

# HYDRAULIC SMALL AREA PLAN

ALBEMARLE COUNTY, VA  
CITY OF CHARLOTTESVILLE, VA





# HYDRAULIC SMALL AREA PLAN

## FINAL REPORT

PREPARED FOR:



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04/03/2018



# ACKNOWLEDGMENTS

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- City of Charlottesville
- Charlottesville Albemarle Metropolitan Planning Organization
- Virginia Department of Transportation (VDOT)

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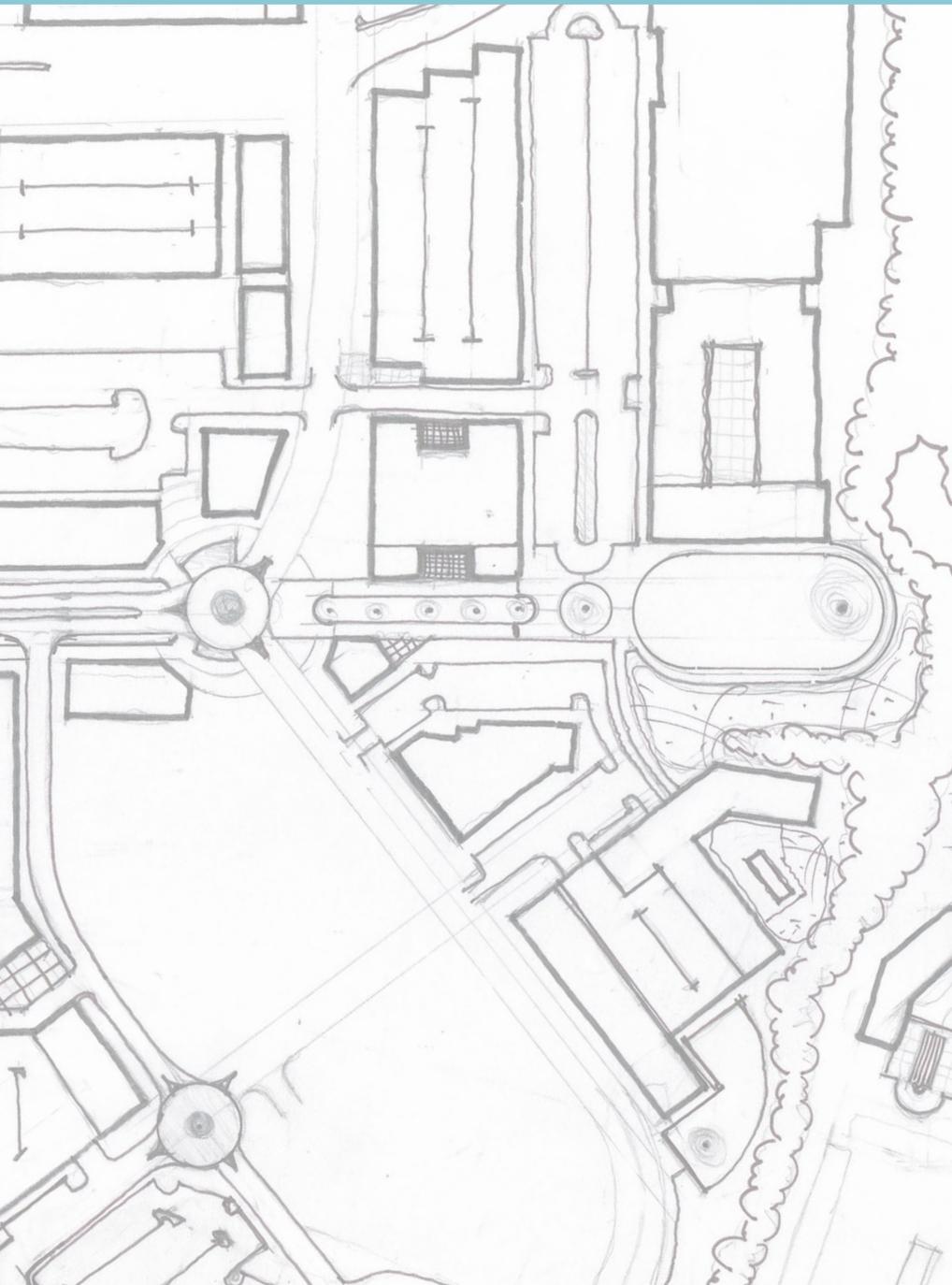


Image 1 **Aerial of Study Area**

# INTRODUCTION

The area associated with the Hydraulic Road intersection with US Route 29 has long been a desirable address for commercial development. Access to US Route 29 for local and regional destinations, the US Route 250 Bypass for east-west travel, and proximity to the University of Virginia have created conditions for intense development pressure along this segment of a vital transportation corridor. However, the pattern and form of that growth reflects an outdated and inefficient approach of suburban sprawl that inadequately links land use planning with transportation infrastructure, resulting in congestion and poor mobility. The auto-dominated landscape within the study area also lacks a sense of community and placemaking that typically attracts business and fosters development of economically sustainable vibrant centers.

The Hydraulic Small Area Plan was commissioned to provide guidance and a new vision for redevelopment and transportation solutions associated with the Hydraulic area as defined by the study limits. This study is one of several projects funded through the US Route 29 Solutions Projects, a \$256 million investment to improve infrastructure along the congested US Route 29 corridor. The development of the Hydraulic Small Area Plan was guided by a twelve-member Advisory Panel comprised of representatives from City and County government, a representative of the environmental community, and private sector business leaders over an eight-month process.

The study reflects an intentional strategy to focus on land use associated with the US Route 29 corridor as the primary framework to inform future transportation solutions. It is intended as a guide for new development and redevelopment within the defined study area toward a preferred model for growth and urban form, as well as to inform transportation solutions to support this growth. The study area is located within the jurisdictions of both the City of Charlottesville and Albemarle County, providing an opportunity for a model of collaboration in community planning. Given that continued pressure for growth associated with this desirable location is anticipated, the Hydraulic Small Area Plan seeks to identify opportunities for a more sustainable mixed-use development pattern that departs from the historic, suburban patterns that dominate the area today.

Understanding the interaction of new development and redevelopment with transportation facilities serving the area is critical to inform the Conceptual Land Use Plan, land use codes and policy documents guiding development in this area. The Hydraulic Small Area Plan is focused on Land Use but references transportation strategies developed in concert with the Virginia Department of Transportation. The goal is to ensure that land use decisions and transportation solutions are supportive of the goals for community development and the need for safe and efficient movement of traffic, pedestrians, and cyclists within and through the study area. Technical details for specific transportation solutions are not included within this study but referenced where appropriate as they relate to impacts on land use strategies.

# EXECUTIVE SUMMARY

## The Plan Development Process

The Hydraulic Small Area Plan reflects the guidance of a twelve member project Advisory Panel and input from the community as outcomes from regular project meetings and two public informational meetings. In addition, the TJPDC facilitated a series of neighborhood meetings during the process to target the specific needs and concerns of neighborhoods likely to be most affected by the plan.

The Advisory Panel was comprised of representatives from City and County government, a representative of the environmental community, and private sector business leaders over an approximately eight-month process beginning in March of 2017. Early Advisory Panel meetings focused on discussion of existing characteristics of the study area and prioritization of goals that would begin to inform a project vision statement toward creation of a plan to guide future development. Two planning charrettes were held giving the Advisory Panel opportunities to study the plan in detail, capture specific planning ideas and concerns with ink on paper, and refine the overall concept.

The process was organized around a series of activities to advance the plan with input from each Advisory Panel meeting while repeatedly referencing previous decisions and the project Vision Statement to ensure adherence to the core goals and aspirations.



Image 2 **Hydraulic SAP Advisory Panel Charrette #1**

## Plan Development Process Diagram

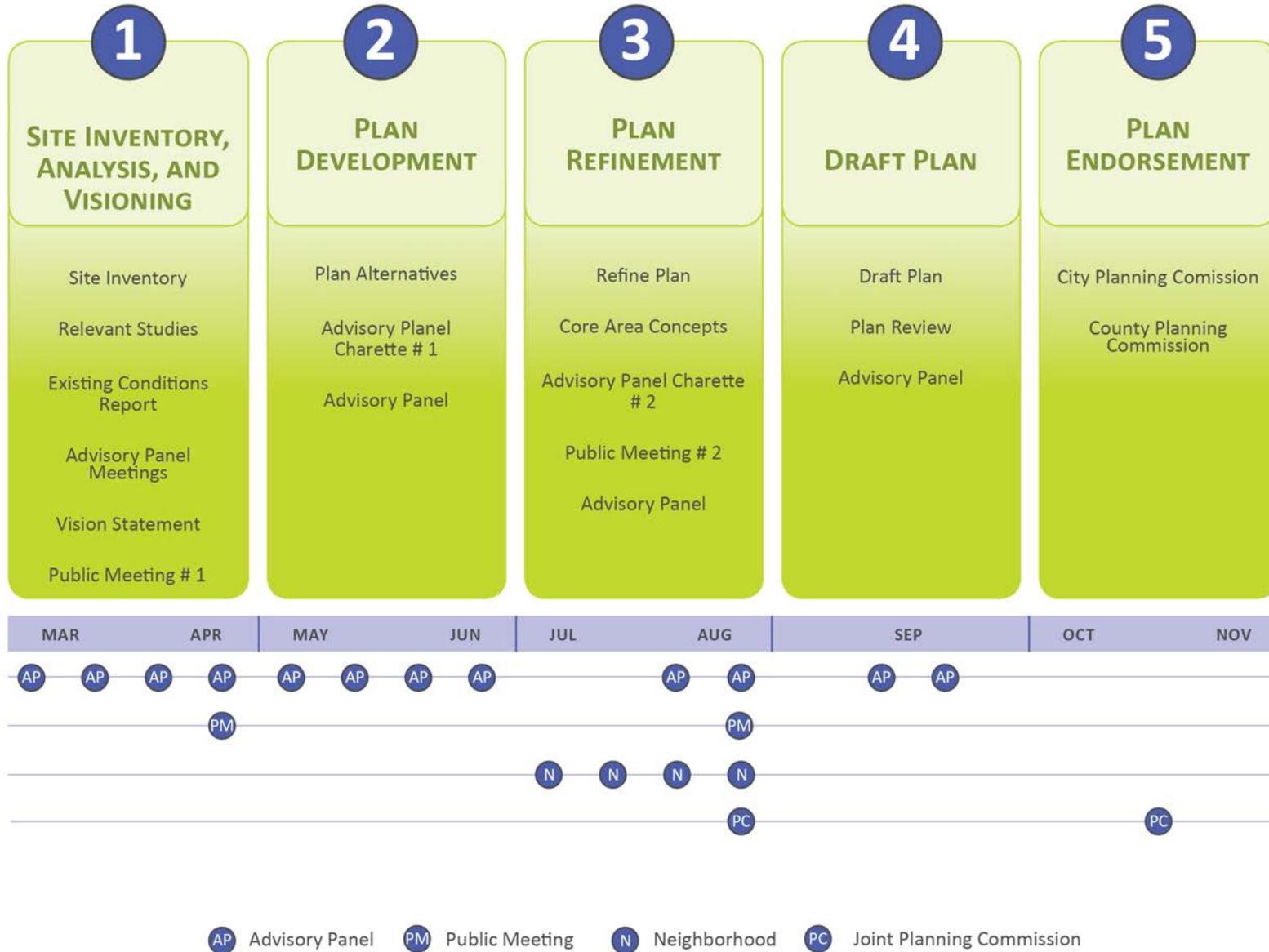


Figure 1 Plan Development Process Diagram

# PROJECT VISION STATEMENT

The Hydraulic Small Area Plan promotes a **strong sense of place**; a **vibrant, dynamic economy**; and an **equitable and environmentally sustainable community** connected by an **efficient, multimodal transportation network** that accomodates local and regional traffic needs.

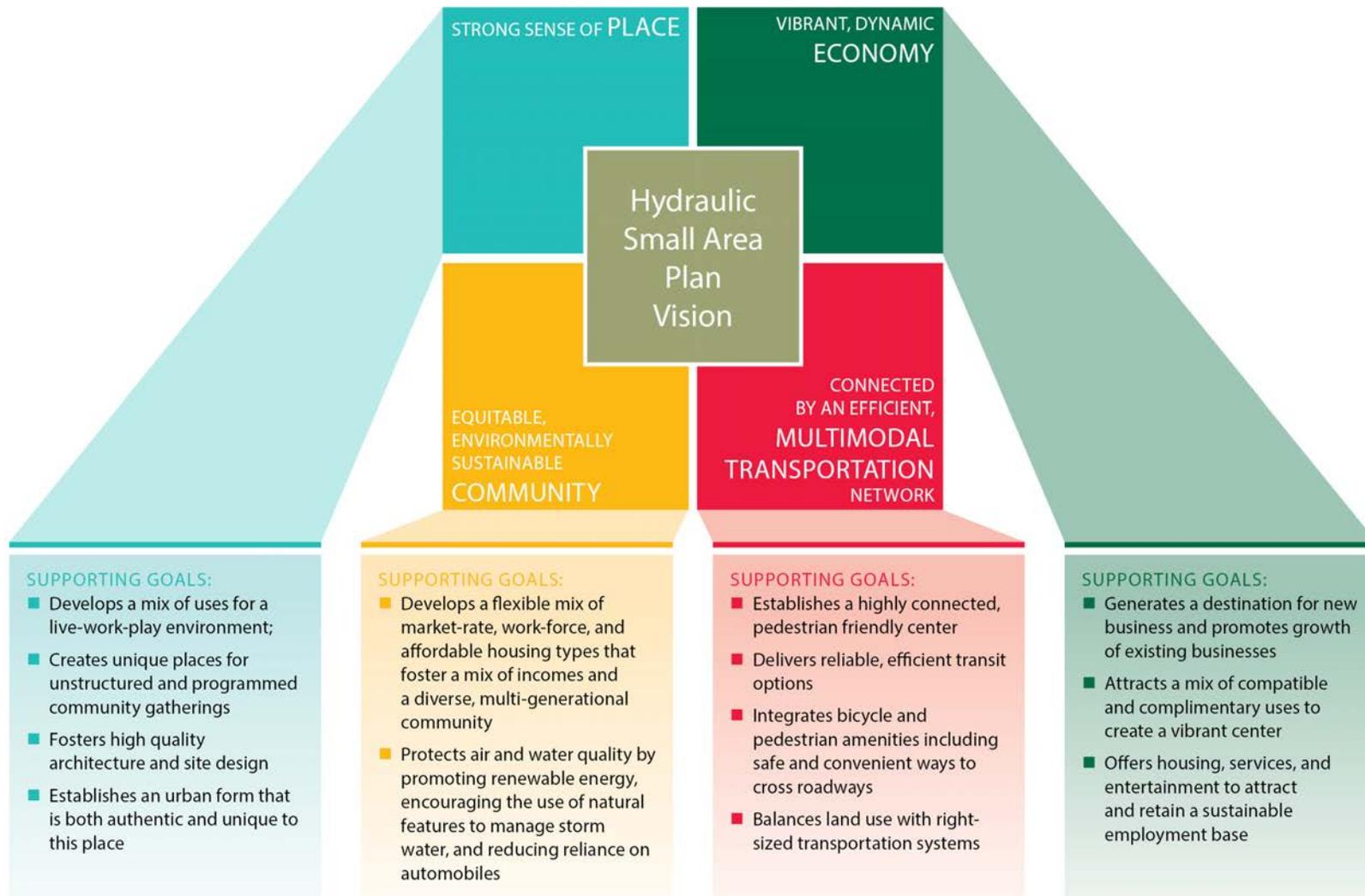


Figure 2 **Hydraulic SAP Vision**

A project Vision Statement was developed with the Advisory Panel and stakeholder input to guide the planning process. The **key elements of the plan supporting that Vision** include the following:

### **Strong Sense of Place**

- Creation of a great street with the extension of Zan Road as an activity corridor from east to west over US Route 29. The signature features of this central element include a wide, landscaped land bridge over US Route 29, a signature public space at the east terminus, and a central public green space on the west side of US Route 29. The potential to convert underground stormwater management features into functional, surface water amenities should be considered.
- Encourage redevelopment of large surface parking lots to include active land uses with structured parking and shared parking solutions to create a strong public realm along internal streets and new block structure.

### **Vibrant, Dynamic Economy**

- Promote clustering of employment land uses around existing large employers in the study area.
- Develop a residential focus fronting the natural area amenity on the eastern border of the study area and incorporate any retail demand into mixed use development forms.
- Promote a vibrant mix of uses to create a work place destination that is walkable and provides a variety of transportation options.
- Inject the area with a variety of housing options and affordability that's integrated with employment, services, dining and entertainment options.

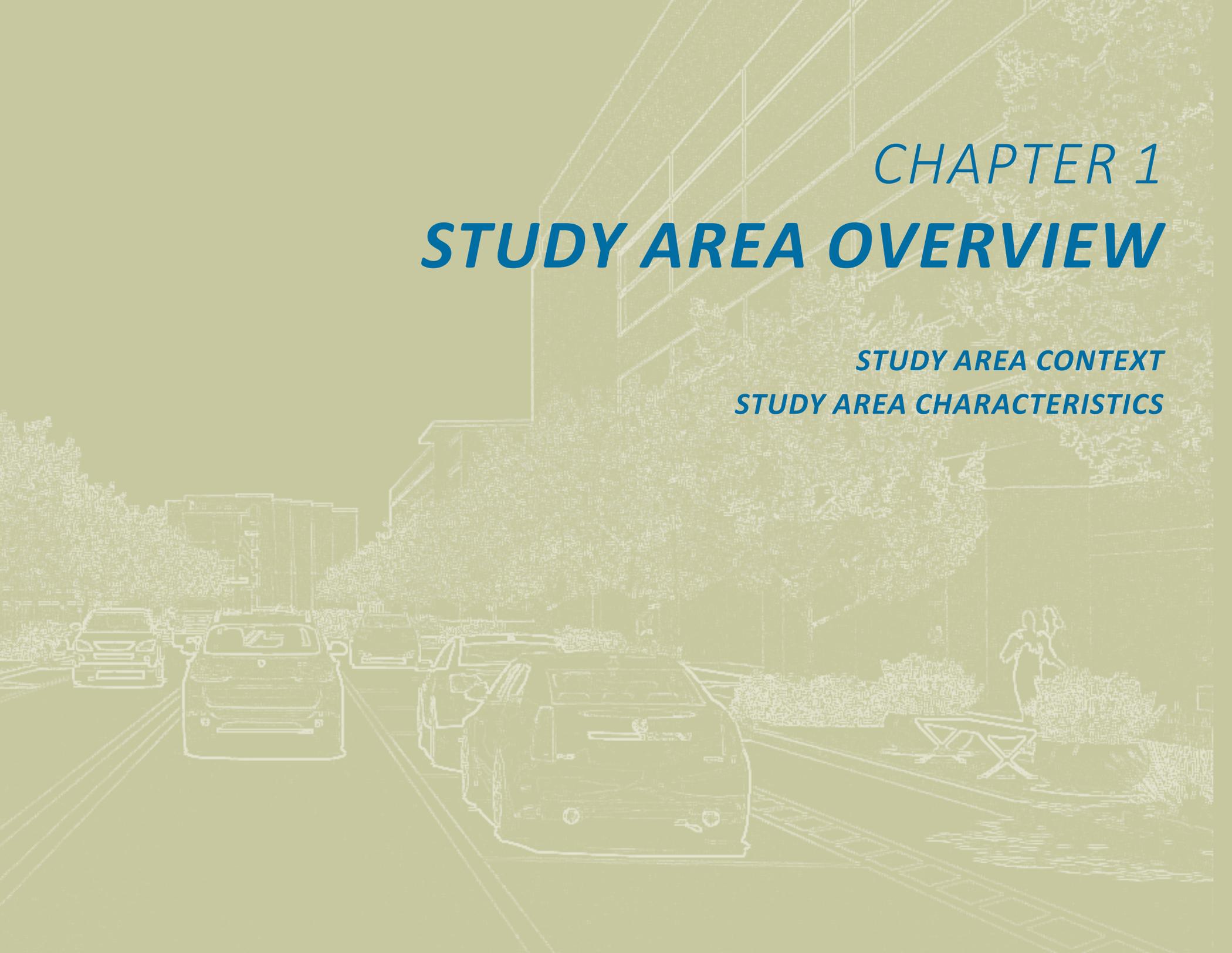
### **Equitable, Environmentally Sustainable Community**

- Preserve affordable single family housing in legacy neighborhoods
- Promote a mix of housing types and affordability within the core area to supplement existing housing options in the area.
- Create a mixed-use node that is walkable and supports a diverse range of household incomes as well as multi-generational characteristics.
- Build flexible spaces and buildings adaptable to new uses and future technologies.

### **Connected, Efficient Multi-Modal Transportation**

- Incorporate enhanced bus service and a local transit hub in the core area.
- Provide more, and safer options for crossing US Route 29 including:
  - a grade-separated crossing at Zan Road
  - a grade separated crossing at Angus Road
  - a grade separated crossing Hydraulic Road
- Improve crossing facilities at Greenbrier Drive and US Route 29, and across Hydraulic Road.
- Improve and expand pedestrian and bicycle facilities in the area. Improve and expand local trails and paths to connect residential uses to employment, service, dining, and entertainment options.
- Integrate transportation improvements that are supportive of the land use plan and maintain and enhance both local and regional connectivity.





*CHAPTER 1*  
***STUDY AREA OVERVIEW***

*STUDY AREA CONTEXT*  
*STUDY AREA CHARACTERISTICS*

# STUDY AREA OVERVIEW

## Study Area Context

The study area includes land characterized by a wide variety of land uses and existing development patterns associated with the US Route 29 corridor (**Fig. 1**). Existing land uses include a wide variety of commercial, retail, professional services, institutional, hospitality, single family residential detached, multi-family residential and public schools.

The Rio Road improvements and Small Area Plan north of the study area are not a direct input, but provide a point of reference relative to observed successes and challenges resulting from those plans and improvements.

The graphical limits of the study area should not be interpreted as a hard line and are not necessarily coincidental with property lines or rights-of-ways. The boundary was generally used to describe an area of influence relative to land use patterns and their interaction with US Route 29 and Hydraulic Road as well as the US Route 250 Bypass. As such, some areas were deemed to be more, or less, relevant to the study as the plan progressed. For example, the southwest quadrant composed primarily of legacy residential uses *became less of a focus for redevelopment and new roadway infrastructure* over time as community input and Advisory Panel input expressed a strong preference to remove proposed improvements to the street network and to seek transportation options for the Hydraulic Road / US Route 29 intersection that did not result in additional traffic into those areas.

The delineation of the larger study area context serves as a reminder that connectivity elements such as trails and bike facilities are needed to stretch beyond the focus area in all directions to connect with community-wide and regional paths and trail systems.

## Study Area Land Use Focus Area

A smaller area within the overall boundary of approximately 600 acres is the focus of the actual land use designations. This area includes roughly equal land area within the City of Charlottesville and Albemarle County jurisdictions. The Conceptual Land Use Plan graphically illustrates recommended land uses within an area most influenced by US Route 29 and Hydraulic Road.

## Core Development Area

The Core Area is defined as a tightly clustered area focused around the Hydraulic Road / US Route 29 intersection. The intent of the illustratives is to illustrate the look and feel of a potential development pattern that reflects the project vision within the most intense development area.

## Study Area Map

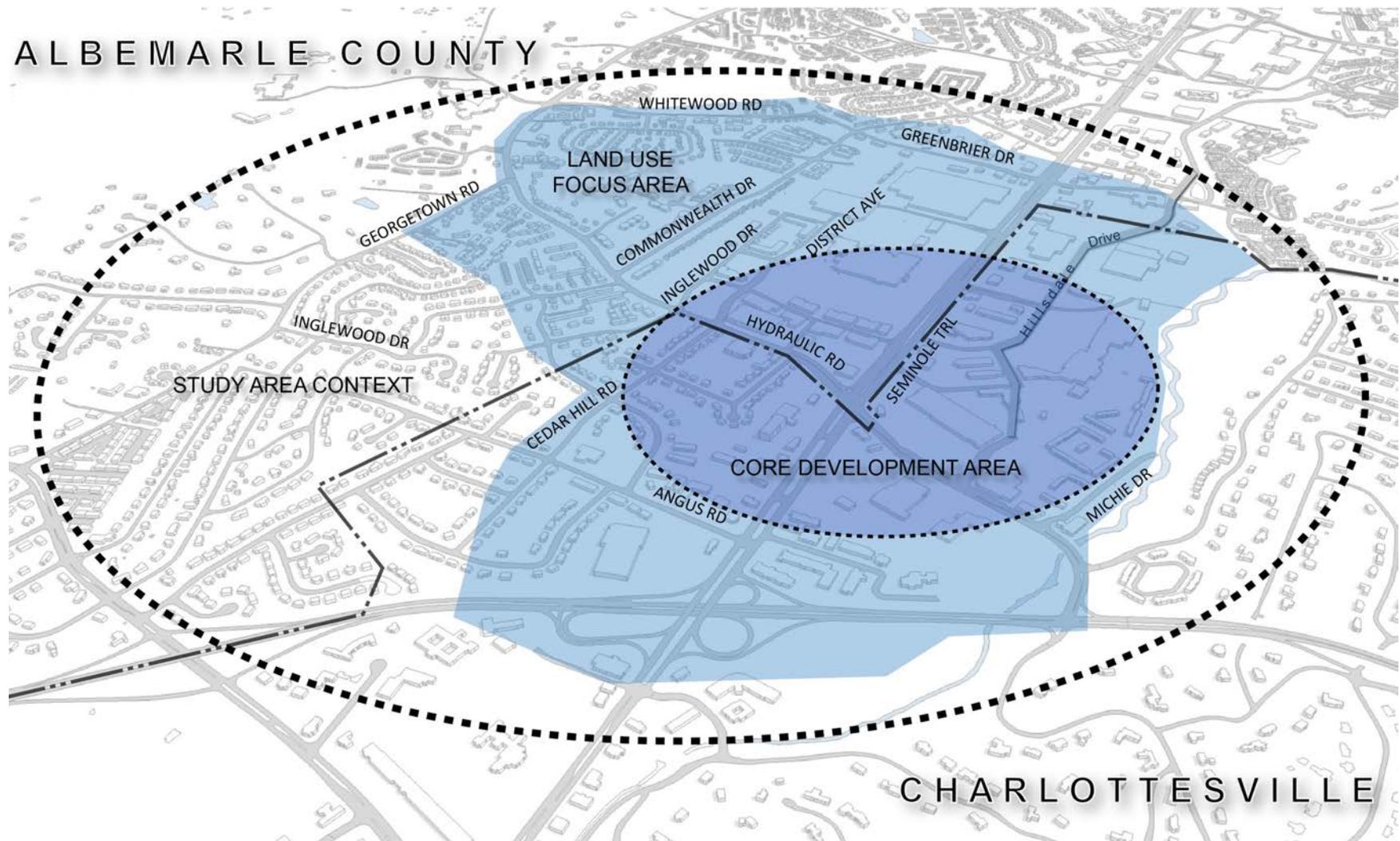


Figure 1 Hydraulic SAP Study Area Map

## STUDY AREA CHARACTERISTICS

A broad assessment of the study area was conducted to identify site constraints in the form of physical, land use and environmental conditions. Characterization of the study area's strengths and weaknesses was developed with input from the project Advisory Panel and the general public during regular project meetings and two open public meetings.

Through a variety of exercises, Advisory Panel members and community participants in public meetings were asked to describe the existing character of the study area, its challenges and opportunities.

### *What We Heard .....*

- **Transportation: Auto-dependent form**
  - Reflects an outdated suburban development model encouraging automobile trips and discouraging bicycle and pedestrian modes of transportation.
  - Transit – the lack of transit reinforces personal vehicular usage
  - Cedar Hill Road right in right out not functioning well to control traffic through residential streets
  - The Hillsdale Drive Extension project will inform future development scenarios east of US Route 29.
- **A Disconnected Suburban Form**
  - Suburban form promotes a low density, low profile building massing and large surface parking fields, all barriers to good walkability, strong neighborhood identity and placemaking.
  - Block sizes are too large – disconnected street and pedestrian network are a barrier to good connectivity
- Needs height and vertical mix of uses – infill development, increased densities and height are desired to overcome the suburban form and scale.
- **Bike and Pedestrian facilities – a long way to go**
  - Not bike/pedestrian friendly – US Route 29 is a major barrier between east and west. Public safety is a critical concern.
- **Lack of Placemaking – “no there there”**
  - No identity — the area lacks a cohesive design vocabulary or brand.
  - Lack of significant and interesting public spaces or architectural identity.
- **Business Destination/Employment Center- a good base to build from**
  - Large daytime employee population is important to maintain and grow
  - Good visibility – high volume traffic and good visibility from public streets is a positive for most commercial businesses.
- **Parks and Open Space – Missing Links**
  - Good public parks around the study area are a huge asset, However poor connectivity to these is a challenge
  - Lack of public/programmable spaces in the core area is a challenge.
- **Housing – lacking options and connectivity**
  - Good housing variety outside of core area – the large quantity of housing in the area, and variety of income levels is a positive.
  - Lack of housing in the core area is an opportunity.
  - Lack of good connectivity from existing housing to core area destinations.
- **Some Opportunities**
  - Large parking fields present redevelopment and on-site low-impact development stormwater management opportunities.

## The Hydraulic Area is.....



Image 1 Hydraulic SAP Advisory Panel Charrette

CARS DANGEROUS  
FROZEN ASPHALT  
AUTO/PAVEMENT Mixed-USE  
<sup>the</sup> Homebase Disjointed  
FRUGGER Revenue Producing  
Border - city/county - Commercial  
Employment Congested  
Highway/Traffic No placemaking  
Aimless DESTINATION?  
Diversed

GATEWAY

## LAND USE OVERVIEW

### Existing Land Use Patterns

The Hydraulic Area today is firmly entrenched in a suburban land use pattern characterized by disconnected and sometimes competing land uses, one-story single-use buildings, and large surface parking lots. The completion of the Hillsdale Drive extension project will alter the development pattern to the east and establishes new, smaller, development blocks that will alter development patterns in that area.

**Residential** uses have historically been developed away from the core area until the recent addition of some high-density housing within the Stonefield development west of US Route 29.

There is a significant amount of highway-oriented **commercial** and traditional strip shopping center clusters focused around Seminole Square and fronting on US Route 29. The core development area is dominated by a suburban pattern of retail development with large surface parking fields and single story structures. The Stonefield development represents a change in direction relative to a more horizontal mixed-use development pattern but is also viewed as a missed opportunity to achieve more height, density, and a more integrated mix of uses. The movie theatre and hotel in Stonefield offer the rare break in scale with respect to building height.

Professional **offices** dot the commercial landscape within the Hydraulic Area including some residential conversions along primary streets and office condominiums in small clusters generally associated with Hydraulic Road and Greenbrier Drive. Large office and light industrial employment destinations include Northrop Grumman/Sperry, Seminole Place, and Pepsi. The location and scale of these employment centers, in addition to the US Post Office, have significant influence on the overall block structure, opportunities for connectivity and urban form of the area.

**Institutional** uses include Albemarle High School, the US Post Office, and local churches. The Post Office facility is associated with commercial uses east of US Route 29 and the High School and churches are more associated geographically with residential areas. These relationships inherently have important implications relative to bicycle, pedestrian and vehicular networks. The Post Office and High School also have a large visual impact on the character of US Route 29 and Hydraulic Road respectively. As such, these properties can contribute significantly to the character of the streetscape and public realm based upon how they address the street with landscaping, lighting, signage, and sidewalks.

**Retail** anchors and associated shops also drive traffic to the area. They require expansive areas of parking as well which in turn has a significant impact on the overall urban form, character and scale of the area. Stonefield and Seminole Square represent two large commercial destinations with retail, dining and entertainment options serving the broader community. These areas would benefit from better pedestrian and bike connectivity to reduce vehicle trips within the study area.

**Green infrastructure/natural resources** include facilities such as public and private parks, greenways, trails and paths. Charlotte Y. Humphris Park, Meadow Creek Gardens and Disc Golf course are great public amenities with proximity to the Hydraulic area. These amenities generally have good connectivity to adjacent residential areas but little connectivity to the core area and residential areas having poor access to the existing trail network. The Rivanna Trail network on the east side of the area provides good connectivity beyond the study area with connections to Greenbrier Park. These amenities are situated on the study area perimeter and highlight the need for green infrastructure within the core study area. Communities benefit not only from large destination park facilitates but also small, neighborhood green spaces and paths that provide the connective tissue between homes and goods and services. The study area is particularly lacking in these smaller neighborhood scale spaces.

## Existing Land Use Character Map

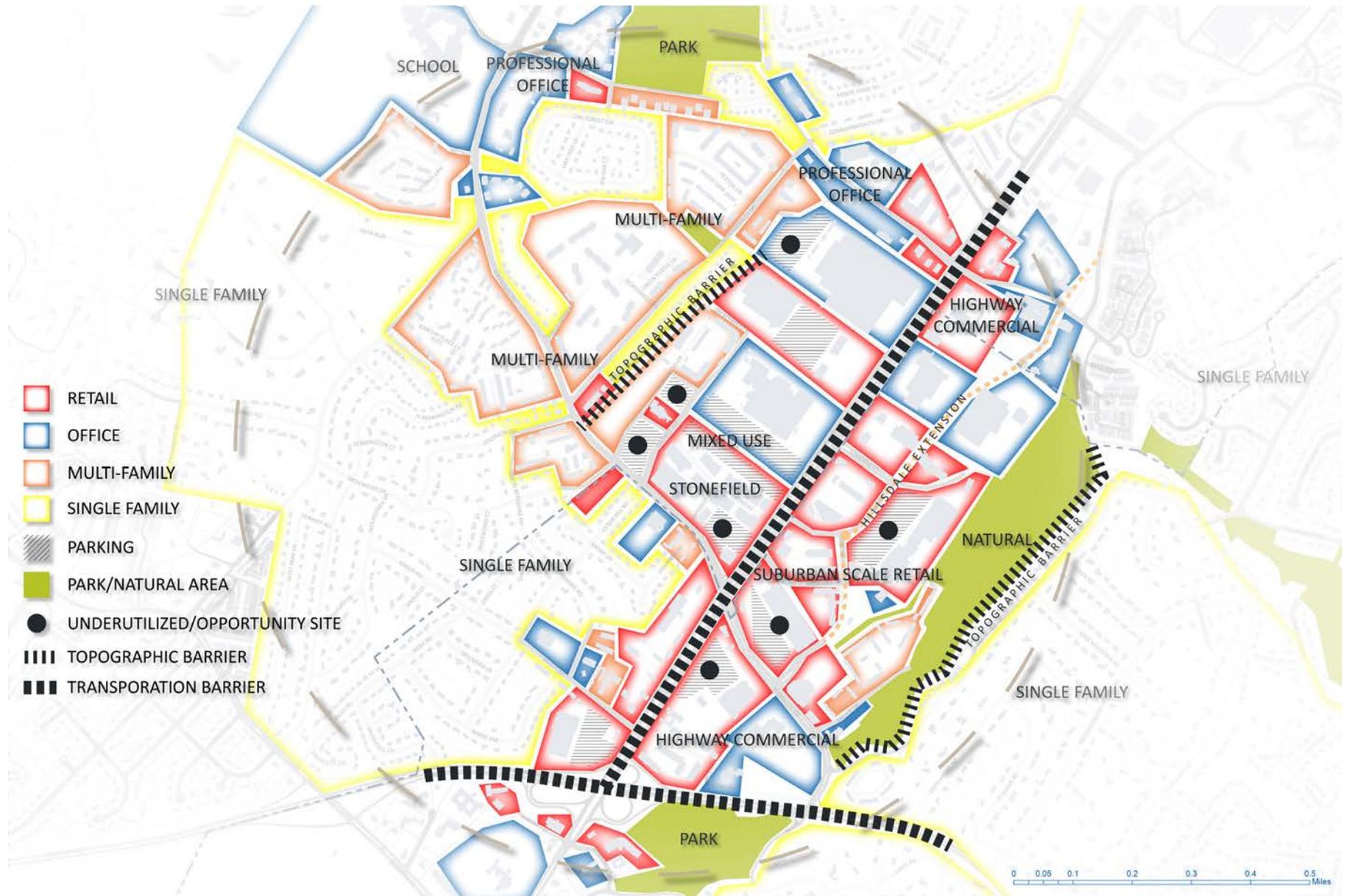


Figure 2 Existing Land Use Character Map

# EXISTING LAND USE MAPS

## Existing Land Use: City

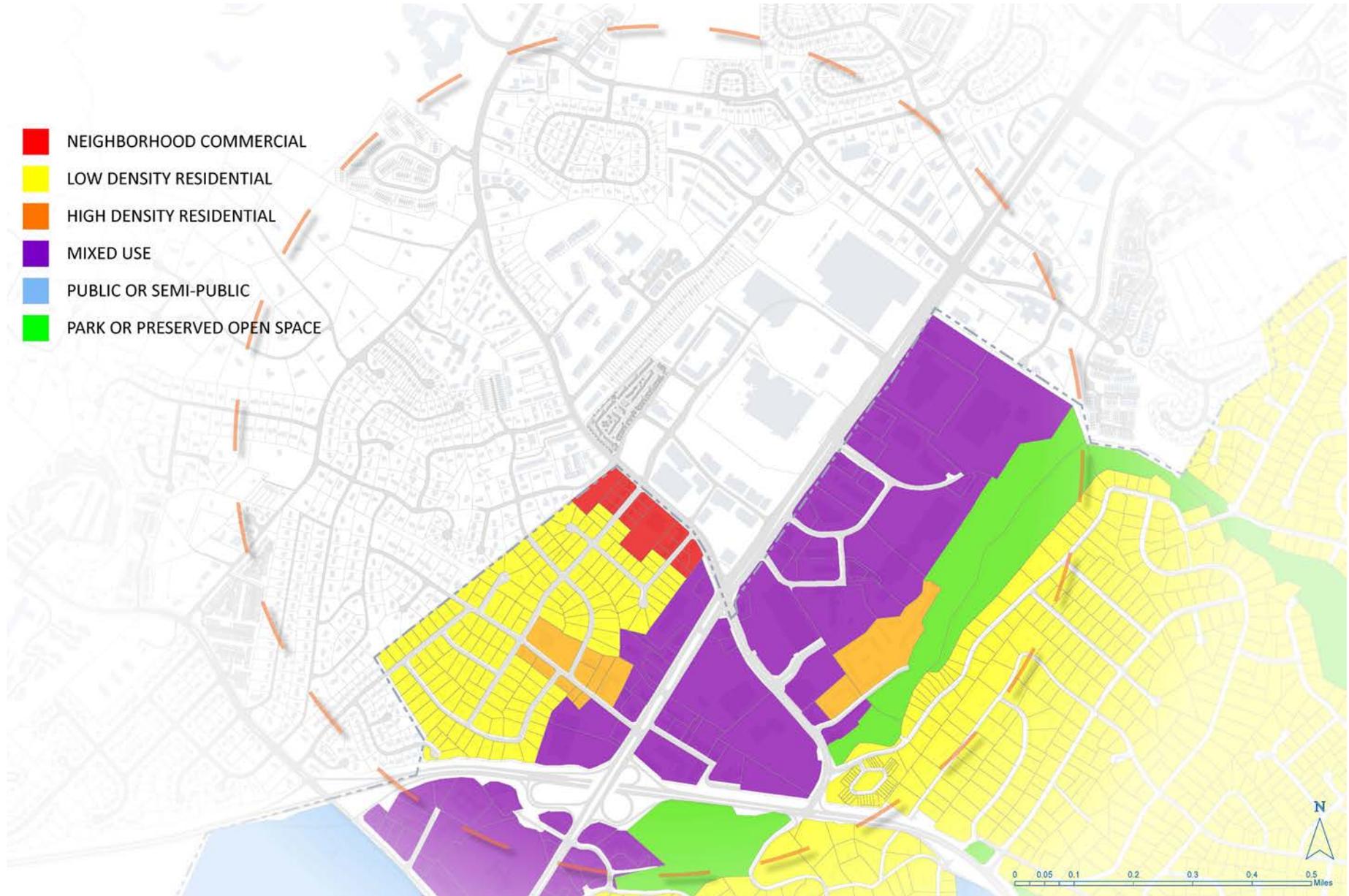


Figure 3 Existing Land Use (City)

## Existing Land Use: County

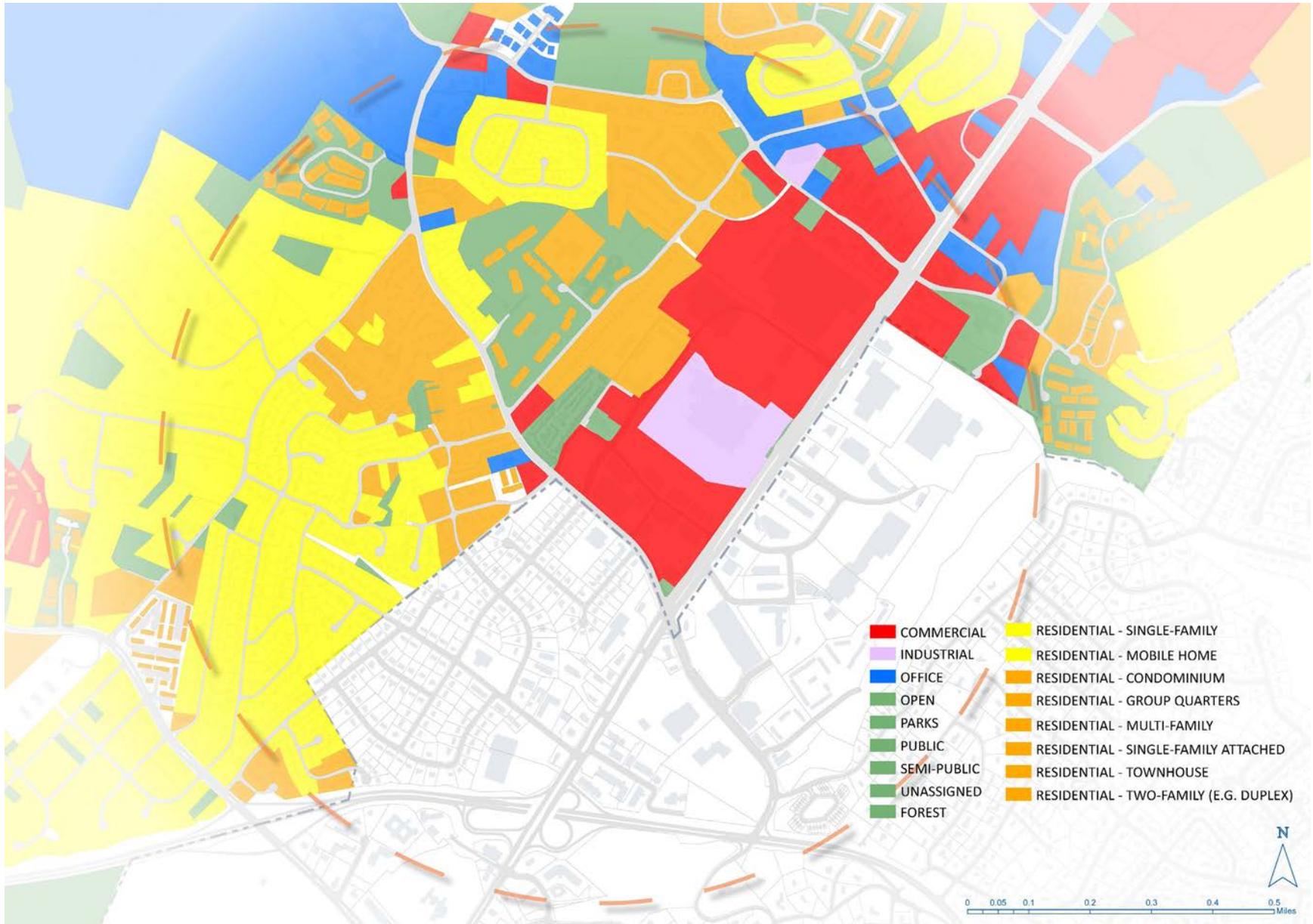


Figure 4 Existing Land Use (County)

# EXISTING ZONING

The study area east of US Route 29 is in the City of Charlottesville and characterized by mixed-use zoning districts with a Highway Corridor designation (Fig. 5). This includes the large retail uses, Pepsi, and US Post Office properties. The extreme eastern boundary is residential zoning and includes existing multi-family development which then transitions to single family zoning east of the Meadow Creek stream and topographic features. Properties within the City jurisdiction west of US Route 29 includes various residential districts and some commercial overlay districts along Hydraulic Road opposite the Stonefield development.

The Albemarle County portion of the study area is dominated by residential districts to the west and the Neighborhood Model District around Stonefield (Fig. 6). The County also applies an Entrance Corridor Overlay to the Hydraulic and US Route 29 corridors to add further design controls along major public streets.

## Existing Zoning: City

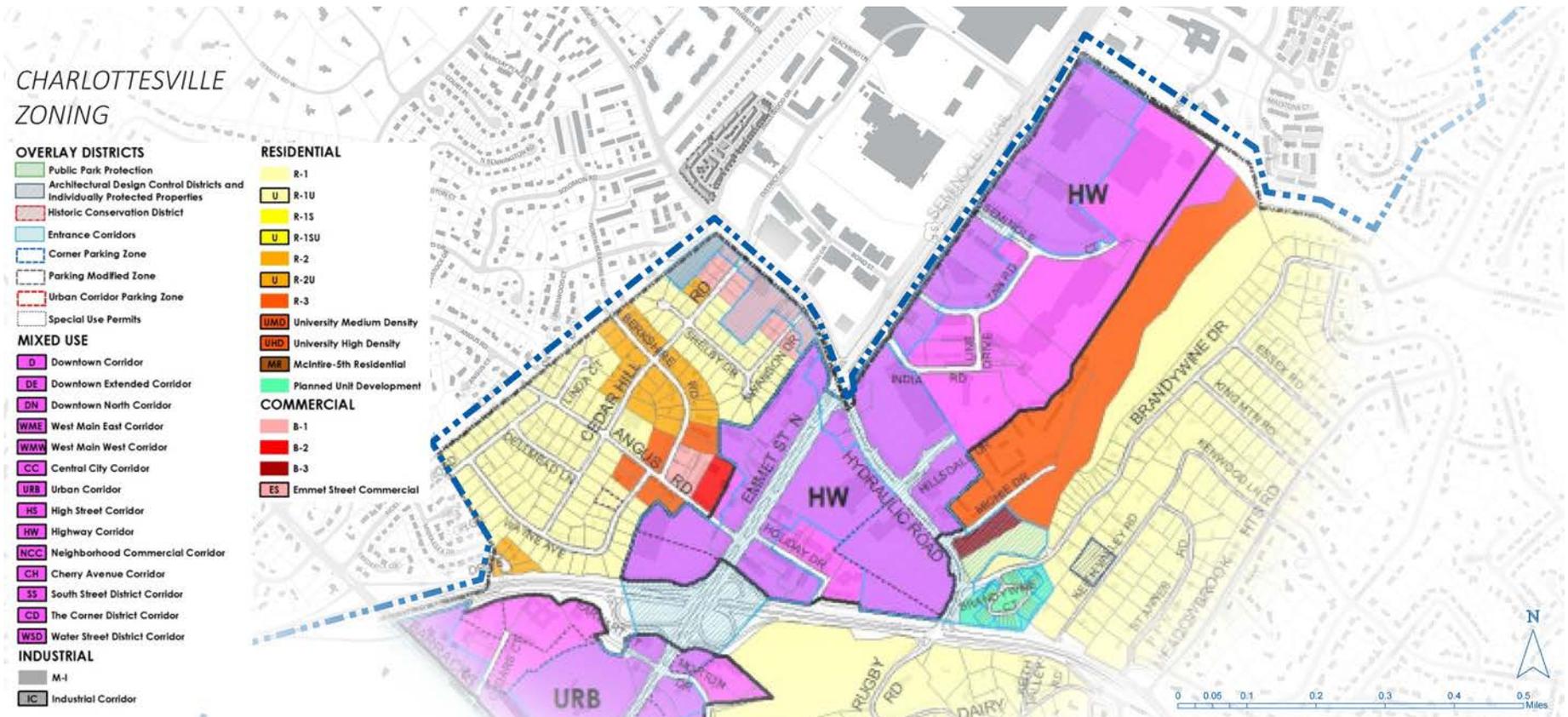


Figure 5 Existing Zoning- City

# Existing Zoning: County

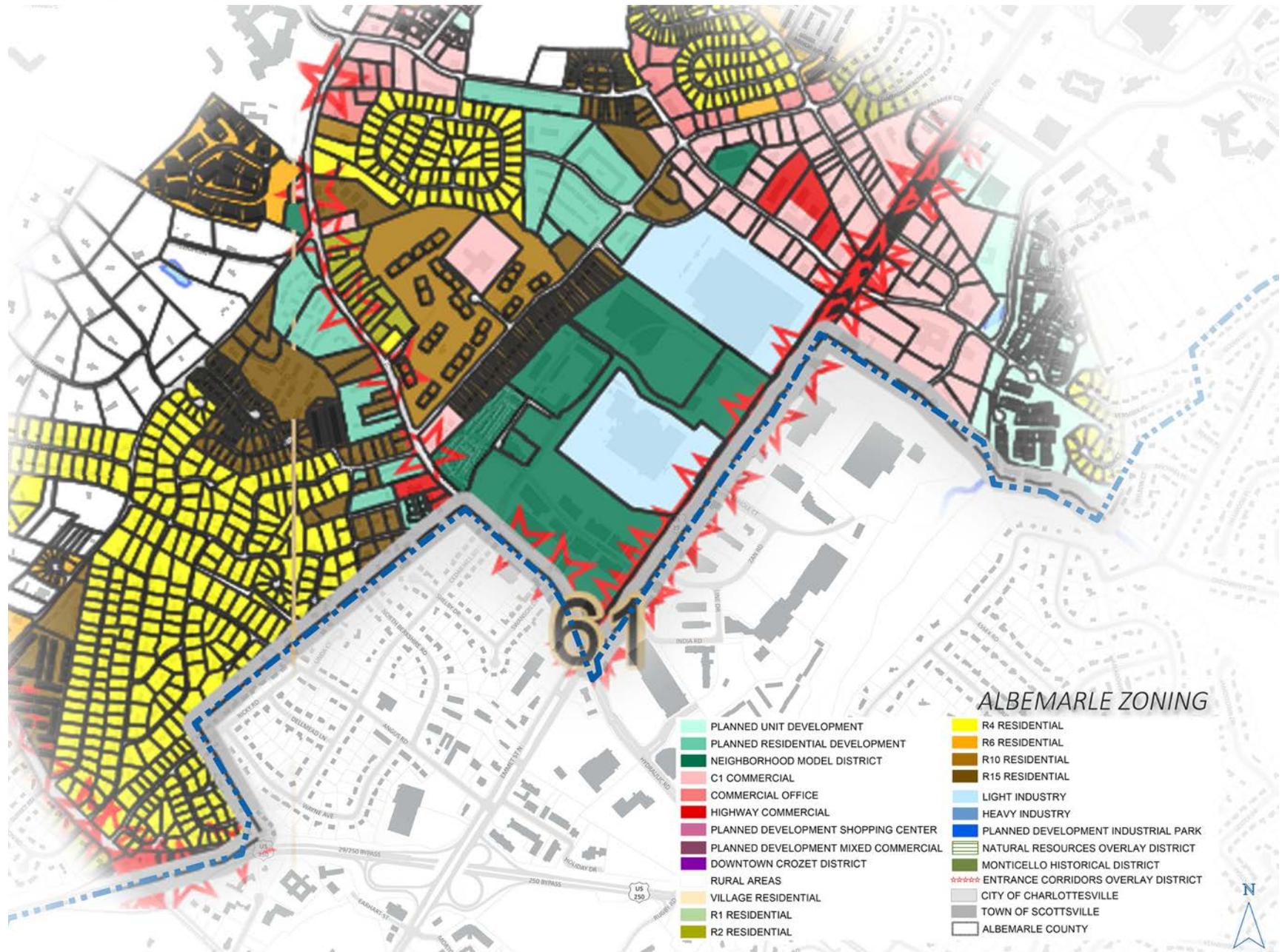


Figure 6 Existing Zoning- County

## Residential Uses

- A variety of residential building types and a wide range in home values.
- Residential uses dominant in the west and southwest quadrants of the study area.
- Small cluster of multifamily, assisted and senior living east of Hillsdale Drive at the north and south ends.
- Established single family neighborhoods east of Michie Dr.
- Multi-family product mixed among single family in established neighborhoods.
- Significant percentage of rental properties.
- An overall lack of good, safe bicycle or pedestrian connectivity within neighborhoods and to the commercial core area.



Image 2 **Example of Single Family**



Image 3 **Example of Multi-Family**

# Existing Land Use: Residential



Figure 7 Existing Land Use- Residential

## Office/Light Industrial Uses

- Professional office clusters along major collector roads and intermixed with residential uses.
- Northrop Grumman/Sperry – secured site perimeter, single-story office building with large surface parking facilities.
- Seminole Place – large light industrial complex under one roof with expansive surface parking and truck loading facilities.



Image 5 Northrop Grumman/Sperry



Image 4 Professional Offices



Image 6 Seminole Place

# Existing Land Use: Office/Light Industrial



Figure 8 Existing Land Use- Office/Light Industrial Uses

## Institutional Uses

Albemarle High School and the US Post Office are the most significant institutional uses relative to location and size. Both have a large visual impact from Hydraulic Road and US Route 29 respectively. As such, these properties contribute significantly to the character of the streetscape and public realm based upon how they address the street with landscaping, lighting, signage, and sidewalks

- Albemarle High School
- Churches (i.e. Meadows Presbyterian Church; Connect Church)
- US Post Office facilities
- The Laurels of Charlottesville- Nursing & Rehabilitation Center

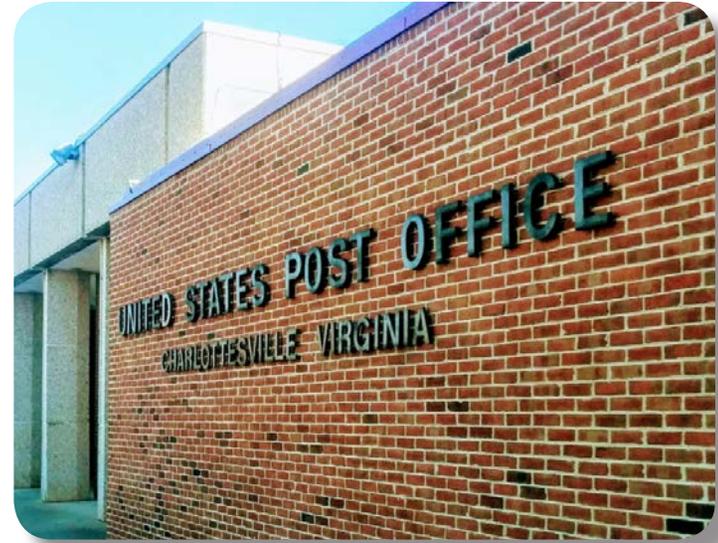


Image 8 Post Office



Image 7 Albemarle High School



Image 9 Meadows Presbyterian Church

# Existing Land Use: Institutional



Figure 9 Existing Land Use- Institutional

## Retail/Commercial Uses

- Primary uses associated with US Route 29 corridor
- Traditional suburban development patterns
- Stonefield model toward horizontal mix of uses
- Hospitality buildings provide some verticality to the area



Image 11 **Best Buy / World Market**



Image 10 **Shops at Stonefield**



Image 12 **Whole Foods Market**

# Existing Land Use: Retail/Commercial



Figure 10 Existing Land Use- Retail/Commercial

## Parks and Open Space

There are some wonderful park facilities located within walking, biking or short driving distance from residential areas within the study area. Unfortunately, good bike and pedestrian facilities to connect to those amenities are lacking. These large park amenities are located on the perimeter of the study area. There are very few, if any, small, easily accessible open spaces available to the public within the study area, with the exception of the Stonefield open space that offers a valuable public gathering area for informal and programmed community activities.

- Charlotte Y. Humphris Park to the north – 25 acre natural area with over 1.5 miles of trails.
- Meadow Creek trail system along Meadow Creek east of Michie Drive – A nature Conservancy restoration area along Meadow Creek
- Meadow Creek Gardens And Disc Golf to the south – a 9 hole disc golf course, 20 acres of undeveloped land and community garden plots.
- Greenbrier Park east of the study area- 28.3 acres of undeveloped area located in the Greenbrier neighborhood with walking/biking trails along Meadow Creek and a rare Greenbrier Marsh ecosystem.



Image 13 **Meadow Creek Community Gardens**



Image 14 **Meadow Creek**

# Existing Land Use: City/County Parks and Open Space

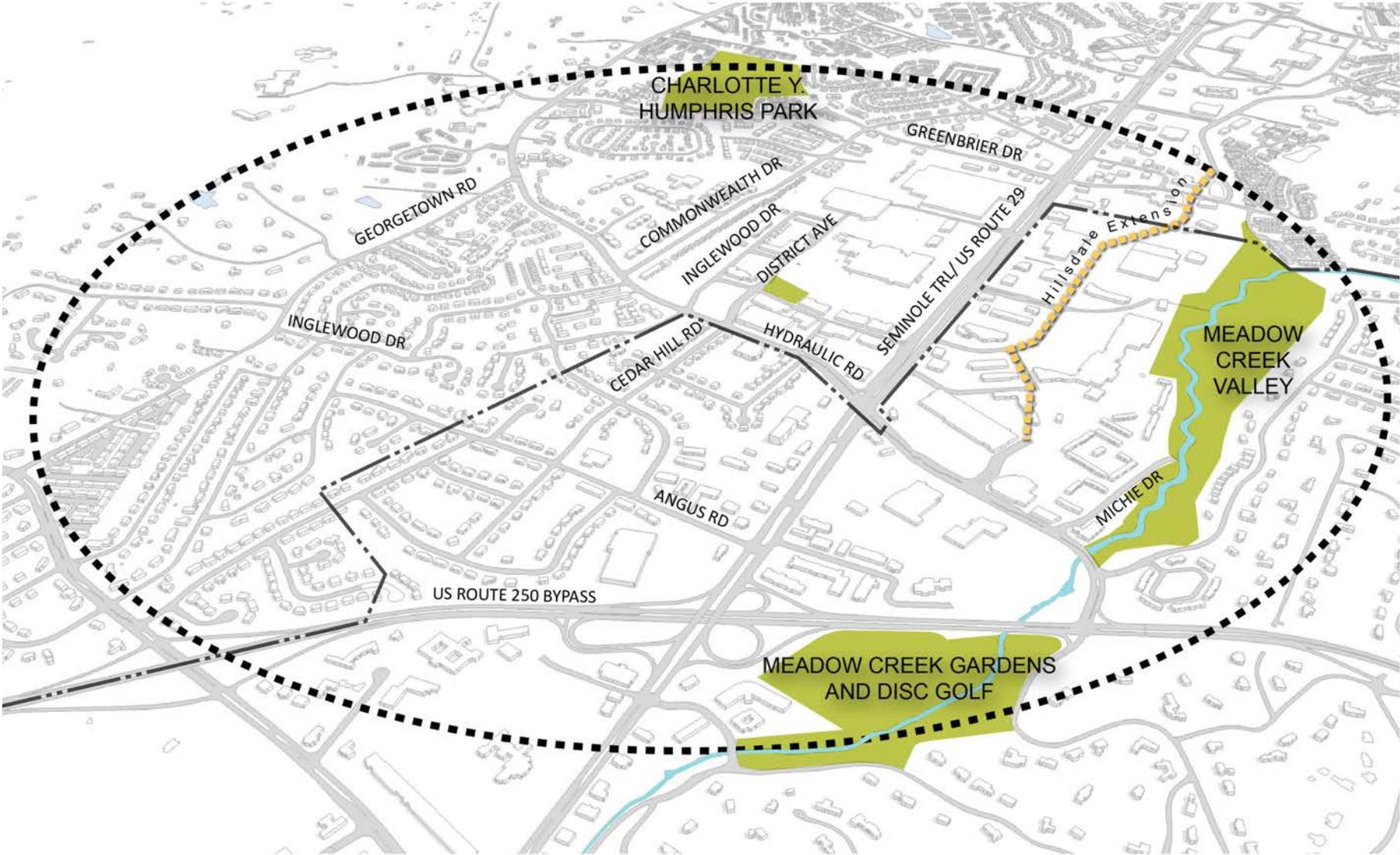


Figure 11 Existing Land Use- City/County Parks and Open Space

## TRANSPORTATION AND MOBILITY FACILITIES

The link between land use and transportation is critical and while the Hydraulic Small Area Plan is focused on land use it also reflects an understanding of how transportation elements help shape the character, accessibility, and quality of the area. Transportation facilities and land use patterns within the study area have a major impact on mobility options, connections, walkability, bicycle facilities, multi-modal safety, business viability, and the overall aesthetic of the community.

The land use plan recognizes that the transportation patterns within the study area include both local and regional traffic. Transportation solutions within the study area must respond to this reality to improve connectivity for local traffic within the study area and for regional traffic beyond the area. Local street typologies should help create a strong public realm on neighborhood and commercial streets while improvements to the major regional corridors must address congestion, transit and mobility options.



Image 15 Bus Shelter

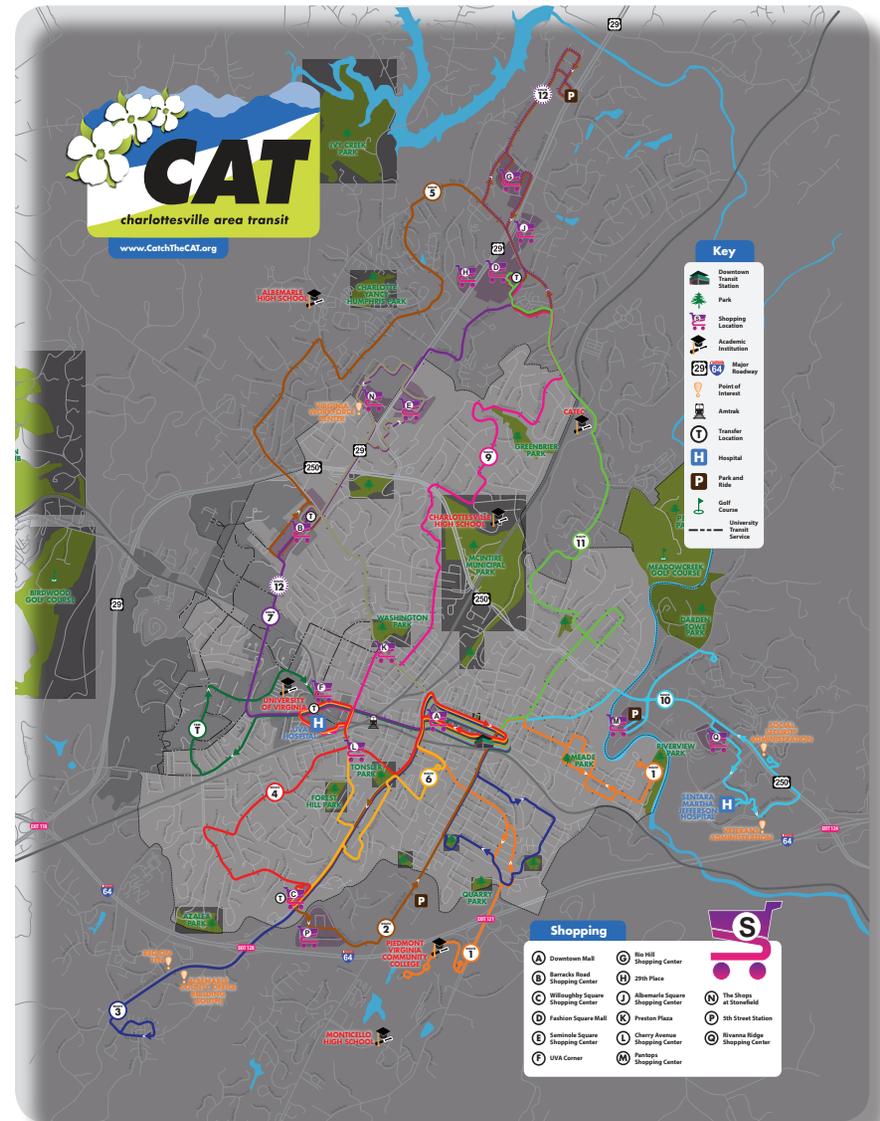
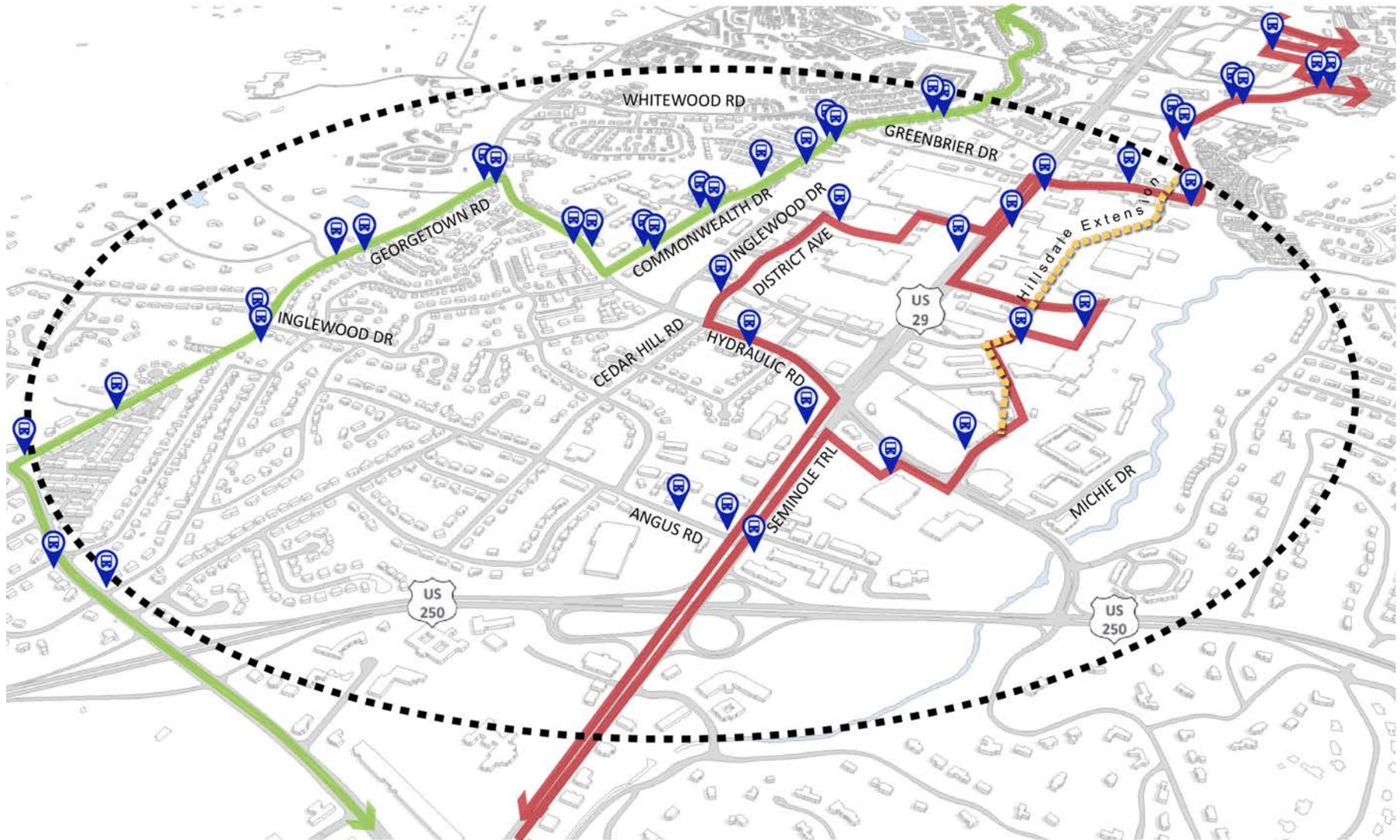


Image 16 Charlottesville Area Transit (CAT) Map

# Existing Transit Map



-  EXISTING BUS STOP
-  CAT ROUTE 5
-  CAT ROUTE 9

Figure 12 Existing Transit Map

## BICYCLE/ PEDESTRIAN CHARACTERISTICS

- Overall lack of east-west mobility across US Route 29, limited to intersections of Hydraulic and Greenbrier with US Route 29.
- Overall lack of bicycle and pedestrian facilities: public street network is not very conducive to good mobility and connectivity
  - Public sidewalks are intermittent and do not provide a contiguous path between key origins and destinations.
  - There is no common approach to provision of on-street bicycle facilities
  - Major intersections are challenging, often unsafe, for pedestrians and bicyclists to navigate.
  - Lack of safe, convenient pedestrian crossings over US Route 29 and across Hydraulic Road.
  - The Rivanna Trail system and trails associated with C.Y. Humphris Park are valued amenities, but lack connectivity to the larger system of paths and trails.
- ADA accessible routes are inconsistent and not contiguous throughout the area



Image 17 **On-Street Bicycle Facilities**

# Existing Bicycle and Pedestrian Facilities Map



- EXISTING SIDEWALK
- EXISTING BIKE LANES
- EXISTING TRAILS
- EXISTING MULTI-USE PATH

Figure 13 **Bicycle/ Pedestrian Facilities**

## TRANSPORTATION CHARACTERISTICS

US Route 29 and US Route 250 Bypass are major regional transportation facilities that are important conduits for both local and regional traffic. Future improvements to address congestion and traffic operations associated with these facilities must account for sometimes competing land use issues related to access and visibility while maintaining the critical role for regional connectivity.

- In addition to general congestion issues, US Route 29 is a significant barrier:
  - To convenient and safe bicycle and pedestrian crossing from east to west
  - A visual and psychological barrier, due to scale and congestion
- Lack of adequate public transit access internally and from east to west
- Poor intersection operations along US Route 29 and key intersections with Hydraulic Road east of US Route 29
- Close proximity to the US Route 250 Bypass presents operational challenges that impact the US Route 29 corridor
- Anticipated improvement in network performance upon completion of Hillsdale Drive extension and with recent completion of other transportation improvements in the US Route 29 Solutions package.
- Limited east-west connectivity- vehicular, bicycle, and pedestrian



Image 18 **US Route 29 / Hydraulic Road Intersection**

# Existing Street Character Map

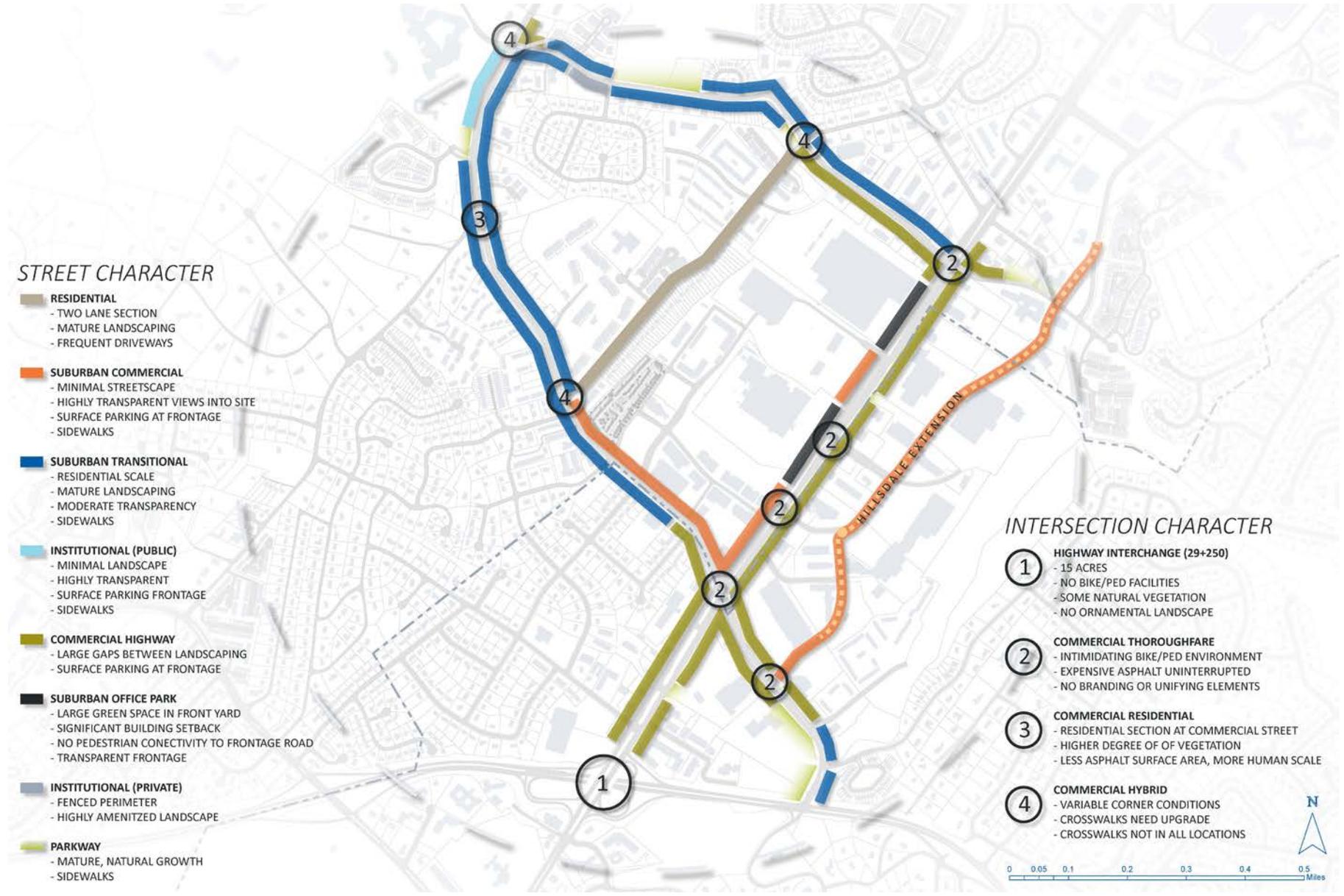


Figure 14 Existing Street Character Map

## EXISTING STREET CHARACTER

Streetscape vegetation varies from new plantings associated with Stonefield Commons, mature vegetation along Hydraulic Road and minimalist plantings along US Route 29. The lack of consistency in public realm landscaping contributes to the lack of identity and placemaking in the area.



Image 19 **Freeway (US Route 250 Bypass)**



Image 20 **Principal Arterial (US Route 29)**



Image 21 **Minor Arterial (Hydraulic Road)**



Image 22 **Collector (Angus Road)**



Image 24 **Local (Inglewood Drive)**

# Existing Street Typology Map

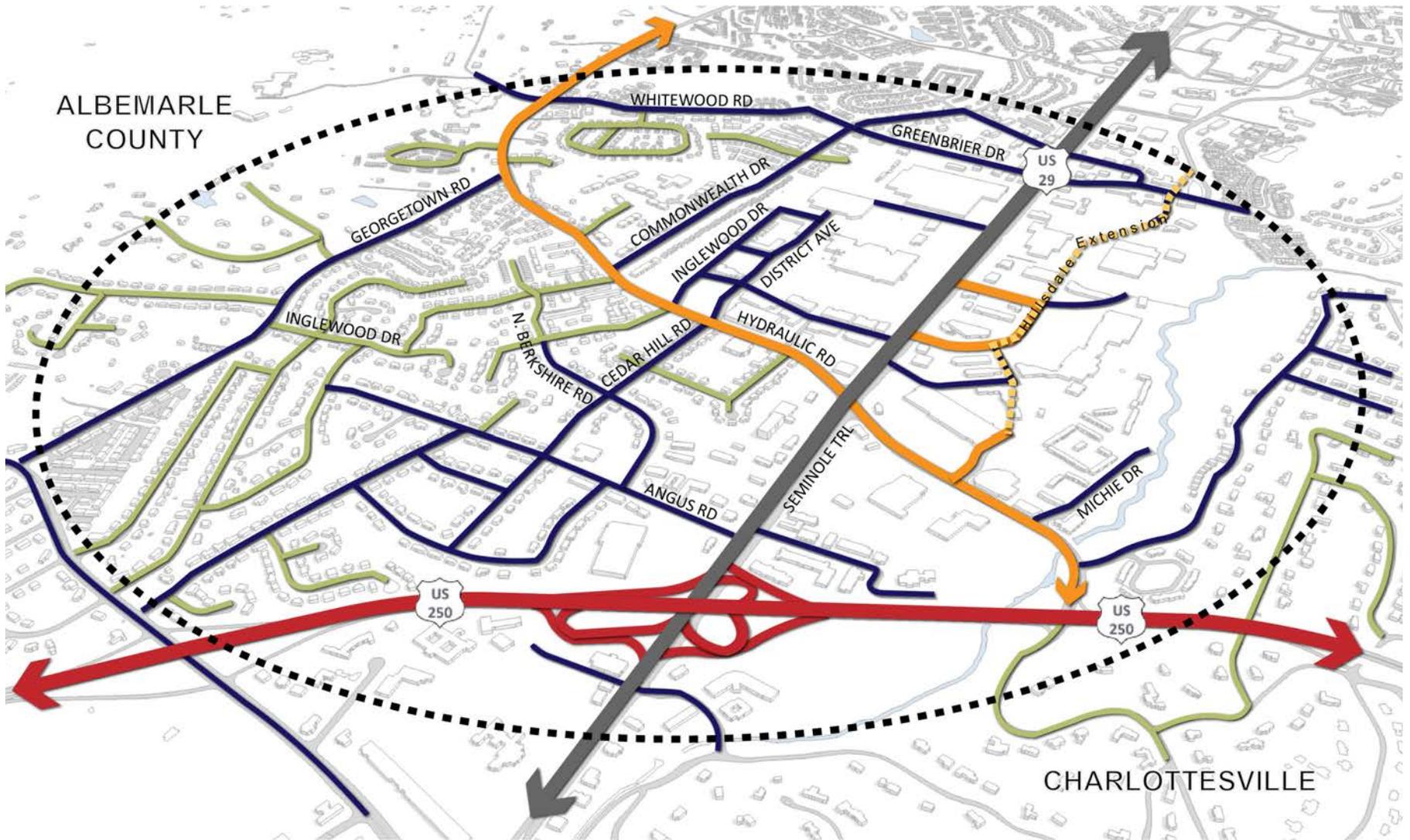


Figure 15 Existing Street Typology Map

- |  |  |
|--|--|
|  FREEWAY (160' ROW)             |  COLLECTOR (40 - 50' ROW) |
|  PRINCIPAL ARTERIAL (150' ROW)  |  LOCAL (24' - 32' ROW)    |
|  MINOR ARTERIAL (60' - 80' ROW) |  |

## DESTINATIONS AND BARRIERS

Destinations and barriers inform how people move throughout an area whether in vehicles, on foot, bikes, or transit and thus are important characteristics of place to understand and inform planning decisions. Destinations and Barriers can be physical, functional or psychological in nature.

**Destinations** may include major employment centers, public amenities such as parks, entertainment venues, or local businesses with a special niche market appeal that draw local and regional patrons.

The study area includes **large employment and commercial destinations** central to the study area. Northrop Grumman and Seminole Place office park on the west side and the US Post Office and Pepsi facility east of US Route 29 represent large centers of employment. These sites drive peak hour traffic to the project area and provide valuable daytime population to help support local business. These uses should be planned with strong pedestrian connectivity to local goods and services to create a walkable environment and reduce internal vehicle trips.

**Retail** anchors and associated shops also drive traffic to the area. They require expansive areas of parking which in turn has a significant impact on the overall urban form, character and scale of the area. Stonefield and Seminole Square represent two large commercial destinations with retail, dining and entertainment options serving the broader community. These areas would benefit from better pedestrian and bike connectivity to reduce vehicle trips within the study area.

**Public institutions** such as Albemarle High School and area churches are also destinations with important impacts on traffic flow limited to very defined windows of time specific to certain days of the week, and time of the year. They impact the scale and urban form of the study area as well based upon their large building and parking footprints.

### Destinations:

- **Shopping Destinations**
  - o Shops at Stonefield
  - o Seminole Square
  - o Whole Foods
  - o Kroger
- **Office / employment centers Destinations**
  - o Northrop Grumman
  - o Seminole Place
  - o Dominion Power
  - o Pepsi
- **Schools**
  - o Albemarle HS
- **Hospitality**
  - o Holiday Inn
  - o Hampton Inn
  - o Hyatt Place
  - o La Quinta Inn & Suites



Image 25 Shops at Stonefield

**Barriers** can include physical features such as railroad tracks, environmental buffers, major highways, or social or psychological conditions such as blighted areas, degraded view sheds, or industrial noise and odors that deter development interest or connectivity. Barriers to development can also be characterized as short term and long term, depending upon the potential for change of a particular piece of property. In addition, a perceived barrier may also be an important destination. For example, the large Northrop Grumman /Sperry and Seminole Place developments are key destinations but also present a challenge to achieving good urban form due to their locations, single-story height, and large surface parking areas.

Poor urban form can be a barrier. A fundamental barrier to connectivity within the Hydraulic Area is the large, disconnected block structure presenting a challenge to mobility throughout the study area for vehicles, pedestrians and cyclists. The intersection of Hydraulic Road and US Route 29 is in and of itself a physical and psychological barrier to good connectivity.

Natural environmental constraints including severe topography, streams, and wetland areas can also be characterized as both barriers and destinations. They represent physical barriers that constrain the limits of development and connectivity. However, they can also add to the aesthetic quality of the development and be incorporated into parks, landscaping and linear recreation features as destinations.

Finally, dual jurisdiction within the study area can be a barrier to new development or development concepts that cross jurisdictional lines. The lack of a unified code and process can be a deterrent for plans that might benefit from, or require, property within both jurisdictions.

## Barriers:

- **Large block structure and disconnected street network**
- **Barriers to Pedestrian / Bicycle connectivity:**
  - o US Route 29; Hydraulic Road; US Route 250 Bypass
- **Barriers to neighborhood block scale and connectivity:**
  - o Northrop Grumman
  - o Seminole Place
  - o Pepsi
  - o Large surface parking lots
- **Natural and Topographical barriers to connectivity:**
  - o West of Stonefield and east of Commonwealth Dr.
  - o Conservation area and topography east of Michie Dr.



Image 26 View of Stonefield from North

## OPPORTUNITIES FOR CHANGE

Opportunities for change is a relative assessment of how specific properties might be a supportive element or a challenge to achieving the ultimate vision for the study area. It is not a reflection of a property owner's position regarding sale or redevelopment but rather an indication of factors that may make a property more susceptible to change over time or that presents a particularly important opportunity for change to support the overall vision. Examples of properties that are typically characterized as more susceptible to change include the following:

- Vacant Properties
- Large surface parking lots
- Underutilized or underdeveloped sites
- Rental properties

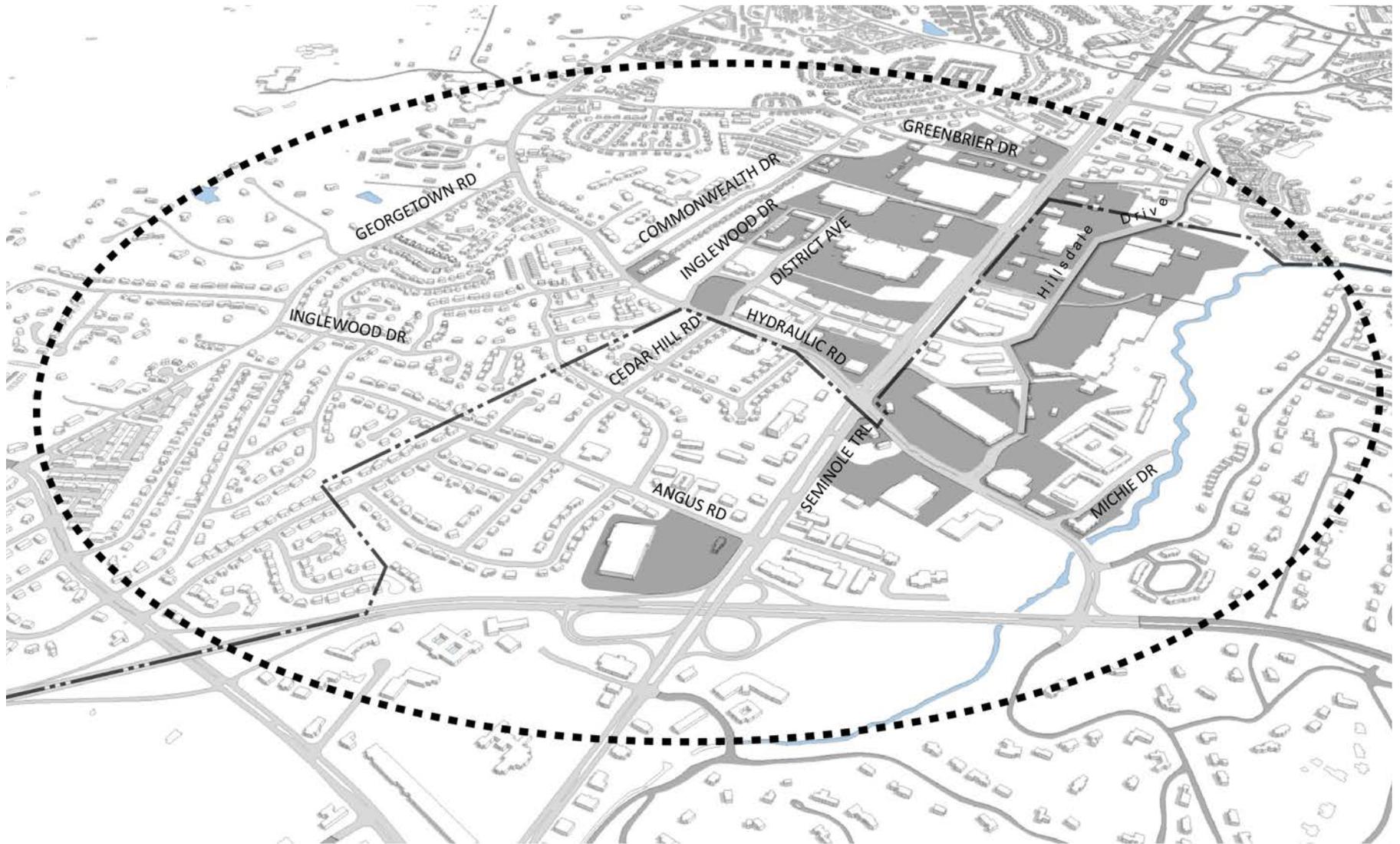
**Large surface parking lots** can represent a significant opportunity for change. There are over 100 acres of surface parking within the core development area surrounding US Route 29. That is roughly the equivalent area that could support more than one thousand units of multi-family housing or one million square feet of retail development. Surface parking occupies very valuable real estate, is a barrier to good connectivity, and may offer opportunities for increased densities, integration of complimentary residential land uses, and shared parking arrangements.

Legacy, **low density residential** areas can also present some opportunity for change. The established residential areas in the Hydraulic areas are likely to remain residential, but could attract future demand for redevelopment with a variety of medium to high density residential building types responding to market demand for affordable housing near a developing commercial core. Among the many established homes in the area, there are often older, poor quality or poorly maintained rental properties or single family detached homes that could redevelop with higher density products in response to demand for smaller, more affordable housing. The project Vision Statement reinforces the desire for growth that results in the preservation of existing affordable single family detached housing in the legacy neighborhoods, and the creation of new housing options, including affordable housing in the core redevelopment area. In addition, there may be opportunities to create small, walkable neighborhood commercial nodes to serve existing residential areas around key intersections.



Image 27 **Best Buy/World Market Surface Parking**

## Existing Surface Parking



■ 124 ACRES OF SURFACE PARKING

Figure 16 Surface Parking Map

## PLANNED PROJECTS

Planned land development and infrastructure projects within the study area may or may not be supportive of the ultimate vision for the Hydraulic Small Area Plan. Timing and cooperation among property owners are the most critical factors to help planned and future projects support the long term vision. In this sense, planned projects can be characterized as either:

- An interim condition that would need future modification within the study time horizon to better conform to the vision
- A long-term improvement that can be incorporated into the plan during planning and design phases prior to implementation.

### Selected Planned Projects

- Hillsdale Drive Extension (under construction) – this major infrastructure project will have beneficial impacts to traffic operations and congestion but is equally important with respect to its potential impact on land use patterns. The new street alignment will begin to break down the block structure east of US Route 29 and shape future development parcels in the area toward a more urban form.
- K-mart redevelopment site (conceptual planning) – redevelopment plans for this key commercial site at Hydraulic Road and US Route 29 intersection are critically important to help establish a new development pattern and aesthetic for the corridor. The opportunity is to have new buildings that:

- address Hydraulic Road with an urban frontage and enhanced public realm, reduce surface parking exposure to the public streets, enhance landscaping, and create a smaller block structure.

The final disposition of the intersection solution to Hydraulic Road and US Route 29 is critical to redevelopment of this site with respect to access, visibility, and mobility options for a walkable development.

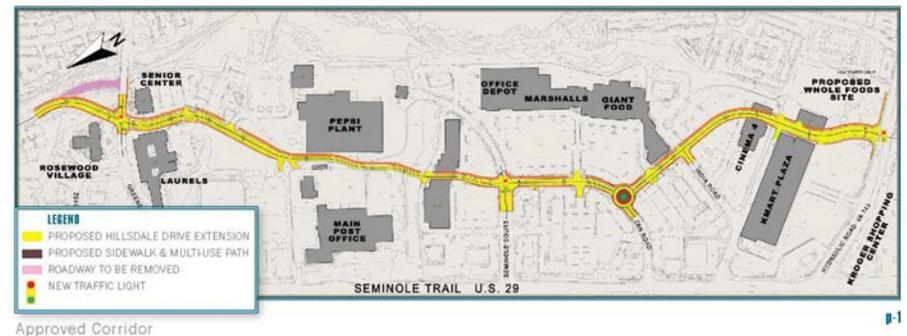


Figure 1 7 Hillsdale Drive Extension Alignment Plan

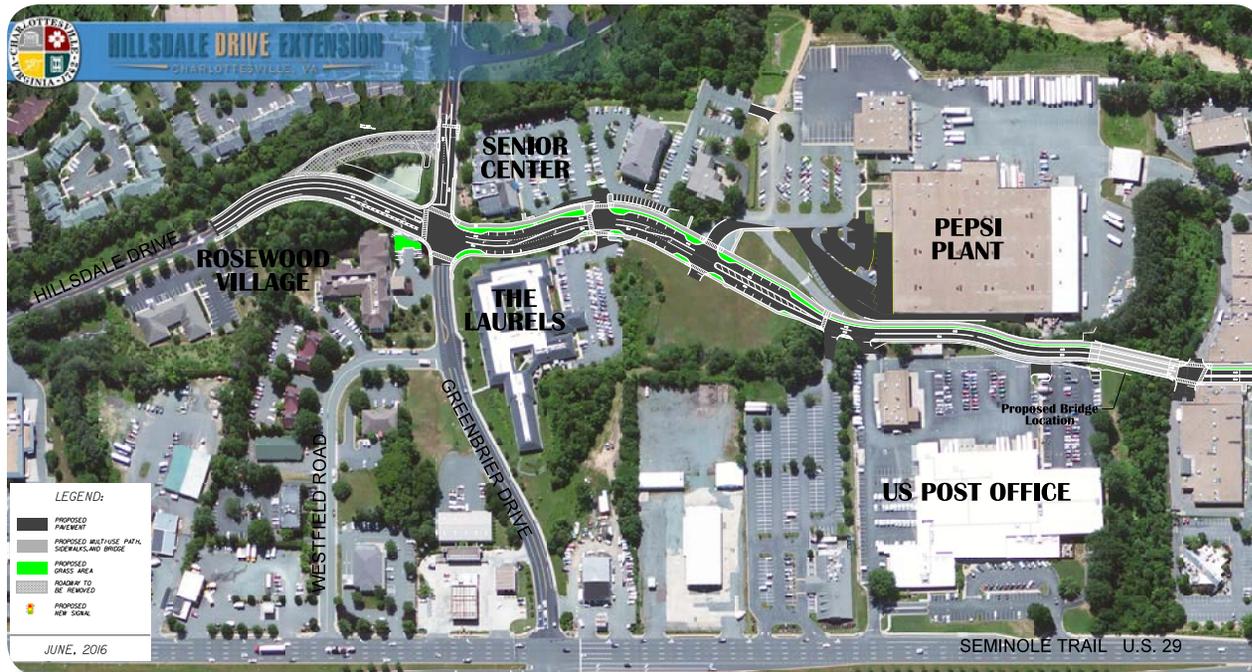


Figure 18 Hillsdale Drive Extension Plan





*CHAPTER 2*

***A COMMUNITY BASED VISION***

***VISIONING PROCESS AND PUBLIC ENGAGEMENT  
PROJECT VISION STATEMENT  
PRIOR AND RELEVANT STUDIES***

# A COMMUNITY BASED VISION

## Visioning Process and Public Engagement

The Hydraulic Small Area Plan was crafted with the guidance of the twelve member project Advisory Panel over the course of eight months and twelve meetings between March and October of 2017. The process was also informed by valuable public comment received during two public meetings and throughout the process via on-line project links through the US Route 29 Solutions website.

### Guidance and Public Engagement

- **Advisory Panel**

- 12 member panel representation: City and County administration and elected officials, local business owners, development and environmental community
- 12 meetings and 2 charrettes over 8 months

- **Public meetings and social media inputs**

- Public Meeting 1 – receive input on future land use
- Public Meeting 2 – receive feedback on conceptual land use plan
- Open attendance for observation at each Advisory Panel meeting
- Access to project website and link for on-line commentary for review and response by TJPDC and project team

- **Neighborhood meetings**

- Facilitated by TJPDC
- Open public meetings targeted to neighborhoods most impacted by the Small Area Plan



Image 1 **Hydraulic SAP Advisory Panel Charrette #2**

- **Opportunities for Public Input**

- Website: [route29solutions.org](http://route29solutions.org)
- Communications leader: [lou.hatter@vdot.virginia.gov](mailto:lou.hatter@vdot.virginia.gov)
- Advisory panel members
- Twitter @Rt29Solutions  
(Panel members are encouraged to follow)
- VDOT Facebook page
- City and County Planning Commission Meetings
- City Council and Board of Supervisor Meetings

## A Long-term Vision

The community was encouraged to maintain a long-term perspective and focus on an outcome for the plan. In response to the question: **What can Hydraulic be?** What is the ultimate physical form of the vision. Outcomes can be defined in terms of physical form as well as performance, or aspirational goals. The physical form may address how tall buildings should be and how they address public streets, while aspirational goals may include desires for placemaking and multi-generational environments.

A critical requirement to adopt a long-term perspective is for the community to look beyond existing conditions and consider how change may occur over the plan time horizon. **This is a multi-generational plan.** Land use plans, by nature, include some assumptions about changes to, or replacement of, existing street patterns and viable, occupied buildings in order to advance the vision. The plan in and of itself does not require or encumber properties to conform or vacate, but simply suggests the types of changes helpful in the future to support the overall vision. The plan is often a useful tool to initiate conversations with property owners and business about redevelopment plans and illustrate the importance of public-private cooperation to bring these plans to fruition.

A long-term view should account for established trends in community planning, changing markets, technology, and demographic shifts impacting preferences in housing, transportation modes, and entertainment.

### Trending Now:

- Autonomous Vehicles
- Smaller Retail Footprints
- Experiential Retail
- Smaller Housing Units
- Reduced Car Ownership

## Relevant Trends

- Employer Destinations: employee lifestyle driven
- Mixed-use/Mixed income: millennials and seniors living together
- Transportation: reduced demand through mixed-use development; enhanced public transportation; autonomous vehicles; multi-modal options
- Walkable / Bicycle Friendly: integral element incorporated into complete street design; accessibility; connectivity
- Aging in Community: mixed-use; public transportation; housing variety; programmed spaces and interaction
- Increased Rental Housing Demand: higher density and more variety in housing options
- Experiential Retail: the importance of “third places” and placemaking
- Technology: wired communities; autonomous vehicles; home offices and shared office space
- Sustainable Communities: smaller living units; smaller parking footprints; alternative energy; natural stormwater systems; public transportation
- Local: local brands and locally sourced materials; unique community identity

## WHAT COULD HYDRAULIC BE?

Early in the planning process during the first charrette, the Advisory Panel was asked to envision what could the Hydraulic area be in the future. The results of that thought-provoking question led to a multitude of ideas and aspirations for the future of the Hydraulic area.

### IN THE FUTURE

#### THE HYDRAULIC AREA SHOULD BE...

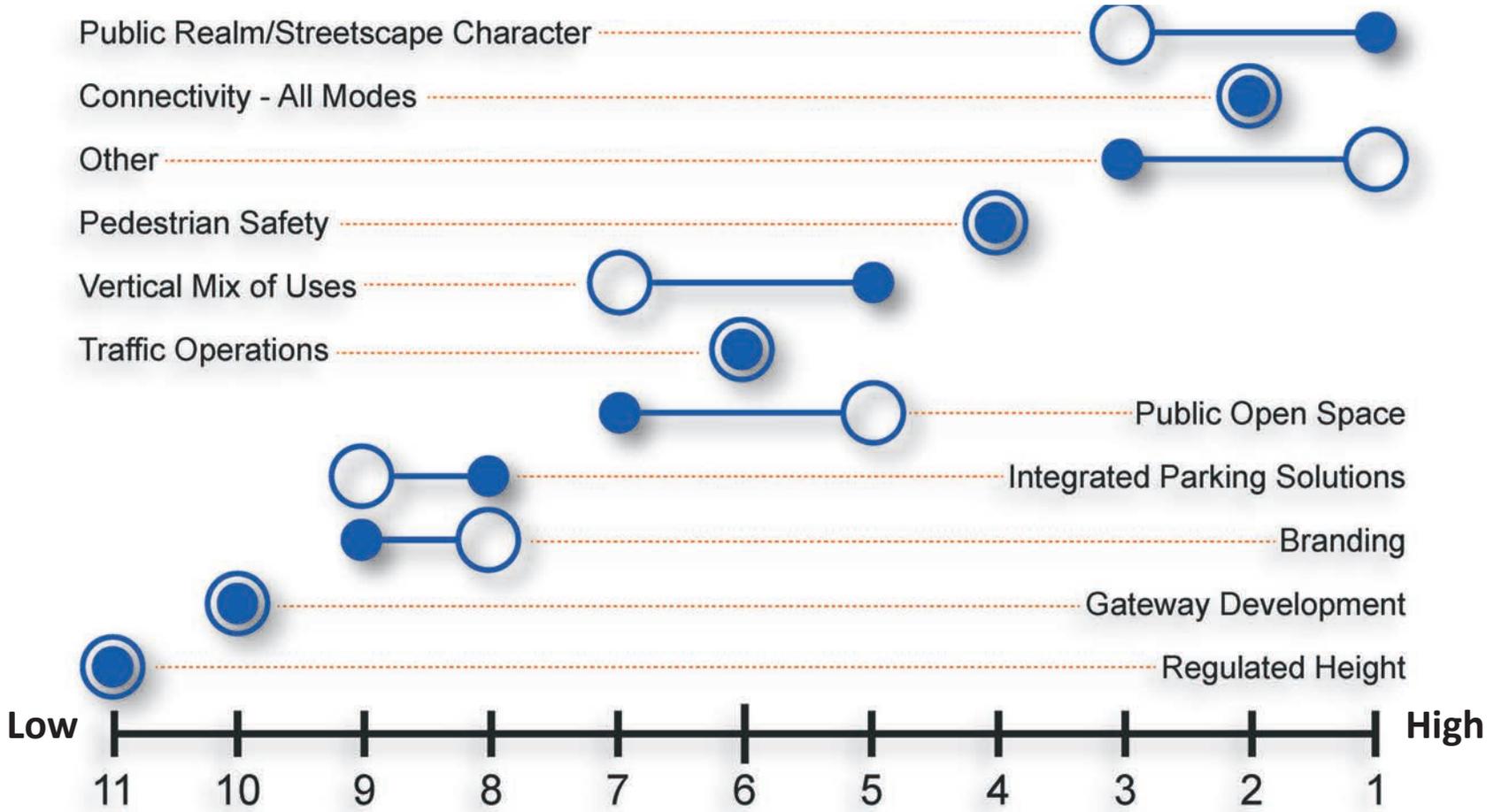
People Adventure Accessible  
Destination Active/Healthy Better  
Recreation Desirable Multi-Modal  
Safer Density (more) Movement  
(mobility/people/children/traffic)  
Jobs Sustainable Equitable  
Green Stormwater/LID Branding  
Equitable PLACES Authentic

The implementation of the Hydraulic Small Area Plan will create/enhance places where we work, live, and play. The Area will be more pedestrian-friendly, family-friendly, and more easily accessible.

.. DELIVERS ON PROMISE  
OF COOPERATIVE  
CITY / COUNTY  
PLACEMAKING TO  
CREATE CROSS BORDER  
WALKABLE DESTINATION.

Hydraulic Area meets Living  
& Working needs of ALL AGES

# Issues Prioritization



“Other” Responses: **Sense of place**, preservation of existing businesses, developer friendly regulations, density transitions, mix of uses, fine-grained urban fabric, “green” development, encouraging job development, tax revenue generation

● Priority Ranking ○ Importance Ranking

# WHAT COULD HYDRAULIC BE?



## Visual Preference Results

top rated



# Visual Preference Results

lowest rated

# VISION STATEMENT

The Hydraulic Small Area Plan promotes a **strong sense of place**; a **vibrant, dynamic economy**; and an **equitable and environmentally sustainable community** connected by an **efficient, multimodal transportation network** that accomodates local and regional traffic needs.

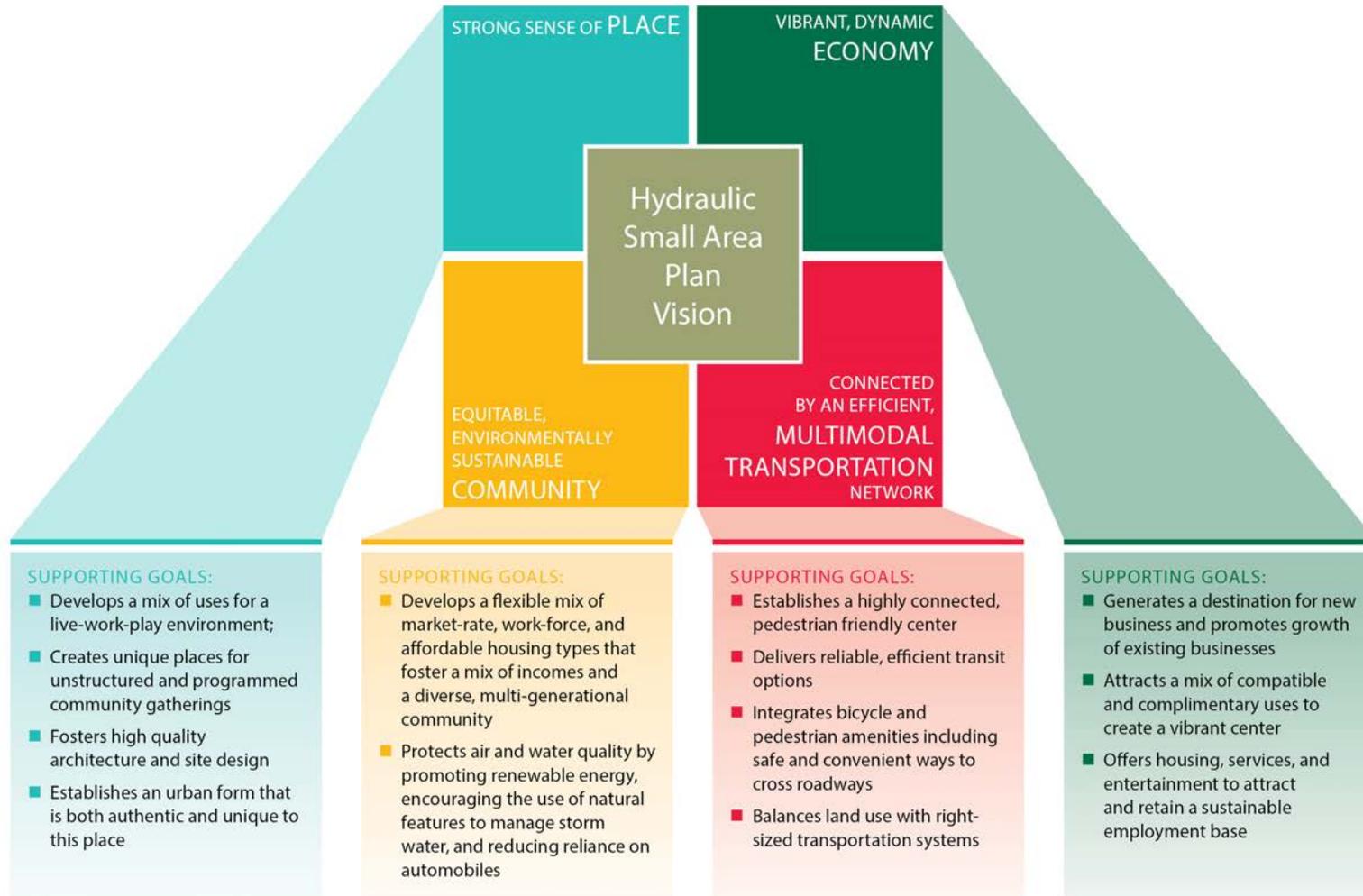


Figure 1 **Vision Statement**

The project Vision Statement was developed with the Advisory Panel as a performance measure and an aspirational guide for plan development. The process included a commitment to assess the plan at critical stages, and in final form, against how well it achieved the goals of the Vision Statement.

• **Strong Sense of PLACE**

- Create great streets
- Create connected public spaces
- Establish an authentic urban form that promotes a high quality of design

• **Vibrant, Dynamic ECONOMY**

- Create an attractive destination for new business and retention of existing business
- Cluster employment centers with complimentary land uses for a vibrant work-live-play environment
- Integrate a variety of housing forms and affordability options
- Promote a vibrant mix of uses to create a work place destination that is walkable and provides a variety of transportation options
- Inject the area with a variety of housing options integrated with employment, services, dining and entertainment options.

• **Equitable, Environmentally Sustainable COMMUNITY**

- Promote a mix of housing types within the core area to supplement existing housing options in the area.
- Create a multi-modal development system that reduces reliance on automobiles
- Create a mixed-use development node that supports a diverse range of household incomes as well as multi-generational characteristics.
- Plan for environmentally sustainable stormwater management practices.

• **Connected by an Efficient, MULTI-MODAL TRANSPORTATION Network**

- Incorporate enhanced bus services and a local transit hub in the core area.
- Provide multiple convenient, and safe options for crossing US Route 29
- Improve and expand pedestrian and bicycle facilities in the area. Improve and expand local trails and paths to connect residential uses to employment, service, dining, and entertainment options. Connect trail networks to larger, regional trails – existing and planned.
- Connect people to parks and open space.

## RELEVANT STUDIES AND POLICY DOCUMENTS

The consultant team referenced several previously completed studies and current planning policy documents during the course of this study related to prior planning studies of relevance to this effort including, but not limited to, the following:

### **29H250 Phase 2 Study**

- Improved function for all transportation types
- Access and safety maintained during construction
- Financially feasible in terms of construction costs and minimizing lost tax revenue
- Near-term economic impacts balance with long-term gains
- A road network that supports redevelopment opportunities and a mix of uses
- Improved landscape quality and stormwater systems, visual character of private development and enhanced streetscapes

### **Albemarle County Comprehensive Plan: Places 29**

- Promotes mixed-use and Neighborhood Model for livable urban neighborhoods
- Promotes urban block development
- Provides a mix of housing and affordability

### **City of Charlottesville Comprehensive Plan**

- Enhance Sense of Place
- Establish a mix of uses within walking distance of residential neighborhoods
- Enhance formal public spaces
- Facilitate regional cooperation for land use issues
- Explore progressive and innovative land use
- Neighborhood Model Principles

### **US Route 29 North Corridor Transportation Study**

- A context-sensitive, multi-modal transportation plan
- Improved function for all transportation types

### **Bike and Pedestrian Plans**

- Connecting multi-use paths and trail networks

### **Park and Recreation Plans**

- Planned Open Space and Conservation of greenways, blueways, and natural systems

### **City of Charlottesville Streets that Work (STW)**

- Street Typologies
- Design guidelines that communicate the expectations of the city's streets
- Defining safe means of travel for walking, biking, transit, and driving



Source: Albemarle County Parks and Recreation 2013

**PARKS AND RECREATION, GREENWAYS, BLUEWAYS, GREEN SYSTEMS**

GOAL: Albemarle will have a system of high quality parks and recreational facilities throughout the County that is interconnected by greenways and paths.

Albemarle Comprehensive Plan ADOPTED June 10, 2015

**ALBEMARLE COUNTY COMPREHENSIVE PLAN**

Adopted June 10, 2015



**29H250 Phase 2 Report**

Draft at 9.15.04

Thomas Jefferson Planning District



Adopted by City Council September 6, 2016

**CHARLOTTESVILLE STREETS THAT WORK DESIGN GUIDELINES**



**Meadow Creek Stream Valley Master Plan**

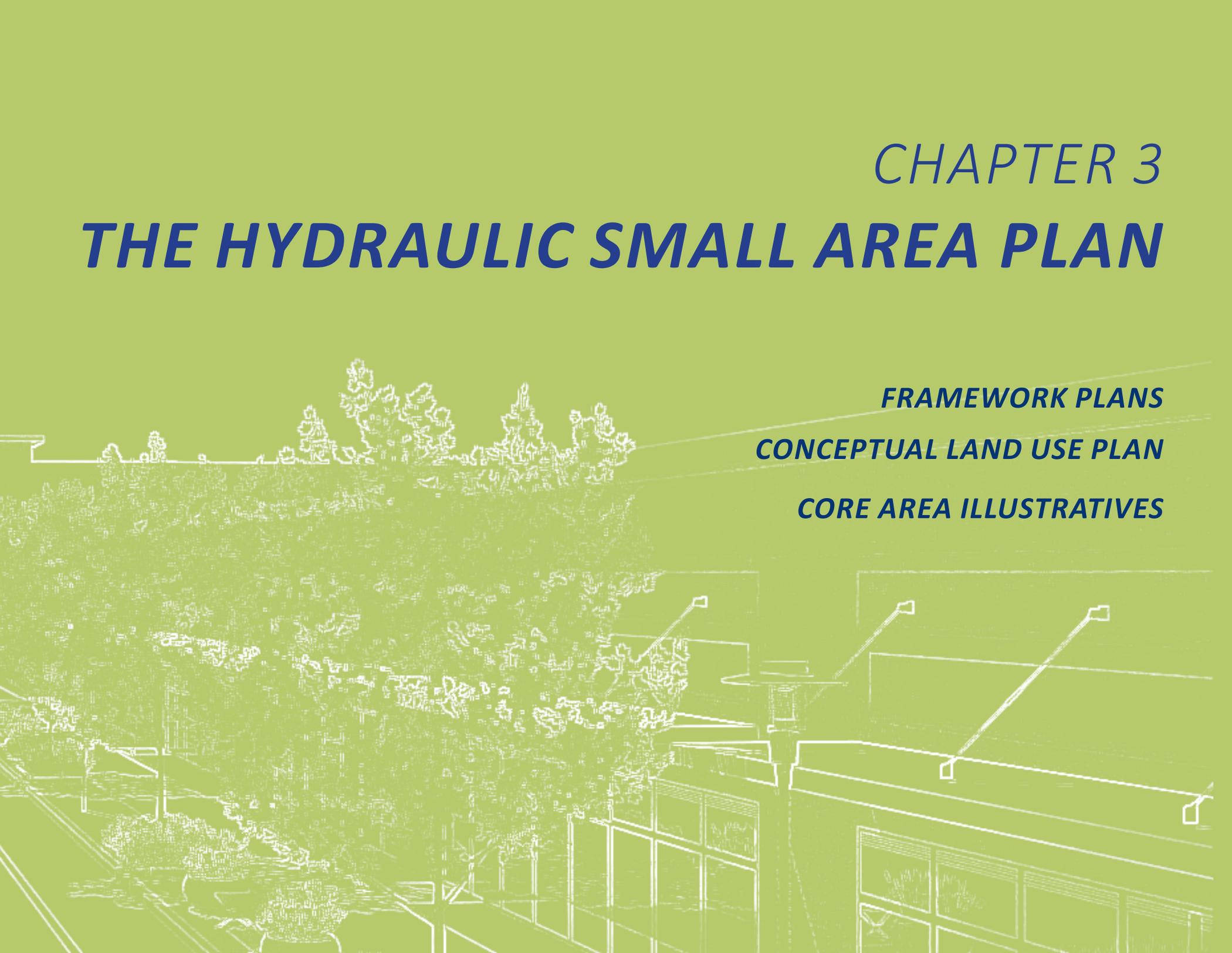
June 2013

CHARLOTTESVILLE **parks & recreation**

**CITY OF CHARLOTTESVILLE COMPREHENSIVE PLAN 2013**

CREATED BY THE CITY OF CHARLOTTESVILLE, @CHARLOTTEDEVELOPMENT SERVICES FOR MORE INFORMATION: CHARLOTTESVILLE.ORG





*CHAPTER 3*

***THE HYDRAULIC SMALL AREA PLAN***

***FRAMEWORK PLANS  
CONCEPTUAL LAND USE PLAN  
CORE AREA ILLUSTRATIVES***

# THE HYDRAULIC SMALL AREA PLAN

## Framework Plans

Frameworks Plans provide guidance as to how critical community elements interact and provide the structure to which land use designations can then be applied in support of that structure.

- Improved bicycle and pedestrian facilities throughout and connected to regional facilities.

### The Framework Diagram illustrates some key land use strategies including:

- Improved transit service and connectivity to regional transit
- Improved block structure to promote a more connected, walkable urban form.
- Preservation of legacy residential areas south of Hydraulic and west of US Route 29
- Focus of new, high density residential uses fronting the east side natural amenities along Meadow Creek and the Rivanna Trail
- Condensed commercial footprint in core areas around Stonefield and Seminole Square
- Clustering of office and institutional employment centers near Greenbrier Road, east and west of US Route 29
- Overall improved connectivity of natural areas, parks and open spaces with paths and trails, including bicycle facilities
- Creation of new activity corridor along Zan Road, including a signature land bridge over US Route 29 and new public spaces
- Three potential grade separate crossings of US Route 29 at Zan Road, Hydraulic Road/ US Route 29, and Angus Road
- Maintain and enhance regional connectivity with transportation improvements associated with US Route 29
- Improved connectivity between Hillsdale Drive and Michie Drive and neighborhoods east of study area with new streets, paths, and trails to reinforce an urban block structure.

# Framework Diagram

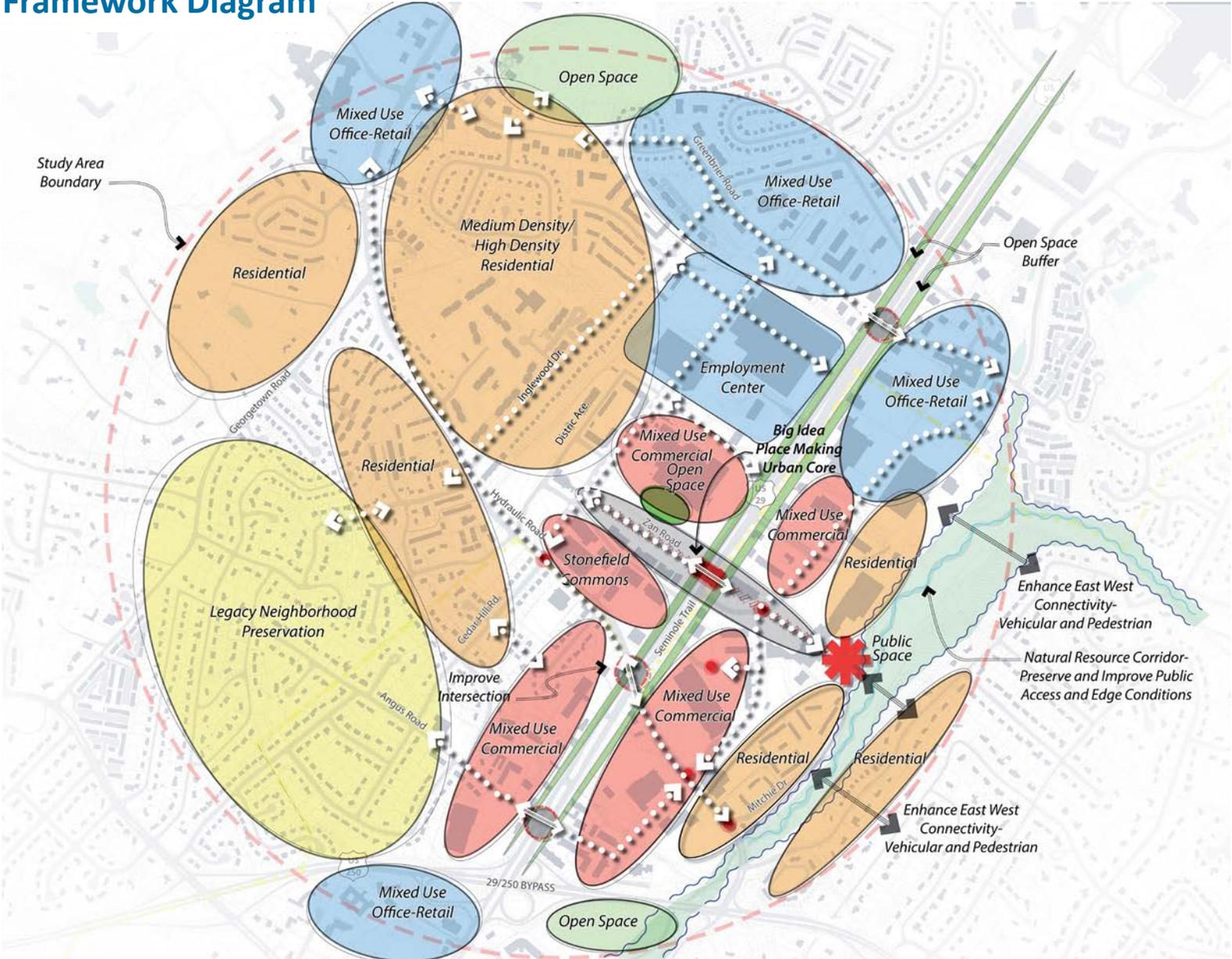


Figure 1 Framework Diagram

## CONCEPTUAL FRAMEWORK PLAN

### KEY PLAN ELEMENTS:

- ① "WEST" ZAN RD. TO A GRADE SEPARATED CROSSING OVER ROUTE 29, LAND BRIDGE FEATURE
- ② GRADE SEPARATED INTERSECTION-HYDRAULIC RD./ROUTE 29
- ③ GRADE SEPARATED CROSSING-ANGUS RD./ROUTE 29
- ④ PUBLIC AMENITY/GATHERING SPACE
- ⑤ PUBLIC OPEN SPACES
- ⑥ PEDESTRIAN CONNECTIONS
- ⑦ POTENTIAL LOCAL TRANSIT HUB



Figure 2 Overall Framework Plan

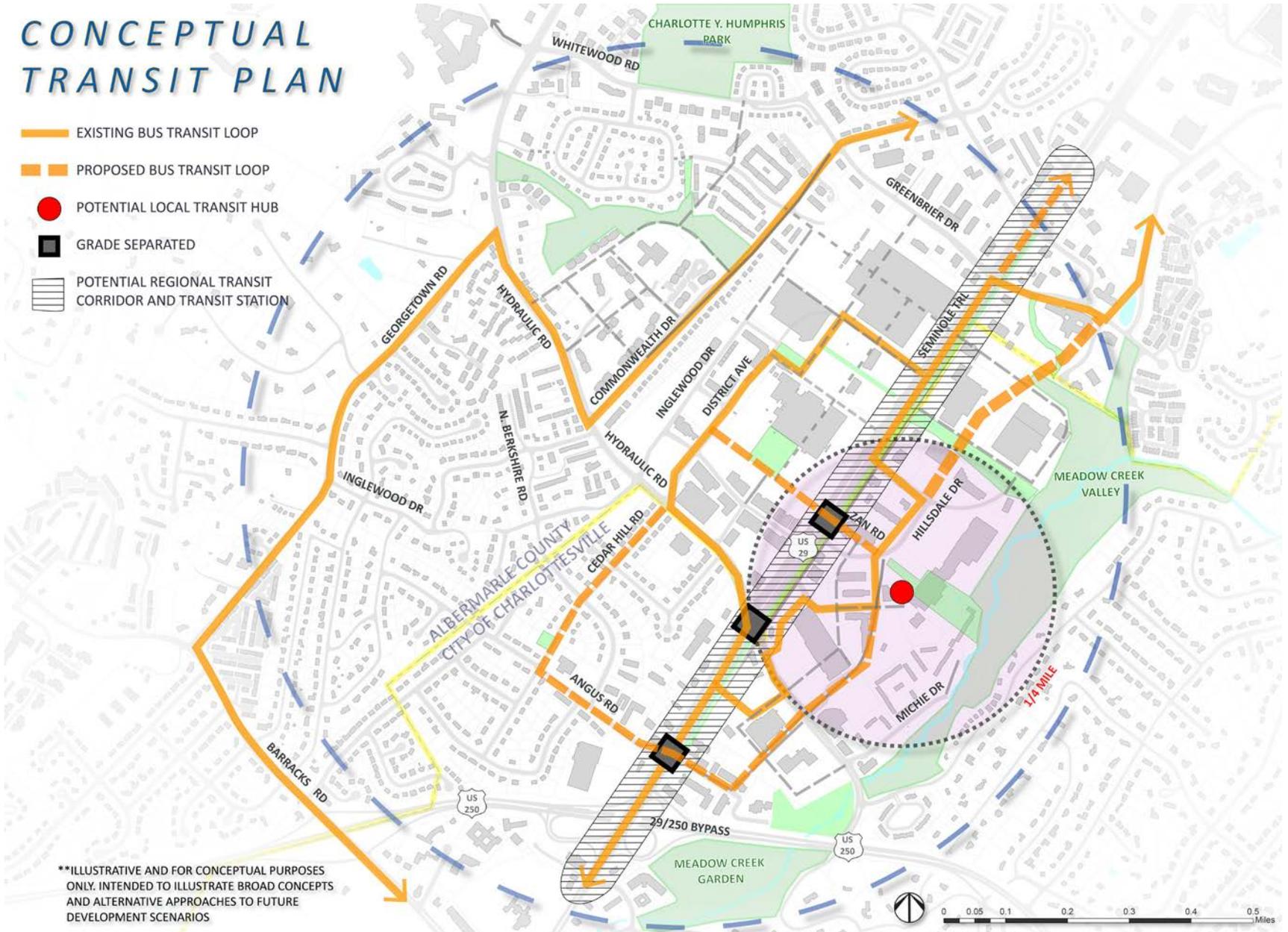
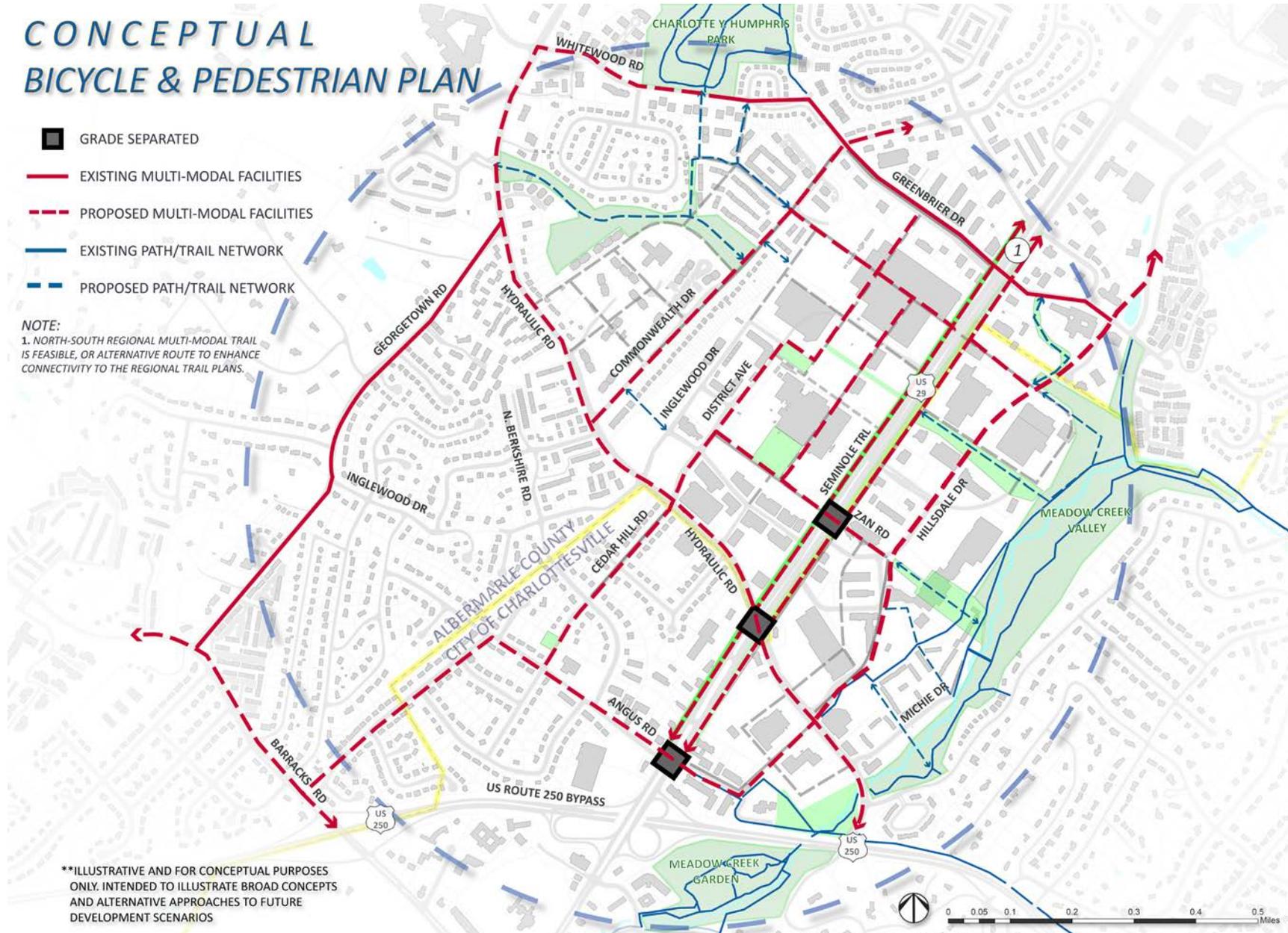


Figure 3 **Transit Plan**

## CONCEPTUAL BICYCLE & PEDESTRIAN PLAN

- GRADE SEPARATED
- EXISTING MULTI-MODAL FACILITIES
- PROPOSED MULTI-MODAL FACILITIES
- EXISTING PATH/TRAIL NETWORK
- PROPOSED PATH/TRAIL NETWORK

NOTE:  
 1. NORTH-SOUTH REGIONAL MULTI-MODAL TRAIL IS FEASIBLE, OR ALTERNATIVE ROUTE TO ENHANCE CONNECTIVITY TO THE REGIONAL TRAIL PLANS.

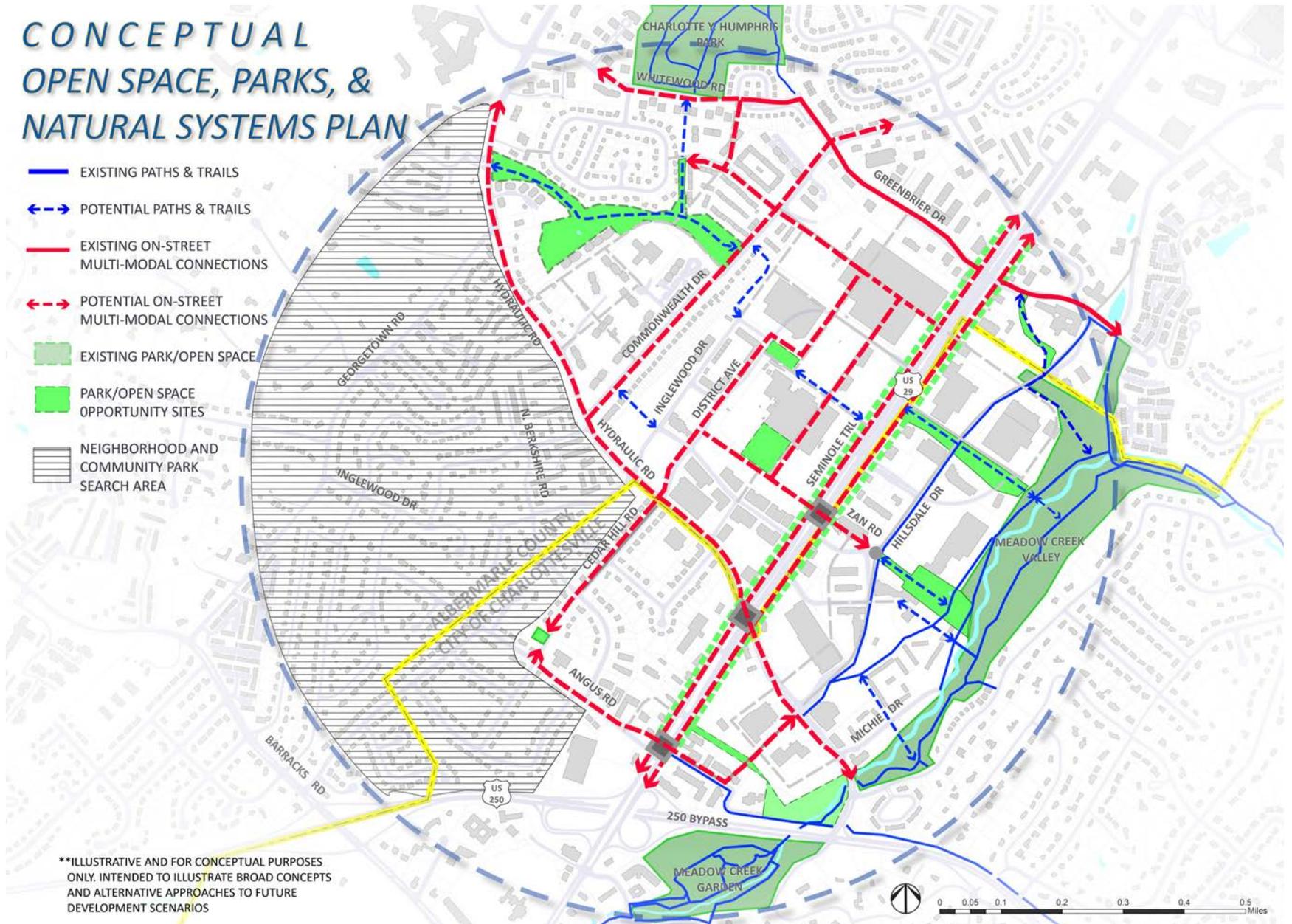


\*\*ILLUSTRATIVE AND FOR CONCEPTUAL PURPOSES ONLY. INTENDED TO ILLUSTRATE BROAD CONCEPTS AND ALTERNATIVE APPROACHES TO FUTURE DEVELOPMENT SCENARIOS

Figure 4 **Bicycle and Pedestrian Plan**

## CONCEPTUAL OPEN SPACE, PARKS, & NATURAL SYSTEMS PLAN

-  EXISTING PATHS & TRAILS
-  POTENTIAL PATHS & TRAILS
-  EXISTING ON-STREET MULTI-MODAL CONNECTIONS
-  POTENTIAL ON-STREET MULTI-MODAL CONNECTIONS
-  EXISTING PARK/OPEN SPACE
-  PARK/OPEN SPACE OPPORTUNITY SITES
-  NEIGHBORHOOD AND COMMUNITY PARK SEARCH AREA



\*\*ILLUSTRATIVE AND FOR CONCEPTUAL PURPOSES ONLY. INTENDED TO ILLUSTRATE BROAD CONCEPTS AND ALTERNATIVE APPROACHES TO FUTURE DEVELOPMENT SCENARIOS

Figure 5 Open Space, Parks, and Natural Systems Plan

## VISION STATEMENT GOALS:

### Create a Strong Sense of Place

#### Create Great Streets

- Zan Road Activity Corridor: Creation of a great street with the extension of Zan Road as an activity corridor from east to west over US Route 29 with active street level uses, wide sidewalks, gathering spaces, and landscaping. The signature features of this central element include a wide, landscaped land bridge over US Route 29, a signature public space at the east terminus, and an urban frontage west of US Route 29.
- A central public green space on the west side of US Route 29, on axis with the core of Stonefield . This feature requires participation from various property owners, including Northrop-Grumman/Sperry to explore benefits to their operations as part of accomplishing some larger vision goals.
- US Route 29: Study feasibility and effectiveness of creating a north-south multi-modal facility along US Route 29, or alternative routes, to enhance connectivity to the regional trail plans.
- Hydraulic Road Public Realm: Promote mixed-use building forms and urban frontage with a Complete Streets approach and multi-modal facilities, strong landscaping, and safe crosswalks.

#### Create Great, Connected Public Spaces

- Promotes mixed-use and Neighborhood Model for livable urban neighborhoods
- Promote urban block development
- Provide a mix of housing and affordability
- Explore more public open space opportunities within legacy residential neighborhoods including vacant, underutilized, or public utility easement opportunity sites.

### Vibrant, Dynamic Economy

#### Create a Great Place to Work

- Cluster employment centers with complimentary land uses for a vibrant work-live-play environment. Focused employment centers around existing Northrop-Grumman, Pepsi, Seminole Place properties. Envision long-term redevelopment of the same in more mixed-use forms with re-purposed surface parking converted to active mixed use buildings with structured parking.

#### Create a Great Place to Live

Develop a residential focus fronting the natural area amenity on the eastern border of the study area and incorporate any retail demand into mixed-use development forms.

- Promote a vibrant mix of uses to create a workplace destination that is walkable and provides a variety of transportation options
- Inject the area with a variety of housing options integrated with employment, services, dining and entertainment options.

### Equitable, Environmentally Sustainable Community

#### Create a Economically and Environmentally Sustainable Model

- Promote a mix of housing types within the core area to supplement existing housing options.
- Create a more walkable, multi-modal system that encourages mode shifts away from reliance on personal automobiles.
- Create a mixed-use development that supports a diverse range of household incomes as well as multi-generational characteristics.
- Plan for environmentally sustainable stormwater management practices. Daylight underground stormwater management facilities, where feasible.

- Encourage implementation of low impact development stormwater management strategies aligned with the goals and guidelines in the current City and County stormwater management policies.
- Limit transportation infrastructure improvements and impacts from improvements to the primary street network that may increase traffic within legacy residential areas.

## Connected by an Efficient, Multi-modal Transportation Network

### Create a Safe, Convenient Place for all Modes of Transportation

Incorporate enhanced local bus services and a local transit hub in the core area.

- Accommodate potential for future bus rapid transit along US Route 29 corridor.
- Provide multiple convenient, and safe options for crossing US Route 29, including grade separated crossings at Zan Road, Angus Road and Hydraulic at US Route 29.
- Improve and expand pedestrian and bicycle facilities in the area. Improve and expand local trails and paths to connect residential uses to employment, service, dining, and entertainment options. Connect trail networks to larger, regional trails – existing and planned.
- Improve crossing facilities at Greenbrier Drive and US Route 29.
- Improve crossing facilities along Hydraulic Road
- Maintain and enhance functionality and traffic operations along the US Route 29 corridor to support local and regional traffic patterns.
- Enhancements to US Route 29 to include future removal of the temporary signal at Lenox Road consistent with the VDOT access management strategies for the corridor and documentation stating the temporary nature of this signal pending future improvements.
- Reference is made to existing Bike/Pedestrian Plans inclusive of the City and regional networks, the MPO’s Long Range Transportation Plan, and Strategic Investment Area plans to ensure community-wide and regional connectivity is maintained and enhanced with a broader network of multi-modal facilities.



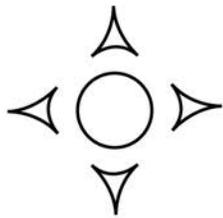
Image 1 Hydraulic SAP Advisory Panel Charrette

# INTERSECTION CONCEPTS

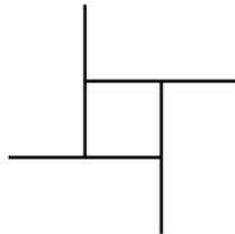
A variety of intersection forms will be considered as part of the overall transportation network within the study area. There are an extremely large number of possible configurations for each condition, from traditional 90 degree at-grade intersections to complex grade-separated alternative designs. While selection of a design approach must address basic traffic operations, and congestion management, these decisions also impact land use in several important ways including:

- Connectivity: bicycle and pedestrian crossing safety and convenience
- Access and visibility to private development parcels
- Branding and corridor aesthetics: landscaping, public art and signage
- Environment: drainage and impervious area

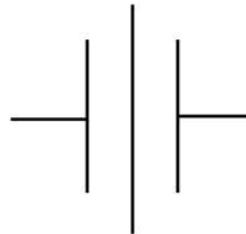
ROUNDBABOUT



SQUARE



GRADE SEPARATED



SIGNALIZED

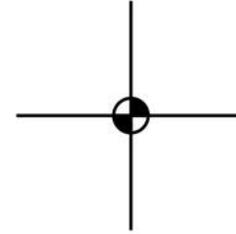




Image 2 **5th Street Bridge, Atlanta, GA**

Block Structure- Existing



Figure 6 Block Structure Plan- Existing

## Block Structure- Proposed



Figure7 Block Structure Plan- Proposed

# CONCEPTUAL LAND USE PLAN

## Overview and Intent

The Hydraulic Small Area Plan Land Use recommendations build upon existing land use patterns and provide a generalized guide for decisions about future development patterns, transportation and land conservation. Some important characteristics and function of the Conceptual Land Use Plan include the following:

- The Conceptual Land Use Plan is a generalized depiction of intended uses in the horizon year. It is not an “existing land use map,” although in some cases future uses in an area may be the same as those that exist today.
- The Conceptual Land Use Plan is not a zoning map. Whereas zoning maps are parcel-specific, and establish detailed requirements for setbacks, height, use, parking, and other attributes, the land use categories of the Conceptual Land Use Plan recommend a range of potentially appropriate land uses and intensities. The Conceptual Land Use Plan is a guide to future zoning decisions. In addition, the Land Use Plan does not specifically reflect municipal boundaries.
- The Conceptual Land Use Plan is not intended to be referenced as part any site plan review process, since the zoning regulations set forth the permitted uses for particular parcels.
- Streets and public rights-of-way are not an explicit land use category on the Conceptual Land Use Plan. Within any given area, the streets that pass through are typically assigned the same designation as the adjacent uses.

The Conceptual Land Use Plan, if adopted, should reflect the policies and assumptions contained in your Comprehensive Plans. The Conceptual Land Use Plan shows the general land use recommended and corresponds to a range of potentially appropriate land uses and intensities within each land use category.

The designation of an area with a particular land use category does not mean that the most intense zoning district described in the land use categories is automatically recommended. A range of densities and intensities applies within each category, and the use of different zoning districts within each category should reinforce this range and be based on infrastructure capacity, community character, protection of common open space and prevailing density and lot size in the surrounding area. The Conceptual Land Use Plan documents the general recommended future use for each designated area. However, other types of uses may be compatible with the designated use and deemed to be consistent with the Comprehensive Plan. For example, a school or attached house (duplex) could be found to be in conformance with the plan designation of Low-Density Residential.

The proposed land use categories should not be interpreted to support nor preclude developments without consideration of the policies and intent of the Comprehensive Plan.

While the Conceptual Land Use Plan will influence future zoning, it does not alter current zoning, or affect the rights of property owners to use the land for its purposed as zoned at the time of this Plan’s adoption. The Conceptual Land Use Plan will not typically be referenced as part of the review of development plans, including site plans and subdivisions.

Site considerations relating to topography, soils, or hydrology are also important in establishing the specific use and intensity of a particular parcel on the Conceptual Land Use Plan. Similarly, the presence of adequate streets, schools, parks, and other community facilities should be assured before a rezoning is approved that would otherwise be in conformance with the Conceptual Land Use Plan.

## How the SAP Informs Transportation

The Hydraulic Small Area Plan, particularly the land use plan, should inform transportation solutions along and adjacent to the US Route 29 corridor. Recognizing that the land use plan represents a long-term vision over multiple generations, a representative portion of the potential build out of the land use will be used to create and test transportation improvement concepts. The land use with associated density levels of development will be used to test various transportation alternatives as they are developed. The land use serves as a future baseline for potential development/redevelopment potential of the Hydraulic area and the proposed transportation system must respond to create a balanced network that supports the anticipated future level of development.

The land use plan, and specifically facilities for walking and biking, should consider connectivity and proximity to potential bus rapid transit facilities along US Route 29. It should be noted that the proposed local transit hub feature in the plan is not intended to displace the need for a transit center located along US Route 29 as part of a regional bus service facility feature. Should regional frequent bus service become a reality for the US Route 29 corridor, attention must be given to selection of locations for transit stations. Transit stations should be convenient and safe, walkable from the key destinations, and integrated within the most highly energized areas.

In this way the land use plan begins to inform how the transportation network might take shape in physical form. The land use plan also helps inform new street alignments and street typologies to support existing and future development as relates to site access, visibility, and pedestrian connectivity. The transportation network must be context sensitive to the desired land use patterns while proposed improvements relative to the major thoroughfares maintain performance standards as regional facilities.

Reference is made to the Places 29 and City of Charlottesville’s Streets that Work (STW) policy documents including the street typologies for major “framework” streets. New local street typologies must be developed for the Hydraulic Small Area as part of new code development and plan implementation and in response to subsequent transportation studies associated with this plan to identify future transportation network improvements.

# CONCEPTUAL LAND USE PLAN

## Key Elements of the Land Use Plan

The Conceptual Land Use Plan is built upon the Framework Plans. With some exceptions, the general location and relationship of various land uses to one another is more critical to the planning strategy than the exact configuration of each designated use. In general, a minor adjustment in the limits of each land use designation will typically not upset the goals of the framework plan and in this way the land use plan is a document to be viewed with some element of flexibility.

## Land Use Categories

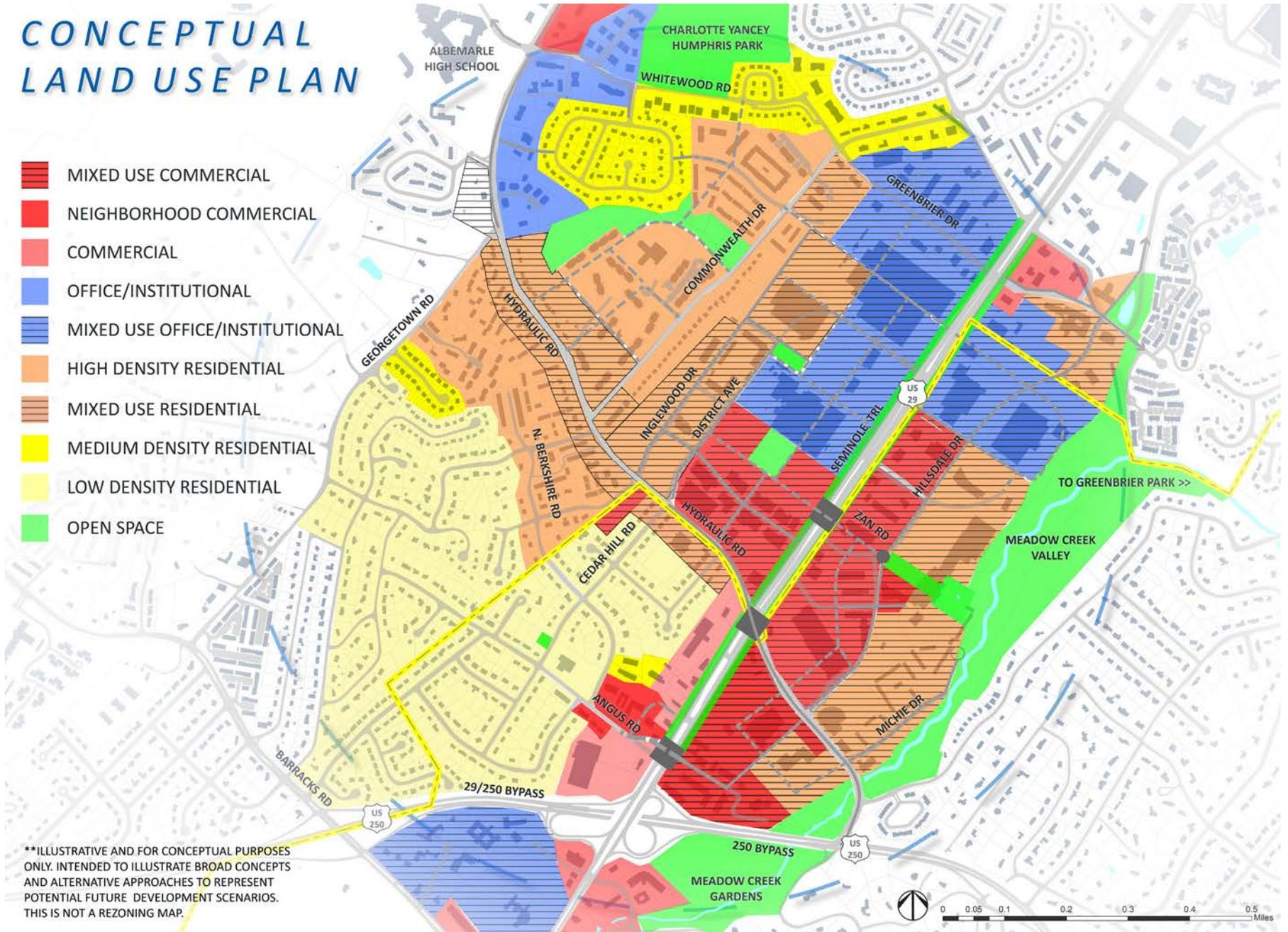
The Conceptual Land Use Plan contains color-coded categories that express public policy on future land uses throughout the study area. Within each category, a potential range of uses could occur, more specifically guided by the zoning ordinance, and referenced to key goals of the comprehensive plan.

In all categories, appropriate urban form standards for street frontages should be applied in a context sensitive manner, recognizing that some of the designated areas are established neighborhood streets and others are auto-oriented fronting on high-volume arterial roadways. For example, greater building height could be appropriate when supported by a pedestrian-friendly relationship to the public realm.

- Preservation of legacy, low density residential areas south of Hydraulic Road and west of US Route 29
- Focus of new, high density residential uses fronting the east side natural amenities along Meadow Creek and the Rivanna Trail
- Condensed commercial footprint in core areas around Stonefield, Seminole Square and between Hydraulic Road and US 250 By-pass
- Clustering of office and institutional employment centers near Greenbrier Drive, east and west of US Route 29
- A new public open space associated with Stonefield and Seminole Square to accommodate a new urban street frontage on the proposed Zan Road corridor.
- Mixed-Use residential corridor along Hydraulic Road
- Neighborhood Commercial cluster around Angus Road west of US Route 29
- Integration of more residential uses into the core area between Inglewood Drive and District Avenue

# CONCEPTUAL LAND USE PLAN

- MIXED USE COMMERCIAL
- NEIGHBORHOOD COMMERCIAL
- COMMERCIAL
- OFFICE/INSTITUTIONAL
- MIXED USE OFFICE/INSTITUTIONAL
- HIGH DENSITY RESIDENTIAL
- MIXED USE RESIDENTIAL
- MEDIUM DENSITY RESIDENTIAL
- LOW DENSITY RESIDENTIAL
- OPEN SPACE



\*\*ILLUSTRATIVE AND FOR CONCEPTUAL PURPOSES ONLY. INTENDED TO ILLUSTRATE BROAD CONCEPTS AND ALTERNATIVE APPROACHES TO REPRESENT POTENTIAL FUTURE DEVELOPMENT SCENARIOS. THIS IS NOT A REZONING MAP.

Figure 8 **Conceptual Land Use Plan**

## Residential Use Categories

### Low Density Residential (2-6 units per acre)

This category applies to the legacy single-family residential neighborhoods, along with newer small lot or infill single-family subdivisions.

### Medium Density Residential (6 to 14 units per acre)

This category applies to townhomes, patio-homes, and suburban style attached single family housing. It could also apply to older neighborhoods with a mix of single-family and multi-family housing. Zoning with three or four story height limit is appropriate for these areas. In some instances, small-scale commercial uses may be appropriate. Townhouses and multifamily dwellings would be consistent with this designation as long as an overall gross density not exceeding 14 units per acre was maintained.

### High Density Residential (14 units per acre and higher)

This category applies to multi-family buildings with a height limit of five stories, depending on location and context. Although this is a residential zone, ground floor retail uses (with upper story housing) may be appropriate and encouraged under certain circumstances.



Image 2 **High Density Residential Example**

# Conceptual Land Use Plan: Residential

- Low Density Residential
- Medium Density Residential
- High Density Residential

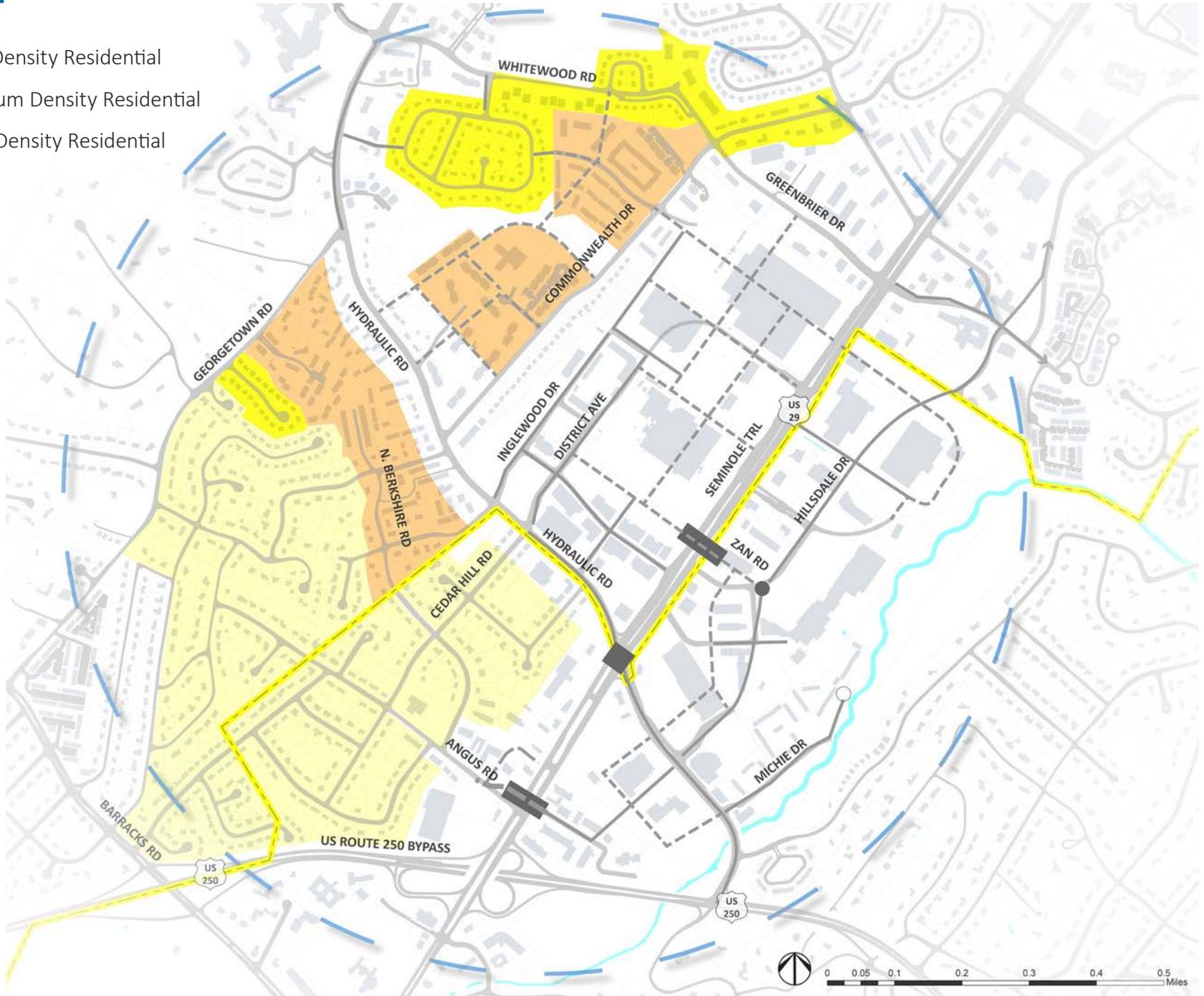


Figure 9 Conceptual Land Use Plan- Residential

## Commercial Use Categories

### Commercial

This category applies to community and regional shopping centers and highway-oriented retail districts. The service area of these districts is generally greater than one mile radius. Typical uses would include large retail anchors, convenience stores, regional or national restaurants, supermarkets, drug stores, retail banking, and similar uses that serve the community. Residential and mixed-use projects with upper story housing may be supported by this designation. Heights would generally be limited to two stories. Buildings should include appropriate transitions to any lower-density adjacent areas and be accompanied by a pedestrian-friendly relationship to the public realm.

### Neighborhood Commercial

This category applies to neighborhood shopping centers and pedestrian-oriented retail districts. The service area of these districts is generally less than a one mile radius. Typical uses would include corner stores or convenience stores, restaurants, bakeries, neighborhood supermarkets (other than superstores), drug stores, dry cleaners, video stores, small professional offices, retail banking, and similar uses that serve the immediately surround neighborhood. Residential and mixed-use projects with upper story housing are also supported by this designation with greater densities and building heights up to five stories. Heights, with no residential element, would generally be limited to three stories, but four or five stories could be appropriate in walkable areas with pedestrian-oriented businesses. Buildings at those heights should include appropriate transitions to any lower-density adjacent areas and be accompanied by a pedestrian-friendly relationship to the public realm.

### Highway Commercial

This category is for higher-impact or “heavy” commercial activities that would not be compatible with residential uses, or that have locational needs (such as frontage along freeways, expressways, or other major streets) that are not conducive to mixed-used development. Examples would include auto dealerships, auto repair and service businesses, nurseries, contractor suppliers, warehousing, printers, distribution centers, and other uses that are quasi-industrial or highway-oriented in character. Housing would be limited, but live-work units or housing combined with an employment-generating ground floor could be permitted in certain locations.



Image 3 **Neighborhood Commercial Example**

# Conceptual Land Use Plan: Commercial

- Commercial
- Neighborhood Commercial

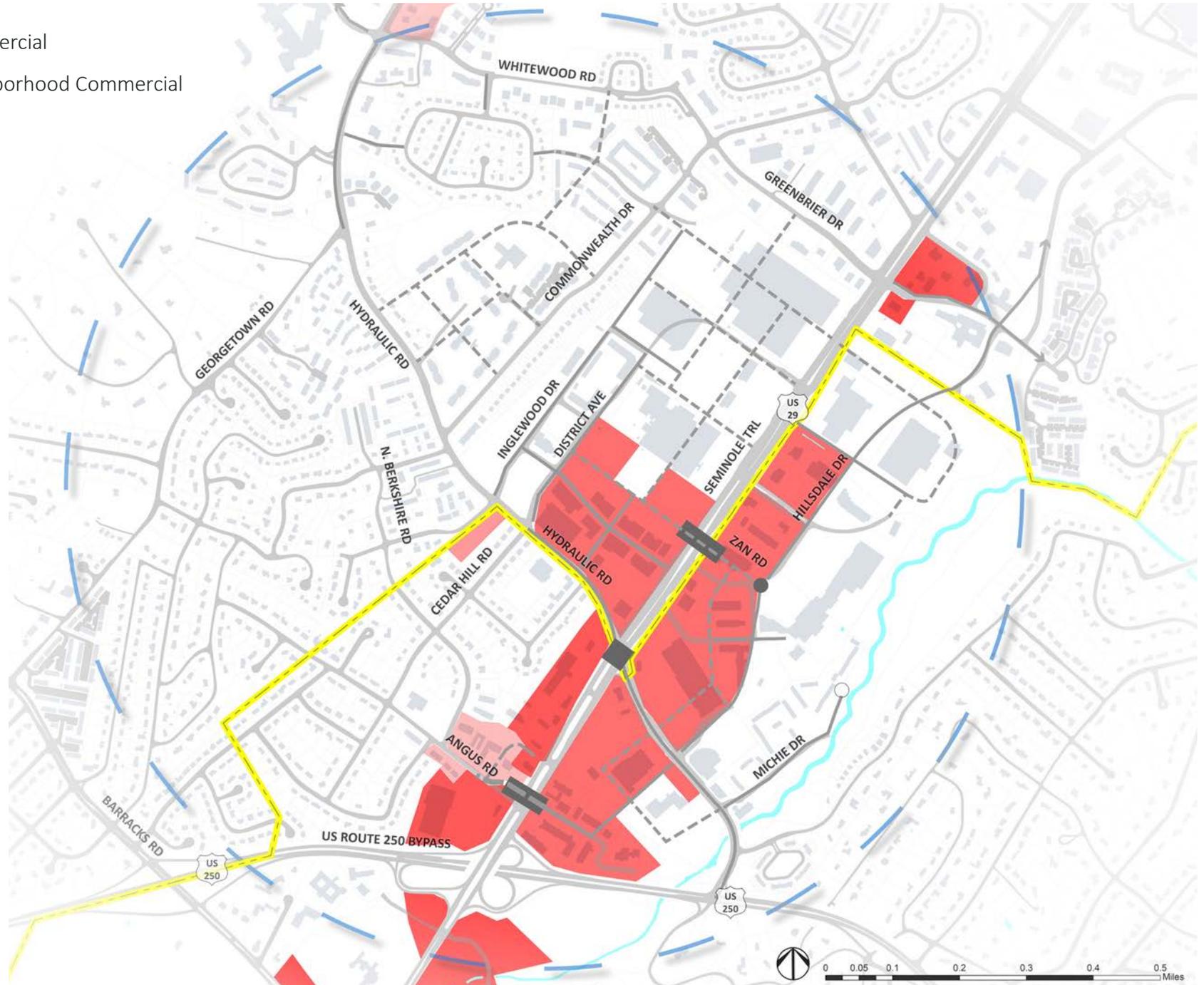


Figure 10 Land Use-Mixed Use Commercial Plan

# CONCEPTUAL LAND USE PLAN

## Mixed Use Categories

### Mixed Use Residential

This category would emphasize higher density residential patterns with a strong public realm and high degree of walkability. It would encourage a vertical mix of uses with activated ground floor uses and residential above and apply to multi-family buildings with a height limit of five stories, depending on location and context. Although this is primarily a residential zone, ground floor retail, office, or other non-residential uses are encouraged to activate the street level environment. The intent of this category is not to exclude larger format retail but to encourage plans that incorporate residential uses, either vertically or horizontally within an urban block structure. Thus, appropriate retail forms not vertically integrated are encouraged to provide for shared or structured parking solutions where possible, surface parking as way from public streets, strong pedestrian path connections to residential uses, and architecture that responds to a residential form and scale.

### Mixed Use Office / Institutional

This category is applied primarily to frontage lots along major streets where low-density residential uses are no longer appropriate, as well as office parks and developments suitable for a more mixed-use development pattern. This category encourages a mix of residential and office use. Retail not ancillary to employment and/or residential uses is discouraged so that retail can be more appropriately clustered and concentrated in retail and mixed-used centers at major intersections and planned transit stations. Heights would generally be limited to three or four stories when adjacent to neighborhoods, up to five stories for larger sites and locations along major corridors. Higher-impact uses such as hotels and healthcare may be contemplated in this land use category in appropriate locations.

### Mixed Use Commercial

This category applies to community and regional shopping centers and larger pedestrian-oriented retail districts such as Stonefield and Seminole Square. Typical commercial uses include large-format supermarkets, larger drug stores, department stores and variety stores, clothing stores, banks, offices, restaurants, movie theaters, hotels, and similar uses that draw from multiple neighborhoods including those outside of the study area. Development intensities would be higher than in Neighborhood Commercial Use areas, with mid-rise buildings as well as low rise buildings. Where residential development occurs, ground floor retail would be encouraged and minimum building heights might be applied in transit-oriented areas. Heights would generally be in the three-to-five story range, although additional height could be appropriate in TOD areas and at the core of mixed-use centers.



Image 4 **Mixed Use Residential Form**

# Conceptual Land Use Plan: Mixed Use

- Mixed Use Residential
- Mixed Use Office/Institutional
- Mixed Use Commercial

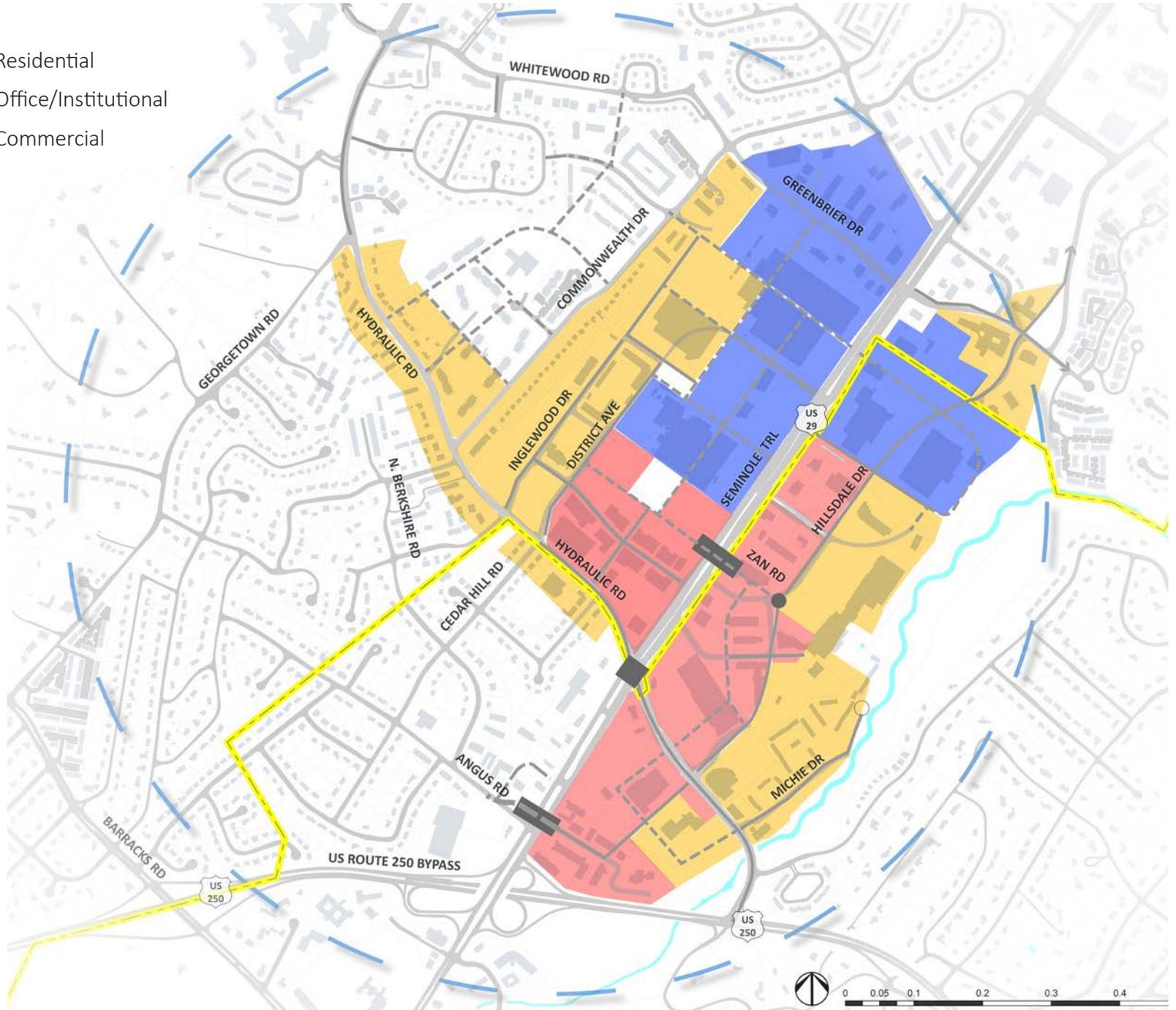


Figure 11 Land Use-Mixed Use Plan

## Employment Categories

### Business and Technology

This category identifies major employment centers where housing is not considered an appropriate future land use. Principal uses are office parks, free-standing office buildings or corporate headquarters, banks, research and development uses, hotels, and ancillary service businesses and retail uses that support the office economy. This category can also apply in appropriate locations to office-industrial hybrids such as light fabrication and assembly ancillary to an R&D use, flex parks, and office-distribution combinations.



Image 5 **Urban Office Park**

## Public and Institutional Categories

### Public Facilities

This category identifies large publicly owned non-park properties, including public schools, city facilities (such as libraries, fire stations, public works yards, etc.), stadiums, state government facilities, the fairgrounds, and federal government facilities (postal distribution centers, etc.). Such sites are typically identified on the Conceptual Land Use Plan if they cover more than two acres.

### Institutional

This category identifies land and facilities occupied by colleges and universities, large private schools, hospitals and medical complexes, assisted/senior living, religious organizations, and similar institutions. Smaller institutional uses such as churches are generally not mapped unless they are sites that are more than two acres in size. Institutional properties may be public or private.



Image 6 **Senior Living Facility**

## Parks, Open Space, and Resource Conservation Categories

This category applies to permanent public open space intended for recreational or resource conservation uses. Included are neighborhood community, and regional parks and greenways. Greenways include both existing greenway facilities as well as planned greenway corridors designated in your Comprehensive Plans and subject to regulation under the City/County codes. Also included are publicly-owned lands that are managed for watershed protection, resource conservation, hazard prevention, and the protection of important visual resources. Land with this designation is intended to remain as open space in perpetuity. Where potential greenway corridors are mapped greenway dedication will be subject to your code requirements during the subdivision and site planning process.

This category may also include private open space privately owned and maintained, including open space easements, land zoned Conservation Management, and land that should be retained in its natural state to protect public health and safety (such as floodways and steep slopes), preserve sensitive or important ecological resources (such as important tree stands), or provide a public benefit (such as watershed protection). Land with this designation may have a limited amount of development potential, and may be used for agriculture, forestry, pasture, etc. but the overall intent is to protect its open and undeveloped character through the horizon year of the Plan.

Explore more public open space opportunities within legacy residential neighborhoods including vacant, underutilized, or public utility easement opportunity sites.



Image 7 **Water as an Amenity, Placemaking**



Image 8 **Greenway**

# Conceptual Land Use Plan: Parks, Open Space, and Resource Conservation

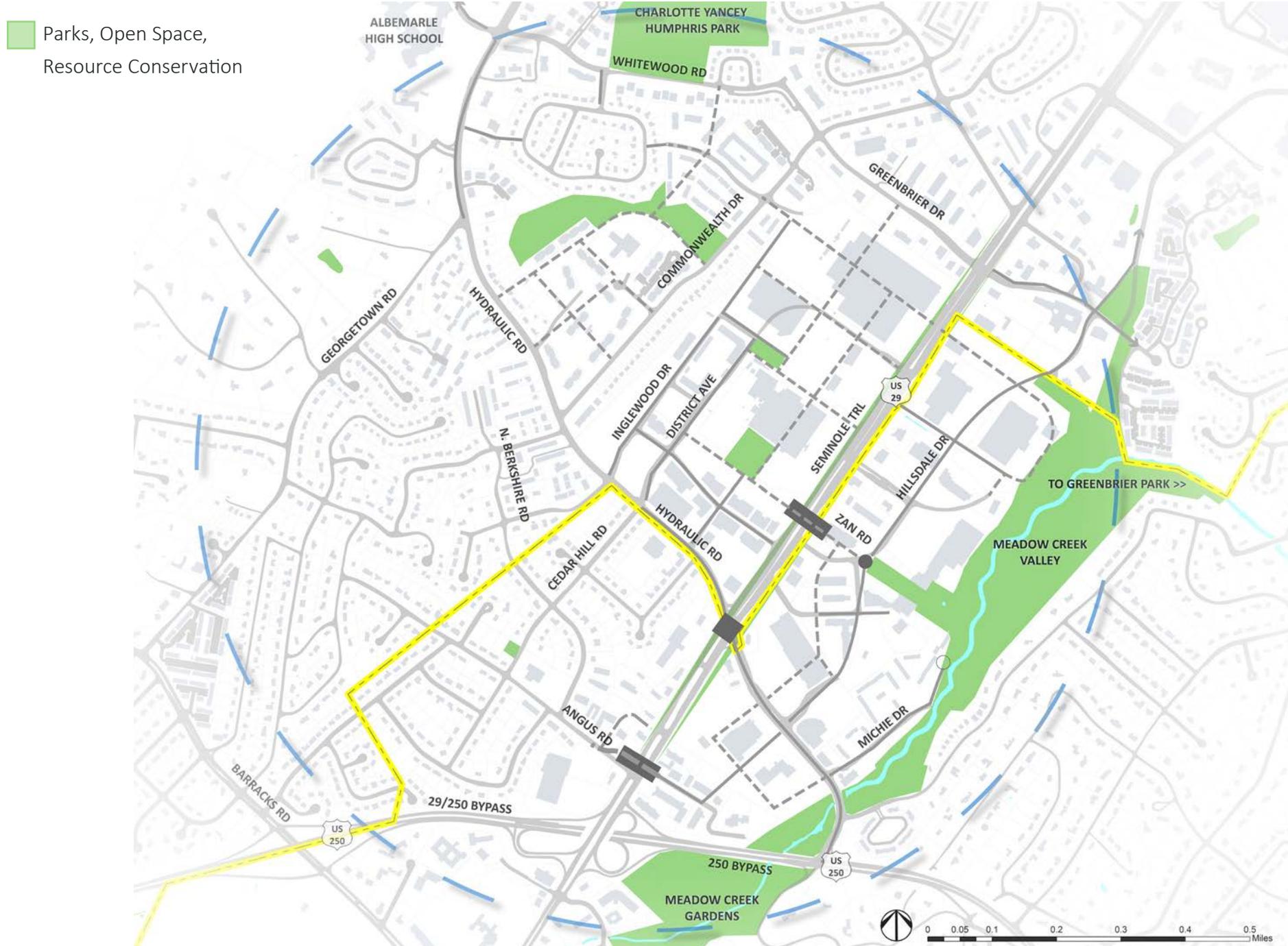


Figure 12 Land Use-Open Space | Parks \ Natural Resources Plan

## HEIGHTS RELATIVE TO LAND USE CATEGORIES

Appropriate building height minimums and maximums should vary based on context. The appropriate height provided through future zoning actions should be determined based on site-specific characteristics and with reference to the relevant Comprehensive Plan policies. The Hydraulic Small Area Plan does not recommend specific building height ranges for each use land use category but instead puts forth the following recommendations related to recommended height according to site context. For example, a core area or transit oriented condition may warrant taller building heights and then taper to meet surrounding context. The description of conditions affecting height recommendations might be defined as follows:

- **Core/Transit areas** refer to areas located within the core of a mixed-use center; within a quarter mile of a transit stop or bus transfer station. In employment areas, taller buildings may also be contemplated on large sites with adequate buffers from low-scale areas.

- **Edge areas** are located within 150 feet of a low- to moderate-density residential area zoned for three-story development. Permitted height in edge areas should generally relate to the surrounding area and not exceed 4 stories when located directly adjacent to existing three-story structures.

- **General areas** refer to locations not corresponding to the above guidelines. Buildings in these areas can be taller than in edge locations, but should not be as tall as core locations.

Code development should also consider height variations with adjustments in setbacks and build form elements appropriate to site context as well. These guidelines can be used as a guide to determining appropriate building heights when property is rezoned, but would not be intended to supersede the height permitted on any property under its current zoning. In the absence of new code development or regulating documents, the existing Streets that Work (3.4, p. 66 and Chapter 4 ) and the Neighborhood Model (Section 6.) policies could guide Heights, Setbacks & Built Form elements.



Image 9 **Five Story, Residential Mixed Use Form**

# CONCEPTUAL BUILDING HEIGHT GUIDANCE

- CORE/TRANSIT AREAS
- EDGE AREAS
- GENERAL AREAS

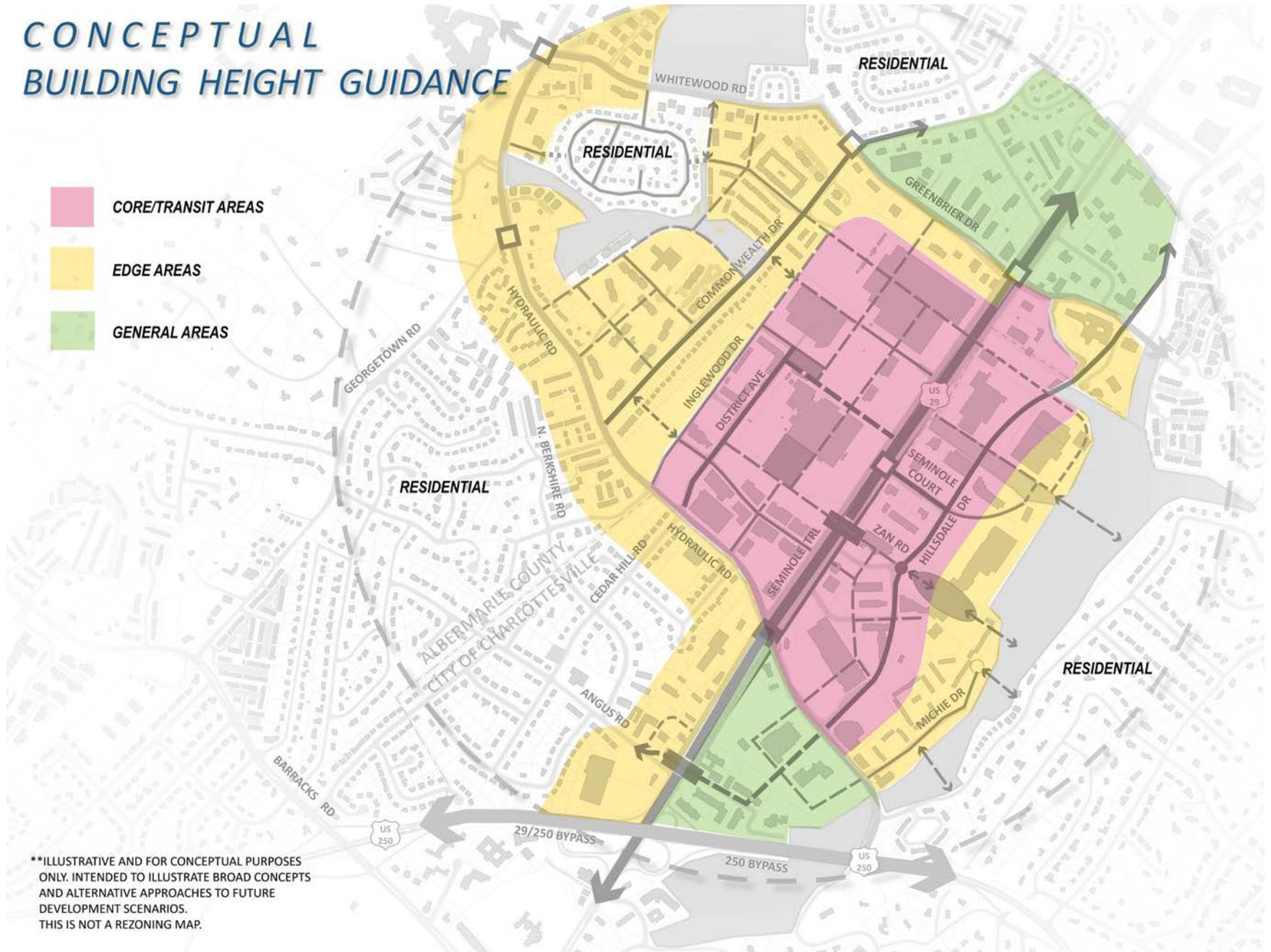


Figure 13 **Conceptual Building Height Plan**

## CORE AREA ILLUSTRATIVES

The Core Area Illustratives are intended to provide some visual context to how the area might look and feel if developed in accordance with the Framework and Conceptual Land Use plans. It is not a master plan or site plan document. The focus of the illustrations are building massing, streets and block structure, and amenity areas.

The illustrative plan view is a combination of conceptual development and existing development, demonstrating how interim changes can advance the overall composition toward the ultimate vision.

Some key attributes of the illustrative concepts that reinforce the project vision:

- Smaller block structure
- Zan Road activity corridor
- Residential uses fronting natural amenities
- Reduction of large surface parking areas
- Pedestrian and bicycle crossing over US Route 29



Image 10 **5th Street Bridge Market, Atlanta, GA**



Image 11 **Conceptual Core Area Plan- Zan Road Enlargement**



Figure 14 **Conceptual Core Area Plan**

## CORE AREA ILLUSTRATIVES



Figure 15 **Conceptual Perspective-Zan Road Bridge View West**



Figure 16 **Conceptual Perspective-Zan Road | Hillsdale Drive**  
**View East**



Figure 17 **Conceptual Perspective-Zan Road**  
**View West**

# CONCEPTUAL STREET TYPOLOGIES

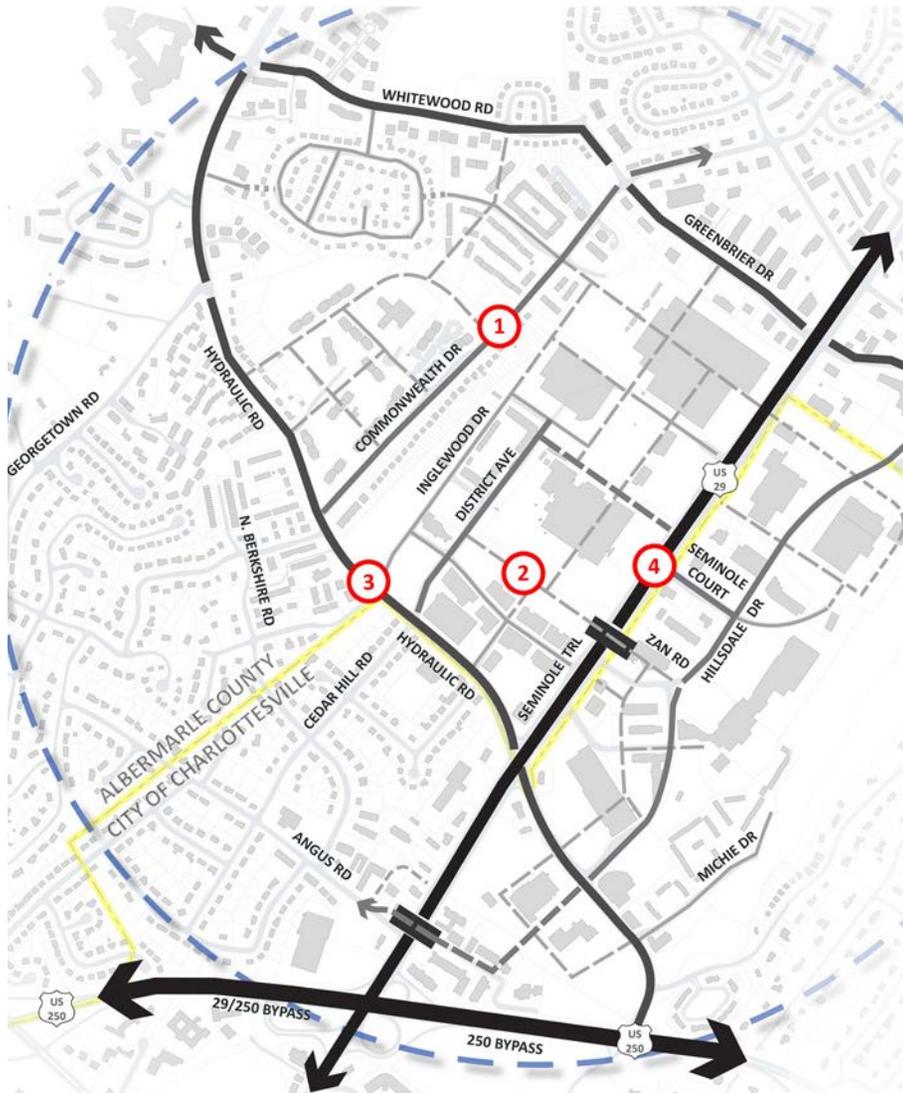
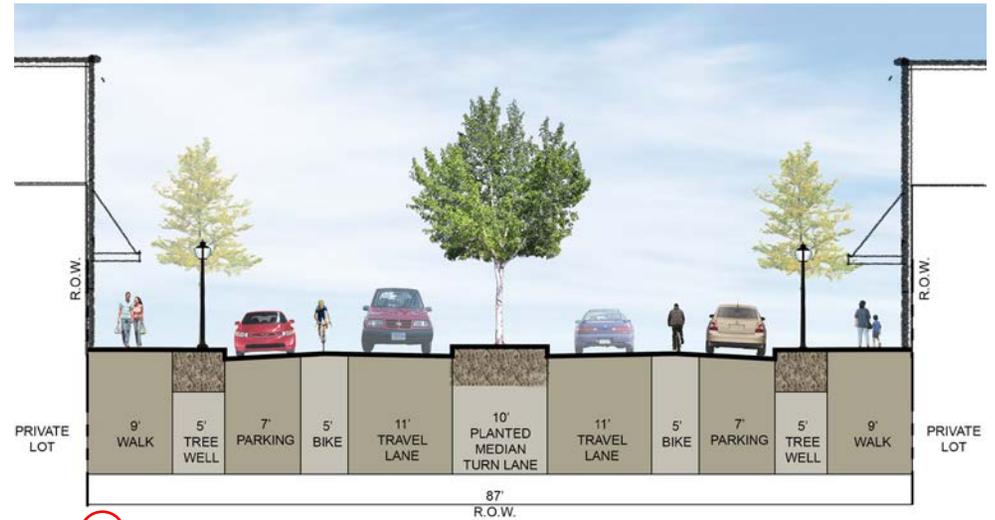
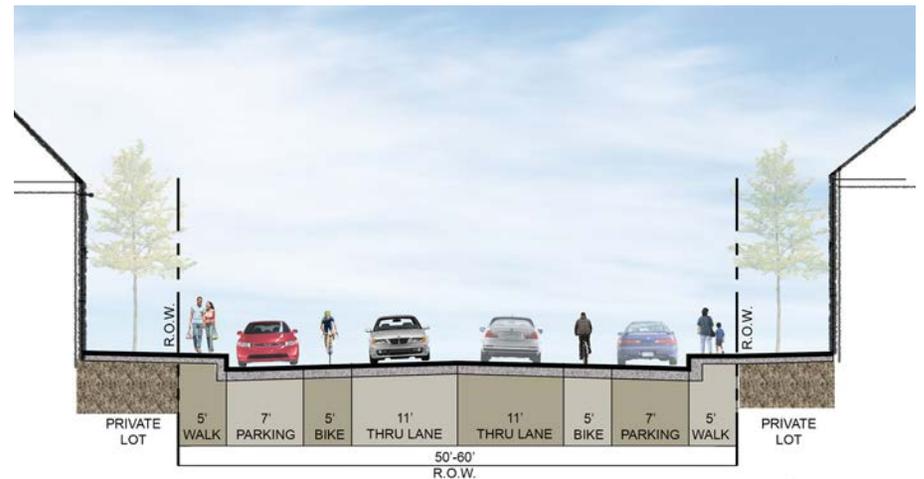


Figure 18 Key Plan- Street Typology Sections



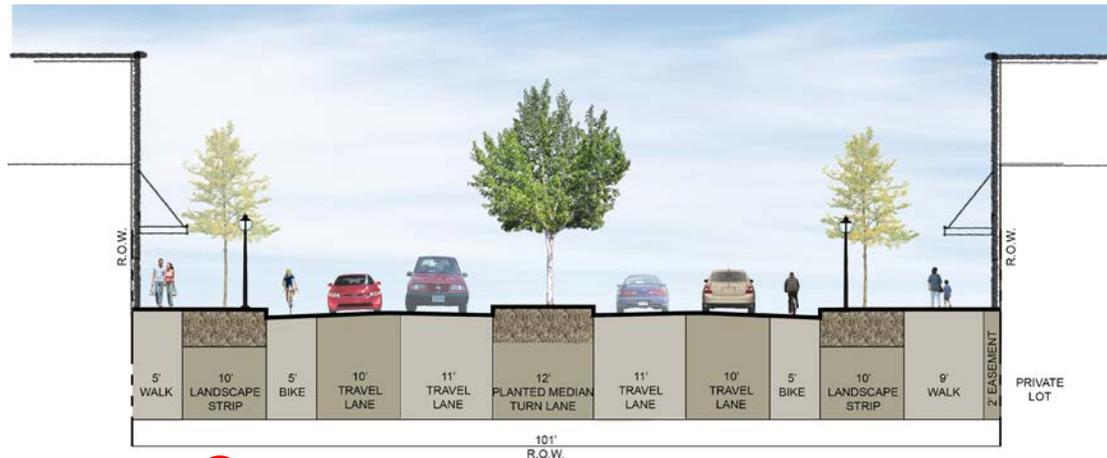
① TYPICAL ROAD SECTION: **URBAN COLLECTOR (EXISTING COMMONWEALTH DRIVE)**



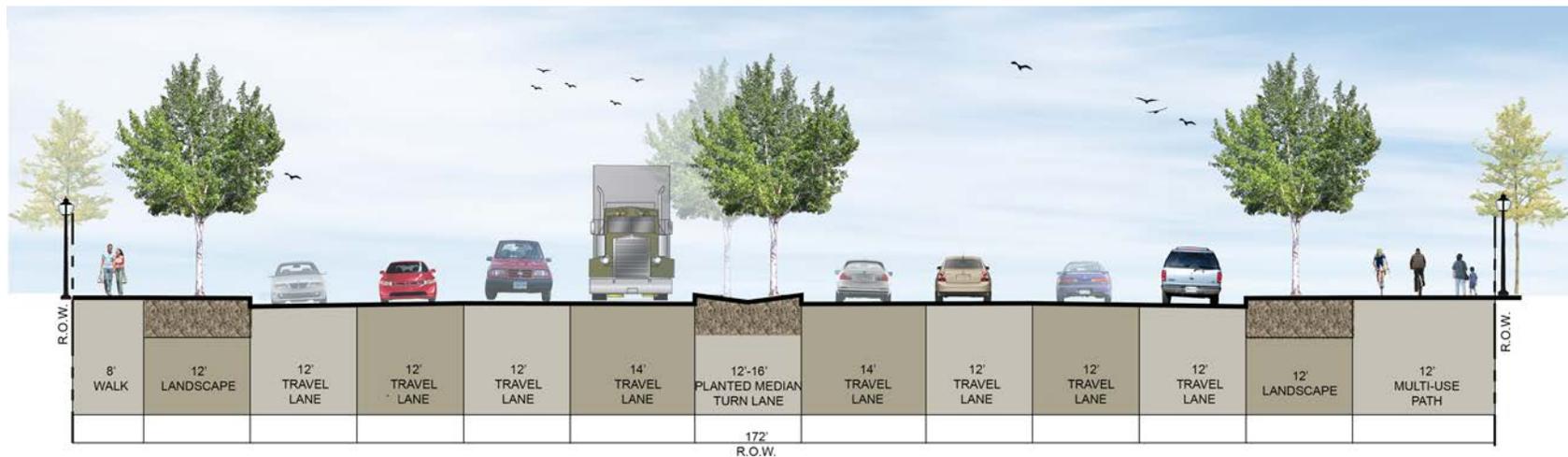
② TYPICAL ROAD SECTION: **LOCAL ROAD (PROPOSED ZAN ROAD)**

Note: Places 29 document was referenced for these Conceptual Street Typology Sections

# CONCEPTUAL STREET TYPOLOGIES



③ TYPICAL ROAD SECTION: *URBAN MINOR ARTERIAL (EXISTING HYDRAULIC ROAD)*



④ TYPICAL ROAD SECTION: *PRINCIPAL ARTERIAL (EXISTING ROUTE 29)*

**Note:** Places 29 document was referenced for these Conceptual Street Typology Sections





# *CHAPTER 4*

# *IMPLEMENTATION STRATEGIES*

*CODE DEVELOPMENT STRATEGIES*

*PROJECT PRIORITIZATION*

*BRANDING STRATEGIES*

# IMPLEMENTATION STRATEGIES

Making the Hydraulic Small Area Plan a reality requires a combination of vision, political will, persistence and a little good fortune.

**Vision and political will** on the part of leadership within the City and the County is particularly critical given the disposition of the plan across jurisdictional boundaries. The portions of the plan within each jurisdiction are inextricably tied together and will require a spirit of collaboration and close coordination to identify priority projects, funding sources, and implementation.

**Persistence** will be needed to work with private land owners toward a common vision understanding the realities of individual property owner goals that may or may not exactly align relative to real estate deals and expected returns on investment. Successful public private partnerships are necessary and more critical with mixed-use and redevelopment projects given the number of properties, landowners and competing goals that can be associated with these endeavors.

And **good fortune** often rules the day given the lengthy time horizons for implementing a plan of this magnitude. Changing market forces and trends in community development can occur multiple times in the life of a plan. Maintaining flexibility is important to adjust and react to these events. It should be noted that this study was prepared in the absence of specific market demand data to drive recommended intensities by land use categories. Thus, the Land Use Plan is not a graphic representation of how much market demand is projected for the Hydraulic area. Rather, it should be viewed primarily as a strategy for the location of specific land uses

and their relationship to each other. If market demand for one or more uses increases or decreases, the plan can still serve as a tool for maintaining the general relationship of uses to each other, even if the footprint of specific land uses need to be adjusted.

An action plan must first identify and focus on the highest priority projects and action items to advance the plan. Some action items involve key infrastructure investments to create value and interest in the market place. Other action items relate to the need for regulatory structures to be in place to control “first-in” development that is ready to come on line in the near term. Other priorities may simply result from opportunities and timing of potential real estate deals or changes in use or ownership in key locations within the plan.

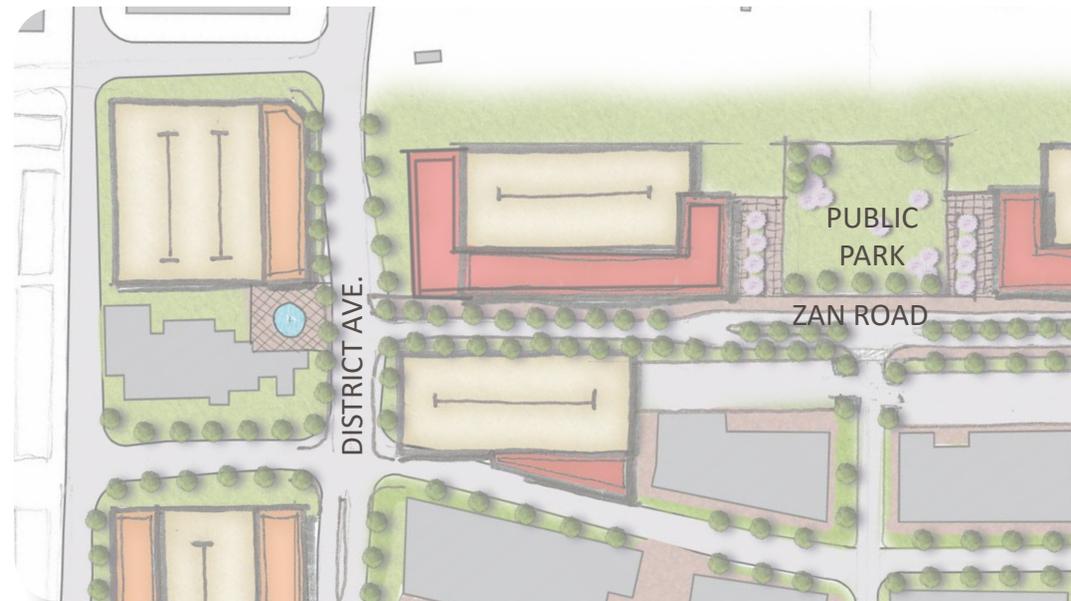
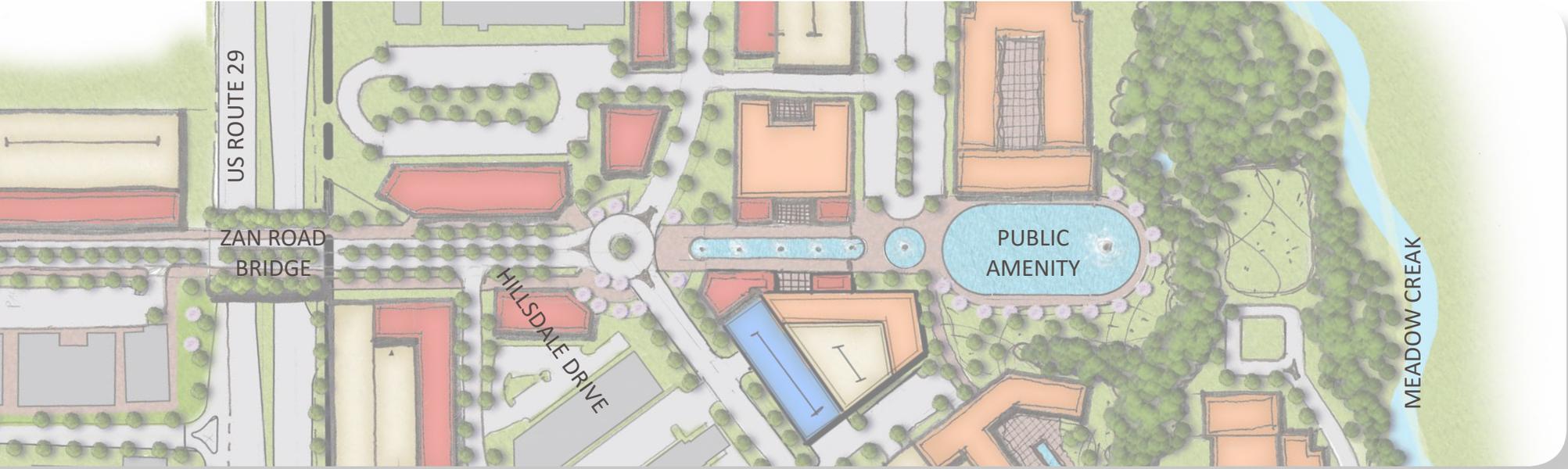


Image 1 **Conceptual Core Area Plan- Zan Road Enlargement**



## CODE DEVELOPMENT STRATEGIES FOR HYDRAULIC SMALL AREA PLAN

The primary focus of the Hydraulic Small Area Plan (HSAP) is to, “guide development and transportation solutions toward a more efficient, vibrant, and sustainable form of development. The fact that most of the area already has some amount of development, includes a large number of property owners, and two municipal jurisdictions with their own Zoning and Development Standards, all suggests that successful implementation of the SAP will need to be a highly cooperative effort by many parties and stakeholders. Implementing a new code for the HSAP is critical to begin the transformation process to guide projects in planning, attract interest from the development community, and set the framework for future development.

The intent of this section is to provide high-level commentary regarding the structure, content and applicability of the current City and County codes and possible strategies for new code development toward achieving the goals and overall vision of the HSAP.

These comments and recommendations are based on three (3) key code elements: **Structure** (how the respective Codes are organized and/or their ease of use), **Content** (standards or requirements within the current Codes that could be retained and that are easily translated to the HSAP) and **Administration** (possible challenges with how the Code is applied and administered).

### General:

- Create a “Hydraulic” specific development code. This would require the consolidation of design and development standards from the respective Articles and Sections under one heading; however, it would allow the ease of use in the Code and minimize oversight of standards.
- One code adopted by both the City and the County is recommended to ensure consistency between the application and intent of the HSAP. This does not mean or intend to mean that either jurisdiction give up control, but rather provide a unified approach to quality development and acceptance (i.e. buy in, support) of the Plan
- Based on the vision and the HSAP, a form based code (FBC) is recommended, including revised and updated standards for review and application of standards (i.e., administrative vs. legislative reviews). A form-based code is intended to foster predictable built results and a high-quality public realm with a focus on physical form rather than the traditional separation of land uses as the organizing principle for the code. Reference is made to the form based principles and strategies embedded in Albemarle County’s Neighborhood Model’s “Design Approaches” and the code currently in development for Charlottesville City’s Strategic Investment Area plan. An adequate staff size with the appropriate level of knowledge/sophistication to administer a form based code is essential and it appears that both the City and County have staffs capable of understanding, interpreting and implementing such a code.

## Structure:

1. Simplification. Both the City and County codes require the user to “jump” between topics and specific design elements. Simplification to the structure of the Code including area specific standards could ease the application of the Codes and allow for a HSAP specific code development (i.e., one section dedicated to the HSAP for design and development provisions).
2. Design Guidelines: Although both the City and County maintain respective Design Guidelines for various areas within their respective jurisdictions, a uniform set of design guidelines should be developed to ensure consistency in the “theming” and approach to this area as a unique area of the community. Currently, for example, portions of the City and County codes set similar standards for “gateways” or corridors but this approach should be expanded throughout the study area.
3. Streets that Work: Modify selected sections of the Streets That Work policy for the HSAP. To be effective, these policies should be adopted by both the City and the County, with a specific application of the Streets that Work policies or development of a specific Complete Streets Program for Hydraulic Road using the Streets that Work program as a baseline.

## Content:

1. The HSAP code should reflect the mixed use nature of the type and form of development envisioned and recognize that a unified development plan may “cross” individual parcel boundaries (see Administration below).
2. If a hybrid or modified code is prepared that includes land use categories, the list of uses should be revisited and updated to align with the HSAP Conceptual Land Use Plan and Vision.
3. Avoid “One-Size-Fits-All”. Standards/provisions should be developed with flexibility and provide a range of standards based on the uses and design guidelines. One size does not fit

all even within the same “block” of development. Even with a range of uses and standards (or guidelines), a flexible approach to application of standards should be employed to ensure that a uniform, homogenous development is not created where each development looks like the next and creative designs are not permitted or encouraged. In vibrant mixed-use and neighborhood centers, it is often more important to provide a consistent “street wall” defining the street as an important public space rather than to focus on application of similar colors, materials or varied setbacks and step backs to break up the building mass.

4. Flexibility: Provide creative ways to allow development to adjust to changing markets and changes in community preferences. Some examples include:
  - “deferred parking” is an innovative idea whereby a base number of parking spaces are a condition of the site plan and then the project is reassessed within a specified time frame, post-construction, to determine actual parking needs based on actual use patterns.
  - Land use substitutions: provide for repurposing of some uses with administrative approval. For example, changes in ground floor active uses in a vertical mixed-use building or conversion of ground floor parking in a deck to active uses as the market allows. This includes application of the parking and signage standards. In this way, the code should allow for changes that are consistent with the vision but account for very localized conditions (i.e a surplus of on-street parking or unique topography).
5. Updated Code Provisions. The City and County should investigate adopting new, updated standards for development which take into consideration the following:

## CODE DEVELOPMENT STRATEGIES FOR HYDRAULIC SMALL AREA PLAN

- curbside management trends related to Transportation Network Companies (ex. Uber; Lyft), bikeshare programs, increases in TDM (ride share, transit, employer subsidized transit or car pool);
  - increased on-street and shared parking options
    - if parking structures are provided, require “public” percentage but offset that with some type of development incentives
  - clarification of building/bulk development standards
  - reduction or elimination of landscape buffers between some uses
  - enhanced sustainability measures (i.e. use of solar shade structures in lieu of interior parking lot landscaping; rooftop solar)
6. The City and County should explore tools to incentivize the preferred urban form including new buildings that address public streets with an urban frontage and an enhanced public realm, reduce surface parking exposure to the public streets, enhance landscaping, and create a smaller urban block structure. Consider incentives for the use of structured parking that allows for more centralized parking opportunities and increased efficiency in the use of land (i.e., less asphalt, more buildings or open spaces). Consider bonuses for provisions of actual units of affordable housing or where privately owned structured parking is made available for public use. The same strategies should also be considered for low-impact development stormwater management practices and other sustainability measures.
7. Some content in the City and County codes is directly applicable to the HSAP vision. For example, the purpose and intent outline in the County’s Neighborhood Model district is supportive of the HSAP including uses that are/exhibit the following characteristics:
- Pedestrian orientation;
  - Neighborhood friendly streets and paths;
  - Interconnected streets and transportation networks;
  - Parks and open space as amenities;
  - Neighborhood centers;
  - Buildings and spaces of human scale;
  - Relegated parking;
  - Mixture of uses and use types;
  - Mixture of housing types and affordability;
  - Redevelopment;
  - Site planning that respects terrain
  - Clear boundaries with the rural areas
7. The form based code should incentivize uses and building forms that enhance and benefit community, particularly affordable housing and public open space, as well as publicly accessible parking garages and multi-modal facilities.

### Administration:

1. A recommendation could include adding a provision that allows for the relief of certain standards where a unified development plan is proposed within the HSAP (and not necessarily recognize parcel boundaries). This would require some form of agreement between all properties including the City and/or County that acknowledges this arrangement and provisions prohibiting the subsequent (future) “break-up” of development after development standards have been “modified”.

2. Height Regulations. Locating height standards in the current codes is not an intuitive exercise. To encourage (ensure) a mixed use, compact form of development, minimum building heights (stories) should be required. Minimum building heights could be prescribed within certain areas of the HSAP (i.e., adjacent to US Route 29) and then “tier” as development approaches the external boundaries. Mixed Use standards should provide buildings ranging between a minimum of 2 stories up to 5 stories (or 4 with an option for an additional story through development incentives). Although single use commercial buildings typically do not develop greater than 1 story, additional design and development standards could be applied that focus on aesthetics and building designs to offset the lack of height.

3. Off-Street Parking. Revise parking standards to allow for increased cooperative parking arrangements and also revisit the distance between parking spaces and uses. Contemporary codes reflect increased distances for walking and also provide standards for the reduction. The parking standards could also allow for the review and approval of a parking study for similar types of developments by a licensed professional using professionally accepted methods.

- The City and County should also revisit current parking rates/ratios and provide increased flexibility in their application. For example, minimum required ratios might be reduced or even eliminated in some cases and maximum parking ranges modified to address the “one size does not fit all” concerns of developments and the shared use nature of a more connected, urban form of development.
- Provide additional parking reductions within a certain radius (or walking distance) from the proposed Transit Hub.

4. Signs. Develop a “HSAP” specific sign code that recognizes the mixed-use nature, horizontal and vertical integration, of the area. In addition, and due to the width of the Entrance Corridor District, the Code should look at alternative standards where adjacent to (visible) from the primary roadways (US Route 29/Hydraulic Road) and those that are generally internally focused and oriented.

5. Landscaping. The code should consider provisions allowing the reduction, grouping or elimination of landscape buffers between properties and the adjacent rights-of-way to allow for increased connectivity, increased visibility and an appearance of integration. Allowances could also be made for “solar shade” or similar energy efficient design and construction. Provide flexibility for alternative shading methods such as solar shade structures.

6. Consider a Joint City/County review board

7. Architectural/Design Guidelines: administrative approvals provided the guidelines are adhered to; alternative design guidelines and standards could trigger additional reviews by the respective planning board (i.e., streamline the approach).

8. The code should address community goals for affordable housing with provisions that encourage the on-site development of affordable housing. The regulating plan should identify where in the small area plan, incentives (i.e height bonuses) should apply with an emphasis on affordable housing.

9. Allow the joint submittal and review of both preliminary and construction plans if “meeting standards” versus preliminary reviews by PC /Council and then subsequent construction and development plan reviews.

## PROJECT PRIORTIZATION

**Transportation Projects** The US Route 29 Solutions initiative is focused on making improvements to traffic in the corridor. The HSAP will serve as a reference for the localities and Metropolitan Planning Authority toward developing recommendations for improvements and smart scale opportunities. Improvements to the network are important, not only for traffic management, but due to impacts on existing homes and businesses and redevelopment opportunities. These improvements must not only maintain and enhance regional traffic patterns but also improve local traffic and be context sensitive to goals for connectivity, mobility and urban form.

The nature and timing of those improvements are being developed as a subsequent phase to this study but several key transportation concepts embedded within the HSAP will receive priority evaluation. Those concepts include:

- o Grade separation at Zan Road and US Route 29
- o Grade separation at Angus and US Route 29
- o Grade separation at Hydraulic and US Route 29
- o Extension of Hillsdale Drive south of Hydraulic Road and potential connection to the US Route 250 Bypass and Angus Road / Holiday Drive

Analysis of these and other potential improvements will be made to determine which ones may achieve the most beneficial results to congestion management, are supportive of the land use plan, maintain or improve conditions at other key, nearby intersections (such as Hydraulic Road/US Route 250 Bypass, and US Route 29/US Route 250 Bypass) and are best positioned for funding.

**Appendix 2 summarizes the work to date on the transportation recommendations for the HSAP.**

Finally, as part of project prioritization, decisions regarding proposed vehicular road improvements must not be made independent of bike-pedestrian improvements within the multi-modal network envisioned by the Framework Plan.

**Public Realm Improvements** Investing in great streets, perhaps our most important public spaces, is critical to the success of the HSAP. Improvements to the function and aesthetic of street environments can establish brand and change the overall character of the community. Developing design standards and implementing improvements to sidewalks, street tree plantings, lighting, signage and site furnishings can alter perception, improve wayfinding, and benefit the business climate of the area. Enhancements to pedestrian crossings, bike lanes, and pedestrian paths is critically important as part of these enhancements and placemaking.

**Planned projects** The window of time prior to, and immediately after, new code development for the HSAP is an important time to reach out to property owners and developers and begin the dialogue about creating development plans that are supportive of the HSAP vision. Early “wins” are important to demonstrate the impacts of good development in line with the overall plan. Projects in design and review may offer limited opportunities for significant change but perhaps collaboration on design details can have a positive effect. It is key to facilitate intentional conversations with the development community and stakeholders for projects in early planning toward advancing the vision.

The planned K-Mart redevelopment site at Hydraulic and US Route 29 is one of the key opportunities for such collaboration and as such should be a top priority.

**Key Opportunity Sites** The HSAP references the types of properties typically considered more likely to change based upon ownership, economic viability, location, or condition. A good exercise for the City and County would be to map those opportunity sites and initiate discussion with property owners to develop a strategy and potential pattern for redevelopment. Based upon input during the process for the study, some potential sites for consideration might include:

- SE quadrant of Hydraulic and US Route 29 (Kroger site)
- NE quadrant of Hydraulic and US Route 29 (auto dealership site)
- Infill on various surface large parking lots

- Zan Road (west of US Route 29) – this is a particularly key element of the HSAP vision. It is also an element that demonstrates the need for collaboration among many stakeholders, including private landowners and the County. Strategies for advancing this specific concept would benefit from facilitated discussions with owners and property managers from Stonefield, Northrop Grumman/Sperry, and the County to explore creative solutions for Zan Road west of US Route 29. VDOT and the City of Charlottesville must be at the table as well, particularly if the grade-separated feature at Zan Road, over US Route 29, becomes an early option.



Image 2 **Conceptual Core Area Plan- Zan Road Bridge Perspective- West View**

## BRANDING STRATEGIES

Branding requires a very intentional effort to establish an identity for a cohesive development or a functionally related part of a community. The Hydraulic area today lacks a sense of visual or functional continuity or identity that is uniquely “Hydraulic”. A variety of disconnected development forms and architectural vocabulary present different visual clues that are generally disconnected aside from physical proximity. Except for Stonefield, signage, wayfinding, streetscape, building style and massing are generally not coordinated within the study area to a degree that suggests a unified brand. Branding should not be confused or associated with common architectural themes and materials, although that can be part of the mix. It has more to do with overall character and attention to details that give the area some relevance and a unique identity from other areas that have a distinct identity of their own. A visitor to Stonefield, for example, immediately gets the sense that they are in a development that looks and feels different than Seminole Square or the downtown Mall.

**Wayfinding and Signage** a relatively simple, but important means for improving aesthetics and the overall user experience in a manner that can bring some continuity to public realm and public spaces.

**Landscaping** we rarely think of landscaping in terms of branding yet we often recall iconic landscapes from our travels whether it be live oaks covering highways in Charleston, cherry trees in Washington DC, or the local landscapes of Albemarle’s wine country and the iconic Lawn at UVA. A well-planned street tree program that focuses on the proper selection of species, location and growing conditions can help define an area as being visually distinct from other parts of the community.



Image 3 Interpretive Signage Example-Pierce's Park, Baltimore, MD

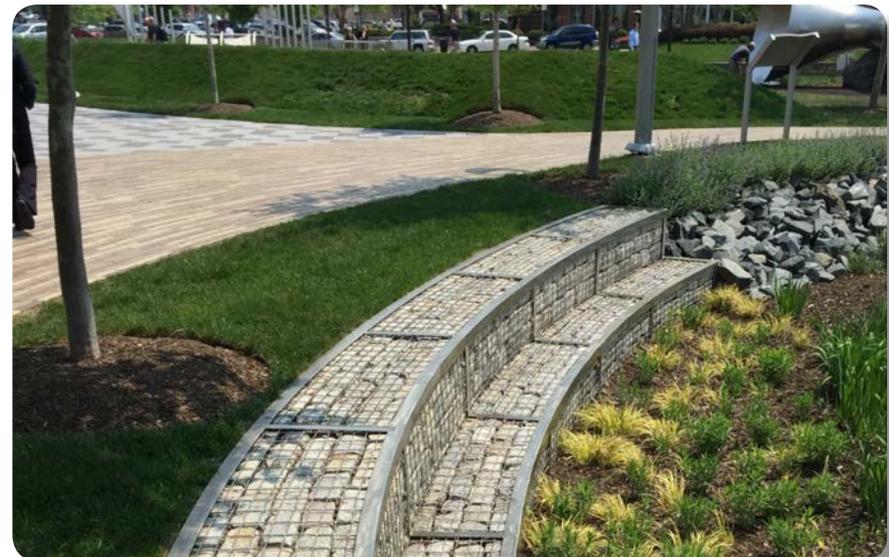


Image 4 Rain Garden Example-Pierce's Park, Baltimore, MD

**Technology and Sustainability** Many small, independent nodes to advances and interest in technology can be found in new development projects in both the City and the County. The redevelopment of the Hydraulic area offers an opportunity for a more intentional, coordinated effort to embed these strategies in new development plans on large scale and in a visible way that becomes part of the area's brand.

- **Technology Opportunities**

- A highly wired community- WiFi hubs in public places and broadband infrastructure
- Personal device charging stations
- Solar powered transit shelters and kiosks with real-time tracking, news and community event updates
- Solar shade structures
- Solar powered trash compactors
- Smart parking technology (mobile space reservation apps)
- Security, access control and energy management telemetry (remote monitor and control of street lighting, fire protection, irrigation, security cameras, etc)

- **Sustainability Opportunities**

- Green streets
- Green Roof incentives
- Low Impact Development (LID) stormwater management standards (bioswales; daylighted drainage systems, grey water; etc)
- Autonomous Vehicle circulators and shuttle services
- BikeShare programs
- Pervious paving alternatives
- Low water demand landscapes

**Public Art** Public art can happen organically or result from an intentional, programmed effort to integrate art into public spaces. This is not a new concept to Charlottesville or Albemarle County as is evidenced by many installations within a short distance of the study area. In addition to large installations and commissions, art can present itself in small details in hardscapes, sidewalk café corrals, building façade graffiti programs, bicycle racks, wayfinding and lighting design.



Image 5 **Solar Powered Charging Station**



# *APPENDIX*

*EXISTING CODE OVERVIEW*

*TRANSPORTATION RECOMMENDATIONS*

# EXISTING CODE OVERVIEW

The intent of this section is to provide high-level commentary regarding the structure, content and applicability of the current codes regulating development within the study area as relates to achieving the goals and overall vision of the HSAP. This review is not intended to identify or provide comments regarding the City and or County’s respective Code(s) as a whole but identify components and make recommendations for possible enhancement in implementing the SAP.

The comments and recommendations provided below are based on three (3) key objectives: Structure (how the respective Codes are developed and/or their ease of use), Content (are there items, standards or requirements within the current Codes that are good and should be retained within the Hydraulic area, are there components that are easily translated to Hydraulic, what items should be further reviewed for update, etc.) and Administration (possible challenges with the current Code structure).

## ***City of Charlottesville***

The City of Charlottesville maintains its respective codes within Chapter 34 of the Code of Ordinances. Chapter 34 provides information and standards specific to the City’s districts (residential, commercial, planned unit development, mixed use corridor and overlay) as well as standards for site plans, required improvements and definitions. The Chapter is further refined into landscaping and screening, off-street parking, access and additional standards for specific uses.

The City also maintains a set of Design Guidelines for certain areas within the City as part of the “Entrance Corridor Design Guidelines”. These guidelines provide information regarding Streetscapes, Sites and Commercial Buildings. It is understood that although classified as “guidelines”, this information is used in the review and application by the City’s Entrance Corridor Review Board and serve as, “an

official policy document that expands upon the concepts of the design principles set forth in the Comprehensive Plan. While the guidelines provide specific recommendations for development, they cannot and are not intended to, cover all circumstances. Rather, the structure and content of the manual are meant to give developers and reviewers the perspective to address the unique conditions of each project and the flexibility to develop designs that meet the intent, principles and spirit of the guidelines.”

## ***Albemarle County***

Albemarle County maintains their respective codes within Chapter 18 Zoning of the County Code. Chapter 18 provides a number of subsequent “sections” which address individual zoning districts (conventional zoning districts, overlay districts, and planned development districts), definitions, general regulations and supplemental regulations. Section 4, General Regulations, provide standards for development including lot regulations, lot coverage, building height, and parking).

The County also maintains additional guidelines and standards in Section 30.6 of the Code, “Entrance Corridor Overlay District”. These standards do require a “Certificate of Appropriateness” from the County; however, for the most part, refer to the underlying zoning districts and their respective standards for implementation.

## ***General Observations***

### ***STRUCTURE:***

- Simplification. Both the City and County codes require the user to “jump” between topics and specific design elements. In some cases, the user also needs to review the definitions section while reading to understand some of the terminology. Simplification to the structure of the Code including providing area specific

standards could ease the application of the Codes and allow for a Hydraulic specific code development (i.e., one section dedicated to the SAP for design and development provisions). This recommendation also is considered/identified within the Administration section below.

- Cross-References. The City’s Code, much like the County’s Code, provides limited guidance on specific topics that may support the proposed land use plan or levels of specificity to this area. The underlying zoning district does provide some level of information specific to the district; however, requires a series of cross-references between certain standards. For example, the underlying Highway Corridor (HW) provides information specific to uses (but requires a cross-reference to section 34-796), height, streetwall, buffers and density; all other standards including off-street parking, landscaping, signage or similar are provided in their respective sections. Other portions of the Code are “assumed” or “understood” to be required but there is no specific guidance as to what may or may not be required specifically.
- Design Guidelines. The City’s Design Guidelines are based on a series of “Design Principles” which may vary based on the interpretation of the review authority and the property owner. Also, the Design Guidelines, similar to the Code Cross-References noted above, require the user to review multiple documents. The Guidelines do note this so that the user is informed of the need to review other documents; however, the guidance is somewhat unclear. The Guidelines also identify both the US Route 29 North Corridor and Hydraulic Road Corridor which are both included in the SAP and should be reviewed for consistency between the application of the Guidelines.
- “These guidelines do not reproduce all the specific requirements stated in the Zoning Ordinance, Subdivision Regulations, or

other applicable development regulations. Applicants are advised to consult any necessary related documents. In the event that there appears to be differences regulations, the more stringent standard shall apply.”

- “Streets That Work”. Another factor in the development of the Hydraulic SAP is the City’s “Streets That Work” program (i.e., Complete Streets). Hydraulic Road is identified within this program as a “Mixed Use A” street. Per the program, street types are based on typologies (categories). “Each category has an ideal cross section with a context-sensitive set of elements (trees, sidewalks, bus shelters, bike lanes, etc.) that suits its character and use.”

*CONTENT:*

- The City’s Code generally requires the application of standards for the individual use and does not necessarily take into consideration the (potential) mixed-use nature of the type and form of development envisioned. While it is understood parcel boundaries and ownership patterns vary, the Codes do not necessarily recognize a unified development which may “cross” individual parcel boundaries (see Administration below).
- “One-Size-Fits-All”. The respective overlays require the application of similar provisions. For example, the entryway corridors have similar standards but no area specific standards (“Is the Highway 29 corridor the same entry into the City as Fifth Street or is the desired outcome to create a unified development approach for the major thoroughfares?”)

## EXISTING CODE REVIEW

For Example:

The City's Code, Article VIII, Improvements Required for Developments, Division 3, Off-Street Parking and Loading, sec. 34-880 Requirements notes that off-street parking and loading shall be provided in accordance with Article IX, sections 34-970 et.seq.). Off-street parking provides parking requirements for specific uses and does not necessarily take into consideration the mixed-use nature of projects like the Hydraulic SAP.

1. The standards require the computing of required spaces based on all uses cumulatively; no sharing factor is permitted.
  2. Reductions in the number of required spaces may be provided in certain circumstances including: cooperative parking arrangement, or where the use is located within 300 feet of a bus stop on an existing city bus route.
    - a) Cooperative parking allows for "partially reduced" by the director under certain instances and parking spaces must be located within 400 feet of each use served.
    - b) Note: parking reductions were not noted (discovered) where on-street parking or public parking areas are provided. For example, on-street parking within 400 feet of the use is allowed to count towards "X" percent of the uses required parking.
    - c) Some municipalities require (permit) "deferred parking" in which a base number of parking spaces are provided and then the project is reassessed within a certain time frame post construction (determine actual parking needs based on usage and not on the typical codes).
- The County's Code, Chapter 4, Sec. 4.12.10 does permit a reduction in required parking based on shared parking, peak hours and ability to prepare and submit a parking study. The

maximum reduction permitted per this Section is 35%. Additional provisions within the County's Code, Section 4.12.13, provides a mechanism to reduce required off-street parking standards through the use of Transportation Demand Management (TDM) practices. Although the regulation is somewhat vague and does not reference 4.12.10, it does provide the user to reduce the number of required spaces through the submittal and approval of a parking study; authority to approve this study rests with the zoning administrator and based on review of the Code, does not require a public hearing or similar review before an elected or appointed board. The County also recognizes on-street parking, where abutting the lot, counts towards the developments required parking provisions. However, these spaces are limited to those abutting (adjacent) to the lot and does not provide for additional on-street parking within a certain radius.

- Revisit Code Provisions. The City and County should investigate adopting new, updated standards for development which take into consideration, for example, energy efficient land use and development practices.
  - o Update the respective codes for parking lot and street tree requirements for construction of solar shade (allow solar shades in lieu of interior parking lot landscaping).
- Signage is also, generally, applied on a specific (individual) use basis with the added standards found in the City's Code, Sec 34-1044, Entrance corridor districts, which generally reduces the amount (size) and types of signs permitted. The City does recognize certain areas with "special regulations" (Mixed-use corridor zoning districts), which could be applied (concept) to Hydraulic.
- Uses.
  - o Section 34-796 of the City's Code includes a "use matrix-mixed use corridor districts" which identifies by-right uses,

provisional use permit, special use permit, and prohibited uses (note: although not specifically noted, it is assumed where no code is provided, the use is not permitted within the respective district).

- Note: the Use Matrix is comprehensive in nature and supports a wide variety of uses including those envisioned by the SAP. This could be easily translated into a hydraulic specific code.

- There are certain uses that are not identified or have limitations on their use. Specifically, health clubs greater than 4,000 square feet are not permitted, while home improvements stores are permitted by-right and printing/publishing facilities are permitted as part of a special use permit. It is understood the HW applies to additional properties, other than Hydraulic and certain limitations or allowances should be maintained.

- The majority of the area within the County is zoned NMD – Neighborhood Model (Chapter 18, Section 20A). specifically, Permitted Uses are identified in Section 20A.6 and note, “By right uses. The following uses are permitted by right if the use is expressly identified as a by right use in the code of development or if the use is permitted in a determination by the zoning administrator pursuant to subsection 8.5.5.2(c)(1).” The County’s Code identifies this as a Planned Development district requiring a mix of residential and non-residential uses. However, specific uses are cumbersome and not overly clear.

-The purpose and intent outline a true mixed use that is supportive of the SAP including uses that are/exhibit the following characteristics:

- Pedestrian orientation
- Neighborhood friendly streets and paths
- Interconnected streets and transportation networks
- Parks and open space as amenities
- Neighborhood centers

- Buildings and spaces of human scale
- Relegated parking
- Mixture of uses and use types
- Mixture of housing types and affordability
- Redevelopment
- Site planning that respects terrain
- Clear boundaries with the rural areas

**General comment:**

City Code, Sec 34-874 Parking Lots is included within Division 2 Landscaping and Screening; however, the information provided in this section addresses impervious surfaces, concrete chock and barricades. This Section should be relocated to Article IX, Division 2 dealing with Generally Applicable Regulations: Off-street Parking. Division 2 includes standards for drainage, improved surfaces and compliance with ADA.

o Potential barriers City: Due to the nature of the SAP, the standards of Sec. 34-873 may create real or perceived barriers to connectivity between parking lot buffers, street buffers and adjacent uses (property). Specifically, Sec. 34-873 (c)(1) requires the installation of a, “continuous landscaped buffer at least five (5) feet in width shall be established between the edge of a parking lot and an adjacent property, where there is no intervening public right-of-way.” A literal or strict interpretation of this standard separation between the rights-of-way and adjacent properties whereas the SAP is encouraging interconnectivity, mix of uses and integrated uses and facilities.

**Setbacks:**

o City: The HW zoning requires the provision for streetwalls including building ranges (i.e., build-to lines); this is a great way to encourage buildings closer to the pedestrian realms and minimize the front loaded parking fields.

## EXISTING CODE REVIEW

o County: setbacks are provided in Chapter 4, Sec 19 (Residential), 20 (Commercial); however, the NMD is not included in this information. Specific to the NMB Code language, standards are not provided; however, development form and character are noted.

### **Administration:**

Specific recommendations

1. Create a “Hydraulic Small Area Plan” specific development code. This would require the consolidation of design and development standards from the respective Articles and Sections under one heading; however, it would allow the ease of use in the Code and minimize oversight of standards.
  - a) Based on the vision and the SAP, a form based code is recommended including revised and updated standards for review and application of standards (i.e., administrative vs. legislative reviews).
  - b) If a hybrid or modified code is prepared that includes land use categories, the list of uses should be revisited.
2. A recommendation could include adding a provision that allows for the relief of certain standards where a unified development is proposed (and not necessarily recognize parcel boundaries). This would require some form of agreement between all properties including the City and/or County that acknowledges this arrangement and provisions prohibiting the subsequent (future) “break-up” of development after development standards have been “modified”.
3. Currently, there is no minimum height Standard in the City and County standards for the same are not easily located. However,

to encourage (insure) a mixed use, compact form of development, minimum building heights (stories) should be required. Minimum building heights could be prescribed within certain areas of the SAP (i.e., adjacent to SR 29) and then “tier” as development approaches the external boundaries. Mixed Use should provide buildings ranging between 2 to 5 stories (or 4 with an option for an additional story through development incentives). Although single use commercial buildings typically do not develop greater than 1 story, additional design and development standards could be applied that focus on aesthetics and building designs to offset the lack of height.

4. Off-Street Parking. Revise parking standards to allow for increased cooperative parking arrangements and also revisit the distance between parking spaces and uses. Contemporary codes reflect increased distances for walking and also provide standards for the reduction (predictability). The parking standards could also allow for the review and approval of a parking study for similar types of developments by a licensed professional using professionally accepted methods.

- a) The City and County should also revisit current parking rates/ratios and provide increased flexibility in their application. For example, provide a minimum and maximum parking range to address the “one size does not fit all” concerns of developments.
- b) Encourage the use of structured parking that allows for more centralized parking opportunities and increased efficiency in the use of land (i.e., less asphalt, more buildings or open spaces).
- c) Encourage development bonuses where shared or structured parking is provided for the use and benefit of surrounding uses.
- d) Provide additional parking reductions within a certain radius (or walking distance) from the proposed Transit Hub.

5. Signs. Develop a “Hydraulic” specific sign code that recognizes the mixed-use nature, horizontal and vertical integration, of the area. In addition, and due to the width of the Entrance Corridor District, the Code should look at alternative standards where adjacent to (visible) from the primary roadways (US Route 29/Hydraulic Road) and those that are generally internally focused and oriented.

6. Use Matrix. See Recommendation 1.b) above.

7. Parking Lot landscaping. The code should consider provisions allowing the reduction, grouping or elimination of the continuous landscape buffer between properties and the adjacent right-of-way to allow for increased connectivity, increased visibility and an appearance of integration. Allowances could also be made for “solar shade” or similar energy efficient design and construction, as well as low-impact development stormwater management techniques.

8. Potential Code Outline (format)

The following information (recommended outline) may be applied to the HSAP specific zoning district standards developed under the PD-M and corresponding Master Plan:

A. District Purpose

1. Purpose
2. Location/Area of Application
3. Relation to Master Plan

B. Previously Approved Development

1. Existing Development (what is currently constructed is grandfathered; identify percent of change that would necessitate compliance)
2. Previously Issued Permits and Approvals

C. Development Standards

1. Uses/Use Table
2. Dimensional Standards
  - a. Lots
  - b. Coverage
  - c. Building Zones (aka, Streetwalls, Setbacks/build to line) (recommend ranges of either for maximum flexibility)

3. Building Standards

- a. Height
- b. Frontage (assume certain percent of building located within building zone)
- c. Other

4. Transportation/Connectivity

- a. Access Management
- b. Transit (hubs and stops)
- c. Including design

5. Parking (consolidate, simplify parking standards into broad groups with ranges; allow parking reductions for on-street, public parking, parking structures, etc.)

- a. Parking lot locations, design
- b. Bicycle

6. Signage

7. Open Space (individual site versus district/sub-district)

8. Parks/Open Spaces

9. Landscape/buffering

- a. Perimeter
- b. Vehicle use areas
- c. Other (non perimeter/VUA areas)

10. Other Design/Development Standards

- a. Building/architectural design

11. Additional Development Standards

- a. Sub-Area Standards (note: if applying varying density and intensity standards, those would be identified in this section)

D. Administration

1. Incentives (additional) to development
2. Review Process(es)
  - a. City, County, Joint
3. Application of Standards
  - a. Alternative Design Standards Review/Process
4. Modifications; Minor and Major (what constitutes what)
5. Definitions (not included in Chapter “X” as applicable)

# TRANSPORTATION RECOMMENDATIONS

**Subject: Hydraulic Road / US 29 Small Area Plan – Transportation Planning Element: Project Status Report**

**Date: 04/03/2018**

## **Introduction**

At the time of this writing (April 3, 2018), the transportation planning process is still underway in the Hydraulic Road / US 29 area. A preliminary recommendation was recently identified and the study team is now refining the concept to meet the expectations of the established Advisory Panel. While the Advisory Panel settles on the final details of the preferred alternative over the next 4-6 weeks, draft technical documentation will be prepared which describes the planning process undertaken for the study. Until that technical information is reviewed and approved by the Advisory Panel for publication, the following sections provide highlights of the key transportation planning activities that have taken place to arrive at this point in the process.

## **Study Area**

The multimodal study area for the transportation planning element is shown in Figure 1 and has been limited to the roadways, intersections and modes shown. A quantitative analysis was conducted for the roadway links highlighted in purple while a qualitative discussion was provided for the roadways indicated with green highlighting. Michael Baker worked with VDOT, the City of Charlottesville, Albemarle County and the Advisory Panel to agree on the definition of the future no-build transportation network. For example, anticipated projects such as the removal of the traffic signal at US 29 and Lenox Ave. should be considered as being in place since this planning exercise is intended to look several decades into the future.

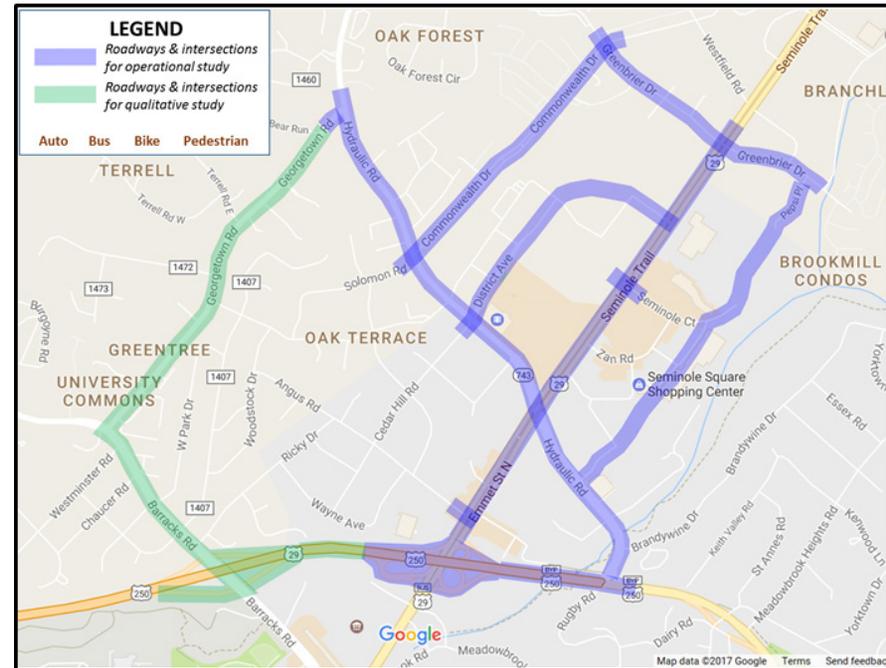


Figure 1

## **Hydraulic Planning Advisory Panel**

The Hydraulic Advisory Panel (the Panel) is a collection of officials and staff from the City and County as well as representatives of local businesses and the environmental community. The Panel has been supported by the Technical Team that includes VDOT and consultant staff. Kimley-Horn and Associates helped advise the staff concerning land-use development while Michael Baker International led the transportation component. With the information from the Technical Team, the Panel has already agreed upon future land-use and is currently finalizing on the transportation recommendations for the area.

### ***Existing Conditions***

A combination of vehicle counts and location based travel pattern data were acquired and analyzed to understand the intensity and distribution of traffic within and through the study area. The vehicle count information was used to create AM and PM peak VISSIM models to analyze the roadway network highlighted in Figure 1. The location based data was used to analyze the larger travel patterns and determine percentages of traffic with an origin or destination within the study area and those that did not. All of this existing conditions information was shown to the Panel for their input and feedback to best replicate the existing conditions. This information allowed the Panel and Technical Team to identify areas of need and begin developing project ideas for the transportation scenarios.

### ***Future Traffic Forecasting***

The future analysis year for the transportation improvements was established as 2045. Traffic forecasting for the future conditions is based on two components. As the study area is bisected by US 29 and connects to US 250, the area experiences a considerable number of pass-through trips to and from outside geographic areas. Through location based trip analyses, these pass-through trips were isolated during the existing conditions analysis and grown at an annual rate of 1%. The existing trips derived from land-use that will change in the future were removed. Using the updated land-use, trip generation for the AM and PM peak hours using the ITE Trip Generation Manual. In order to account for internal capture and movement between the sub-areas within the study area, the ITE process for estimating mixed-use trip generation was used. The trips generated from the land-use were then combined with the pass-through trips to create the total traffic input into the traffic modeling. With consideration for planning, growth and the 2045 transportation build year, an estimate of 75% of the total land-use

development was used. Depending on the future scenario (i.e. No-Build, Scenario 1, etc.) traffic movements were distributed based of available movements, amount of traffic and logical routing.

### ***Transportation No-Build Conditions (Year 2045)***

The No-Build condition was based on the existing conditions transportation network, with limited modifications, and the traffic forecasting for the year 2045 as discussed above. This scenario was analyzed based on the AM and PM peak periods in VISSIM. The assumed modifications to the transportation network included optimizing the signal timings based on updated intersection volumes and the removal of the signal at US 29 and Lenox Ave. Additional minor changes such as additional turn-lanes or expansion of side-street approaches were included on a limited basis under the assumption that re-development in the vicinity would minimally require the work. The No-Build condition, rather than the existing condition, has been the primary basis of comparison when evaluating the different transportation scenarios presented to the panel.

### ***Alternative Development***

At the onset of the study, the goal was to present multiple options to the Panel for consideration. Ultimately three scenarios were presented and analyzed in VISSIM for the AM and PM peak hours. While the overall transportation plan includes recommended improvements at numerous locations, the differentiator between the three scenarios was the improvements at the intersection of US 29 and Hydraulic Rd. This intersection became the focal point as it was evident from the modeling the impacts it has on the entire network. Below are the three separate intersection concepts that were presented to the panel:

## TRANSPORTATION RECOMMENDATIONS

- Scenario 1 – Grade Separated Intersection
- Scenario 2 – Continuous Flow Intersection
- Scenario 3 – Grade Separated Roundabout

As mentioned above, the deficiencies shown within the transportation network in the existing and No-Build conditions also led to multiple project ideas that became common elements throughout the three scenarios. The project ideas listed below are the same for each of the three scenarios listed above. It remains possible that additional projects or modifications will occur while further developing the preferred alternative.

- Hydraulic Rd. & District Ave. – Replace traffic signal with roundabout
- Hydraulic Rd. & Hillsdale Ave. – Replace traffic signal with roundabout
- Zan Rd. Area – Provide grade separated pedestrian / bicycle / vehicle connection over US 29
- Angus Rd. – Provide grade-separated intersection and signalized southbound US 29 U-turn (no left turns to / from Angus Rd.)
- Extend Hilldale Dr. from Hydraulic Rd. to Holiday Dr.
- Relocate the westbound US 29 on- / off- ramps to the Hillsdale Dr. extension
- US 250 & Hydraulic Rd. – Extend eastbound US 250 left-turn lane

### ***Outreach and Screening***

As with the land-use component, public outreach is a key factor

for the Panel. In response to this, the Technical Team and Thomas Jefferson Planning District Commission engaged in three events to inform the public and receive comment. Two neighborhood meetings were held in venues near the study on February 21st and 22nd, 2018. Included in these meetings was a brief overview presentation, information boards and open forum discussion on the three transportation scenarios. On March 8th, 2018 the Technical Team organized a Citizen Information Meeting at Charlottesville High School. This meeting included a 15-minute overview video on the process and each scenario, information boards and open forum discussion with the Technical Team and Panel members. Attendees were asked to fill out a comment sheet created by VDOT or provide feedback to the Technical Team later.

While public outreach is a primary factor for the Panel, there are other factors involved in selecting the preferred alternative of the three scenarios. The Technical Team presented multiple iterations or criteria and with the Panel's input, settled on the categories below. The categories were ranked based on technical data or panel discussion and consensus. Weighting of the categories was not included in the initial evaluation and ultimately was not needed. The criteria evaluation and discussion of public input lead to the selection of a preferred alternative.

- Travel time along US 29 through the study area
- Potential Right-of-Way impacts
- High-level construction cost
- Business access impacts
- Vehicle safety benefit
- Initial driver familiarity
- Pedestrian and bicycle accommodations
- Land-use interaction

### Preferred Alternative

Based on the aforementioned quantitative and qualitative criteria and review of the public input, the Panel endorsed Scenario 1 – Grade Separated Intersection as the preferred transportation alternative. This scenario performed well in all measures evaluated in the Smart Scale process and received the most support publicly. A conceptual representation of the intersection improvement at US 29 and Hydraulic Rd. is shown in Figure 2. A conceptual representation of the transportation network for the study area is shown in Figure 3. This may not be the ultimate configuration of this alternative as the Technical Team and Panel will work to find right-sized solutions in response to Panel concerns and public feedback.

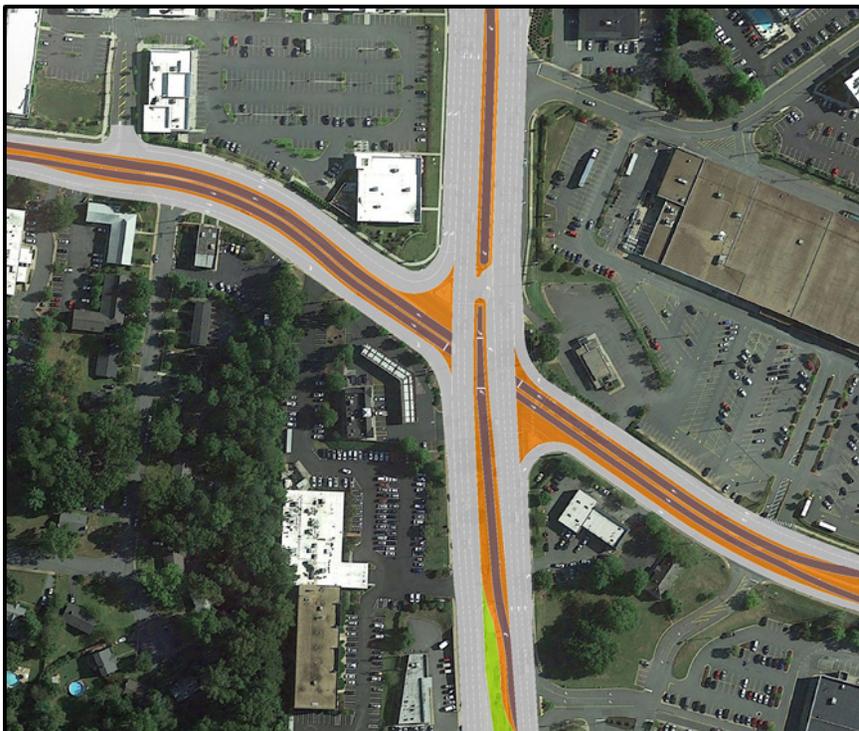


Figure 2

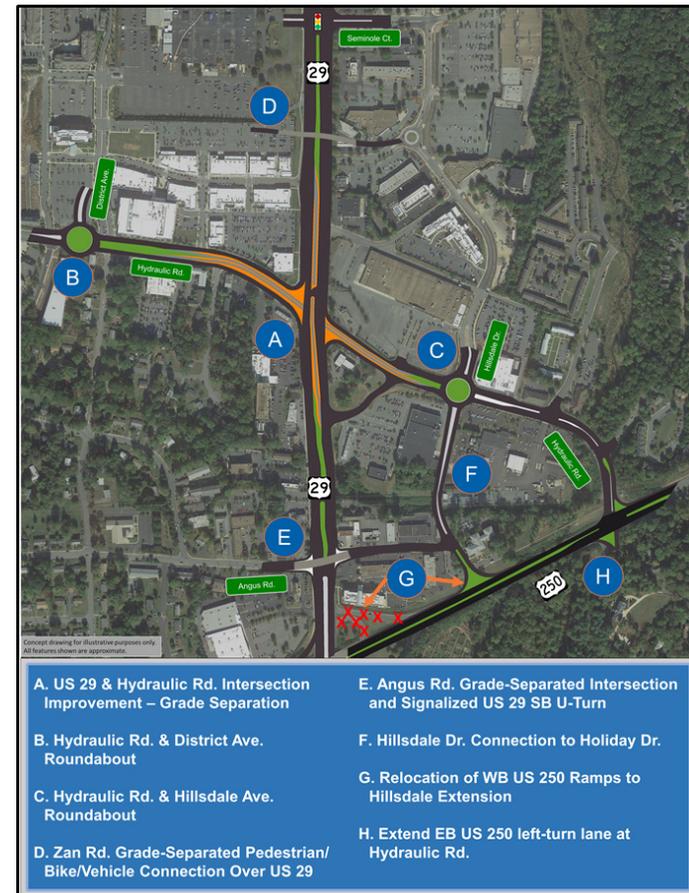


Figure 3

### On-going Activities / Next Steps

Following the selection of Scenario 1 as the preferred Alternative, the Technical Team and Panel will work throughout April to finalize the elements that will be included in the final transportation recommendations. Once the final elements are selected, a determination will be made on which projects to prioritize for the current round of Smart Scale and the proposed schedule for the remaining projects. This process will include additional VISSIM modeling and a closer look at costs and right-of-way impacts. The Technical Team will then work with the localities and TJPDC to select projects for Smart Scale creation and submission. A more thorough and concise documentation of the process will be completed later in the process.

# HYDRAULIC SMALL AREA PLAN

*ALBEMARLE COUNTY, VA  
CITY OF CHARLOTTESVILLE, VA*

**Kimley»»Horn**