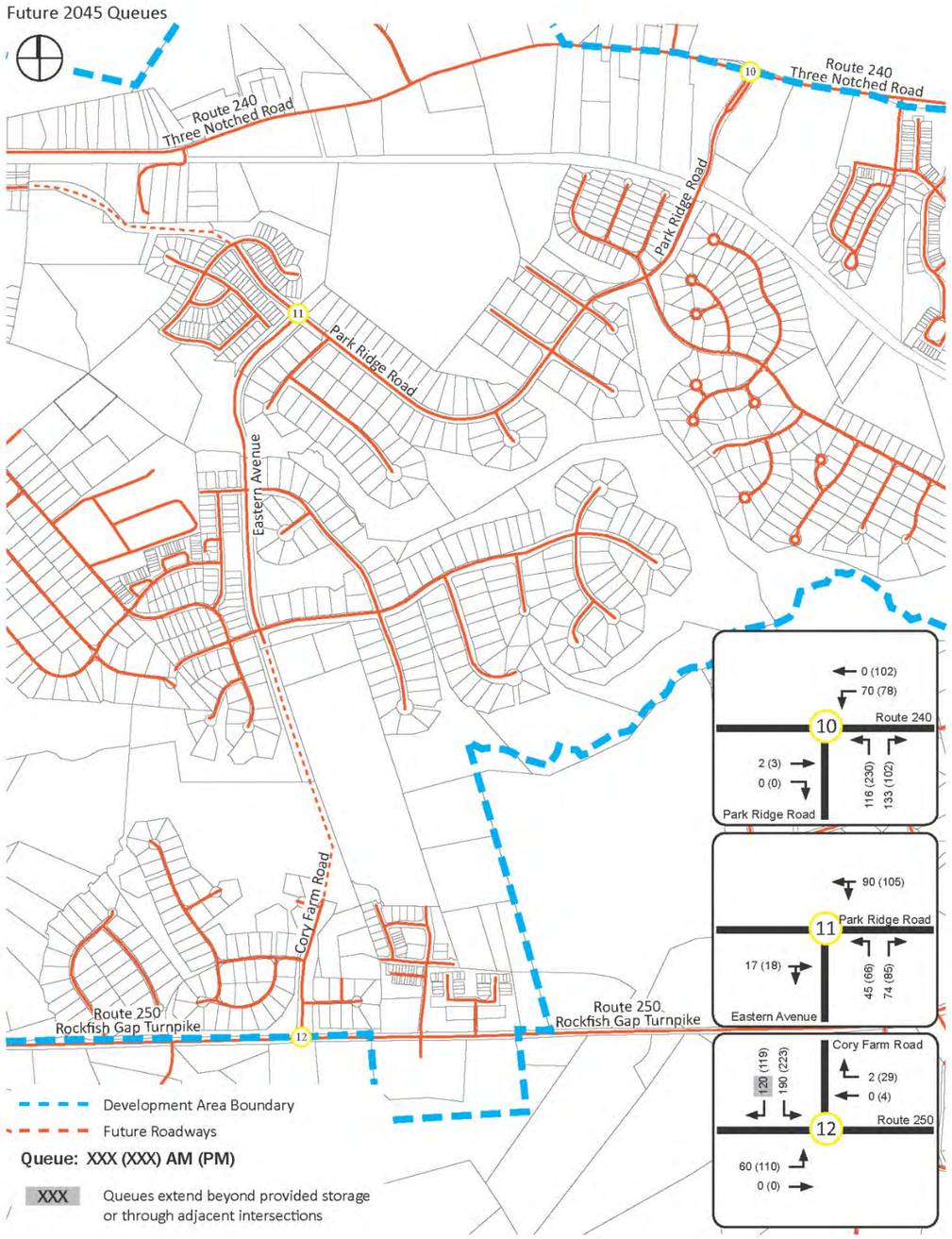


Figure 26 – 2045 Queues Intersections 10-12



Internal Downtown Crozet Intersections

As noted previously, with the Barnes Lumber development a series of new roadway connections and intersections will be constructed by 2045. A description of the traffic control at each of these intersections follows.

- The Square and Oak Street - This intersection will be controlled with stop signs on all three legs, all-way stop control.
- Library Avenue and Oak Street - This intersection will be controlled with stop signs on the Library driveway and Oak Street.
- The Square and High Street - This intersection will be controlled with a three leg mini-roundabout.
- Library Avenue and High Street - This intersection will be controlled with a three leg mini-roundabout.
- Tabor Street and High Street - This intersection will be controlled with a stop sign on Tabor Street and High Street southbound.
- Hill Top Street and High Street - This intersection will be controlled with a stop sign on Hill Top Street.

The approaches at all of the intersections will provide a single shared lane for both through and turning vehicles.

As shown in **Table 9** and **Figures 27** and **28**, the levels of service and delays are not expected to be problematic, operating at LOS B or better with only the exception of the Library driveway operating at LOS D during the afternoon peak period. However, as previously noted, the westbound queue at the intersection of Library Avenue and Crozet Avenue is expected to extend through the intersection of Library Avenue with Oak Street creating the following queuing challenges.

- The Square at Oak Street – the eastbound queue is expected to extend through Crozet Avenue during the afternoon peak period.
- Library Avenue at Oak Street – the queues in all directions are expected to extend through the adjacent intersections.

Table 9 – 2045 Future Levels of Service, Delays, and Queues Intersections 13-18

Intersection	Approach	Movement	Storage	Effective Storage	Future 2045 AM			Future 2045 PM		
					LOS	Delay	Queue	LOS	Delay	Queue
13. The Square/ Oak Street (All-Way Stop)	The Square EB	EBT/R	225	225	A	7.0	34	A	7.3	238
	The Square WB	WBL/T	275	275	A	7.6	59	A	8.1	232
	Oak Street NB	NBL/R	325	325	A	7.0	58	A	7.5	296
Intersection			-	-	A	7.2		A	7.7	
14. Library Avenue/ Oak Street (2-Way Stop)	Library Avenue EB	EBL/T/R*	300	300	A	7.7	56	A	8.3	312
	Library Avenue WB	WBL/T/R*	275	275	A	0.0	5	A	0.0	294
	Library Driveway NB	NBL/T/R	-	-	B	14.1	17	D	29.9	161
	Oak Street SB	SBL/T/R	325	325	A	9.0	54	B	10.4	348
15. The Square/ High Street (Mini Roundabout)***	The Square EB	EBT/R	275	275	A	4.4	15	A	7.4	52
	The Square WB	WBL/T	-	-	A	5.0	30	A	6.5	60
	High Street NB	NBL/R	275	275	A	5.0	26	A	6.9	42
Intersection			-	-	A	4.9		A	6.9	
16. Library Avenue/ High Street (Mini Roundabout)***	Library Avenue EB	EBL/R	275	275	A	4.5	23	A	5.0	32
	High Street NB	NBL/T	375	375	A	4.0	3	A	4.1	2
	High Street SB	SBT/R	275	275	A	3.9	13	A	5.2	39
Intersection			-	-	A	4.2		A	5.1	
17. Tabor Street/ High Street (2-Way Stop)****	Tabor Street EB	EBL/R	750	750	A	2.5	59	A	5.1	67
	High Street NB	NBL/T	75	75	A	2.1	32	A	6.0	26
	High Street SB	SBT/R	375	375	A	5.8	31	A	5.1	31
18. Hill Top Street/ High Street (2-Way Stop)	Hill Top Street WB	WBL/R	-	-	A	9.8	162	A	9.0	150
	High Street NB	NBT/R	685	685	A	0.0	123	A	0.0	196
	High Street SB	SBL/T*	75	75	A	7.7	34	A	7.6	38

* Left turn level of service/delay reported.

** Due to high progression factor, SimTraffic delay reported.

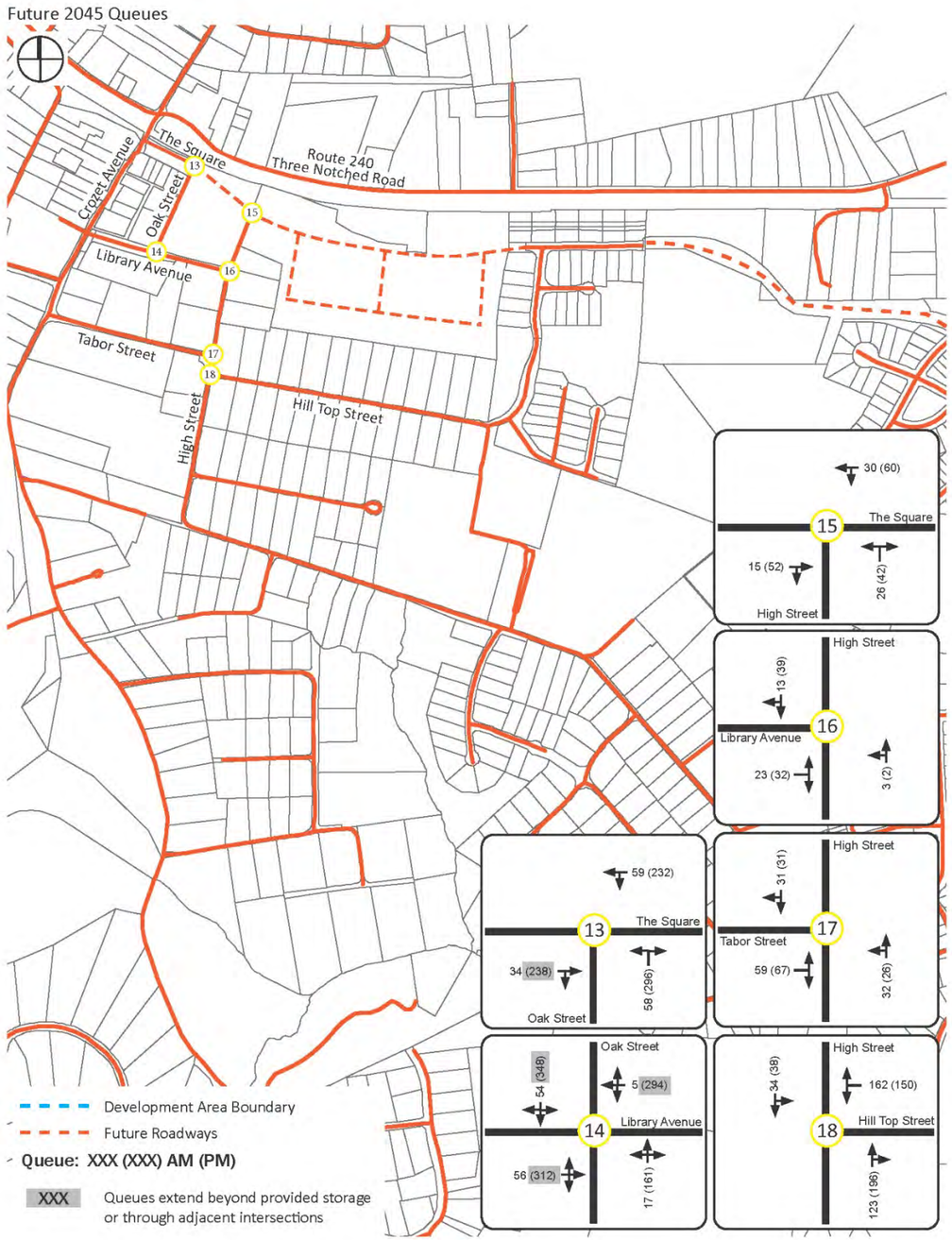
*** Roundabout results reported from Sidra. PM queue results may be much longer due to the blockage of Library Avenue WB at Crozet Avenue/Library Avenue intersection.

**** Given unusual stop sign arrangement, SimTraffic delay reported.

Gray cells indicate queues that extend beyond the effective storage length or queues greater than 500 feet.

Figure 27 – 2045 Levels of Service and Delays Intersections 13-18

Figure 28 – 2045 Queues Intersections 13-18



Alternatives Analysis

Using the projected traffic volumes for the 2045 horizon year, various roadway geometries were developed and evaluated to measure each concept's effectiveness in addressing the operational deficiencies identified in the 2045 analysis. The analyses have been grouped by location: Route 250, Crozet Avenue, internal downtown intersections, and other intersections.

Improvement alternatives considered include new and improved roadway connections, modified intersection traffic control, and innovative intersection designs such as roundabouts and continuous green-t intersections. Based on the analyses the levels of service can be improved by most of the alternatives. However, alleviating the expected queues is more challenging.

Route 250 (Rockfish Gap Turnpike)

On Route 250, additional turn lanes and roundabouts were considered at the school intersections consistent with the recent traffic study conducted for the Albemarle County Public Schools. The Cory Farm Road intersection with Route 250 was analyzed as part of the Eastern Avenue Design and Location Study and the results are included.

Challenges

- School Intersections: The queues on all of the approaches at WAHS and on the westbound and southbound approaches at HMS/BES are expected to be lengthy and extend beyond the provided storage areas. All of the approaches at WAHS and the HMS/BES approach are expected to experience LOS F.
- Crozet Avenue/Miller School Road Intersection: The intersection is expected to experience LOS F on the northbound and southbound approaches along with lengthy queues. The westbound Route 250 queue is expected to be greater than 1,500 feet.

Alternatives Considered

At the intersections of Old Trail Drive/WAHS, BES/HMS, and Crozet Avenue/Miller School Road with Route 250 a variety of improvements were considered including additional turn lanes, roundabouts and additional through lanes on Route 250.

Additional Turn Lanes

Based on the anticipated traffic volumes at the WAHS/Old Trail Drive intersection with Route 250, additional turn lanes are not sufficient to address the levels of service and queues indicated in the 2045 analysis. However, at the intersection of Crozet Avenue/Miller School Road with Route 250 the addition of northbound and southbound left turn lanes significantly improves traffic operations. The results of the analysis at this intersection are shown in **Table 10** and the Synchro *HCM* reports and SimTraffic queue reports are provided in **Appendix G.**

As shown in Table 10, with the addition of left turn lanes on both Crozet Avenue and Miller School Road the intersection is expected to C or better overall during both peak periods and all movements are expected to operate at LOS D or better with one exception. The s turn movement is expected to operate at LOS E during the afternoon peak period. While the queues are improved with the addition of the westbound queue continues to be lengthy, extending 452 feet and 972 feet during the morning and afternoon peak periods, res eastbound left turn queue is also expected to be lengthy during the afternoon peak period, extending 478 feet.

Table 10– 2045 Future Levels of Service, Delays, and Queues at Route 250/Crozet Avenue/Miller School Road with Turn Lanes

Intersection	Approach	Movement	Storage	Effective Storage	Future 2045 AM			Future 2045 PM		
					LOS	Delay	Queue	LOS	Delay	Qu
4. Route 250/ Crozet Avenue/Miller School Road (Signal)	Route 250 EB	EBL	1040	1140	B	15.7	182	D	45.4	4
		EBT/R	1400	1400	B	15.3	279	B	12.6	2
	Route 250 WB	WBL	160	240	A	9.3	239	A	9.3	2
		WBT	-	-	C	24.6	452	C	28.0	9
		WBR	130	215	B	11.7	215	B	12.1	2
	Miller School Road NB	NBL	100	150	C	32.6	95	D	37.2	
		NBT/R	-	-	C	30.8	110	D	36.6	1
	Crozet Avenue SB	SBL	100	150	D	53.0	115	E	76.1	1
		SBT	-	-	C	29.3	81	D	35.6	3
		SBR	70	115	A	0.2	43	A	0.2	
Intersection			-	-	B	18.8		C	24.7	

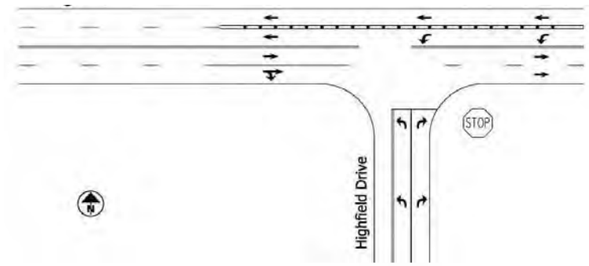
Gray cells indicate queues that extend beyond the effective storage length or queues greater than 500 feet.

Innovative Intersection Designs (Roundabouts and Continuous Green-T)

Recognizing that additional turn lanes are not sufficient to address the traffic operations challenges expected at the school interse innovative intersection designs were considered including roundabouts at both intersections as well as a continuous green-t at the H 250 intersection. The future 2045 traffic volumes indicate that two lane roundabouts are necessary and thus single lane roundab considered.

A continuous green-t (CGT) intersection design allows one major street direction of travel to pass through the intersection wi (westbound Route 250), and the opposite major street direction of travel is typically controlled by a traffic signal. Left turn vehicles street (HMS/BES driveway) use a channelized receiving lane on the major street to merge onto the major street (Route 250). **Figure 2** example of a CGT. At the intersection of BES/HMS with Route 250 the analysis indicates that the eastbound queues are expected to the intersection of WAHS/Old Trail Drive/Route 250 with a continuous green-t design.

Figure 29 – Continuous Green-T



The *Western Albemarle High School, Henley Middle School, and Brownsville Elementary School Traffic Study* dated December 2019, analyzed a single lane roundabout at the intersection of WAHS/Old Trail Drive with Route 250. Building on that study, the intersections of WAHS/Old Trail Drive, BES/HMS, and Crozet Avenue/Miller School Road with Route 250 were analyzed with roundabouts and the analysis results are shown in **Table 11.** The Sidra reports are provided in **Appendix H**.

As shown in Table 11, with roundabouts at the Route 250 intersections, each intersection is expected to operate at LOS C or better overall and all movements are expected to operate at LOS C or better. Furthermore, the queues are not expected to extend beyond the provided storage areas. It should be noted that the roundabouts at WAHS/Old Trail Drive and BES/HMS require two circulating lanes to accommodate the 2045 traffic volumes, thus Route 250 would need to provide two lanes per direction.

Table 11 – 2045 Future Levels of Service, Delays, and Queues at Route 250 Intersections with Roundabouts

Intersection	Approach	Movement	Storage	Effective Storage	Future 2045 AM			Future 2045 PM		
					LOS	Delay	Queue	LOS	Delay	Queue
2. Route 250/ WAHS/Old Trail Drive (2-Lane EB/WB and 1-Lane NB/SB Roundabout)	Route 250 EB	EBL/T	-	-	C	25.2	242	C	28.9	360
		EBT	-	-	C	21.2	267	C	25.3	396
		EBR	225	275	A	5.8	33	A	5.4	28
	Route 250 WB	WBL/T	840	840	B	12.3	129	C	24.5	293
		WBT	840	840	B	11.3	134	C	21.6	320
		WBR	300	350	A	5.4	32	A	8.6	73
	WAHS NB	NBL/T	-	-	B	16.8	91	B	16.3	65
		NBR	175	245	C	25.2	178	A	9.5	34
	Old Trail Drive SB	SBL/T	-	-	C	31.9	248	C	25.0	163
		SBR	200	300	B	17.5	169	B	14.5	110
Intersection			-	-	B	18.7		C	20.8	
3. Route 250/ HMS (2-Lane EB/WB and 1-Lane SB Roundabout)	Route 250 EB	EBL/T	840	840	B	11.9	156	A	6.9	86
		EBT	840	840	B	10.6	156	A	6.5	87
	Route 250 WB	WBT	1400	1400	A	9.9	95	A	7.9	103
		WBR	175	245	A	5.0	30	A	3.2	9
	HMS SB	SBL	-	-	A	9.4	37	A	7.9	17
		SBR	120	120	B	10.3	48	A	8.1	18
Intersection			-	-	B	10.0		A	7.1	
4. Route 250/ Crozet Avenue/Miller School Road (Roundabout)	Route 250 EB	EBL/T	1400	1400	B	14.5	274	B	16.5	435
		EBR	1040	1140	A	2.9	5	A	3.0	6
	Route 250 WB	WBL/T	-	-	B	14.7	271	C	24.9	558
		WBR	130	215	A	4.2	14	A	5.3	31
	Miller School Road NB	NBL/T/R	-	-	C	22.6	110	C	21.0	89
	Crozet Avenue SB	SBL/T	-	-	A	7.8	39	B	11.6	69
		SBR	70	115	B	11.4	98	B	16.9	162
Intersection			-	-	B	13.7		B	18.1	

Widening Route 250

The WAHS/Old Trail Drive, HMS/BES, and Crozet Avenue/Miller School Road intersections were analyzed with two through lanes per direction from west of WAHS/Old Trail Drive to Crozet Avenue/Miller School Road. The added eastbound and westbound through lanes on Route 250 were not assumed to continue through the intersection of Crozet Avenue/Miller School Road with Route 250. The analysis results are summarized in **Table 12**. The Synchro *HCM* reports and SimTraffic queue reports are provided in **Appendix I**.

As shown in Table 12, with traffic signals at all three intersections and two through lanes in each direction of Route 250, the WAHS/Old Trail Drive intersections is expected to operate at overall LOS E during both peak periods with many movements operating at LOS E and F. At the HMS/BES and Crozet Avenue/Miller School Road intersections with Route 250, improved levels of service, compared to 2045 conditions without improvements, are expected with four lanes on Route 250 with only one movement, the southbound left turn at Crozet Avenue/Miller School Road operating at LOS E during both peak periods.

In addition to the poor levels of service expected with four lanes on Route 250, the queues are expected to be lengthy and/or exceed the provided storage areas at many locations. Worth noting are the queues entering the area. At the intersection of WAHS/Old Trail Drive with Route 250 each of the eastbound movements fully occupies the provided storage areas which most likely means that the queues extend beyond the provided storage and the eastbound through queue is lengthy at 556 feet and 894 feet during the morning and afternoon peak periods, respectively. At the east end of the area the westbound queues at the intersection of Crozet Avenue/Miller School Road with Route 250 are lengthy for the through movement at 1,484 feet during the afternoon peak period.

Cory Farm Road/Route 250 Intersection

Per the *Eastern Avenue Connection Traffic Report*, "No changes to the intersection control are recommended at the intersection of Rockfish Gap Turnpike at Cory Farm Road. It is recommended that the intersection remain as a two-way stop-controlled intersection, with the addition of a designated eastbound left-turn lane and an eastbound median acceleration lane along Rockfish Gap Turnpike. Restriping a segment of the existing two-way left-turn lane on Rockfish Gap Turnpike as an eastbound median acceleration lane will indicate to vehicles traveling through the intersection that the lane is intended for the two-stage left turn." An excerpt from the *Eastern Avenue Connection Traffic Report* is included in **Appendix J**.

Conclusion

To accommodate the expected 2045 traffic volumes, widening Route 250 to two lanes per direction from west of WAHS/Old Trail Drive to west of Crozet Avenue/Miller School Road and installing roundabouts at all three intersections is expected to address the level of service and queueing challenges. **Figure 30** illustrates this concept. Adding turn lanes, single lane roundabouts, or additional through lanes in

ation are not sufficient improvements to accommodate the expected traffic volumes in the future.

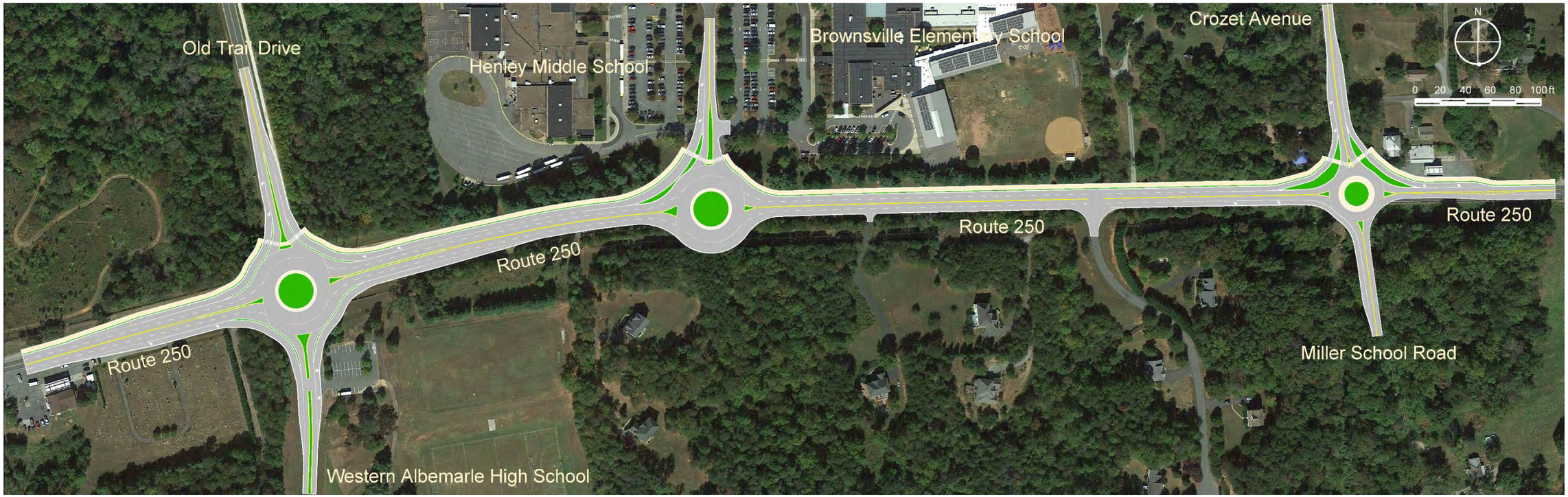
ıould be noted that pedestrians crossing at two-lane roundabouts can be challenging, though is possible since roundabouts slow vehicles to 15mph ess. The details regarding pedestrian access will be addressed in the future design phase of the project.

le 12 – 2045 Future Levels of Service, Delays, and Queues at Route 250 Intersections with Four Lanes on Route 250

Intersection	Approach	Movement	Storage	Effective Storage	Future 2045 AM			Future 2045 PM		
					LOS	Delay	Queue	LOS	Delay	Queue
2. Route 250/ VAHS/Old Trail Drive (Signal)	Route 250 EB	EBL	200	245	E	74.4	245	E	76.0	245
		EBT	-	-	E	68.0	556	D	51.1	894
		EBR	225	275	D	48.0	275	D	42.0	275
	Route 250 WB	WBL	360	420	E	62.6	378	D	41.1	370
		WBT	840	840	D	45.5	383	E	59.9	437
		WBR	300	350	F	85.2	155	F	120.2	350
	WAHS NB	NBL/T	-	-	F	93.3	640	F	114.8	370
		NBR	175	245	E	56.9	245	E	75.9	226
	Old Trail Drive SB	SBL/T	-	-	F	82.7	667	F	99.4	545
		SBR	200	300	D	43.8	300	E	63.3	300
Intersection			-	-	E	63.8		E	70.5	
3. Route 250/ HMS (Signal)	Route 250 EB	EBL	350	425	C	20.4	262	A	9.6	149
		EBT	840	840	A	2.5	151	A	1.6	216
	Route 250 WB	WBT	1400	1400	B	15.7	210	A	7.5	196
		WBR	175	245	A	6.5	101	A	0.6	57
	HMS SB	SBL	-	-	D	39.9	261	D	41.4	138
		SBR	120	120	C	27.5	120	D	36.4	106
Intersection			-	-	B	13.5		A	7.5	
4. Route 250/ Crozet Avenue/Miller School Road (Signal)	Route 250 EB	EBL	1040	1140	B	10.7	272	C	23.6	647
		EBT/R	1400	1400	B	15.4	407	B	14.1	598
	Route 250 WB	WBL	160	240	B	19.5	138	B	16.7	239
		WBT	-	-	C	34.8	418	D	38.5	1484
		WBR	130	215	B	13.6	215	B	14.7	215
	Miller School Road NB	NBL	100	150	D	35.4	104	D	39.0	120
		NBT/R	-	-	C	32.7	137	D	38.6	222
	Crozet Avenue SB	SBL	100	150	E	68.3	134	E	67.7	141
		SBT	-	-	C	30.9	73	D	37.6	206
		SBR	70	115	A	0.2	25	A	0.2	71
Intersection			-	-	C	22.1		C	25.2	

ıy cells indicate queues that extend beyond the effective storage length or queues greater than 500 feet.

Figure 30 – Route 250 Roundabouts



Crozet Avenue and Three Notched Road (Route 240)

Challenges

The westbound queue is expected to extend beyond 3,000 feet and the northbound, southbound, and westbound approaches are expected to operate at LOS F in 2045. In addition to the operational challenges, there are significant physical constraints when considering alternatives at this intersection including the railroad bridge approximately 30 feet south of the northbound stop bar, a retaining wall on the northeast corner, and limited right-of-way.

Alternatives Considered

Both intersection specific improvements, installation of a traffic signal or roundabout, and network improvements were considered to address the anticipated 2045 traffic operations challenges at the intersection. **Table 13** summarizes the results for the various improvement alternatives. The Synchro *HCM* reports, SimTraffic queue reports, and Sidra reports are provided in **Appendix K**.

Traffic Signal

Installation of a traffic signal was analyzed, and the results indicate that the levels of service improve to LOS D or better, however, this alternative is problematic based on the following.

- The westbound queue is expected to be lengthy at 775 feet.
- The southbound queue exceeds 500 feet.
- The northbound queue extends through Library Avenue (> 600 feet) during the AM peak and through Jarmans Gap Road (900 feet) during the PM peak.

Additional turn lanes were considered for the westbound right turn movement and southbound left turn movement and the improvement in operations was minimal. The westbound and northbound queues are expected to continue to be very long.

Roundabout

As previously noted, the physical limitations at this intersection are very challenging. Conceptual drawings of both a roundabout and mini-roundabout with varied locations are included in **Appendix L** and the significant impacts of any potential improvement are apparent. Installation of a roundabout was analyzed, and the results indicate that the levels of service improve to LOS D or better and that the queues are reduced compared to the traffic signal alternative, however, this alternative is problematic based on the following.

- The westbound queue is expected to be lengthy at 623 feet.
- The northbound queue improves but extends through The Square.

To address the westbound queue, a roundabout and mini-roundabout were analyzed with a westbound right turn lane. Both of these op improve the queues in the westbound direction, however, queueing northbound on Crozet Avenue is expected to extend through The Squar

Table 13 – 2045 Future Levels of Service, Delays, and Queues at Crozet Avenue and Three Notched Road with Various Improvements

Intersection	Approach	Movement	Storage	Effective Storage	Future 2045 AM			Future 2045 PM		
					LOS	Delay	Queue	LOS	Delay	Queue
5. Crozet Avenue/ Three Notched Road (Signalized)	Railroad Avenue EB	EBL	50	90	B	17.3	61	B	12.9	47
		EBT/R	-	-	B	17.9	122	B	13.2	86
	Three Notched Road WB	WBL	70	130	C	29.4	130	D	38.4	130
		WBT/R	-	-	B	17.7	327	B	14.2	775
	Crozet Avenue NB	NBL/T/R	115	115	B	16.5	631	D	36.8	902
	Crozet Avenue SB	SBL/T/R	-	-	C	23.2	550	D	40.7	541
Intersection			-	-	C	20.6		C	33.8	
5. Crozet Avenue/ Three Notched Road (Signalized with WBR & SBL)	Railroad Avenue EB	EBL	50	90	B	15.9	58	B	12.8	35
		EBT/R	-	-	B	16.5	100	B	13.2	79
	Three Notched Road WB	WBL	70	130	C	25.7	129	D	38.3	130
		WBT	-	-	B	15.9	283	B	13.2	866
		WBR	100	150	B	16.1	150	B	13.5	150
	Crozet Avenue NB	NBL/T/R	115	115	B	18.3	548	D	35.8	890
	Crozet Avenue SB	SBL	100	150	B	10.8	149	B	17.2	150
		SBT/R	-	-	A	9.2	439	B	15.5	492
Intersection			-	-	B	16.6		C	27.7	
5. Crozet Avenue/ Three Notched Road (Roundabout)***	Railroad Avenue EB	EBL/T/R	-	-	A	9.5	35	B	11.1	38
	Three Notched Road WB	WBL/T/R	-	-	B	10.6	101	C	25.3	623
	Crozet Avenue NB	NBL/T/R	115	115	B	17.8	328	B	12.1	149
	Crozet Avenue SB	SBL/T/R	-	-	B	13.2	181	C	22.6	260
Intersection			-	-	B	14.3		B	19.5	
5. Crozet Avenue/ Three Notched Road (Roundabout with WBR)***	Railroad Avenue EB	EBL/T/R	-	-	A	9.4	35	B	10.8	36
	Three Notched Road WB	WBL/T	-	-	A	6.1	54	A	8.9	120
		WBR	70	130	A	0.0	0	A	0.0	0
	Crozet Avenue NB	NBL/T/R	115	115	B	17.8	327	B	12.1	149
	Crozet Avenue SB	SBL/T/R	-	-	B	13.0	175	B	19.6	225
Intersection			-	-	B	12.8		B	11.6	
5. Crozet Avenue/ Three Notched Road (Mini Roundabout with WBR)***	Railroad Avenue EB	EBL/T/R	-	-	B	11.6	40	B	13.1	40
	Three Notched Road WB	WBL/T	-	-	A	7.5	60	B	11.5	152
		WBR	70	130	A	0.0	0	A	0.0	0
	Crozet Avenue NB	NBL/T/R	115	115	C	26.0	518	B	15.4	204
	Crozet Avenue SB	SBL/T/R	-	-	B	17.0	250	C	29.9	319
Intersection			-	-	B	17.8		B	15.8	

* Left turn level of service/delay reported.

** Due to high progression factor, SimTraffic delay reported.

*** Roundabout results reported from Sidra.

Gray cells indicate queues that extend beyond the effective storage length or queues greater than 500 feet.

Railroad Crossing

Given that the intersection specific improvements are not expected to adequately address the 2045 traffic operations challenges, a network improvement was considered to relieve the intersection. A new railroad crossing was conceptually considered between Crozet Avenue and Firehouse Lane. This alternative paired with either a traffic signal or roundabout at the intersection is expected to significantly improve traffic operations at the intersection. The results of this analysis are shown in **Table 14** and include the following.

- The additional railroad crossing has the potential to significantly reduce the westbound left turn and northbound right turn traffic volumes at the Crozet Avenue intersection with Three Notched Road.
- Paired with a traffic signal and an additional westbound right turn lane and southbound left turn lane the intersection is expected to operate at LOS B or better. However, the northbound queues are expected to extend through The Square.
- Paired with a roundabout and an additional westbound right turn lane the intersection is expected to operate at LOS B or better and the queues are expected to be accommodated within the provided storage lanes. The northbound queue is expected to extend through The Square by less than one car length during the AM peak period only.

The Synchro *HCM* reports, SimTraffic queue reports, and Sidra reports are provided in **Appendix M**.

Conclusion

Intersection specific improvements will not be sufficient to address the expected 2045 traffic operations challenges. Rather, a combination of alternatives including intersection improvements and a new railroad crossing should be considered. Due to the limited right-of-way, railroad bridge to the south, and terrain surrounding the intersection, a clear solution is not apparent at this intersection. It is recommended that the intersection be monitored and that a new railroad crossing location continue to be explored.

Table 14 – 2045 Future Levels of Service, Delays, and Queues at Crozet Avenue and Three Notched Road with Various Improvements and Railroad Cross

Intersection	Approach	Movement	Storage	Effective Storage	Future with Improvements 2045 AM			Future with Improvements 2045 PM		
					LOS	Delay	Queue	LOS	Delay	Queue
5. Crozet Avenue/ Three Notched Road (Signalized with WBR & SBL)	Railroad Avenue EB	EBL	50	90	B	12.0	52	A	9.6	38
		EBT/R	-	-	B	12.4	92	A	9.9	74
	Three Notched Road WB	WBL	70	130	B	14.7	116	B	15.6	129
		WBT	-	-	B	11.9	75	A	9.9	230
		WBR	100	150	B	12.2	108	B	10.1	143
	Crozet Avenue NB	NBL/T/R	115	115	B	13.4	324	B	15.4	307
	Crozet Avenue SB	SBL	100	150	A	9.4	148	B	10.7	141
		SBT/R	-	-	A	8.1	322	B	10.3	197
Intersection			-	-	B	11.7		B	12.7	
5. Crozet Avenue/ Three Notched Road (Roundabout with WBR)***	Railroad Avenue EB	EBL/T/R	-	-	A	8.2	30	A	8.0	27
	Three Notched Road WB	WBL/T	-	-	A	5.0	33	A	6.1	63
		WBR	70	130	A	0.0	0	A	0.0	0
	Crozet Avenue NB	NBL/T/R	115	115	B	12.9	161	A	8.8	85
	Crozet Avenue SB	SBL/T/R	-	-	B	10.6	116	B	11.8	128
Intersection			-	-	A	9.7		A	7.7	
5. Crozet Avenue/ Three Notched Road (Mini Roundabout with WBR)***	Railroad Avenue EB	EBL/T/R	-	-	A	9.8	34	A	9.6	30
	Three Notched Road WB	WBL/T	-	-	A	5.9	37	A	7.3	71
		WBR	70	130	A	0.0	0	A	0.0	0
	Crozet Avenue NB	NBL/T/R	115	115	B	16.9	242	B	10.6	99
	Crozet Avenue SB	SBL/T/R	-	-	B	13.2	165	B	15.2	176
Intersection			-	-	B	12.3		A	9.5	

* Left turn level of service/delay reported.

** Due to high progression factor, SimTraffic delay reported.

*** Roundabout results reported from Sidra.

Gray cells indicate queues that extend beyond the effective storage length or queues greater than 500 feet.

Crozet Avenue

Crozet Avenue is especially challenging with many off-set ("T") intersections and minimal right-of-way to add turn lanes due to structures along the roadway and the railroad underpass. As a result, possible improvements were considered both on Crozet Avenue and to the roadway network surrounding Downtown Crozet. At the Crozet Avenue intersections in Downtown Crozet traffic signals, roundabouts, and quadrant intersections were considered. Traffic signals were not able to alleviate the expected congestion alone.

Challenges

- The queues on Crozet Avenue are expected to extend beyond the provided storage areas and through the adjacent intersections. This is most pronounced at the limits of the corridor including the westbound approach on Three Notched Road (queue > 3,000 feet), northbound approach at Tabor Street (> 1,000 feet), and the eastbound approach on Jarmans Gap Road (> 2,600 feet AM and >1,800 feet PM). It should be noted that the northbound queue at Tabor Street is a result of the queue spilling back from the intersections of Three Notched Road and The Square.
- Library Avenue/Crozet Avenue: The westbound queue is expected to extend beyond Oak Street which locks up the internal network within the Barnes Lumber site.
- At least one of the movements on each side street is expected to experience LOS F.
- Physical limitations with off-set "T" intersections and narrow right-of-way throughout the corridor.

Alternatives Considered

Surrounding Crozet Avenue new and improved roadway connections were considered including Dunvegan Lane, High Street, and a new railroad crossing between Crozet Avenue and Firehouse Lane. Each of these offers an alternative route to a portion of Crozet Avenue, thus reducing the traffic volumes on Crozet Avenue and alleviating congestion. At the Crozet Avenue intersections between Tabor Street and Library Avenue traffic signals, roundabouts, and two variations of a quadrant intersection were considered.

New and Improved Roadway Connections

Surrounding Crozet Avenue new and improved roadway connections were considered including a connection along Dunvegan Lane between Crozet Avenue and Park Road and improvements to High Street north of Tabor Street. Along with improving and creating these connections it was assumed that Tabor Street would be right-in/right-out only at Crozet Avenue. These improvements are illustrated in **Figures 31 - 33**.

Ideally these connections would disperse traffic throughout the roadway network and relieve Crozet Avenue. The results of the analysis are summarized below.

- Either connection improves the level of service and queuing on Tabor Street at Crozet Avenue.
- The Dunvegan Lane connection reduces congestion along Crozet Avenue more significantly than the High Street connection.
- The High Street connection alone with the access change to Tabor Street shifts traffic to Library Avenue, exacerbating the queueing and level of service challenges there.
- These connections address traffic operations challenges at Tabor Street but additional improvements are needed along Crozet Avenue.

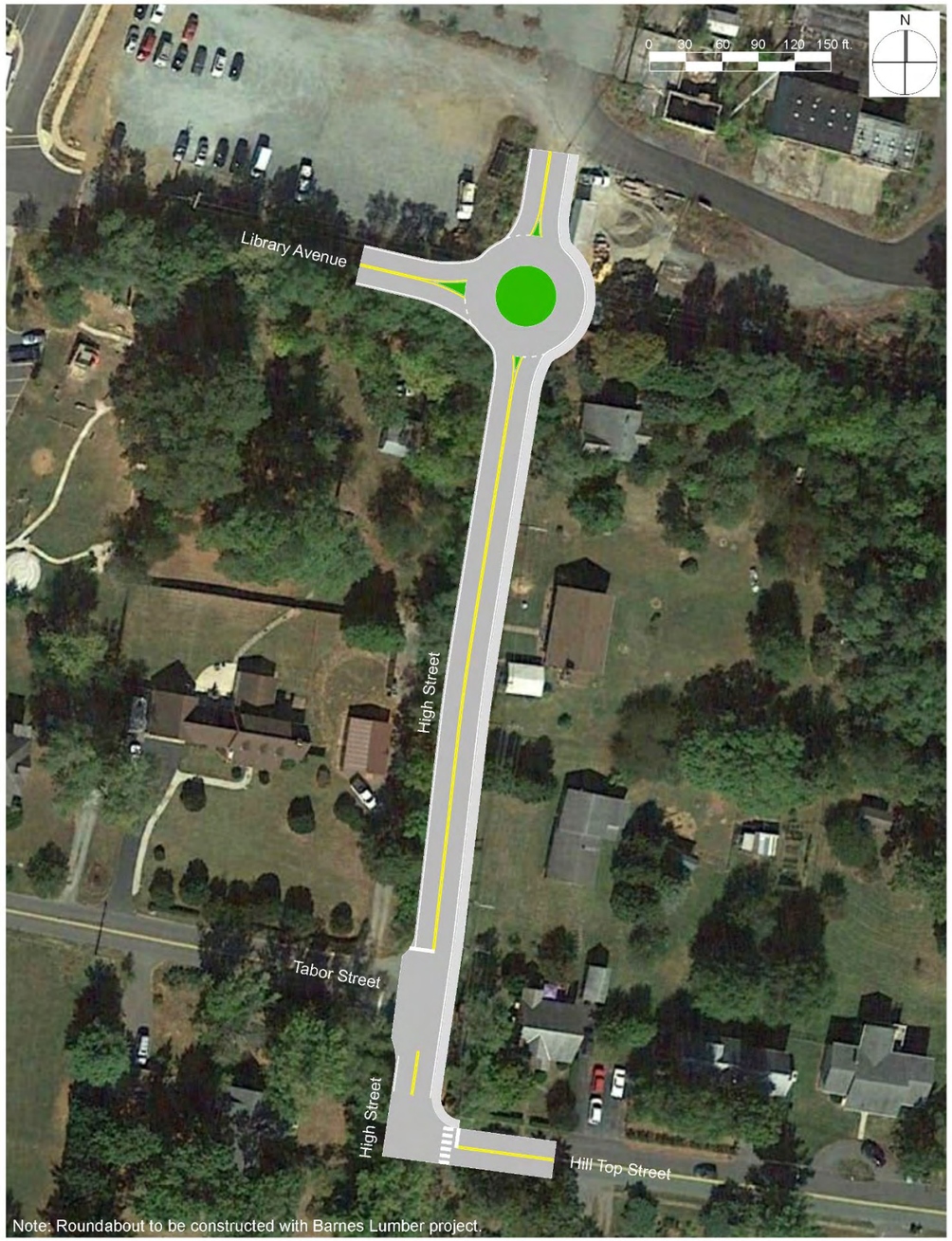
In addition to the operational analysis results, the following points should be considered related to these roadway connections.

- High Street will likely be used whether improved or not and thus, improvements should be considered for both motorists and pedestrians. The current paved width of High Street is 16 feet.
- Sight distance is limited at the existing intersection of Dunvegan Lane with Crozet Avenue. The improvements required to accommodate two-way through traffic on Dunvegan Lane will likely address this issue.
- Turn lanes are required on Crozet Avenue at Dunvegan Lane.
- At Park Road there is a significant difference in elevation between Dunvegan Lane and Park Road.

Figure 31 – Dunvegan Lane Connection

Figure 32 – Tabor Street at Crozet Avenue Improvement

Figure 33 – High Street Improvements



Each of the subsequent alternatives considered assumes that the Dunvegan Lane and High Street connections are in place in addition to the specific improvement alternative.

Traffic Signals

Traffic signals were considered at the Library Avenue and Jarmans Gap Road intersections with Crozet Avenue. This alternative is problematic based on the following.

- The anticipated high number of left turning vehicles both southbound (295) and westbound (289) at Library Avenue require additional turn lanes to improve the levels of service and queuing along Crozet Avenue and the side streets. The addition of turn lanes was considered infeasible due to limited right-of-way including existing buildings along the roadway.
- While traffic signals at these intersections could improve the levels of service and delays on the side streets (Library Avenue and Jarmans Gap Road) they create long queues on Crozet Avenue extending through Three Notched Road and well beyond Tabor Street.

Based on the extreme operational deficiencies identified above the results of the analysis were not summarized in tables. However, it is worth noting that installation of a traffic signal at the intersection of Library Avenue and Crozet Avenue alleviates the queuing at the intersections within the area bounded by The Square, Oak Street, Library Avenue, and High Street by allowing more vehicles to travel from Library Avenue to Crozet Avenue and reducing the westbound Library Avenue queue that locks the network in this area.

Roundabouts

Roundabouts were considered at the Library Avenue and Jarmans Gap Road intersections with Crozet Avenue. This alternative is problematic based on the following.

- Crozet Avenue queues are expected to extend through the adjacent intersections.
- The Library Avenue southbound queue is expected to extend through Three Notched Road.

When queues extend through adjacent intersections, regardless of the type of traffic control at the intersection, it is problematic. However, when queues extend through roundabouts, conditions are even more challenging. When roundabouts are blocked by queues in any direction, the entire intersection becomes locked for all directions of travel.

Table 15 summarizes the analysis results and the Synchro *HCM* reports, SimTraffic queue reports, and Sidra reports are provided in **Appendix N**.

Table 15 – 2045 Future Levels of Service, Delays, and Queues at Crozet Avenue Intersections with Roundabouts at Library Avenue and Jarr

Intersection	Approach	Movement	Storage	Effective Storage	2045 AM			2045 PM		
					LOS	Delay	Queue	LOS	Delay	Queue
6. Crozet Avenue/ The Square	The Square	WBR	225	225	C	27.0	99	C	25.3	122
	Crozet Avenue	NBT/R	375	375	A	5.7	300	A	6.2	235
	Crozet Avenue	SBT	115	115	A	0.8	4	A	1.6	176
Intersection			-	-	A	4.6		A	4.8	
7. Crozet Avenue/Library Avenue (Roundabout)***	Church	EBL/T/R	350	350	A	5.4	6	B	11.8	22
	Library Avenue	WBL/T/R	300	300	B	9.3	75	C	15.6	184
	Crozet Avenue	NBL/T/R	180	180	C	16.2	200	C	21.0	196
	Crozet Avenue	SBL/T	375	375	A	7.6	174	C	20.0	375
		SBR	50	80	A	0.0	0	A	0.0	0
Intersection			-	-	B	11.9		C	19.4	
8. Crozet Avenue/Jarmans Gap Road (Roundabout)***	Jarmans Gap Road	EBL/R	325	325	A	8.8	402	B	10.8	122
	Crozet Avenue	NBL/T	85	85	C	16.5	90	B	13.1	90
	Crozet Avenue	SBT/R	180	180	B	10.1	188	C	20.8	183
Intersection			-	-	B	12.2		C	16.5	
9. Crozet Avenue/ Tabor Street (right-in/right-out only)	Tabor Street	WBR	750	750	B	12.1	88	B	11.8	51
	Crozet Avenue	NBT/R	775	775	A	0.0	329	A	0.0	178
	Crozet Avenue	SBT	85	85	A	0.0	3	A	0.0	0

* Left turn level of service/delay reported

** Due to high progression factor, SimTraffic delay reported

*** Roundabout level of service/delay results reported from Sidra, queue results reported from SimTraffic

**** Given unusual stop sign arrangement, SimTraffic delay reported

Gray cells indicate queues that extend beyond the effective storage length or queues greater than 500 feet.

Quadrant Intersection

Quadrant intersections include one main intersection and two secondary intersections that are linked by a connector road in any quadrant of the intersection. They reassign the left turn vehicles from the main intersection to the secondary intersections. In this case the intersection of Jarmans Gap Road with Crozet Avenue is considered the main intersection and the intersections of Crozet Avenue/Library Avenue and Jarmans Gap Road/Carter Road are the secondary intersections with a new roadway through the church parking lot to Carter Street as the connector road. **Figure 34** illustrates the idea in the Crozet Avenue context. This alternative includes a roundabout at Library Avenue in conjunction with the quadrant improvements.

The analysis results for this alternative are summarized in **Table 16** and below. The Synchro *HCM* reports, SimTraffic queue reports, and Sidra reports are provided in **Appendix O**. As shown in Table 16, queueing is considerably better with the quadrant intersection improvements. Worth noting are:

- The southbound queue at Library Avenue no longer extends through the adjacent intersections.
- The northbound queue is reduced and only extends through Jarmans Gap Road by less than a car length.
- The northbound queue at Jarmans Gap Road extends through the intersection at Tabor Street.

Table 16 – 2045 Future Levels of Service, Delays, and Queues at Crozet Avenue Intersections with Quadrant Intersection Improvement

Intersection	Approach	Movement	Storage	Effective Storage	Future with Improvements 2045 AM			Future with Improvements 2045 PM		
					LOS	Delay	Queue	LOS	Delay	Queue
6. Crozet Avenue/ The Square (Signal)	The Square WB	WBR	225	225	C	27.0	90	C	25.3	109
	Crozet Avenue NB	NBT/R	375	375	A	5.7	271	A	6.2	217
	Crozet Avenue SB	SBT	115	115	A	0.8	10	A	1.6	84
Intersection			-	-	A	4.6		A	4.8	
7. Crozet Avenue/ Library Avenue (Roundabout)***	Church EB	EBL/T/R	325	325	A	8.3	67	B	13.0	92
	Library Avenue WB	WBL/T/R	300	300	B	10.2	51	C	17.5	191
	Crozet Avenue NB	NBL/T/R	180	180	D	31.7	615	C	21.5	318
	Crozet Avenue SB	SBL/T	375	375	A	6.1	57	B	11.8	162
		SBR	50	80	A	0.0	0	A	0.0	0
Intersection			-	-	C	16.0		B	14.1	
8. Crozet Avenue/ Jarmans Gap Road (2-Way Stop)	Jarmans Gap Road EB	EBR	325	325	B	10.9	91	B	12.5	67
	Crozet Avenue NB	NBT	85	85	A	0.0	112	A	0.0	109
	Crozet Avenue SB	SBT	180	180	A	0.0	0	A	0.0	0
9. Crozet Avenue/ Tabor Street (2-Way Stop)	Tabor Street WB	WBR	750	750	B	12.1	79	B	11.8	51
	Crozet Avenue NB	NBT/R	775	775	A	0.0	233	A	0.0	223
	Crozet Avenue SB	SBT	85	85	A	0.0	4	A	0.0	0
14. Library Avenue/ Oak Street (2-Way Stop)	Library Avenue EB	EBL/T/R*	300	300	A	7.7	41	A	8.3	87
	Library Avenue WB	WBL/T/R*	275	275	A	0.0	0	A	0.0	0
	Library Driveway NB	NBL/T/R	-	-	B	14.1	24	D	29.9	42
	Oak Street SB	SBL/T/R	325	325	A	9.0	42	B	10.4	57
21. Jarmans Gap Road/ Carter Street (2-Way Stop)	Jarmans Gap Road EB	EBL/T*	2475	2475	A	7.7	9	A	7.6	12
	Jarmans Gap Road WB	WBT/R	325	325	A	0.0	0	A	0.0	0
	Carter Street	SBL/R	250	250	B	10.0	81	B	11.5	79
22. Carter Street at Library Avenue (2-Way Stop)	Library Avenue WB	WBL/R	325	325	B	13.0	108	C	16.5	130
	Carter Street NB	NBT/R	250	250	A	0.0	2	A	0.0	0
	Carter Street SB	SBL/T*	-	-	A	7.9	22	A	7.8	19

* Left turn level of service/delay reported.

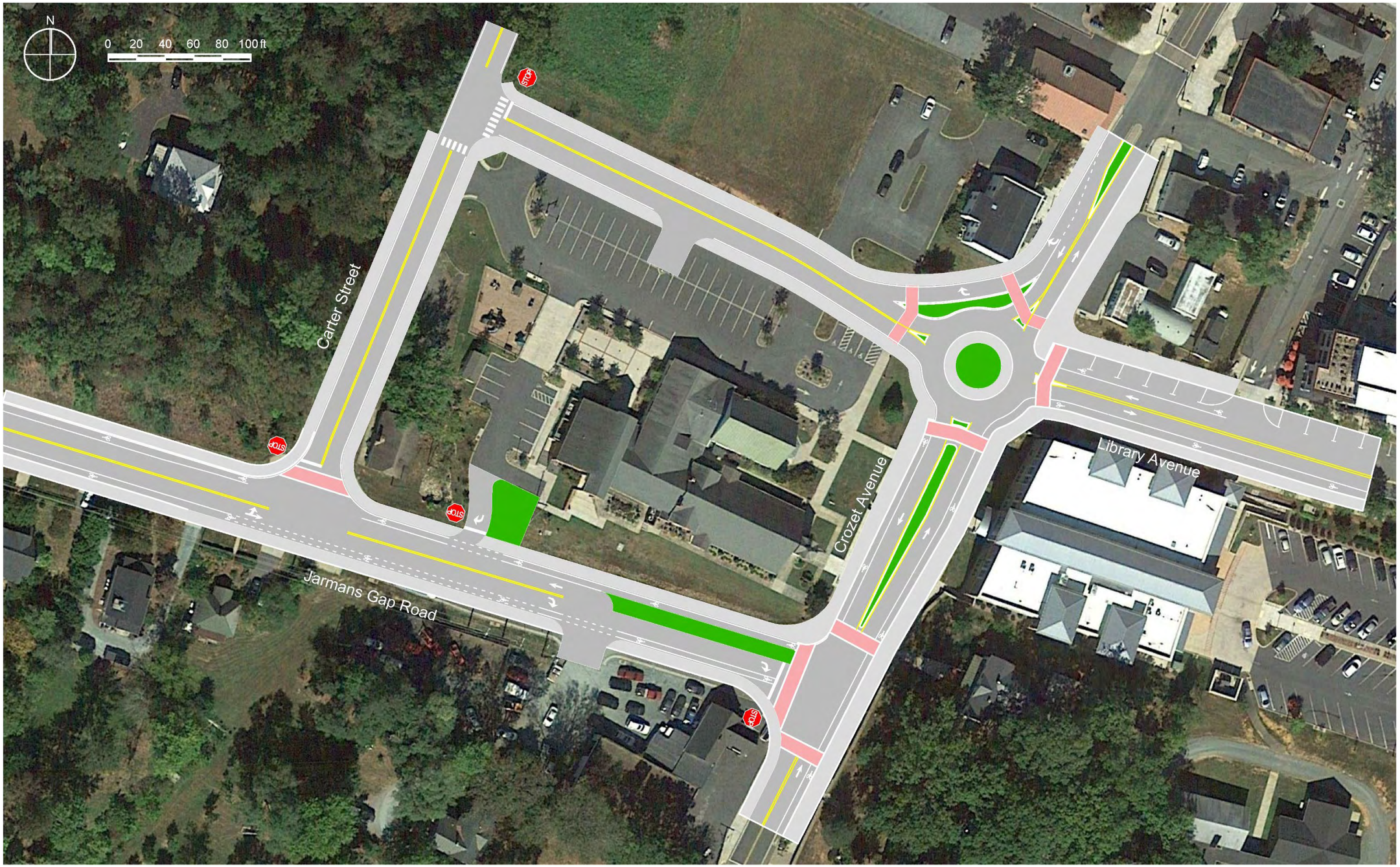
** Due to high progression factor, SimTraffic delay reported.

*** Roundabout results reported from Sidra.

**** Given unusual stop sign arrangement, SimTraffic delay reported.

Gray cells indicate queues that extend beyond the effective storage length or queues greater than 500 feet.

Figure 34 – Quadrant Intersection



Big Circle

The big circle concept is another version of the quadrant intersection where the Crozet Avenue/Library Avenue intersection is considered the main intersection. It is named the big circle because it forces traffic to move in a counterclockwise circular direction using Jarmans Gap Road, Crozet Avenue and a new roadway connecting Crozet Avenue to Jarmans Gap Road. This option includes the following features shown in **Figure 35**.

- Church parking lot/Carter Street connection is two lane and one-way from Crozet Avenue to Jarmans Gap Road.
- Crozet Avenue between Jarmans Gap Road and Library Avenue is one-way northbound.
- Jarmans Gap Road between Carter Street and Crozet Avenue is one-way eastbound.
- The Library Avenue/Crozet Avenue intersection is stop controlled on the westbound Library Avenue approach, westbound left turns are prohibited, all southbound traffic is forced to turn right on the new roadway, and northbound traffic can make all movements.
- Jarmans Gap Road/Carter Street intersection is controlled by a two-phase signal, the southbound approach allows left and right turns (right turn movement is free flow), the eastbound approach allows through traffic only, and westbound traffic is prohibited.
- Jarmans Gap Road/Crozet Avenue is controlled by a two-phase signal, the eastbound approach allows both left and right turns (right turn movement is free flow), the northbound approach allows through traffic only, and southbound traffic is prohibited.

The results of the analysis, shown in **Table 17**, indicate that this alternative addresses the expected traffic operations concerns. The northbound queue on Crozet Avenue at Jarmans Gap Road occasionally extends through the Tabor Street intersection to a length of approximately 125 feet. The Synchro *HCM* reports and SimTraffic queue reports are provided in **Appendix P**.

Table 17 – 2045 Future Levels of Service, Delays, and Queues at Crozet Avenue Intersections with Big Circle Improvements

Intersection	Approach	Movement	Storage	Effective Storage	Future with Improvements 2045 AM			Future with Improvements 2045 PM		
					LOS	Delay	Queue	LOS	Delay	Queue
6. Crozet Avenue/ The Square (Signal)	The Square WB	WBR	225	225	C	27.0	88	C	25.3	108
	Crozet Avenue NB	NBT/R	375	375	A	5.7	311	A	6.2	268
	Crozet Avenue SB	SBT	115	115	A	0.8	24	A	1.6	10
Intersection			-	-	A	4.6		A	4.8	
7. Crozet Avenue/ Library Avenue (2-Way Stop)	Library Avenue WB	WBT	300	300	C	15.2	103	C	16.2	308
		WBR	115	130	C	15.2	92	C	16.2	130
	Crozet Avenue NB	NBL	50	70	A	0.0	41	A	0.0	29
		NBT/R	180	180	A	0.0	71	A	0.0	24
	Crozet Avenue SB	SBR	375	375	A	0.0	0	A	0.0	73
8. Crozet Avenue/ Jarmans Gap Road (Signal)	Jarmans Gap Road EB	EBL	325	325	C	21.9	277	C	20.3	304
		EBR	170	285	A	0.4	142	A	0.6	199
	Crozet Avenue NB	NBT	85	85	B	18.6	138	B	16.4	124
Intersection			-	-	B	14.4		B	12.4	
9. Crozet Avenue/ Tabor Street (2-Way Stop)	Tabor Street WB	WBR	750	750	B	12.1	82	B	11.8	47
	Crozet Avenue NB	NBT/R	775	775	A	0.0	250	A	0.0	255
	Crozet Avenue SB	SBT	85	85	A	0.0	0	A	0.0	0
21. Jarmans Gap Road/ Carter Street (Signal)	Jarmans Gap Road EB	EBT	2475	2475	B	13.3	228	C	22.5	232
	Carter Street	SBL	250	250	B	11.1	188	B	18.2	226
		SBR	250	250	A	0.3	0	A	0.6	0
Intersection			-	-	A	8.7		B	13.6	
22. Carter Street at Library Avenue (2-Way Stop)****	Library Avenue WB	WBL	325	325	A	6.6	143	B	13.5	328
		WBL/R	325	325	A	7.9	121	B	11.5	366
	Carter Street SB	SBT	-	-	A	0.2	0	A	0.4	0

* Left turn level of service/delay reported.

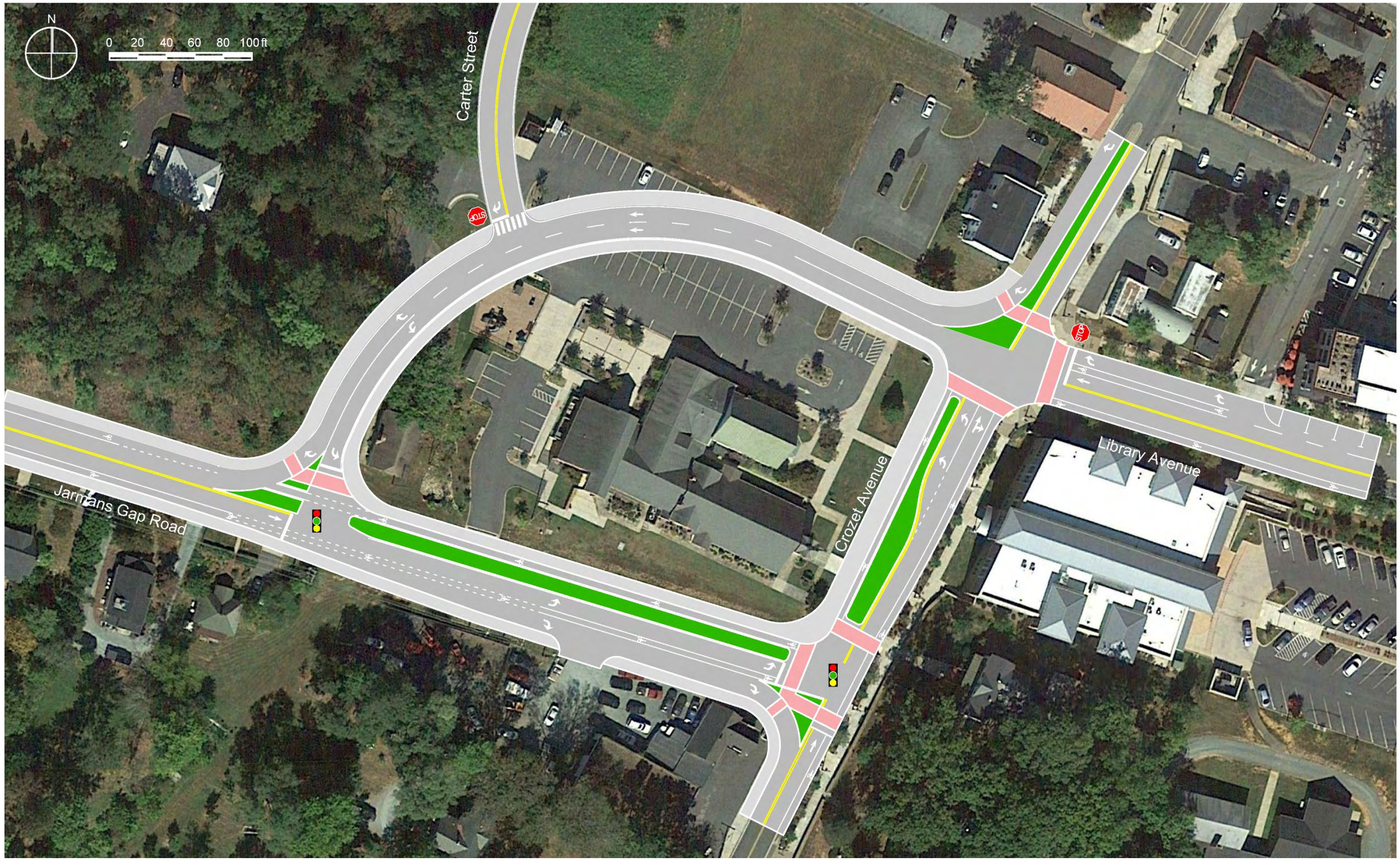
** Due to high progression factor, SimTraffic delay reported.

*** Roundabout results reported from Sidra.

**** Given unusual stop sign arrangement, SimTraffic delay reported.

Gray cells indicate queues that extend beyond the effective storage length or queues greater than 500 feet.

Figure 35 – Big Circle Concept



Railroad Crossing

As previously noted, a new railroad crossing was conceptually considered between Crozet Avenue and Firehouse Lane. With this connection, it is anticipated that drivers will use it rather than Crozet Avenue if they are destined to the Barnes Lumber site to or from the east on Three Notched Road. The study intersections were analyzed based on these adjusted traffic volumes and the results are summarized in **Table 18**. The impact of a new railroad crossing on traffic operations at the intersection of Three Notched Road with Crozet Avenue are discussed in a previous section of this report and summarized in Table 14. In addition to the railroad crossing, this analysis assumes that the Dunvegan Lane connection exists along with the quadrant intersection improvements. The Synchro *HCM* reports, SimTraffic queue reports, and Sidra reports are provided in **Appendix Q**.

As shown in Table 18, with the proposed improvements the study area intersections and movements are expected to operate at LOS C or better and the queues are not expected to exceed the provided storage areas. The northbound queue at Library Avenue is expected to extend through Jarmans Gap Road and Tabor Street. However, with the quadrant intersection improvements vehicles can not turn left form Jarmans Gap Road on to Crozet Avenue so no access is obstructed at this intersection and additional options are available for drivers east of Tabor Street via Dunvegan Lane or through the Barnes Lumber site.

Conclusion

Intersection specific improvements will not be sufficient to address the expected 2045 traffic operations challenges on Crozet Avenue. Rather, a combination of alternatives including new roadway connections and some form of a quadrant intersection are needed. Noting the significant impacts of the big circle alternative on the church parking lot and the similar traffic operations between the big circle and quadrant intersection alternatives, the quadrant intersection in conjunction with the Dunvegan Lane connection, and High Street improvements is recommended. If possible, a new railroad crossing only further improves traffic operations on Crozet Avenue.

Table 18 – 2045 Future Levels of Service, Delays, and Queues at Crozet Avenue Intersections with Quadrant Intersection and Railroad Crossing Improven

Intersection	Approach	Movement	Storage	Effective Storage	Future with Improvements 2045 AM			Future with Improvements 2045 PM		
					LOS	Delay	Queue	LOS	Delay	Queue
6. Crozet Avenue/ The Square (Signal)	The Square WB	WBR	225	225	C	24.2	96	C	23.1	110
	Crozet Avenue NB	NBT/R	375	375	A	5.7	256	A	6.1	186
	Crozet Avenue SB	SBT	115	115	A	0.9	10	A	1.3	80
Intersection			-	-	A	4.5		A	4.6	
7. Crozet Avenue/ Library Avenue (Roundabout)***	Church EB	EBL/T/R	325	325	A	8.4	65	B	12.7	88
	Library Avenue WB	WBL/T/R	300	300	B	10.2	59	C	19.7	259
	Crozet Avenue NB	NBL/T/R	180	180	D	31.0	601	C	21.6	318
	Crozet Avenue SB	SBL/T	375	375	A	6.0	51	B	11.6	139
		SBR	50	80	A	0.0	0	A	0.0	0
Intersection			-	-	C	15.8		B	14.8	
8. Crozet Avenue/ Jarmans Gap Road (2-Way Stop)	Jarmans Gap Road EB	EBR	325	325	B	10.9	108	B	12.5	61
	Crozet Avenue NB	NBT	85	85	A	0.0	116	A	0.0	108
	Crozet Avenue SB	SBT	180	180	A	0.0	7	A	0.0	0
9. Crozet Avenue/ Tabor Street (2-Way Stop)	Tabor Street WB	WBR	750	750	B	12.1	70	B	11.8	49
	Crozet Avenue NB	NBT/R	775	775	A	0.0	198	A	0.0	152
	Crozet Avenue SB	SBT	85	85	A	0.0	11	A	0.0	0
21. Jarmans Gap Road/ Carter Street (2-Way Stop)	Jarmans Gap Road EB	EBL/T*	2475	2475	A	7.7	17	A	7.6	17
	Jarmans Gap Road WB	WBT/R	325	325	A	0.0	0	A	0.0	0
	Carter Street	SBL/R	250	250	B	10.0	77	B	11.5	73
22. Carter Street at Library Avenue (2-Way Stop)	Library Avenue WB	WBL/R	325	325	B	13.0	114	C	16.5	131
	Carter Street NB	NBT/R	250	250	A	0.0	4	A	0.0	0
	Carter Street SB	SBL/T*	-	-	A	7.9	28	A	7.8	19

* Left turn level of service/delay reported.

** Due to high progression factor, SimTraffic delay reported.

*** Roundabout results reported from Sidra.

Gray cells indicate queues that extend beyond the effective storage length or queues greater than 500 feet.

Internal Downtown Intersections

Operational analyses of the intersections planned within Downtown Crozet as a result of future development or new roadway connections are summarized in this section of the report. The traffic control for these intersections is based on the design plans for Oak Street and The Square, the Barnes Lumber project, and engineering judgement.

Challenge

Based on the 2045 analysis, without any improvements to the intersection of Crozet Avenue and Library Avenue, the queues at the internal intersections are expected to extend through one another. The cause of this issue is the queueing on the westbound approach of Library Avenue, not insufficient capacity at the internal intersections.

Alternatives Considered

As summarized previously, many alternatives were considered for the Crozet Avenue/Library Avenue intersection. **Table 19** includes the analysis results of these alternatives for the internal Downtown intersections.

Conclusion

Addressing the traffic operations challenges at the Crozet Avenue/Library Avenue intersection resolves the queuing issues for the internal Downtown intersections. With any of the alternatives, queueing is not expected to be an issue at any of the intersections. However, LOS E is expected in two locations. While LOS D or better is preferable, the queues for these movements are expected to be minimal and alternative routes are available to drivers.

Table 19– 2045 Future Levels of Service, Delays, and Queues at Barnes Lumber Intersections with Various Improvements

Intersection	Approach	Movement	Storage	Effective Storage	Roundabout at Library Avenue						Quadrant						Big Circle						Quadrant with Railroad Crossing					
					2045 AM			2045 PM			2045 AM			2045 PM			2045 AM			2045 PM			2045 AM			2045 PM		
					LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue
13. The Square/Oak Street (AWSC)	The Square EB	EBT/R	225	225	A	7.0	36	A	7.3	41	A	7.0	34	A	7.3	45	A	7.0	33	A	7.3	43	A	7.0	34	A	7.3	49
	The Square WB	WBL/T	275	275	A	7.6	56	A	8.1	62	A	7.6	54	A	8.1	65	A	7.6	55	A	8.1	59	A	7.6	60	A	8.1	63
	Oak Street NB	NBL/R	325	325	A	7.0	62	A	7.5	67	A	7.0	57	A	7.5	65	A	7.0	61	A	7.5	70	A	7.0	54	A	7.5	63
Intersection			-	-	A	7.2		A	7.7		A	7.2		A	7.7		A	7.2		A	7.7		A	7.2		A	7.7	
14. Library Avenue/ Oak Street (TWSC)	Library Avenue EB	EBL/T/R*	300	300	A	7.7	60	A	8.3	91	A	7.7	41	A	8.3	87	A	7.7	57	A	8.3	90	A	7.8	63	A	8.7	90
	Library Avenue WB	WBL/T/R*	275	275	A	0.0	0	A	0.0	4	A	0.0	0	A	0.0	0	A	0.0	0	A	0.0	151	A	0.0	0	A	0.0	47
	Library Driveway NB	NBL/T/R	-	-	B	14.1	15	D	29.9	36	B	14.1	24	D	29.9	42	B	14.1	26	D	29.9	48	C	15.8	24	E	39.0	52
	Oak Street SB	SBL/T/R	325	325	A	9.0	50	B	10.4	64	A	9.0	42	B	10.4	57	A	9.0	56	B	10.4	122	A	9.3	52	B	11.2	68
15. The Square/High Street (mini roundabout)***	The Square EB	EBT/R	275	275	A	4.4	44	A	7.4	85	A	4.4	15	A	7.4	52	A	4.4	15	A	7.4	52	A	4.6	16	A	8.4	57
	The Square WB	WBL/T	-	-	A	5.0	50	A	6.5	70	A	5.0	30	A	6.5	60	A	5.0	30	A	6.5	60	A	5.4	38	A	7.6	84
	High Street NB	NBL/R	275	275	A	5.0	44	A	6.9	56	A	5.0	26	A	6.9	42	A	5.0	26	A	6.9	42	A	5.7	38	A	7.8	58
Intersection			-	-	A	4.9		A	6.9		A	4.9		A	6.9		A	4.9		A	6.9		A	5.4		A	7.9	
16. Library Avenue/High Street (mini roundabout)***	Library Avenue EB	EBL/R	275	275	A	4.5	40	A	5.0	37	A	4.5	23	A	5.0	32	A	4.5	23	A	5.0	32	A	5.0	32	A	5.5	43
	High Street NB	NBL/T	375	375	A	4.0	30	A	4.1	22	A	4.0	3	A	4.1	2	A	4.0	3	A	4.1	2	A	4.2	3	A	4.3	2
	High Street SB	SBT/R	275	275	A	3.9	24	A	5.2	22	A	3.9	13	A	5.2	39	A	3.9	13	A	5.2	39	A	4.3	20	A	6.0	58
Intersection			-	-	A	4.2		A	5.1		A	4.2		A	5.1		A	4.2		A	5.1		A	4.7		A	5.8	
17. Tabor Street/ High Street****	Tabor Street EB	EBL/R	750	750	A	1.0	31	A	3.7	40	A	0.9	31	A	3.6	40	A	0.8	29	A	4.0	42	A	0.8	31	A	3.8	47
	High Street NB	NBL/T	75	75	A	0.2	5	A	1.3	0	A	0.2	3	A	1.3	0	A	0.2	3	A	1.2	0	A	0.2	3	A	1.3	0
	High Street SB	SBT/R	375	375	A	4.0	31	A	2.9	31	A	3.7	31	A	2.9	31	A	3.6	28	A	3.0	31	A	3.5	31	A	3.2	32
18. Hill Top Street/ High Street	Hill Top Street WB	WBL/R	-	-	A	8.8	64	A	8.8	52	A	8.8	68	A	8.8	54	A	8.8	65	A	8.8	47	A	8.8	64	A	8.8	50
	High Street NB	NBT/R	685	685	A	0.0	0	A	0.0	0	A	0.0	0	A	0.0	0	A	0.0	0	A	0.0	0	A	0.0	0	A	0.0	0
	High Street SB	SBL/T*	75	75	A	7.3	9	A	7.4	21	A	7.3	9	A	7.4	30	A	7.3	3	A	7.4	15	A	7.3	3	A	7.4	18
19. Dunvegan Lane/ High Street	Dunvegan Lane EB	EBL/T*	740	740	A	7.7	38	A	7.5	42	A	7.7	33	A	7.5	38	A	7.7	33	A	7.5	36	A	7.7	36	A	7.5	32
	Park Road WB	WBT/R	-	-	A	0.0	0	A	0.0	0	A	0.0	0	A	0.0	0	A	0.0	0	A	0.0	0	A	0.0	0	A	0.0	0
	High Street SB	SBL/R	685	685	A	9.7	52	A	9.8	34	A	9.7	54	A	9.8	35	A	9.7	48	A	9.8	35	A	9.7	50	A	9.8	35
20. Dunvegan Lane/ Crozet Avenue	Dunvegan Lane	WBL/R	740	740	D	30.4	154	E	39.3	113	D	30.4	148	E	39.3	111	D	30.4	147	E	39.3	116	D	30.4	149	E	39.3	106
	Crozet Avenue	NBT/R	-	-	A	0.0	4	A	0.0	8	A	0.0	4	A	0.0	13	A	0.0	0	A	0.0	4	A	0.0	0	A	0.0	6
	Crozet Avenue	SBL/T*	775	775	A	8.6	109	A	9.4	120	A	8.6	119	A	9.4	162	A	8.6	108	A	9.4	170	A	8.6	112	A	9.4	158

* Left turn level of service/delay reported

** Due to high progression factor, SimTraffic delay reported.

*** Roundabout level of service/delay results reported from Sidra, queue results reported from SimTraffic

**** Given unusual stop sign arrangement, SimTraffic delay reported

Other Intersections

The intersections of Jarmans Gap Road/Old Trail Drive and Park Ridge Drive/Three Notched Road are located at a significant distance from the adjacent study area intersections and as a result were considered independently from the intersections on Route 250 or Crozet Avenue.

Challenge

- Jarmans Gap Road/Old Trail Drive: The northbound and eastbound queues are expected to be very long due to the queue from the Jarmans Gap Road/Crozet Avenue intersection extending along Jarmans Gap Road through Old Trail Drive.
- Park Ridge Drive/Three Notched Road: The northbound left turn movement is expected to operate at LOS F.

Alternatives Considered

The operational challenges expected in 2045 at the Jarmans Gap Road/Old Trail Drive intersection are expected to be addressed with any of the alternatives that improve operations at the intersection of Crozet Avenue/Jarmans Gap Road. The results of the analysis at the intersection are shown in **Table 20**. The results shown are representative of any of the improvement scenarios made to Crozet Avenue and as shown in Table 20, the intersection of Jarmans Gap Road/Old Trail Drive is expected to operate at LOS D or better and the queues will be accommodated within the storage lanes provided.

At Park Ridge Drive/Three Notched Road two alternatives were considered, a roundabout and a mini-roundabout, and the results are shown in **Table 21**. As shown in Table 21 either a full size single lane roundabout or a mini-roundabout are expected to operate at LOS C or better overall and for all movements. The full size roundabout is expected to have slightly better levels of service. Comparing the queues, the full size roundabout is expected to operate better with the maximum westbound queue extending 229 feet compared to the mini-roundabout with a westbound queue of 458 feet. Adding an additional railroad crossing would also improve operations at the Park Ridge Drive/three Notched Road intersection.

The Synchro *HCM* reports, SimTraffic queue reports, and Sidra reports are provided in **Appendix R** for the Jarmans Gap Road/Old Trail Drive and Park Ridge Drive/Three Notched Road intersections.

Conclusion

Addressing the traffic operations challenges at the Crozet Avenue/Jarmans Gap Road intersection resolves the challenge at Jarmans Gap Road/Old Trail Drive, thus no additional improvements are needed at this intersection. A roundabout at Park Ridge Drive/Three Notched Road can sufficiently address the traffic operations issues expected there in 2045.

Table 20 – 2045 Future Levels of Service, Delays, and Queues at Jarmans Gap Road/Old Trail Drive

Intersection	Approach	Movement	Storage	Effective Storage	Future with Improvements 2045 AM			Future with Improvements 2045 PM		
					LOS	Delay	Queue	LOS	Delay	Queue
1. Jarmans Gap Road/ Old Trail Drive (2-Way Stop)	Jarmans Gap Road EB	EBL/T*	-	-	A	0.0	3	A	7.6	4
		EBR	30	70	A	0.0	28	A	0.0	16
	Jarmans Gap Road EB	WBL	95	160	A	8.6	112	A	8.1	97
		WBT/R	2475	2475	A	0.0	0	A	0.0	0
	Old Trail Drive NB	NBL/T	800	800	D	25.4	61	D	32.0	112
		NBR	180	200	A	9.7	79	B	10.0	90
	Bargamin Park SB	SBL/T/R	-	-	C	19.1	38	C	19.6	31

* Left turn level of service/delay reported.

Table 21 – 2045 Future Levels of Service, Delays, and Queues at Three Notched Road/Park Ridge Drive

Intersection	Approach	Movement	Storage	Effective Storage	Future 2045 AM			Future 2045 PM		
					LOS	Delay	Queue	LOS	Delay	Queue
10. Three Notched Road/ Park Ridge Drive (Roundabout)***	Three Notched Road EB	EBT/R	-	-	A	6.9	71	A	9.1	92
	Three Notched Road WB	WBL/T	-	-	A	7.6	76	B	14.7	229
	Park Ridge Drive NB	NBL/R	-	-	A	9.1	77	A	7.7	56
Intersection			-	-	A	7.8		B	11.7	
10. Three Notched Road/ Park Ridge Drive (Mini Roundabout)***	Three Notched Road EB	EBT/R	-	-	A	7.9	82	B	11.0	108
	Three Notched Road WB	WBL/T	-	-	A	8.8	88	C	19.8	458
	Park Ridge Drive NB	NBL/R	-	-	B	11.0	92	A	9.1	64
Intersection			-	-	A	9.2		C	15.2	

* Left turn level of service/delay reported.

** Due to high progression factor, SimTraffic delay reported.

*** Roundabout results reported from Sidra.

**** Given unusual stop sign arrangement, SimTraffic delay reported.

Cost Estimates

Preliminary planning level cost estimates were developed for the improvements based on VDOT's Project_estimate2.45 spreadsheet and are summarized in **Table 22**. A detailed breakdown of the cost estimates is included in **Appendix S**. The following assumptions were made in the development of the cost estimates.

- Costs are based on 2020 dollars.
- Preliminary engineering costs were estimated as 20 percent of construction costs.
- Construction engineering and inspection costs were estimated as 20 percent of construction costs.
- Contingency costs were estimated as 30 percent of construction costs.
- **Right-of-way costs were not included in any of the estimates.**
- Utility costs are based on $15,000 per utility pole relocation.

Route 250

Three cost estimates were developed for the Route 250 intersections. For the Route 250/Western Albemarle Highs School/Old Trail Drive and Henley Middle School/Brownsville Elementary two estimates were created. Both estimates assume that the intersections are controlled with two lane roundabouts and that Route 250 provides two travel lanes per direction. The difference between the two estimates is that one includes the slip lanes at Route 250/Western Albemarle High School/Old Trail Drive and the other does not include the slip lanes. The estimates for the improvements with and without the slip lanes at Route 250/Western Albemarle High School/Old Trail Drive range from approximately $8.5 to $10.1 million. The third cost estimate for the Route 250 intersections is for a single lane roundabout at the Route 250/Crozet Avenue/Miller School Road intersection. The cost estimate for this location is approximately $4.8 million.

Dunvegan Lane

The cost estimate for Dunvegan Lane includes widening the roadway to accommodate two 11 foot lanes, a five foot sidewalk on the north side, a crosswalk across Crozet Avenue, a northbound right turn lane, and a southbound left turn lane on Crozet Avenue. The estimate for this project is approximately $2.7 million excluding right of way costs. **It is expected that right-of-way costs will be significant for this project.**

High Street Improvements

The cost estimate for High Street includes widening the roadway to accommodate two 12 foot lanes, a five foot sidewalk on the east side, and a crosswalk across Hill Top Street. The estimate for this project is approximately $1.5 million excluding right of way costs**. It is expected that there will be right-of-way costs for this project.**

Tabor Street Improvements

The cost estimate for Tabor Street includes an island limiting Tabor Street traffic to right-in/right-out only. The cost estimate for this project is approximately $112,000 and right-of-way costs are not expected.

Roundabout at Library Avenue/Crozet Avenue

While this is not a recommended improvement in isolation, rather it is part of the Quadrant alternative, a cost estimate was developed for the roundabout in the case the Albemarle County should desire to phase the project and install the roundabout prior to the full Quadrant improvements. The cost estimate for the roundabout includes a single lane roundabout at the intersection and related pedestrian crossing improvements. The cost estimate for this project is approximately $3.2 million. **It is expected that there will be significant right-of-way costs for this project.**

Quadrant Alternative

The Quadrant cost estimate includes all of the quadrant alternative components except for the roundabout. The total cost of this project is the sum of the roundabout and quadrant. The cost estimate for the Quadrant includes the new roadway extending from Crozet Avenue to Carter Street, improvements to Carter Street between Jarmans Gap Road and the new roadway, sidewalk along one side of the new roadway and Carter Street, pavement markings, signs, and islands on Jarmans Gap Road to modify the appropriate section to one-way travel. The cost estimate for this project is approximately $2.6 million, with the roundabout the total cost is approximately $5.8 million. **It is expected that there will be significant right-of-way costs for this project.**

Big Circle Alternative

The Big Circle cost estimate includes the new roadway with sidewalks connecting Crozet Avenue to Jarmans Gap Road through the church parking lot, realignment of Carter Street north of the new road, two two-phase traffic signals, pavement markings, signs, and islands on Jarmans Gap Road and Crozet Avenue to modify the appropriate sections to one-way travel. The cost estimate for this project is approximately $4.3 million. **It is expected that there will be significant right-of-way costs for this project.**

Table 22 – Planning Level Cost Estimates

Description	Construction Cost	Engineering (20%)	CEI (20%)	Contingencies (30%)	Utilities	Total Opinion of Probable Cost
Route 250 Roundabouts at Schools with Slip Lanes	$ 5,892,000	$ 1,178,400	$ 1,178,400	$ 1,767,600	$ 120,000	$ 10,136,400
Route 250 Roundabouts at Schools without Slip Lanes	$ 4,955,000	$ 991,000	$ 991,000	$ 1,486,500	$ 120,000	$ 8,543,500
Crozet Avenue/Miller School Road/Route 250 Single Lane Roundabout	$ 2,833,000	$ 566,600	$ 566,600	$ 849,900	$ 30,000	$ 4,846,100
Dunvegan Lane Improvements	$ 1,545,000	$ 309,000	$ 309,000	$ 463,500	$ 120,000	$ 2,746,500
High Street Improvements	$ 828,000	$ 165,600	$ 165,600	$ 248,400	$ 75,000	$ 1,482,600
Tabor Street Improvements	$ 66,000	$ 13,200	$ 13,200	$ 19,800		$ 112,200
Library Avenue/Crozet Avenue Roundabout	$ 1,844,000	$ 368,800	$ 368,800	$ 553,200	$ 105,000	$ 3,239,800
Quadrant Alternative (without roundabout)	$ 1,510,000	$ 302,000	$ 302,000	$ 453,000		$ 2,567,000
Big Circle Alternative	$ 2,509,000	$ 501,800	$ 501,800	$ 752,700		$ 4,265,300

* Right-of-Way Costs are not included and will be significant for some projects.

Conclusions and Recommendations

With the level of growth anticipated within the Crozet development area, impacts to the transportation network will be significant. Today queuing and levels of service are problematic on Route 250 at the intersections with the schools and at the Miller School Road/Crozet Avenue intersection. Beyond Route 250, queuing is an issue today on Crozet Avenue.

By 2045, traffic operations will further degrade and queues are expected to be very long at the following intersections.

- Jarmans Gap Road/Old Trail Drive
- Route 250/WAHS/Old Trail Drive
- Crozet Avenue at all intersections
- Internal Downtown intersections

In addition to lengthy queues, level of service F is expected for movements at the following intersections.

- All Route 250 intersections
- All Crozet Avenue intersections except Tabor Street and The Square
- Three Notched Road/Park Ridge Drive

To address these operational challenges many improvement alternatives were considered including new and improved roadway connections, modified intersection traffic control, and innovative intersection designs such as roundabouts, continuous green-t intersections, and quadrant intersections. Based on the analyses the levels of service can be improved by most of the alternatives. However, alleviating the expected queues is more challenging.

The recommend improvements, grouped by location (Route 250, Crozet Avenue, internal downtown intersections, and other intersections) are summarized below.

Route 250

To accommodate the expected 2045 traffic volumes, widening Route 250 to two lanes per direction from west of WAHS/Old Trail Drive to west of Crozet Avenue/Miller School Road and installing roundabouts at all three intersections is expected to address the level of service and queueing challenges. Adding turn lanes, single lane roundabouts, or additional through lanes in isolation are not sufficient improvements to accommodate the expected traffic volumes in the future.

Based on the *Eastern Avenue Connection Traffic Report* it is recommended that the intersection of Cory Farm Road/Route 250 remain as a two-way stop-controlled intersection, with the addition of a designated eastbound left-turn lane and an eastbound median acceleration lane along Route 250.

Crozet Avenue and Three Notched Road

Intersection specific improvements will not be sufficient to address the expected 2045 traffic operations challenges. Rather, a combination of alternatives including intersection improvements and a new railroad crossing should be considered. Due to the limited right-of-way, railroad bridge, and terrain surrounding the intersection, a clear solution is not apparent at this intersection.

Crozet Avenue and Internal Downtown Intersections

Intersection specific improvements will not be sufficient to address the expected 2045 traffic operations challenges on Crozet Avenue. Rather, a combination of alternatives including a new Dunvegan Lane roadway connection, improved High Street connection, and quadrant intersection are needed. If possible, a new railroad crossing only further improves traffic operations on Crozet Avenue.

Other Intersections

Addressing the traffic operations challenges at the Crozet Avenue/Jarmans Gap Road intersection resolves the challenge at Jarmans Gap Road/Old Trail Drive, thus no additional improvements are needed at this intersection. A roundabout at Park Ridge Drive/Three Notched Road can sufficiently address the traffic operations issues expected there in 2045.