

Rio29

AN OPPORTUNITY PLAN

First Adopted December 12, 2018

Revised [Month] [XX], 2026

Adoption of the Rio29 Small Area Plan (SAP) in 2018 was followed by adoption of the Rio29 Form Based Code (FBC) in 2021 as a tool to achieve the vision of the SAP. Early development proposals submitted under the FBC revealed challenges related to the street network, street typologies, and character area recommendations of the SAP.

To improve the function of code, review processes, and to ultimately support the cohesive development of the Rio29 area, revisions to the SAP and FBC were adopted in 2026.

Revisions to the SAP are identified by the note "**UPDATED 2026**" in the footers of individual pages while "▲" is used to indicate revised content.

Rio29 Small Area Plan

ALBEMARLE COUNTY, VIRGINIA

ADOPTED DECEMBER 12, 2018

BOARD OF SUPERVISORS

Ann Mallek, Chair | White Hall
Norman Dill, Vice Chair | Rivanna
Ned Gallaway | Rio
Diantha McKeel | Jack Jouett
Liz Palmer | Samuel Miller
Rick Randolph | Scottsville

PLANNING COMMISSION

Tim Keller, Chair | At-Large
Pam Riley, Vice Chair | Scottsville
Julian Bivins | Jack Jouett
Bruce Dotson | Rio
Karen Firehock | Samuel Miller
Jennie More | White Hall
Daphne Spain | Rivanna
Luis Carrazana | Ex-Officio (UVA)

WORK GROUP

Jess Achenbach, Chip Boyles, Will Cockrell, Bruce Dotson, Ned Gallaway, Craig Kotarski, Dan Mahon, Greg Powe, Brad Sheffield, Karen Weiner, LF Wood, Mark Wood

STEERING COMMITTEE

Sue Albrecht, Diane Berlin, Kevin O'Brien, Mark Crews, Jim Dickman, Rod Gentry, Dan Katz, Tim Keller, Valerie Long, Diantha McKeel, Travis Pietila, Virginia Roy, Peter Thompson, Judy Tobin, Bruce Wardell, Jeff Warner, Bev Webb, Dade Van Der Werf

COMMUNITY ADVISORY COMMITTEE

Places29-Rio: Pete Borches, Michelle Busby, Nancy Hunt, Audrey Kocher, Martin Meth, Tom Paoletti, Rick Seamen, David Wayland
Places29-Hydraulic: Robyn Bolling, Vito Cetta, Sue Friedman, Jane Fogleman, Helene Kaminer, John Lewis, Josh Lewis, Cynthia Neff, Yolanda Speed, Kimberly Swanson, Steven Ward

CONNECTIVITY GROUP

Pete Borches, Will Cockrell, John Jones, John Lewis, Dan Mahon, Kevin McDermott, Adam Moore, Travis Pietila, Chuck Proctor, Virginia Roy, Bev Webb

FINANCE GROUP

Matt Bledsoe, Betty Burrell, Lee Catlin, Catina Crosby, Jenn Davidson, Andrew Gast-Bray, Rod Gentry, Kate Lucas, Diantha McKeel, Kevin O'Brien, Chris Perez, Frank Stoner, Alan Taylor, John J. Young

COUNTY STAFF

Rachel Falkenstein | Principal Planner
Andrew Gast-Bray | Director of Planning
Victoria Glasgow | Intern
Tori Kanellopoulos | Planner
Andrew Knuppel | Neighborhood Planner
Kevin McDermott | Transportation Planner
Melissa Symmes | Intern

▲ REVISED [MONTH] [DAY], 2026

BOARD OF SUPERVISORS

Ned Gallaway, Chair | Rio
Fred Missel, Vice Chair | Samuel Miller
Ann Mallek | White Hall
Bea LaPisto-Kirtley | Rivanna
Mike Pruitt | Scottsville
Sally Duncan | Jack Jouett

PLANNING COMMISSION

Luis Carrazana, Chair | At-Large
Karen Firehock, Vice Chair | Samuel Miller
Corey Clayborne | Rivanna
Lonnie Murray | White Hall
Mary Katherine King | Jack Jouett
Nathan Moore | Rio
Catherine M. Brown | Scottsville

COUNTY STAFF

Mariah Gleason | Senior Planner II
Margaret Maliszewski | Planning Manager
Michael Barnes | Director of Planning
Kevin McDermott |Deputy Planning Director
Tim Padalino | Chief of Parks Planning

TECHNICAL ASSISTANCE FROM

RENAISSANCE PLANNING
Kimley»Horn
Michael Baker INTERNATIONAL

FINANCIAL ASSISTANCE FROM

Office of INTERMODAL Planning and Investment
VTrans 2040

UPDATED 2026

Table of Contents

INTRODUCTION

Introduction Cover Page	Page 4
Invitation to Rio29 Small Area Plan	Page 5
Rio29 Introduction	Page 6
Rio29 Opportunities	Page 7
Rio29 Challenges	Page 8
Historical Context	Page 9
Planning & Engagement	Page 10
Rio29 Vision	Page 11
How to Use this Plan	Page 12

CONNECTIVITY

Connectivity Cover Page	Page 13
Connectivity Overview	Page 14
Connectivity Plan	Page 15
Standards & Guidelines	Pages 16 - 20
Shared-Use Paths	Page 21
Recommendations	Pages 22 - 23

CHARACTER

Character Cover Page	Page 24
Character Overview	Page 25
Character Plan	Page 26
Form & Site Design Standards	Pages 27 - 28
Uses	Page 29
Recommendations	Pages 30 - 31

CONSERVATION

Conservation Cover Page	Page 32
Conservation Overview	Page 33
Conservation Plan	Page 34
Trail Typologies	Page 35
Public Spaces Typologies	Pages 36 - 37
Conservation and Private Development	Page 38
Recommendations	Pages 39 - 40

IMPLEMENTATION

Implementation Cover Page	Page 41
Implementation Overview	Page 42
Zoning	Page 43
Partnerships & Policy	Pages 44
Transformative Projects Overview	Page 45 - 46
Transformative Projects Details	Pages 47 - 55

REFERENCE & APPENDIX

Appendix Cover Page	Page 56
Glossary	Pages 57 - 58
Engagement & Feedback	Page 59
Historical Context	Pages 60 - 62
Metrics	Page 63
Transportation Modeling Overview	Pages 64 - 65
Fiscal Modeling Overview	Page 66 - 68
Image Citations and References	Pages 69 - 71

UPDATED 2026

CHAPTER 1: INTRODUCTION

The Rio29 Small Area Plan is an

OPPORTUNITY PLAN & AN INVITATION

An Invitation to **Reimagine Rio29**

The Rio29 Plan is an invitation for the County, our public partners, and private stakeholders to work together to achieve the vision laid out by the Plan. To make this vision a reality will not only require collaboration and partnership, it will also require progressive and innovative strategies. We invite our partners to work with us and to think creatively about the future of Rio29, because doing so can create community-wide opportunities and facilitate the creation of a great place.

Rio29 Vision

Transforming Rio29 to become...

A multimodal hub that has a **connected** network of complete streets, which are designed for all users.

A vibrant and diverse mixed-use community with interesting **character** and a human-scale built environment.

A place enhanced through **conservation** with a network of sustainable and usable public spaces that enrich community and preserve and enhance natural resources.

An Opportunity for **Property Owners and Developers**

The Plan provides property owners and developers more certainty about the County's expectations for development. The Plan recommends more flexibility in how land is used, which gives property owners further opportunity to grow their revenue. It lays out the framework for an updated zoning code that allows by-right development. Redevelopment is not mandatory, and current businesses may continue to run as they do now.



Hydraulic Road Mural

An Opportunity for **Citizens**

Reimagining Rio29 provides a range of options for county residents of all ages and incomes, such as residential, recreational, cultural, and civic uses. The plan supports what citizens have said they want for this area, namely, a walkable community with public amenity spaces.

An Opportunity for the **County**

The Rio29 Plan supports the County's growth management policy and helps the County provide efficient delivery of services to residents. Redevelopment and new development will help grow the tax base and realize the economic development potential of the area.

The County's Commitment to Rio29

Albemarle County and VDOT have spent a combined total of

$119.8 million

in public investment since 2015

Albemarle County is committed to partnering in the reimagining and redevelopment of Rio29. Past investments in Rio29 demonstrate this commitment and show the County's readiness to support growth in this area. Recent investments have included: Northside Library's construction ($11.8 M); Seminole Trail Fire Station's expansion ($3 M); the full renovation of the Berkmar Rescue Station ($1 M); and the Woodbrook Elementary School expansion ($35 M). In 2016, VDOT finished its $69M Grade Separated Interchange (GSI) located at the intersection of Rio Road and Route 29.



Woodbrook Expansion



Northside Library



Rio29 GSI

Rio29 Overview

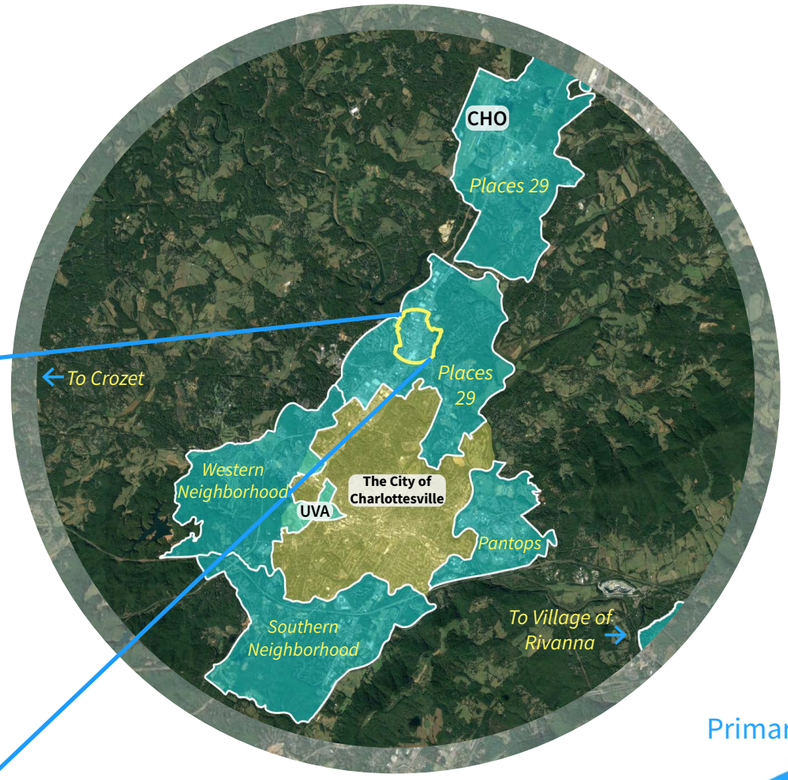
Rio29 Plan Area

Rio29 is located in the Places29 Development Area and is centrally located between three points of interest in the region: it has direct access to the University of Virginia via Route 29 to the South, access to the Charlottesville-Albemarle Airport and the community of Hollymead to the north, and access to Downtown Charlottesville via Rio Road to the east. The central location makes it a prime opportunity for growth and redevelopment and future opportunities for enhanced transit.

Rio29 consists of just under 400 acres of land surrounding the Rio Road and Route 29 intersection, as shown by the blue boundary on the map below. Currently, Rio29 serves as a commercial center for Albemarle County and the region. Four major shopping centers, several small businesses, restaurants, and small offices make up the majority of the land area in Rio29. While the area is mostly commercial, there are several multi-family and apartment communities in the eastern portion of the Plan Area.



Rio29 Location



~1,400 Residents
865 Dwelling Units
28 Single-Family Attached Units
837 Multi-Family Units

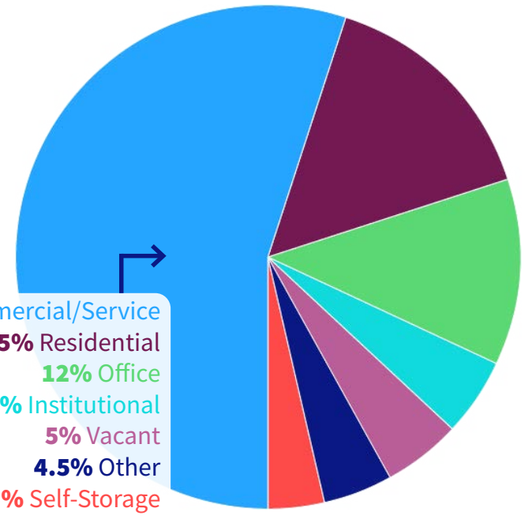
391 acres of land
124 acres of parking lots & driveways
65 acres of buildings
53 acres of roads

A 15-Minute Neighborhood

The boundary of the Rio29 plan is based on a half-mile radius around the intersection of Rio Road and Route 29. This represents the "15-minute neighborhood" concept, in which people's daily needs to shop, dine, work, and live are provided within a 15-minute walk.

Since the Berkeley, Woodbrook, and Raintree neighborhoods will not change from single-family residential as a result of this plan, they have been excluded from the plan boundary.

Primary Land Uses by Parcel



55% Commercial/Service
15% Residential
12% Office
5% Institutional
5% Vacant
4.5% Other
3.5% Self-Storage

Rio29 Opportunities

Space for Development and Precedent for Redevelopment

Much of Rio29 consists of surface parking lots that are rarely more than halfway full. There are several vacant and underdeveloped sites. As property values rise and the market evolves, these underutilized areas can be an opportunity for infill development. Future improvements in transit, bicycle facilities, and pedestrian paths will reduce the need for parking, and the demand for parking in future development can easily be served through structured parking.

An example of a successful redevelopment in the Rio29 area is the Northside Library, which is currently the most popular branch in the Jefferson-Madison Regional Library system. The library building was completed in 2015 and is an adaptive reuse of a former warehouse building.

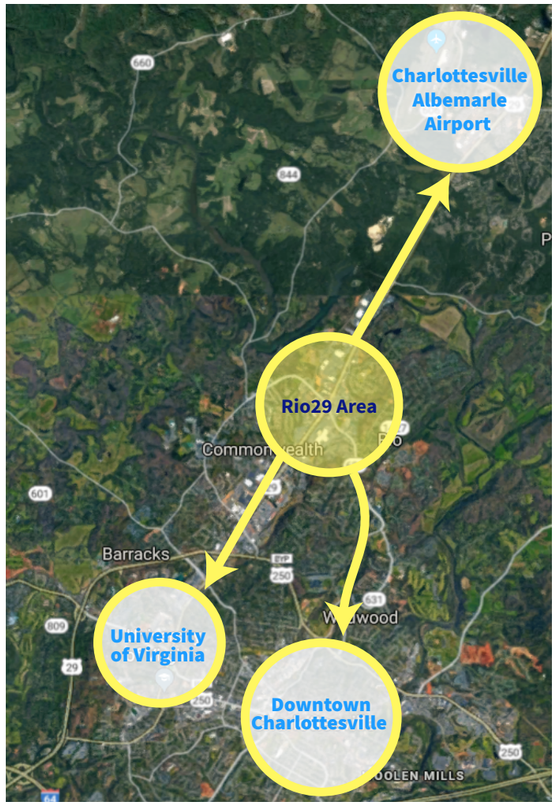
The library's popularity demonstrates the capacity for change in the area and a strong demand for more public spaces.



School's Out Block Party at Northside Library (6/12/2018)

Strategically Located

Rio29's location offers easy access to Charlottesville-Albemarle Airport, Downtown Charlottesville, and the University of Virginia, making it a prime location for a future transit hub.





Vacant Warehouse Adjacent to Northside Library

Businesses Benefit

A National Consumer Preference Study found that 66% of people wanted to live within walking distance to stores. Mixed-use spaces attract people and entice them to "visit often, stay longer and spend more money". Retail activity can be 4x higher in mixed-use areas than strip malls.

Rapid regional job growth and low office vacancy rates in the Charlottesville -Albemarle Region demonstrate a strong market for the area to support more employment sector uses.

Charlottesville's Urban Ring Office Space Vacancy:

3.8%

Infrastructure and Investment

Portions of Rio29 are designated as Urban Development Areas, and the Rio29 area is a priority for public investment in the Places29 Master Plan. The Small Area Plan is a detailed plan highlighting the County's continued commitment to providing Rio29 with revitalization, redevelopment, and future investment.



View from Rio29 GSI Looking South

Patrons who arrive by foot or bicycle visit stores more often and spend more money per month.

Millennials (born between 1981-1996) prefer walking as a means of transportation by 12 percentage points over driving, and favor developing communities where people do not have to drive long distances to work or shop.

A 10-point increase in Walk Score increases commercial property values by 5%-8%.



Seminole Trail Fire Station

A place designed for **cars.**

Unconnected and Unsafe for Bicycles and Pedestrians

Rio29 has few sidewalks and even fewer bicycle lanes. Existing sidewalks have obstructions and some end abruptly. There are no buffers between fast moving traffic and pedestrians.





Lack of Human Scale

The area consists of four large superblocks, each superblock is over one thousand feet (about three football fields) long and bounded by major roadways. Inside these superblocks, buildings are set back hundreds of feet from the main roads.

These large setbacks and superblocks collectively create an unwelcoming environment for pedestrians and cyclists due to the lack of human scale.





The ideal block size for walkability is about 1-4 acres.

1 66.4 acres 2 22.6 acres 3 54.4 acres 4 40.3 acres

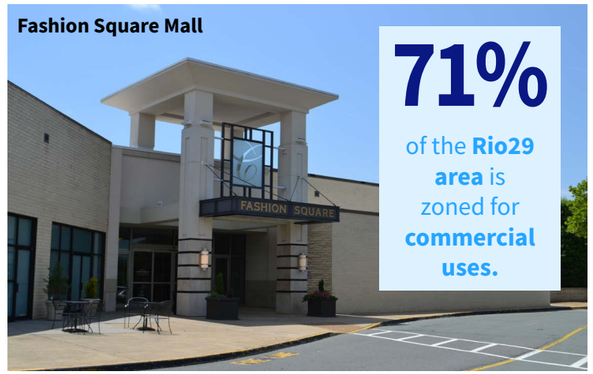


Superblocks in the Rio29 Area

Predominantly Retail

Large strip centers surrounded by surface parking currently dominate Rio29's development pattern.

Recently, conventional retail has struggled across the nation: 19 national retail chains filed for bankruptcy in 2017 alone. Rio29 has experienced recent retail and anchor store closures, suggesting that more may follow in the coming years. These trends forecast changes to Rio29's retail environment and indicates that it is prime for redevelopment.





Commercial Zoning in the Rio29 Area

- Highway Commercial
- C1 Commercial
- Planned Development Shopping Center
- Commercial Office
- Planned Development Mixed Commercial

A Paved Environment with Few Public Amenities

There are no parks or public outdoor spaces in Rio29. The one short public trail in Rio29, near Arden Place Apartments, is not connected to any others. Most of the area's natural features have been graded and paved over. Multiple streams are piped under buildings and parking lots. Many streets do not have street trees, and landscaping is sparse, which can lead to the urban heat-island effect and stormwater management issues.

Some of the undeveloped natural features are owned by Albemarle County and can be preserved as part of a future public green-space network.

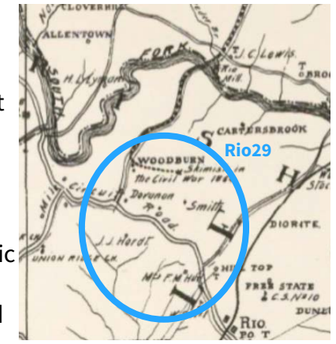


County-Owned Property: "Woodbrook Lagoon"

Historical Context

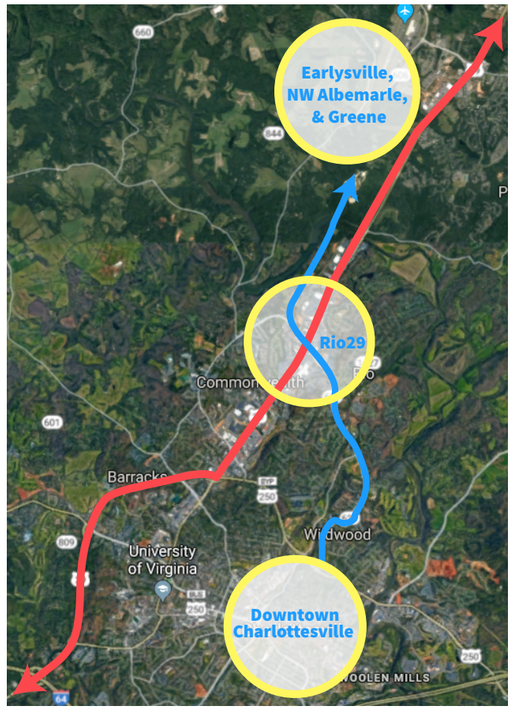
The Importance of History

The Plan recommends understanding history to tell the story of Rio29, including how it developed to its current form and how this history may be recognized through our public space and design choices. Doing so can help support a unique and authentic identity for Rio29 and help future generations understand the historical and cultural contexts of the area.



1907 Massie Map of Albemarle County

Although Rio29 is currently a suburban crossroads envisioned as an urban center, it has existed as rural space for much of its history. Rio Road historically served as a primary connection between Charlottesville, settlements in northwest Albemarle County, and the northern Virginia Piedmont. The cultural landscape surrounding Rio29 is richly layered with settlement patterns and historic & cultural resources related to the Monacan tribe, mill villages along the Rivanna River, the Civil War, and freedmen's communities. More information on these nearby communities and resources can be found in the Appendix.



Rio Road, in existence since (at least) the early 19th century, historically connected Charlottesville to the Rio Mills and northern outlying areas. The current alignment of Route 29 was constructed in intervals between the 1930s and the 1960s.

The Battle of Rio Hill

In the only significant Civil War engagement in Albemarle County, General George A. Custer set out with 1,500 men to raid the County on February 29th, 1864. The raid was meant as a diversionary tactic to distract from the cavalry raid on Richmond. They launched a surprise attack against the Stuart House Artillery Battalion which contained about 200 men in their winter quarters, located on the slope behind present-day Agnor-Hurt Elementary School on Berkmar Drive.

During the skirmish, Custer mistakenly believed that he and his men were outnumbered and retreated. They set the Rio Mills bridge on fire on their way out, leaving only foundations and mill stones that mark the bridge's past existence today.



Harper's Weekly depiction of Custer's Raid into Albemarle County, February 29th-March 1st, 1864

Construction of Route 29

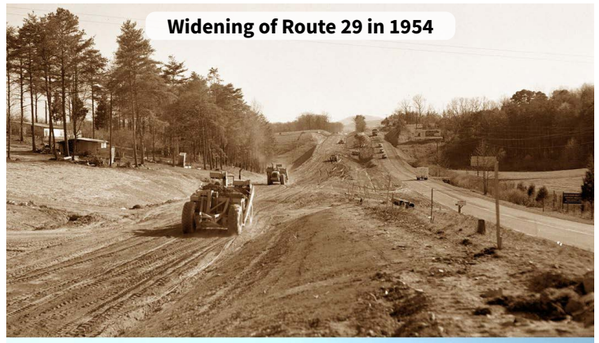
At the advent of the auto age, new highway policies changed the status of roads in Virginia. The 1916 Federal Aid Road Act and the establishment of a state highway system in 1918 meant state and federal actors, not localities, would lead the construction of road projects.

In 1931, state officials established a uniform US Route number, 29, from Danville to Warrenton. Its original path north of Charlottesville followed Hydraulic, Earlysville, and Advance Mills Roads. Between 1932 and 1934, concurrent with the adoption of the Byrd Road Act and state control of highways, Route 29 was realigned to its current location, including its intersection with Rio Road. This section of Route 29 received its next major improvements in the 1950s, when it was gradually widened to become a divided highway between Hydraulic Road and Proffit Road.

Suburbanization

By the 1960s, Interstate 64 and the Route 29/250 bypasses were completed, providing motorists with free-flowing high-speed roads and diverting traffic away from Charlottesville's downtown district. Suburban development flourished as affordable, accessible rural land was converted to commercial and residential uses. Examples include the Barracks Road Shopping Center, Berkeley, and Woodbrook along Route 29 north of Charlottesville, and auto dealerships along Route 250 near Pantops.

Significant growth in the area during the 1960s, 1970s, and 1980s led to the rapid development of the Rio29 area and Albemarle's urban ring. Contemporary policies such as Euclidean zoning, which was adopted in Albemarle in 1969, codified auto-centric attitudes into the built environment through the separation of uses and large minimum parking and setback requirements.







Opening Day at Fashion Square Mall, March 5th, 1980

Planning & Engagement

The Planning Process

Planning for Rio29 began in April 2016 and consisted of three phases. The planning process and scope considered the policy context of the County's Comprehensive Plan and Places29 Master Plan while engaging the community in determining the preferred form and amenities.

County staff and consultant teams conducted stakeholder outreach during the process, hosted community meetings and open houses and convened work groups and steering committees.

TOP RIO29 PUBLIC COMMENT TOPICS

1	Bike/Ped and Transit	345 comments
2	Green Space + Amenities	276 comments
3	Mixed-Use Development	237 comments
4	Placemaking	231 comments

For more information on public comments, see the online summaries here.



The **Comprehensive Plan** is a County-wide policy document establishing the Growth Management Policy, with designated Development Areas comprising approximately 5% of the County's land area. It calls for Master Plans to guide growth and investment in Development Areas and establishes the Neighborhood Model Design Guidelines.

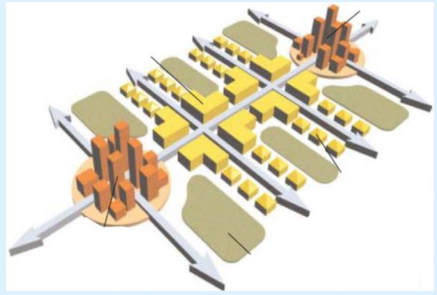
The **Places29 Master Plan** calls for a multimodal, mixed-use future for the County's Northern Development Areas along Route 29. It provides high-level land use and transportation improvement recommendations and identifies topics for future study, including a Small Area Plan at Rio29.

The **Rio29 Small Area Plan** establishes a detailed plan for the area's future development and investment, with specific transportation, land use, and urban design recommendations. It further details and prioritizes policies and projects for ready and effective **implementation.**

PHASE I: VISIONING

Early visioning for a larger Rio29 study area identified key themes including a desire for walkability, amenity spaces, and a wider mix of uses. The community embraced the concept of the 15-minute walkable community with development centered around nodes, but citizens felt they should concentrate on the Rio29 node in the short term.

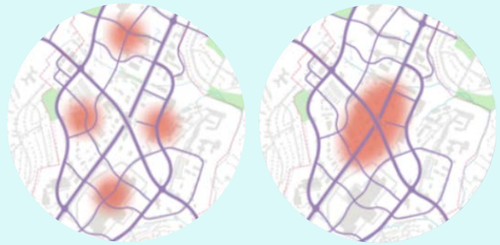
Phase I was funded through the Office of Intermodal Planning and Investment and was completed by March 2017.



Node Concept Presented at Community Meeting #2

PHASE II: DESIGN

Phase II developed a preliminary land use plan, urban design plan, transportation plan and implementation action plan for Rio29. A charrette in May 2017 developed three design alternatives, "Streets", "Squares", and "Station". The transit hub featured in the "Station" concept received strong support, as did the organization in "Squares". A design concept combining these two concepts into a connectivity plan and framework was endorsed by the Board of Supervisors in January 2018.



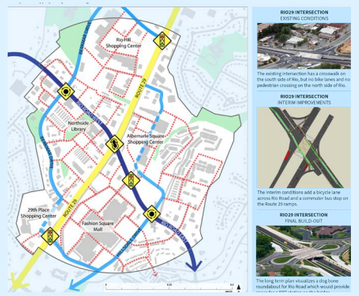
Squares *Station*

Design Alternatives Presented at Community Meeting #4

▲ Early development proposals under the Rio29 Form-Based Code (FBC), along with feedback from the development community, indicated that an approach more closely aligned with the "Squares" design alternative would better achieve the vision of Rio29 Small Area Plan (SAP) and support increased development under the FBC. The 2026 updates shift the underlying framework of the SAP accordingly.

PHASE III: ADOPTION

Phase III began in February 2018 and included further refinement of the design concept and economic and fiscal modeling. Staff further developed design concept around the themes of Connectivity, Character, and Conservation. Implementation recommendations include initial development of a form-based code and review process improvements.
The Board directed staff to advance the draft concepts to a Comprehensive Plan Amendment in August 2018.



Connectivity Plan Presented at Community Meeting #6

Rio29 Vision

The Plan establishes a long-range vision and supporting recommendations for the transformation of Rio29. Citizens, stakeholders, public officials, and staff worked together to develop the vision and recommendations on the following pages. This Plan provides a guide to future decision making related to development and redevelopment, public investment, and capital projects for the area. The following chapters focus on the three topic areas from the vision: **Connectivity**, **Character**, and **Conservation**. The last chapter, **Implementation**, provides a road-map for achieving the vision.

CONNECTIVITY

Transform Rio29 into multimodal hub that has a connected network of complete streets, which are designed for all users.

The Connectivity Chapter focuses on how the street network and transportation facilities in Rio29 can be transformed to address the community's desire for alternative modes of transportation, such as walking, biking, and transit. This chapter lays the transportation framework for Rio29 and suggests a future street network and supporting recommendations to facilitate the vision.

Supporting Recommendations

- Create a multimodal hub at Rio29.
- Establish a connected street network.
- Design the street network for all users: Transit Riders, Pedestrians, Bicyclists, and Motorists.
- Plan for the future and utilize technology to facilitate alternative modes of transportation.

CONSERVATION

Transform Rio29 into a place enhanced through conservation with a network of sustainable and usable public spaces that enrich community and preserve and enhance natural resources.

The Conservation Chapter focuses on transforming Rio29 to a more green and sustainable place, accommodating the community's desire for green amenities and public spaces. This chapter lays a framework for a connected network of outdoor public amenities and green spaces and includes supporting recommendations to facilitate the vision.

Supporting Recommendations

- Create a network of vibrant and usable public spaces.
- Use the public realm as an opportunity for placemaking, community building, and storytelling.
- Protect and enhance natural resources.
- Use sustainable design choices in public spaces and encourage sustainable choices in private development.

CHARACTER

Transform Rio29 into a vibrant and diverse mixed-use community with interesting character and a human-scale built environment.

The **Character Chapter** focuses on the form, feel, and use of Rio29. This chapter addresses the Community's desire for placemaking and a wider mix of uses and recommends the transformation of this area into a more vibrant place. This chapter lays a framework for the form of future development and redevelopment and includes supporting recommendations to facilitate the creation of a more vibrant and active place.

Supporting Recommendations

- Create an identity for Rio29 through the built environment.
- Establish an urban form that is human-scale and pedestrian oriented.
- Provide a range of housing options and a mix of property uses.
- Create vibrant streets.
- Encourage the desired form and allow flexibility in use.

IMPLEMENTATION

The Implementation Chapter tackles the question of how we will achieve the vision for Rio29. This chapter identifies policy updates, partnerships, and investments that are necessary steps to implement the connectivity, character, and conservation recommendations for Rio29.

Supporting Recommendations

- Establish a performance management framework for tracking Indicators of Progress and explore implementation of civic technology solutions.
- Facilitate an engaging and inclusive community design process in support of the Recommendations throughout the Plan's chapters.
- Update policies and zoning regulations to achieve the desired form through an efficient, predictable process.
- Pursue partnerships and incentives that advance County priorities and improve the financial viability of strategic projects.
- Undertake Transformative Projects to catalyze the desired development and make the area a popular place to live and work.

How to Use this Plan

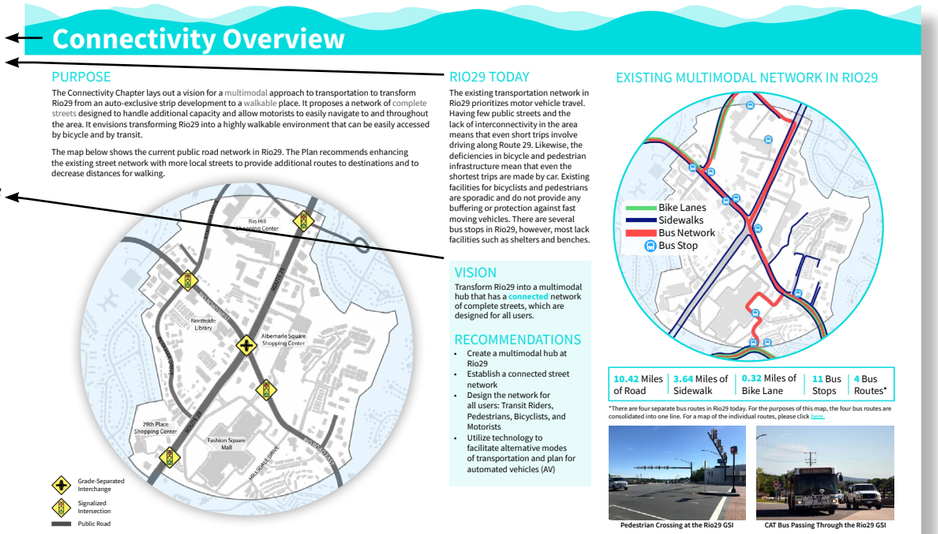
The Plan is organized into three body chapters, each tackling one of the vision elements (Connectivity, Character, Conservation) and an Implementation Chapter. Each chapter contains information about existing conditions, a proposed network or map, and supporting recommendations.

▲ With the 2026 update, the organization of the plan described below remains accurate, but the images on this page have not been updated to coordinate with changes made elsewhere in this plan.

Chapter Section Name

Rio29 Today

Vision & Summary of Recommendations



Chapter Title & Page Number



Detailed Recommendations

Key Outcome
How We Will Measure Progress

Proposed or Future Map



Legend



Project Name

Project Location in Rio29

Project Timing, Cost, and Funding

Vision the Project Supports

Project Description

CHAPTER 2: CONNECTIVITY

Transform Rio29 into a multimodal hub that has a **connected** network of complete streets, which are designed for all users.

Connectivity Overview

PURPOSE

The Connectivity Chapter lays out a vision for a multimodal approach to transportation to transform Rio29 from an auto-exclusive strip development to a walkable place. It proposes a network of complete streets designed to handle additional capacity and allow motorists to easily navigate to and throughout the area. It envisions transforming Rio29 into a highly walkable environment that can be easily accessed by bicycle and by transit.

The map below shows the current public road network in Rio29. The Plan recommends enhancing the existing street network with more local streets to provide additional routes to destinations and to decrease distances for walking.



RIO29 TODAY

The existing transportation network in Rio29 prioritizes motor vehicle travel. The lack of interconnected public streets and deficiencies in bicycle and pedestrian infrastructure mean that even the shortest trips are made by car. Existing facilities for bicyclists and pedestrians are sporadic and do not provide any buffers or protection against fast moving vehicles. There are several bus stops in Rio29, however, most lack user facilities such as shelters and benches.

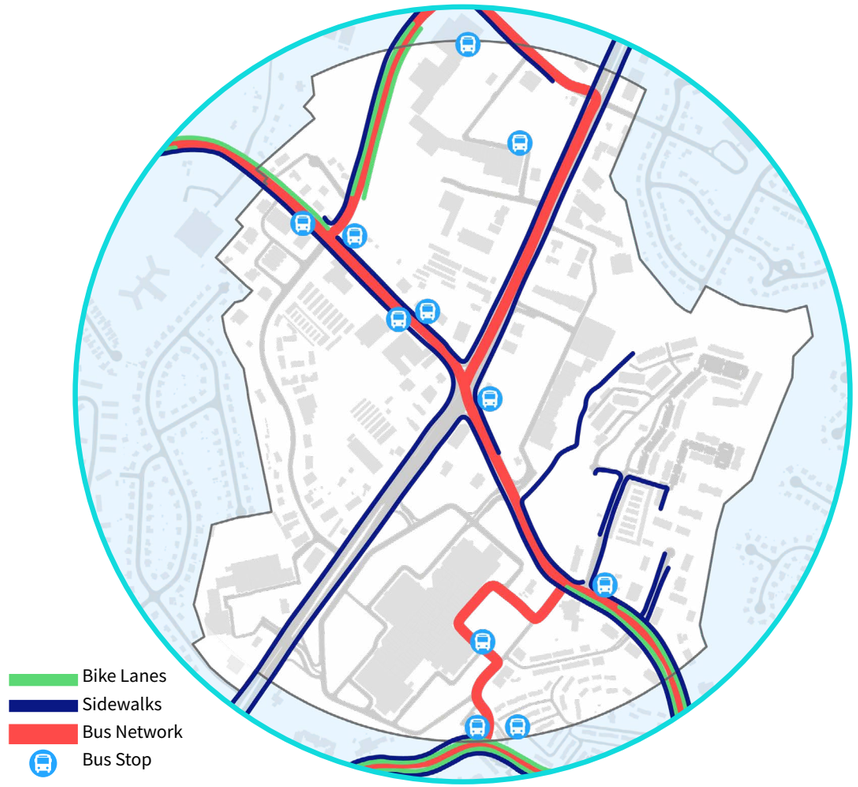
VISION

Transform Rio29 into a multimodal hub that has a **connected** network of complete streets, which are designed for all users.

RECOMMENDATIONS

- Create a multimodal hub at Rio29.
- Establish a connected street network.
- Design the network for all users: Transit Riders, Pedestrians, Bicyclists, and Motorists.
- Utilize technology to facilitate alternative modes of transportation and plan for automated vehicles (AV).

EXISTING MULTIMODAL NETWORK IN RIO29



10.42 Miles of Road	**3.64** Miles of Sidewalk	**0.32** Miles of Bike Lane	**11** Bus Stops	**4** Bus Routes*

*There are four separate bus routes in Rio29 today. For the purposes of this map, the four bus routes are consolidated into one line. For a map of the individual routes, please click here.



Pedestrian Crossing at the Rio29 GSI



CAT Bus Passing Through the Rio29 GSI

Connectivity Plan

▲ FUTURE STREET NETWORK

The Connectivity Plan proposes a grid-like street network for Rio29. A connected grid can better connect residents within the district and surrounding neighborhoods to the district's centers of activity, known as "Core" areas in the Plan. Core areas, shown in pink, are detailed in the next chapter. A connected grid can also connect neighborhoods to one another without diminishing the quality or character of the neighborhoods. Proposed streets should be designed for motorists, pedestrians, bicyclists, and transit riders. The grid network provides more direct routes to destinations that will allow people to more easily walk, bike, or drive to locations within Rio29.



STREET TYPOLOGIES

BOULEVARD

AVENUE

LOCAL STREET

THROUGH CORRIDOR
ROUTE 29

OTHER MAP SYMBOLS

OFF-STREET SHARED-USE PATH

LOCATION OF DESTINATION STREET

INTERSECTION IMPROVEMENTS

NOTES:

- Boulevards accommodate bicycle travel on wider sidewalks until continuous, grade-separated bicycle lanes are constructed within reserved areas.
- Avenues accommodate bicycle travel on a shared-use path located on one side of the street.
- Local Streets accommodate bicycle travel on-street using shared lane markings (sharrows).
- Dashed lines indicate the approximate locations of new streets.

▲ABOUT THE STREET NETWORK

The Connectivity Plan proposes an organization of streets that establishes a walkable, grid-like network of streets and bike and pedestrian paths. The basis of the street grid is formed by blocks that are approximately 400 feet in length. With existing blocks that are often large, exceeding 1,000 feet in length, and bounded by major roadways, smaller blocks will support environments that are more welcoming and walkable for pedestrians. The network of streets illustrated in the map achieves the Plan's goals for connectivity. However, future development in Rio29 will determine the exact placement of streets.

In Rio29, street configuration will play a significant role in shaping built form. Street sections, along with building standards (detailed in Chapter 3) establish appropriate relationships between buildings, sidewalks, and streets. Standards and guidelines for each street type are provided in the next several pages. They are tailored to support the function (for example, a bike/pedestrian connection, a pedestrian-focused "main street," a neighborhood street, or a limited access highway) in the larger transportation network. They are also tailored to the capacity (the collective number of pedestrians, cyclists, buses, and vehicles that are supported) of each street type.

Destination Streets are a specialized street type. They are a mechanism to establish activity centers and commercial focal points within Core character areas (see Chapter 3). These streets are intended to prioritize pedestrians, support nearby businesses, and foster a sense of place that serve as an anchor for the surrounding community. This dynamic is supported by standards and guidelines that require wider sidewalks, visually engaging building frontages, and other design features that create a welcoming pedestrian experience. While these streets may accommodate vehicle traffic, they could also be pedestrian-only. Each Core character area should have at least one Destination Street. Since the future development of Core areas is flexible, potential Destination Street locations are illustrated as Local Streets on the map.

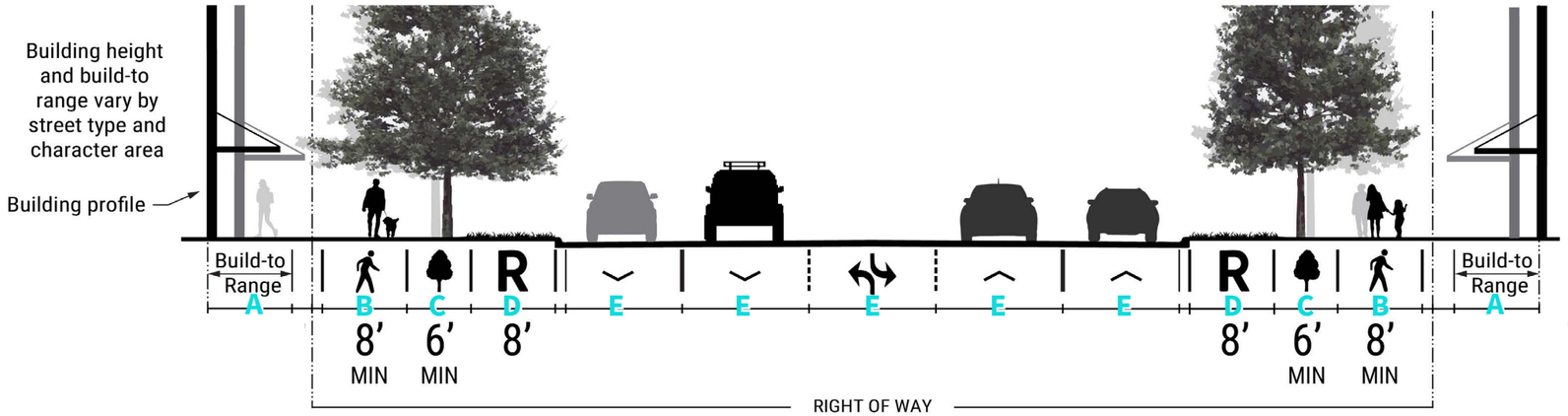
▲ **NOTES:** Street sections shown on the next several pages were developed using guidance from the Virginia Department of Rail and Public Transportation's Multimodal System Design Guidelines, The National Association of City Transportation Officials' Urban Street Design Guidelines, The Virginia Department of Transportation's (VDOT) Road Design Manual and in coordination with County Transportation Planning Staff. Best practice recommendations from these guidelines were adjusted to reflect existing conditions and local preferences.

Cross sections depict recommended minimum dimensions or a range of allowable dimensions. Variations and reductions to widths may be permitted to accommodate special circumstances, such as where existing streets have constrained rights-of-way, and where an equivalent alternative can be provided. Appropriate transitions to adjacent properties must be provided where width reductions are permitted. Reductions in road width may be permissible, where deemed appropriate by VDOT. Furthermore, flexibility needs to be provided to allow for streets to evolve over time as needed. All public streets are subject to VDOT approval.

Standards and Guidelines

Boulevard

Rio Road East & West



Boulevards are wide, landscaped streets designed to carry high volumes of motor vehicle traffic, typically at speeds of 35-45 mph, and generally feature multiple lanes of traffic in each direction separated by a center turn lane or median.

Rio Road is the only proposed Boulevard in Rio29 and is expected to continue functioning as a high capacity, four-lane roadway serving both local and through traffic.

As prominent connections within the district, these roads must accommodate safe and convenient bicycle and pedestrian travel to support a walkable, multimodal district. However, due to vehicular speeds and the absence of continuous bicycle infrastructure along these roads, developing parcels should reserve an 8-foot-wide area for future grade-separated, one-way bicycle lanes on both sides of the street. Reserving this area will allow the build-out of continuous bike lanes in the future without requiring the relocation of existing stormwater management infrastructure.

	Street Feature	Dimensions
A	Build-to Range	3’-10’
B	Pedestrian Zone (Sidewalk)	8'
C	Landscaped Separation Zone	6’
D	(R) Reservation for future bike lane between the curb and landscaped separation zone	8'
E	Lane Width	Determined by VDOT

[1] Appropriate locations for either a sidewalk or shared-use path should be determined in collaboration with Planning and VDOT staff during project design.
[2] Sidewalks and shared-use paths should be coordinated with adjacent properties by continuing the planned street design and providing appropriate transitions where neighboring facilities have not yet been constructed.

EXISTING CONDITIONS



Rio Road West, Looking NE



Rio Road East, Looking NW

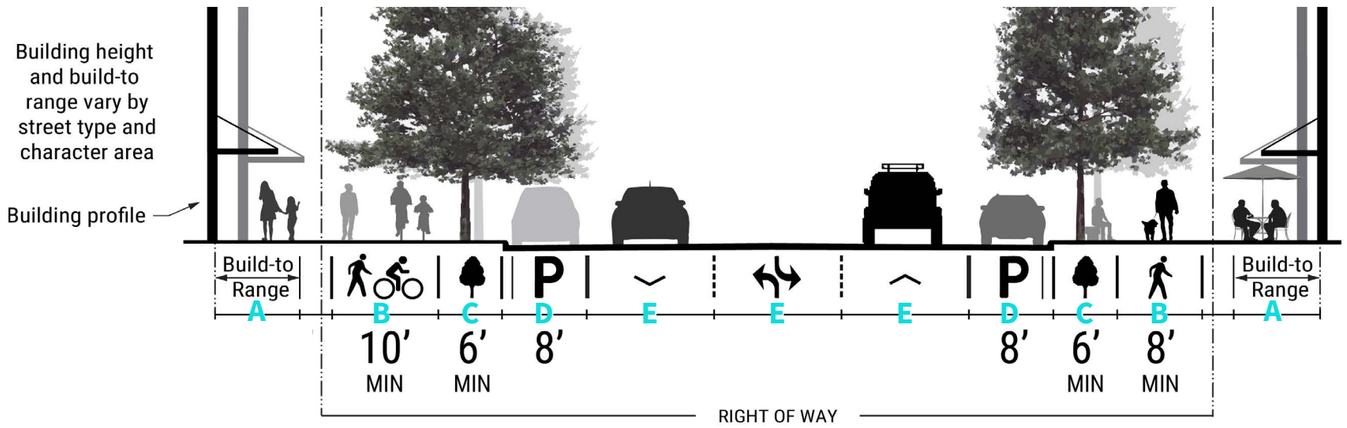
PRECEDENTS



17th Street Santa Monica, CA

Avenue

Berkmar and Hillsdale Drive



Avenues are intermediate-sized, landscaped streets designed for moderate traffic volume and speeds (25-35 mph). Avenues are wider than Local Streets but narrower than Boulevards, typically having one to two lanes of traffic in each direction. Within Rio29, Hillsdale Drive and Berkmar Drive are both Avenues. A key element of the Connectivity Plan is the interconnection of these two streets, forming a nearly complete loop around the Rio Road/Route 29 intersection. This secondary circulation system offers a beneficial alternative to higher-speed, higher-volume roadways and supports essential bicycle and pedestrian connections throughout the district.

The Connectivity Plan recommends realigning Hillsdale Drive east of Fashion Square Mall, incorporating a roundabout at Rio Road, and continuing north through Albemarle Square. The Plan also recommends realigning Berkmar Drive to an existing signalized intersection at Route 29 to provide a more direct connection to the Hillsdale Drive extension at Fashion Square Mall. While alternative alignments and intersection improvements could be possible, connectivity between these streets is vital.

	Street Feature	Dimensions
A	Build-to Range	3’-10’ 3-25' in Edge Character Areas (See Chapter 3)
B	Pedestrian Zone (Sidewalk or Shared-Use Path (SUP))	Sidewalk = 8’ SUP = 10’
C	Landscaped Separation Zone	6’
D	On-Street Parking	7'-9'
E	Lane Width	Determined by VDOT

[1] Appropriate locations for either a sidewalk or shared-use path should be determined in collaboration with Planning and VDOT staff during project design.
[2] Sidewalks and shared-use paths should be coordinated with adjacent properties by continuing the planned street design and providing appropriate transitions where neighboring facilities have not yet been constructed.
[3] Appropriate locations for on-street parking should be determined in collaboration with Planning and VDOT staff during project design. On-street parking is not expected or required for the entire length of the street.

EXISTING CONDITIONS



Berkmar Drive



Hillsdale Drive

PRECEDENTS

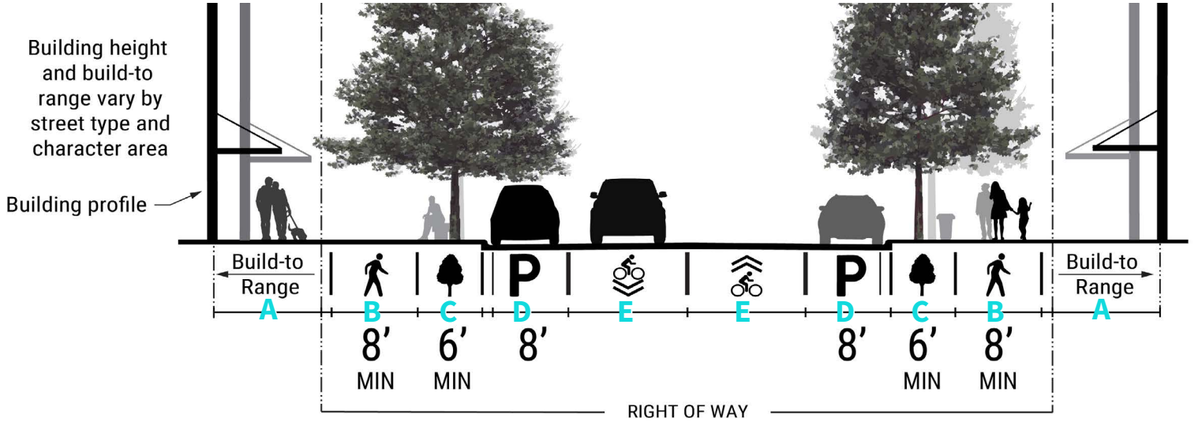


Rendering of West Florissant Avenue “Great Streets Project”
St. Louis, Missouri



Midtown Atlanta Atlanta, GA

▲ Destination Streets



Destination Streets serve as activity centers and community focal points, providing places where people can gather, spend time, and engage in a range of activities, similar to Bond Street at The Shops at Stonefield. In the Connectivity Plan, locations of new Destination Streets are shown as general areas that align with Core Character Area designations (see Chapter 3). Each Core Character Area should include at least 1,200 feet (approximately 1/4 mile) of Destination Street, which may be distributed among multiple adjoining streets and parcels. Destination Streets should be constructed with the first development projects within each Core Character Area to establish a strong framework and encourage subsequent redevelopment, activity, and uses consistent with this Plan. Developers should propose Destination Street locations and alignments that accommodate their development proposals while supporting an interconnected street network that is generally consistent with the Connectivity Plan.

Uses along Desination Streets should be comprised of commerical, retail, and publicly accessible spaces such as institutional buildings or recreation spaces. Design standards along Destination Streets prioritize the pedestrian experience through wider sidewalks, streetscape furniture, visually engaging and transparent building frontages, and other design elements that create a comfortable, inviting, and walkable pedestrian environment. Destination Streets may accommodate vehicular traffic or be designed as pedestrian-only streets.

	Street Feature	Dimensions
A	Build-to Range	3’-10’
B	Pedestrian Zone (Sidewalk)	8'
C	Landscaped Separation Zone	6’
D	On-Street Parking	7'-9'
E	Lane Width	Determined by VDOT

[1] Appropriate locations for on-street parking should be determined in collaboration with Planning and VDOT staff during project design. On-street parking is not expected or required for the entire length of the street.

EXISTING CONDITIONS



Albemarle Square Shopping Center



Rio Hill Shopping Center

PRECEDENTS

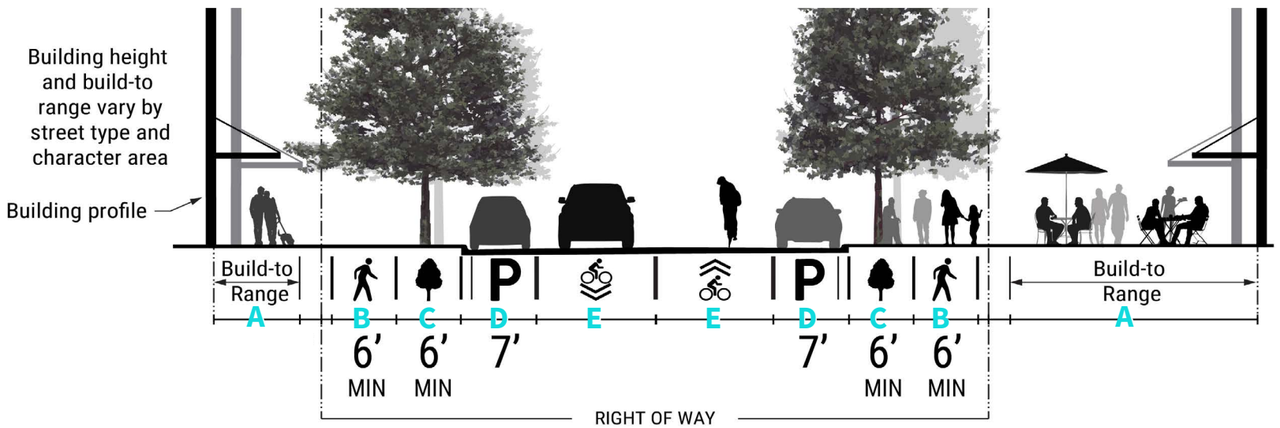


Decatur, GA



Hudson, OH

Local Streets



	Street Feature	Dimensions
A	Build-to Range	3’-10’ 3-25' in Edge Character Areas (See Chapter 3)
B	Pedestrian Zone (Sidewalk)	6'
C	Landscaped Separation Zone	6’
D	On-Street Parking	7'-9'
E	Lane Width	Determined by VDOT

[1] Appropriate locations for on-street parking should be determined in collaboration with Planning and VDOT staff during project design. On-street parking is not expected or required for the entire length of the street.

Local Streets are low-capacity, low-speed streets that form the foundation and majority of Rio29’s street network. They provide the final links between higher-capacity thoroughfares and individual destinations. Local Streets are designed to foster a safe, neighborhood-oriented atmosphere and can incorporate design features and traffic calming measures, such as curb cuts and strategic on-street parking, to enhance the pedestrian experience. Local Streets are expected to fill in as redevelopment of private property occurs.

Local Street locations on the Connectivity Plan are conceptual and do not need to be located exactly as shown. At a minimum, the same number of streets and connections should be provided.

EXISTING CONDITIONS

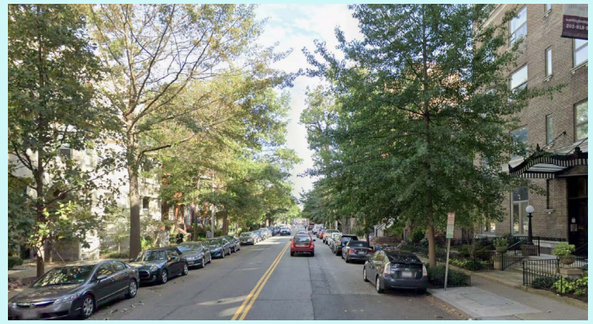


Rio East Court



Greenfield Terrace

PRECEDENTS



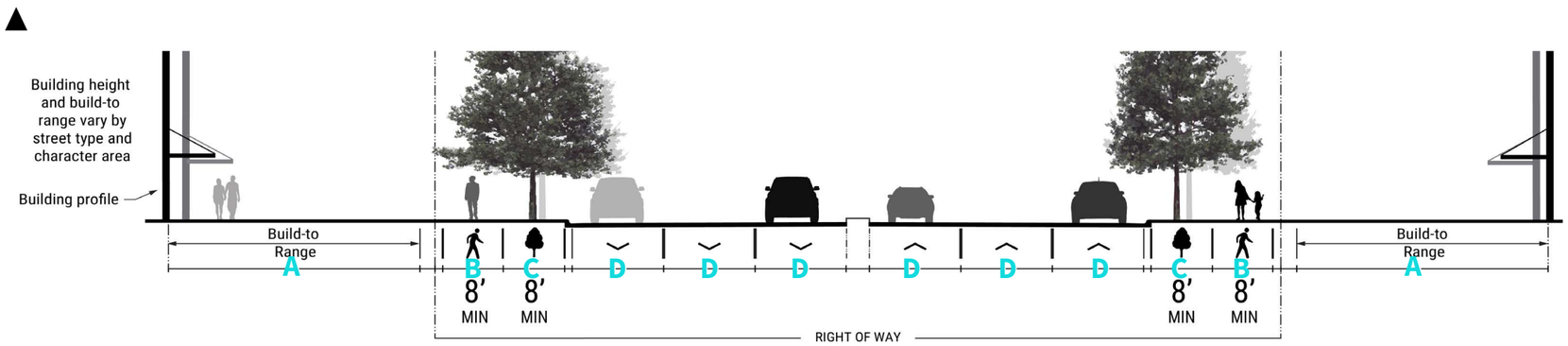
Washington, D.C.



Beaverton, OR

Through Corridor

Route 29



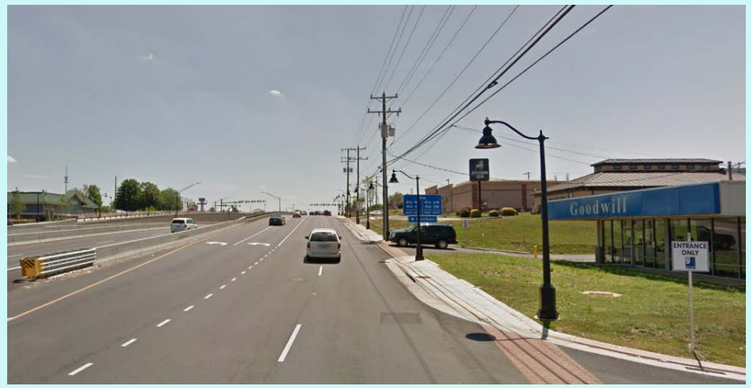
Through Corridors are high-capacity streets designed to facilitate efficient vehicular movement and accommodate potential future high-frequency transit. They typically feature multiple lanes of traffic in each direction, often divided by a median, and higher speed limits (45 mph or more). Wider landscaped separation zones support pedestrian safety and comfort along this street type.

As a Through Corridor and VDOT designated Corridor of Statewide Significance, Route 29 must maintain its high capacity function.

Existing ramps between Route 29 and Rio Road act as connector streets, safely bridging streets with different speeds. These ramps should incorporate sidewalks to support seamless pedestrian connectivity through and throughout the Rio29 district.

	Street Feature	Dimensions
A	Build-to Range	3’-35’
B	Pedestrian Zone (Sidewalk)	8'
C	Landscaped Separation Zone	8’
D	Lane Width	Determined by VDOT

EXISTING CONDITIONS



Route 29 South on Ramp Approaching Rio Road

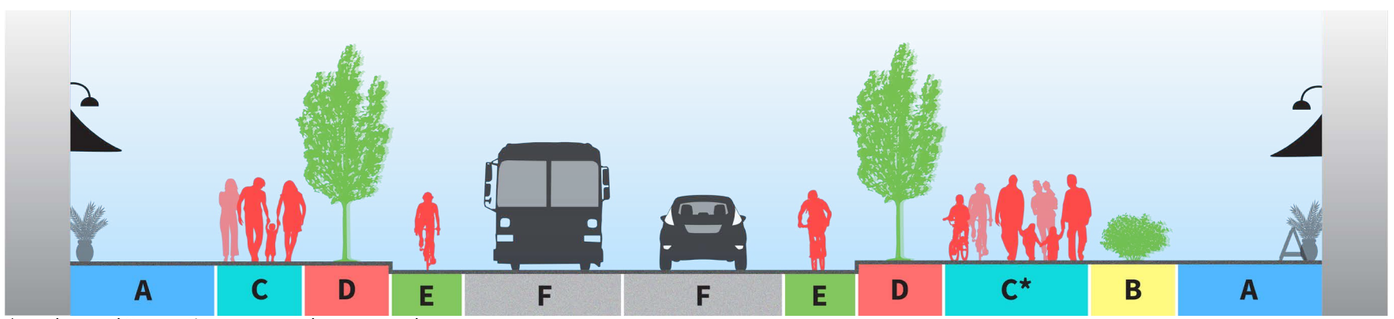
POTENTIAL FUTURE



Glenwood Avenue Raleigh, NC

The Northtown Trail and Shared-Use Paths

▲ Example of a street section providing a Shared Use Path in lieu of a Sidewalk



**Landscaped Separation Zone not drawn to scale.*

In 2017, a paved shared-use path (SUP) was constructed along the new Berkmar Drive extension across the South Fork Rivanna River to Hollymead Town Center. Currently the southern terminus of the SUP is Hilton Heights Road, just north of Rio29. The County has secured funding to extend the SUP from Hilton Heights Road south to Woodbrook Drive, with plans to extend to Rio Road in the future. For this section of Berkmar Drive, the eastern side of the street will have a SUP in lieu of a sidewalk.

	Street Feature	Dimensions
A	Build-to Range	3'-10'
B	Separation Zone	4'-6'
C	Sidewalk	6'-8'
C*	Shared-Use Path (SUP)	10'
D	Landscaped Separation Zone	8'
E	Bike Lane	5' [1]
F	Lane Width	Determined by VDOT

[1] A 2' buffer should be provided if space permits. A Shared-Use path may be provided in lieu of bicycle/pedestrian facilities outside of the core, if deemed appropriate by Transportation Planning staff and appropriate transitions to adjacent facilities are provided.



Northtown Trail Along Berkmar Drive

▲ Location and Design of SUPs

Shared-use paths (SUPs) can offer recreational opportunities and can serve as commuting routes. There may be segments of Rio29 streets that are identified by future planning efforts where shared-use paths would be appropriate. In these instances, it may be appropriate to substitute shared-use paths for sidewalks and/or bicycle lanes; though in some circumstances both could still be appropriate.

Shared-use paths are paved with a minimum width of 10 feet to provide ample space for use by pedestrians and bicyclists. Final location, width, and design of shared-use paths should be determined by County Transportation Planners and VDOT staff.

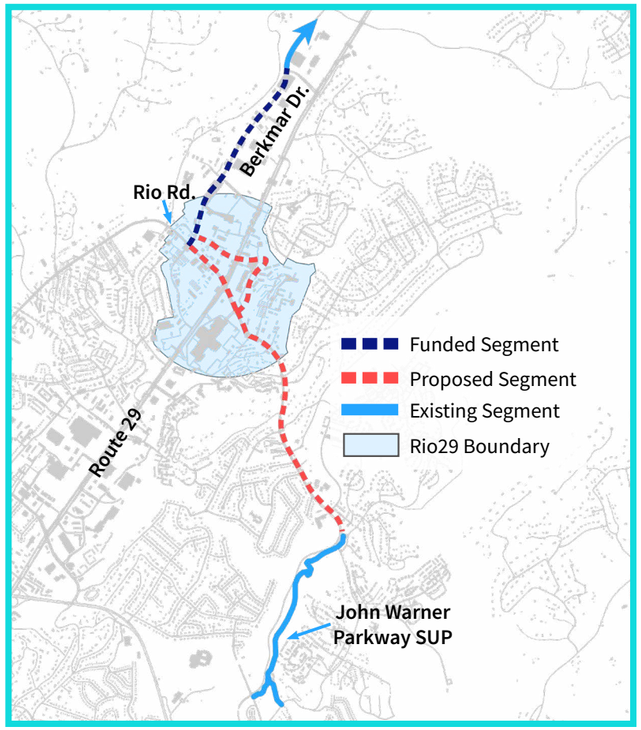
▲ The Northtown Trail

The Northtown Trail is a conceptual bicycle/pedestrian trail that is planned to extend from the Charlottesville Downtown Mall to Lewis and Clark Drive in northern Albemarle. The Northtown Trail is envisioned as a shared-use path that will provide a commuter route for bicyclists and pedestrians. The goals for the Northtown Trail are to provide a safe and efficient bicycling option within the Places29 Corridor and to provide access to and from locations of interest within this corridor. Overall, the trail should increase bicycle and pedestrian mobility in the region.

Segments of the Northtown Trail route along Berkmar Drive and the John Warner Parkway are already completed, and other segments along Berkmar Drive and Rio Road East are currently in the planning and design phases. As such, the Rio29 Plan presents an opportunity to fill a crucial gap in the Trail network. Connecting the Northtown Trail through Rio29 would provide a continuous route from the City of Charlottesville to Hollymead Town Center in Northern Albemarle.

A final alignment for the Northtown Trail through Rio29 has not yet been determined. The largest challenge for this portion of the route is determining how to get bicycles and pedestrians safely across Route 29. More study is needed to determine if a safe crossing can be provided at the intersection without significantly affecting the Level of Service for motorists. Staff should work cooperatively with VDOT to identify solutions for providing a continuous bicycle/pedestrian route through Rio29. If a crossing cannot be accomplished at the GSI, a bicycle/pedestrian bridge or underpass (Transformative Projects **Q** and **T**) should have increased priority so as to connect the converging pieces of the Northtown Trail across Route 29.

Northtown Trail



Recommendations

CREATE A CONNECTED NETWORK

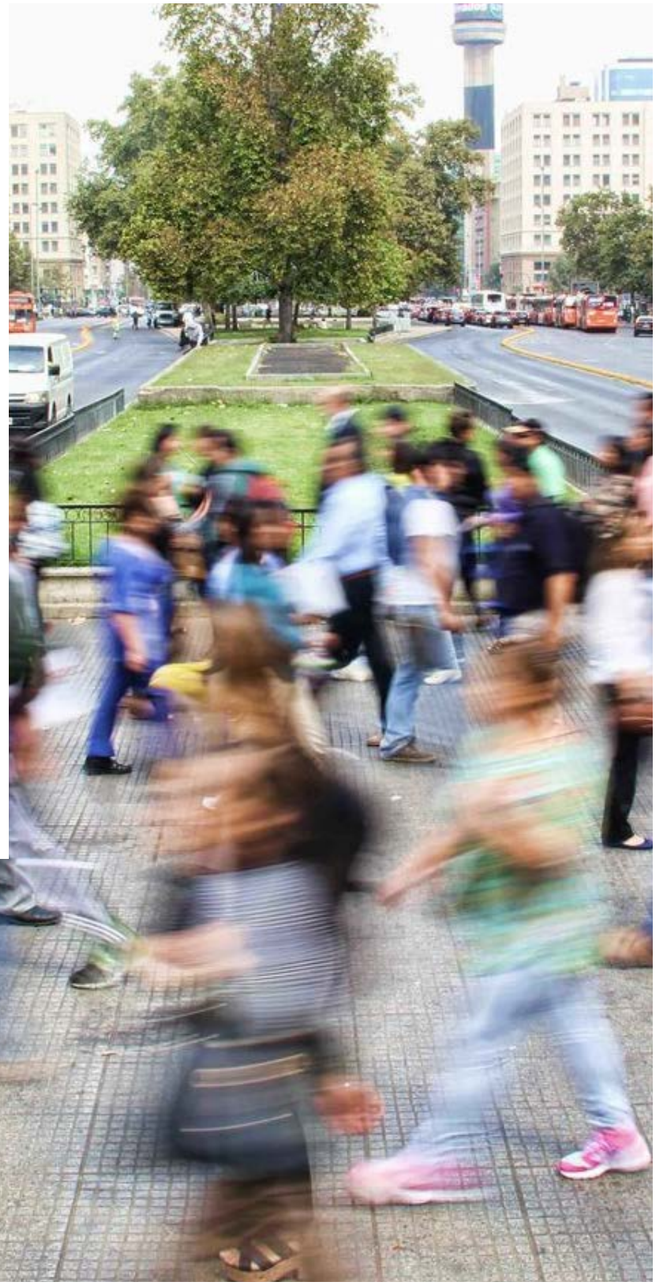
Establish a connected network of public streets and prioritize upgrades and construction of Boulevards and Avenues and extensions as shown in the Connectivity Plan.

Create a network of bicycle/pedestrian routes consisting of both on-street facilities (sidewalks, bike lanes, and shared streets) and off-street facilities (shared-use paths and trails).

Prioritize construction of the Northtown Trail segments that pass through the Rio29 area, providing a continuous bicycle and pedestrian route from Downtown Charlottesville to Hollymead.

Establish a connected network of local streets through private redevelopment.

Apply a "typology" to each street that reflects the street's intended function, relationship to the adjacent built environment, and connection to nature, as shown in this plan.



DESIGN FOR ALL USERS

Upgrade existing streets and design all new streets to be complete streets, which are designed for all users: pedestrians, bicyclists, transit riders, and motorists.

TRANSIT RIDERS

Analyze bus ridership to and throughout the area to determine where routes can be consolidated and frequency of service increased.

Where needed, upgrade existing bus stops to include sheltered waiting areas, benches, and wayfinding signage.

Study the possibility of establishing bus stops and a Route29 Express Route along the Rio29 GSI ramps in the next 3 years.

Study the possibility of establishing a Rio29 circulator bus when demand is sufficient.

MOTORISTS

Consider roundabouts or alternatives as intersection treatments for new streets and for replacing key existing traffic signals, where appropriate, in order to reduce travel time for motorists traveling through the area.

Provide street parking on existing and proposed roadways, where appropriate, as a mechanism to increase parking supply while reducing the need for extensive surface parking lots.

Consider priority parking for motorized scooters and compact/electric vehicles in all public parking facilities.

Provide curb space for taxi and ride share drop-offs within the core plan areas.

PEDESTRIANS & BICYCLISTS

Provide appropriate buffering between automobile and bicycle/pedestrian traffic on higher speed/higher capacity streets.

Establish bicycle lanes along Rio Road that extend across the Grade Separated Interchange.

Establish crosswalks across the Grade Separated Interchange for pedestrians to cross Route 29 from the north side of Rio Road.

Provide, at a minimum, two additional pedestrian/bicycle crossings of Route 29 that are safe and welcoming.

Use wayfinding, consistent pavement markings, and materials to identify bicycle/pedestrian routes and to make the area unique.

Provide bicycle infrastructure and amenities in public spaces such as covered bicycle parking, storage, and fix stations. Encourage similar facilities in private development through zoning.



Indianapolis Cultural Trail Indianapolis, IN

Recommendations

LOOK TO THE FUTURE

Utilize technology to encourage and promote alternative modes of transportation.

Work with the City of Charlottesville and University of Virginia to identify efficient technology that can encourage transit ridership such as real time ridership and route information, consolidated payment systems, and beyond.

Provide cellphone-friendly maps and information about area trails, parks, and amenity spaces.

Consider electronic transit kiosks at bus stops providing route information.

Explore the possibility of bus rapid transit (BRT) as demand for transit evolves.

Encourage the inclusion of electric vehicle charging stations within parking facilities.

Begin studying and planning for the potential impacts of autonomous vehicles (AV). Revisit strategies to accommodate transportation mode changes as needed.

Identify curb spaces that can be converted from parking to vehicle drop-off space if autonomous vehicles become more prevalent.



Paved & Separated Bike Lanes Vancouver, BC



GRTC Pulse Station Richmond, VA



Downtown Norfolk Transit Center Norfolk, VA

CREATE A MULTIMODAL HUB

Transform Rio29 into a multimodal transportation hub that allows for seamless transition between modes (transit riders, pedestrians, bicyclists, and drivers).

When demand is sufficient, establish a central transit station at or close to the Rio29 intersection that allows for the convergence of transit routes connecting to Downtown Charlottesville, UVA, and the Airport.

Create safe and direct connections from the central transit station to adjacent neighborhoods/businesses.

Ensure adequate parking within easy walking distance of the central transit station.

Adjust spending priorities to provide a better balance of transportation choices in the area and to increase the share of people using transit, walking and bicycling.

KEY OUTCOME

How We Will Measure Progress

Buildout of a Complete Street network.

Achievement of the Connectivity Chapter's recommendations will be measured by the implementation of a network of Complete Streets that can safely and comfortably accommodate vehicular, bicycle, and pedestrian traffic.

As the existing network is improved to meet the recommended standards for cyclists and pedestrians (and as a result, transit) and new connections are made, people will have more choices for how to get around. The result will be a street network that performs better and offers safe alternatives to driving.

CHAPTER 3: CHARACTER

Transform Rio29 into a vibrant and diverse mixed-use community with interesting **character** and a human-scale built environment.



Character Overview

PURPOSE

The Character Chapter focuses on the form, feel, and use of Rio29. It envisions the redevelopment of Rio29 as a diverse and vibrant mixed-use community that will provide options for residential, employment, recreational, cultural, and civic uses for people from a wide range of incomes and ages. This chapter lays out a framework for future by-right development that offers property owners the flexibility to react to market trends, as well as helps clarify the County's expectations for development.

CHARACTER AS A FUNCTION OF WALKABILITY

Shopping Center in Rio29





The Charlottesville Downtown Mall





1. **Northside Library**
   - **~0.35** mi.
2. **Rio Rd. Entrance to Fashion Square**

1. **Omni Charlottesville**
   - **~ 0.35** mi.
2. **Sprint Pavilion**

The comparison above shows how the built environment and neighborhood character can influence someone's perception of distance and walkability. As demonstrated by the images and maps (above), the Rio29 area has plenty of empty space between buildings. The resulting environment is not visually interesting and makes the walks between buildings in Rio29 feel longer than they are.

By comparison, a similar distance in a built-up neighborhood with active storefronts along a street such as the Charlottesville Downtown Mall feels like a more manageable walk because there are points of interest and a sense of human scale. Fortunately, there are many opportunities to create urban spaces within Rio29 and the consumer demand to pursue such development.

RIO29 TODAY

Today, Rio29 is an auto-oriented commercial and retail area. The majority of its buildings are single-story and set back far from the streets. Many of its developments are strip malls where most of the property's land is dedicated to surface parking, and many of the parking lots remain predominantly empty for the majority of the time. Such conditions are not conducive to walkability and do not provide the conditions necessary for vibrant streetscapes.

39% of the land in Rio29 is used for **parking lots**

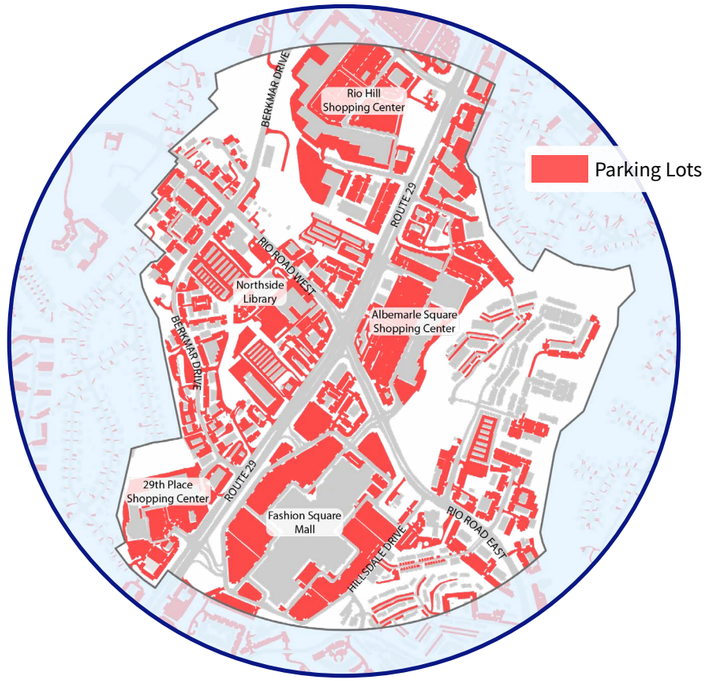
VISION

Transform Rio29 into a vibrant and diverse mixed-use community with interesting **character** and human-scaled built environment.

RECOMMENDATIONS

- Create an identity for Rio29 through the built environment.
- Establish an urban form that is human-scale and pedestrian oriented.
- Provide a range of housing options and a mix of property uses.
- Create vibrant streets.
- Encourage the desired form and allow flexibility in use.

PARKING LOTS IN RIO29





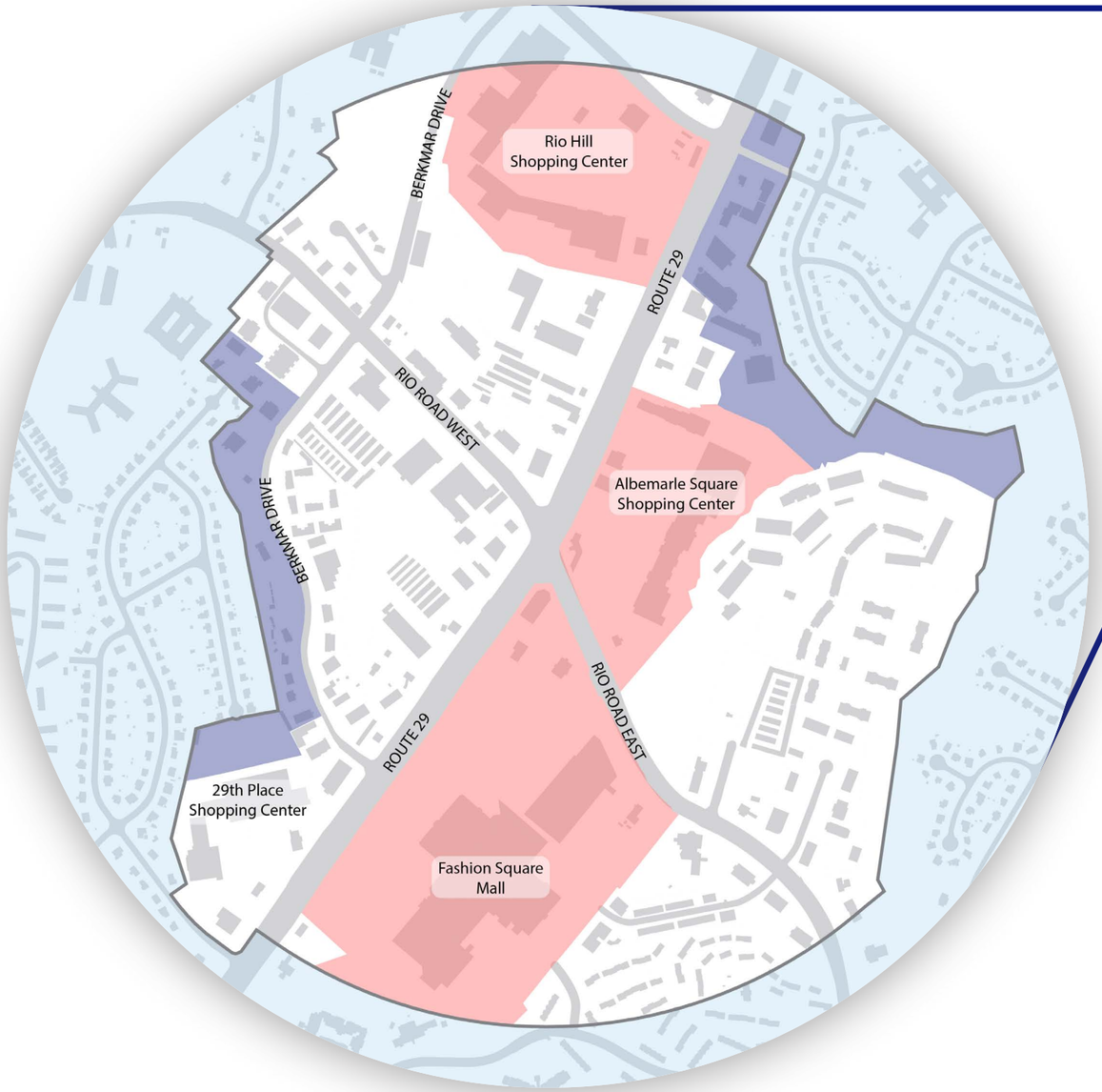
Before: Typical conditions produced by auto-oriented development regulations.



After: Demonstration of how an auto-oriented area can be transformed into a welcoming pedestrian environment with a more vibrant streetscape.

Character Plan

▲ FUTURE PLACE TYPES IN RIO29



PLACE TYPOLOGIES

Core

Flex

Edge



Core character areas are augmented by Destination Streets and have the highest intensity and most urban forms of development. Buildings with extensive fenestration and taller ceiling heights on ground floors, street trees, furniture, and sidewalk lighting enhance the pedestrian experience.



Flex character areas accommodate a range of building forms and uses, particularly dense residential development. Buildings should be designed to make pedestrians comfortable.



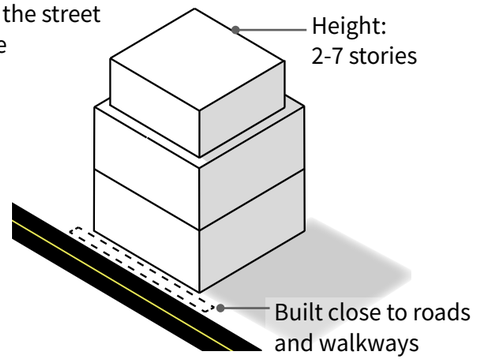
Edges are areas of less-intense development next to existing neighborhoods. Buildings are expected to have lower heights and smaller building footprints.

Form & Site Design Standards

Building Size & Location

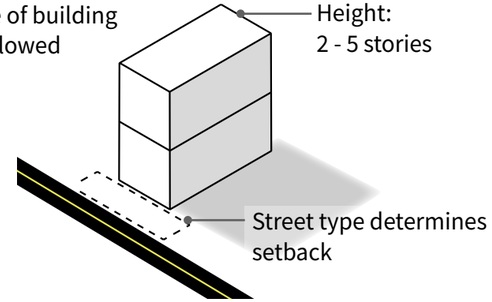
CORE

Buildings line most of the street frontage



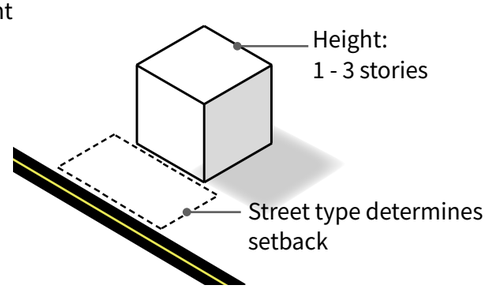
FLEX

A range of building sizes allowed

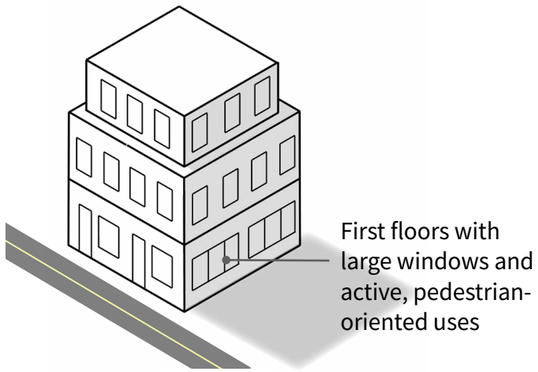


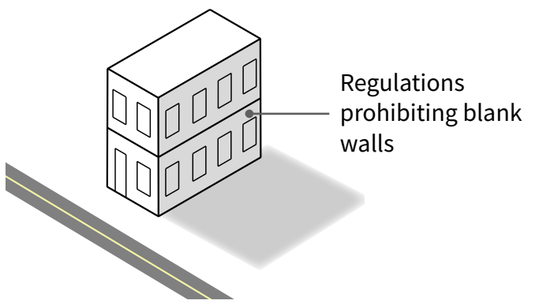
EDGE

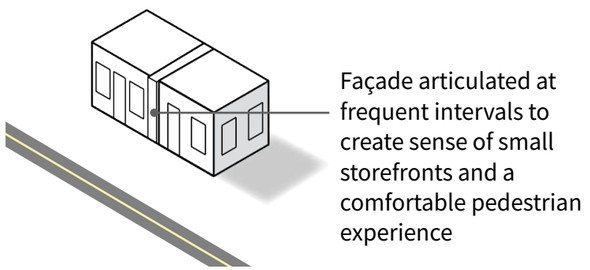
Smaller building footprint



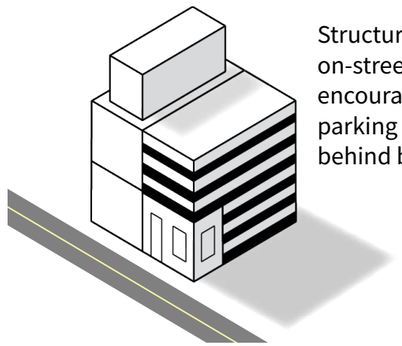
Architectural Standards

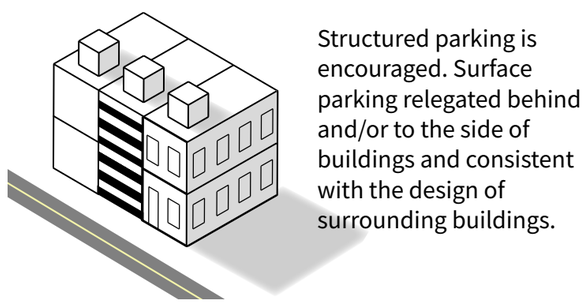


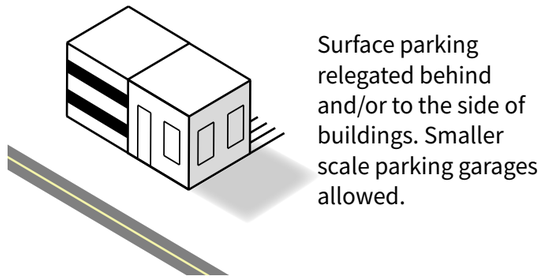




Parking







Form & Site Design Standards

CORE

HEIGHT: Buildings should be 2-7 stories tall.

BUILD-TO/SETBACK: Buildings should be set back 3 feet from the edge of right-of-way; the setback can be extended up to 10 feet. The majority of the building frontage should align with the setback line to establish a consistent and engaging building edge on both sides of the street. (Right-of-way widths should be determined by street sections shown in the Connectivity Chapter.)

STEPBACK: Taller buildings are encouraged to incorporate stepbacks to help reduce the overall scale of a building. To establish an appropriate scale and promote pedestrian comfort:

- Buildings along Boulevards should be stepped back above 4 stories or 50 feet.
- Buildings along Destination Streets, Avenues, and Local Streets should stepped back above 3 stories or 40 feet.

BUILDING SIZE & LOCATION: Building facades should extend for the majority of the street frontage. Breaks in the facade can be used to promote walkability and provide pedestrian/automobile access to areas behind and beside a building.

PARKING: Structured parking is encouraged and should be designed to support safe, pedestrian-friendly experiences through liner buildings, interesting exterior designs, art installations, or landscaping. Liner buildings are thin buildings that line the edge of a street or public space, the uses of which promote active street life, such as a coffee shop or artist studios.

Off-street surface parking is discouraged in front of buildings in Core areas. Shared parking serving multiple uses should be utilized when possible to reduce the overall amount of parking.

Parking minimums within the Zoning Ordinance should be reduced or eliminated to encourage more compact development, alternative transportation choices, and to facilitate the construction of affordable/workforce housing.

FLEX

HEIGHT: Buildings should be 2-5 stories tall. Building heights up to 6 stories may be allowed by exception, especially if the development helps achieve other County initiatives such as the provision of affordable housing, consistency with economic development goals, or if the development is within Opportunity Zone areas.

BUILD-TO/SETBACK: Buildings should be set back 3-10 feet from the edge of right-of-way. The majority of the building frontage should align with the setback line to establish a consistent and engaging building edge on both sides of the street. (Right-of-way widths should be determined by street sections shown in the Connectivity Chapter.)

STEPBACK: To establish an appropriate scale and promote pedestrian comfort:

- Buildings along Boulevards are encouraged to be stepped back above 4 stories or 50 feet.
- Buildings along Destination Streets, Avenues, and Local Streets are encouraged to include a stepback above 3 stories or 40 feet.

BUILDING SIZE & LOCATION: The Flex areas may consist of a wide range of building types and sizes. Buildings with larger footprints should avoid large, uninterrupted walls along streets and should incorporate façade breaks to promote walkability.

PARKING: Structured parking is encouraged in Flex areas and should be allowed as a by-right use through zoning.

Off-street surface parking should be relegated to the sides and behind buildings, and should be screened from streets and public parks/amenities. Shared parking serving multiple uses is encouraged to reduce the overall amount of parking.

EDGE

HEIGHT: Buildings should be no more than 3 stories tall.

BUILD-TO/SETBACK: Buildings should be set back up to 25 feet. Features such as patio seating, front porches, and stoops are encouraged to foster a pedestrian-friendly atmosphere when larger setbacks are used.

STEPBACK: As buildings are limited to 3 stories in height, stepbacks are not necessary in Edge areas.

BUILDING SIZE & LOCATION: Buildings should have smaller footprints to encourage consistency with adjacent residential neighborhoods.

PARKING: Off-street surface parking should be relegated to the sides and rear of buildings and should be screened from streets, public parks/amenities, and adjacent residential areas. Shared parking serving multiple uses is encouraged to reduce the overall amount of parking.

Structured parking may be allowed by special use permit for smaller parking structures that are well screened and consistent with the character of the area.

ALL CHARACTER AREAS

BUILD-TO/SETBACK: Buildings can be set back up to 35 feet along a Through Corridor.

BLOCK SIZE: Blocks should be no more than 400 feet in length, to promote walkability and to provide multiple routes to destinations. Larger blocks may be allowed by exception if internal circulation and frequent facade breaks are designed to promote walkability and allow bicycle circulation throughout the site and vehicular connections are not otherwise needed to support area continuity and transportation needs.

Uses

A mixture of uses are permitted within all Place Types in Rio29 to encourage a variety of options for residential, employment, recreational, cultural, and civic uses. Rather than prescribing a specific set of uses and densities, the uses are intended to provide flexibility by listing broad categories of appropriate uses. Flexibility in use can better position property owners to respond to market changes and can encourage a wider variety of housing types, especially smaller, more affordable units. The form standards described on the previous pages will appropriately limit the density and intensity of development that a site can handle, and will ensure that development is consistent with adjacent neighborhoods and that it promotes pedestrian activity and active street life.

CORE

GROUND STORY: Active uses should line the ground story of buildings to encourage pedestrian activity and an active street life. This is especially important for buildings fronting Destination Streets. Active uses include retail, commercial, restaurants (excluding drive-thrus), public, civic, or institutional uses.

Other uses with the same general character as those listed above may be permitted when an applicant can demonstrate that the proposed use promotes foot traffic, provides a public service, and/or provides visual appeal.

RESIDENTIAL:

- Mixed-use dwellings
- Multiple-family dwellings

NON-RESIDENTIAL:

- Retail sales and general commercial service
- Hotel
- Office/R&D/Flex
- Institutional
- Light Industrial and Manufacturing uses are not encouraged in the Core. These uses may be permitted by exception when an applicant can demonstrate minimal impact on surrounding uses. These uses may be appropriate in a mixed-use development.
- Storage, Auto Sales + Service, and Distribution uses are not consistent with the intent of Core areas.

FLEX

GROUND STORY: Flexible

RESIDENTIAL:

- Mixed-use dwellings
- Multiple-family dwellings
- Single-family attached/townhouses dwellings

NON-RESIDENTIAL:

- Retail sales & general commercial service
- Hotel
- Office/R&D/Flex
- Institutional
- Light Industrial/Manufacturing/ Storage/Auto Sales + Service/ Distribution uses may be appropriate when an applicant can demonstrate minimal impacts on surrounding uses, especially residential uses, and the public realm.

EDGE

GROUND STORY: Flexible

RESIDENTIAL:

- Mixed-use dwellings
- Multiple-family dwellings
- Single-family attached/townhouses dwellings

NON-RESIDENTIAL:

- Retail sales & general commercial service
- Hotel
- Office/R&D/Flex
- Institutional
- Light Industrial/Manufacturing/ Storage/Auto Sales + Service/ Distribution uses are not encouraged, but may be appropriate when applicant can demonstrate minimal impacts on surrounding residential neighborhood uses and the public realm. Screening should be provided adjacent to existing neighborhoods.



A Multi-Family Residential Building (Core or Flex scale) Alpharetta, GA



Single-Family Attached/Townhouses (Flex scale) Mt. Pleasant, SC



Mixed-Use Development (Core scale) Omaha, NE

Recommendations

CREATE AN IDENTITY

Create an identity for the area through public art, wayfinding, and other public realm design choices.

Conduct a visual preference survey to identify preferred architectural styles, materials and character for the area.

Adopt more specific architectural requirements to reflect the visual preference survey results.

Encourage natural features and outdoor amenity spaces within development.

Establish frontage characteristics consistent with the adjacent Street Type.

Promote and protect open vistas to mountains.*

HUMAN SCALE/PEDESTRIAN ORIENTED

Incorporate minimum architectural standards into zoning, such as first floor transparency and blank wall regulations, to create a visually interesting pedestrian environment.

Bring buildings closer to streets and public amenity spaces.

Require functioning pedestrian entrances at regular intervals along the street.

Relegate all parking and encourage structured parking in the Core areas, with linear buildings along the street.

Reduce or eliminate parking minimums and establish parking maximums.

Encourage shared parking between compatible uses.

Create smaller block sizes.

*Mountain views should not be sacrificed to achieve the desired form. Although fieldwork and geospatial analysis was conducted during the Rio29 planning process to identify potential view cones, further study will be necessary.

Considerations should include:

- Prioritizing views from public rights-of-way, particularly Entrance Corridors.
- Incentives for private development to offset potential losses from view preservation.
- Administrative ability to define and regulate views for by-right development.



Views of Lewis Mtn. & Mt. Jefferson Looking South from GSI

View of Southwest Mountains From Rio Road West, Looking NE

Recommendations

RANGE OF HOUSING & USE

Where feasible, require a mix of affordable, workforce, and market-rate housing.

Where affordable housing cannot be required through zoning, encourage a mix of housing types through incentives such as height or density bonuses and parking reductions for inclusion of affordable/workforce housing.

Allow a mix of uses to accommodate a wide range of residential, work, cultural, recreational, and civic opportunities for residents.



Mixed-Use, Transit-Oriented Development Los Angeles, CA



Apartment Buildings Budapest, Hungary



Townhomes in a Mixed-Use Community Greenbridge, WA



Duplex Housing Denver, CO



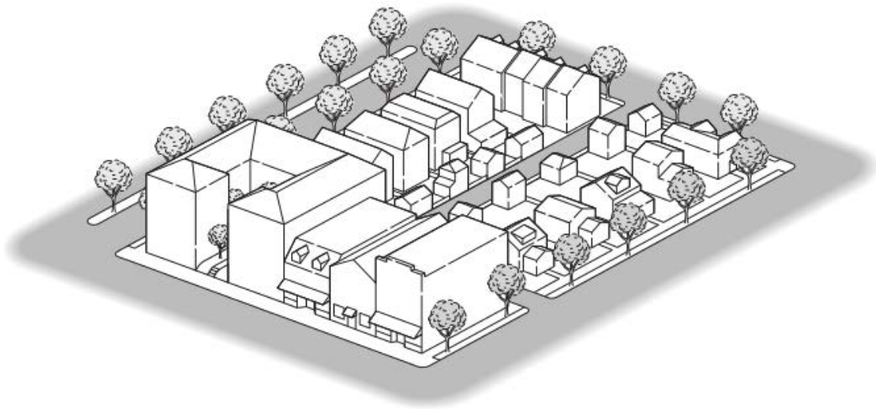
South Range Multi-Family Housing Charlottesville, VA

FLEXIBILITY & FORM

Update the Zoning Ordinance to allow for the desired form and mix of uses.

Pursue form-based code as a mechanism to promote the desired form.

Find the appropriate balance between regulation and flexibility: regulation to achieve the desired form, and flexibility to accommodate market changes and a mix of uses.



Form-based codes can provide the regulatory flexibility to seamlessly integrate multiple building types on a single street block. Credit: formbasedcodes.org.

VIBRANT STREETS

Locate active uses on ground stories to activate the street, especially within the designated Core areas.

Require street trees on all new streets and retrofit existing streets to add street trees and other landscaping.

Provide or add street amenities such as street furniture, artwork, and wayfinding signage.

Allow outdoor patio space along streets, especially within the Core.

Encourage creative use of water elements, such as rain gardens, along streets.

Encourage and allow on-street parking.

KEY OUTCOME

How We Will Measure Progress

Efficient utilization of land for active and economically productive uses.

Currently, Rio29 has a large amount of underutilized land, including single-story buildings, excess surface parking, and stormwater facilities. Due to its strategic location within the Development Areas, Rio29 has the potential to become a hub for transportation, housing, and economic growth.

Creating a dense, attractive, human-scale urban environment will reinforce walkability and provide more opportunities for housing and employment. New development and redevelopment that meets the Character Chapter's recommendations will represent progress towards this outcome.

CHAPTER 4: CONSERVATION

Transform Rio29 into a place enhanced through **conservation** with a network of sustainable and usable public spaces that enrich community and preserve and enhance natural resources.

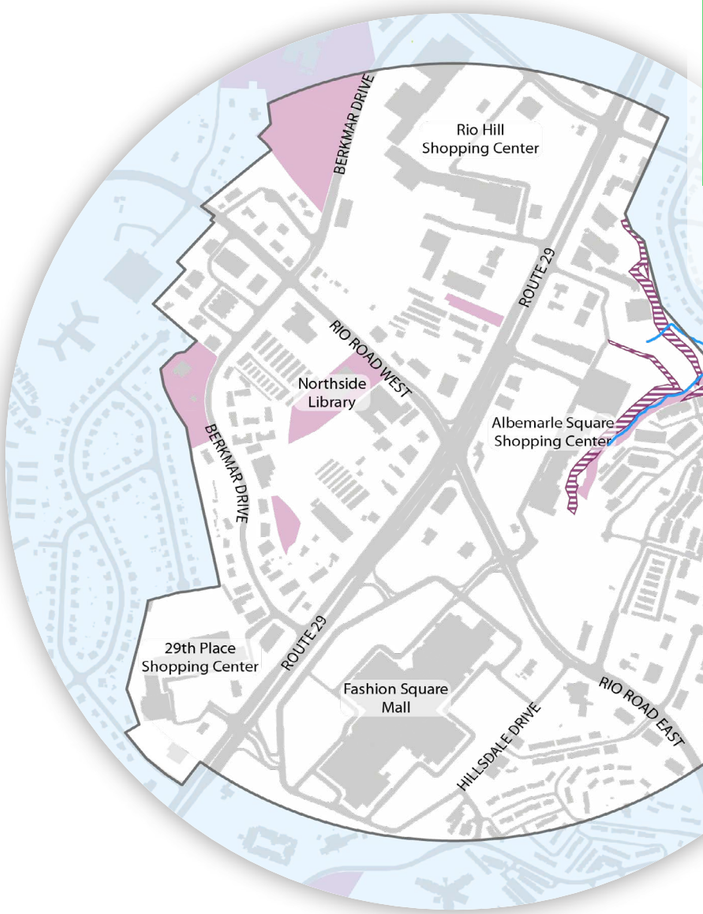
Conservation Overview

PURPOSE

The Conservation Chapter focuses on how natural resources can enhance a place by contributing essential ecosystem services, while also providing opportunities for recreation, social connection, and engagement with nature for the Rio29 community.

Currently, there are no outdoor public spaces within the 391-acre plan boundary. There are short sections of public trails within Rio29, but they lack connectivity to a larger trail network. The Northside Library is currently serving as the sole civic center for the area and hosts a number of community events. The popularity of the library's events demonstrates a need for more public gathering spaces to serve the surrounding community.

EXISTING CONDITIONS MAP



LEGEND

- COUNTY-OWNED LAND
- PRESERVED SLOPES
- 100' STREAM BUFFER
- EXPOSED STREAM

Currently, there are no public parks or outdoor public spaces in Rio29.

RIO29 TODAY

The majority of people Planning staff engaged with during outreach called for increased bicycle and pedestrian facilities; more parks and trails; and more green infrastructure in general. In response to this feedback, the Conservation Plan recommends a network of outdoor public spaces and trails that make it possible for users to walk and bike from one amenity to another.

Rio29 is mostly developed, but there are some resources worthy of protection, such as perennial streams and areas of preserved slopes. There is also a County-owned property south of Woodbrook that contains wooded vegetation and wetlands. The County owns a number of other parcels, some of which are wooded and/or serve as stormwater management facilities for the area.

VISION

Transform Rio29 into a place enhanced through **conservation** with a network of sustainable and usable public spaces that enrich community and preserve and enhance natural resources.

RECOMMENDATIONS

- Create a network of vibrant and usable public spaces.
- Use the public realm as an opportunity for placemaking, community building, and telling the story of Rio29.
- Protect and enhance natural resources.
- Use sustainable design choices in public spaces and encourage sustainable choices in private development.

TREE CANOPY IN RIO29



Currently, **~62%** of the land in Rio29 is paved or developed and only **16.8%** is shaded by trees. Though the Plan calls for a more urban development pattern, this will not interfere with the goal of increasing tree canopy. As seen in the table below, cities and highly urbanized areas can have high percentages of tree canopy.

Percent Tree Canopy in Select Virginia Cities (Compared to Rio29)

Virginia City	Percent Tree Canopy
Charlottesville	45%
Fredericksburg	44%
Waynesboro	43%
Richmond	42%
Harrisonburg	26.5%
Norfolk	25%
Rio29	**16.8%**

Courtesy of the Green Infrastructure Center.

Conservation Plan

▲ FUTURE CONSERVATION NETWORK



CONNECTION TYPES

GRADE-SEPARATED ONE-WAY BIKE LANE

SHARED-USE PATH (SUP) ALONG STREET

SHARED-USE PATH (SUP)

TRAIL

PEDESTRIAN CROSSING

AMENITY SPACES

LINEAR PARK

PLAZA/GREEN

NATURAL AREA

THE SQUARE*

CRITICAL RESOURCES

PRESERVED SLOPES

100' STREAM BUFFER

OTHER MAP SYMBOLS

EXPOSED STREAM

COUNTY-OWNED LAND

*The final location for the Square will be determined based on how the area redevelops.

ABOUT THE CONSERVATION NETWORK

County-owned land, rights-of-way, and critical resources provide the foundation for the Conservation Plan. The Plan highlights how underutilized County-owned properties can be re-imagined as key public amenity spaces, while also providing important ecosystem services to the surrounding area. The Conservation Plan shows a Conservation Network that is made up of Public Amenity Spaces, Trails, and Critical Resources. The Conservation Network is expected to be developed (and, in some cases, preserved) through a combination of public investment and private redevelopment activities.

The Plan recommends the protection of existing critical resources. Currently, all of the critical resources are within the northeast quadrant of Rio29. These consist of several preserved slopes along the northern and eastern periphery of the plan boundary, as well as a perennial stream just south of the Woodbrook Neighborhood. These areas should be protected with future development.

The Plan also recommends outdoor public amenity spaces within each quadrant of Rio29. Three of the four quadrants (northeast, northwest, and southwest) contain County-owned properties that provide stormwater treatment for adjacent development. The Plan envisions how these publicly-owned properties can be redesigned to become public amenity spaces for active, passive, and/or social recreational opportunities, all while continuing to treat stormwater runoff.

▲Public accessibility is encouraged for all amenity spaces. To support the development of high-quality amenity spaces, spaces could be provided through a mix of public and private ownership. Smaller amenity spaces could be privately owned and maintained while larger, community-serving spaces could be publicly owned and maintained.

One of the large amenity spaces should serve as a publicly-accessible Square or central amenity space for Rio29. The Square is intended to accommodate large gatherings and events, and should be associated with a civic facility such as a library or a school.

Another potential element of the Conservation Network is the green street. All streets in Rio29 are expected to include street trees, but some streets could be designed to have additional green amenities. Green streets are those that give priority to pedestrian circulation, open space, and/or stormwater treatment. Though specific streets are not identified on the plan as green streets, developers and the County should be encouraged to pursue green street designs where possible. Green streets could take the place of identified trails, shared use paths, or required open space, if these facilities are adequately incorporated into the design of the street.

Shared Use Paths and Trails

EXAMPLES OF
SHARED-USE PATHS


Arden Place Trail Charlottesville, VA

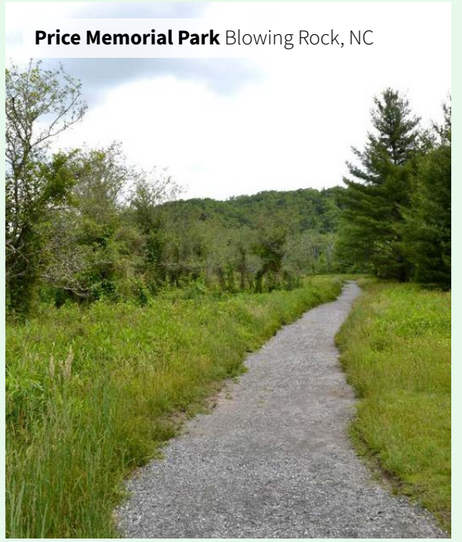

Rama Road Charlotte, NC


Shared-Use Path The Netherlands

EXAMPLES OF
TRAILS


"Woodbrook Lagoon" Charlottesville, VA


Hiking Trail Atlanta, GA


Price Memorial Park Blowing Rock, NC

A critical part of the Conservation Network is providing connectivity between amenities. Two primary types of connections are proposed in the Conservation Plan: Shared Use Paths and Trails. Shared Use Paths, or SUPs, as described in the Connectivity Chapter in more detail, provide a wider paved surface that can be shared by bicyclists and pedestrians. Many SUPs are along streets and can be multi-functional, serving as both recreational amenities and commuter routes to and through Rio29. Trails are intended to be more narrow, less developed pathways that can both provide connections between neighborhoods and amenity spaces and can provide recreational opportunities within natural areas. Trails are not expected to be paved and can be natural surfaces such as dirt or mulch or crushed gravel.

Public Spaces Typologies

THE SQUARE

DESCRIPTION

▲ The Square is expected to be a central amenity space for Rio29. The Square should be adjacent to and designed to complement an existing or future civic use or building, such as the Library, Transit Station or possible future School Center. The final location for the Square will be determined based on how the area redevelops.

FORM & AMENITIES

▲ The Square is expected to be an urban space with pavers, landscaping (including trees), and other design features. It should be located at or near a prominent intersection, surrounded by building fronts with active ground story uses in an intensely developed area. Amenities should include a central feature such as an amphitheater, event space, fountain, or prominent art installment. The space should also incorporate passive recreation areas, seating areas, and planted elements.

FUNCTION

The Square is intended to function as a primary outdoor civic space for the area. It should be designed to accommodate a variety of functions and uses, including, but not limited to, event spaces and social open spaces that can be used for formal and impromptu gatherings. Space for passive recreation, outdoor games, farmers' markets, outdoor learning spaces, food trucks, and/or small events or concerts could be accommodated in the Square.

SIZE

No larger than 1 block





Southwest Resiliency Park Rendering Hoboken, NJ

▲ PLAZA/POCKET PARK



San Jacinto Plaza El Paso, TX



Bryant Park Manhattan, NY

DESCRIPTION

Plazas and Pocket Parks are smaller recreation spaces that can be integrated into even the most constrained sites, offering developers design flexibility while creating inviting outdoor retreats for people to enjoy.

FUNCTION

Plazas and Pocket Parks are intended to provide outdoor gathering space for the adjacent office, residential and commercial uses. Plazas and Pocket Parks should function as passive open space to provide space for relaxing, sitting or strolling, as well as casual gatherings, picnics or organized events. Plazas and Pocket Parks should be framed by surrounding buildings or roads on all sides and designed in a way to provide connectivity to the greenway network and transit station.

FORM & AMENITIES

Plazas and Pocket Parks should be designed as relatively flat open areas that can be paved or green. They can include planted space, seat walls, benches, fountains, gathering space, art work (such as cooling art, functional art, traffic calming art), small amphitheater, gazebos, and/or spray grounds. Larger Plazas and Pocket Parks could also accommodate playgrounds and other forms of active recreation.

Plazas and Pocket Parks should be constructed as properties redevelop.

SIZE

400 square feet - 21,780 square feet (.5 acre)

Public Spaces Typologies

LINEAR PARK

DESCRIPTION

A Linear Park is a park that is longer than it is wide and incorporates a trail along its length. The proposed linear park within the northwest quadrant incorporates a stream and a trail that provide connectivity from the northeast quadrant (via the pedestrian underpass under Route 29) to the Berkmar shared-use path and Agnor-Hurt elementary.

The Linear Park in the northeast quadrant is for a smaller greenway park providing connectivity from the transit station to the greenway trail running north to the Woodbrook Natural Area and other area trails.

FUNCTION

The Linear Park provides a swath of green space within an urban area that would not normally have such amenities. It should serve as an important link in the area's green network by providing connectivity to other amenities and trails. The Linear Park serves as an area for both active and passive recreation. The trail provides both an opportunity for walking, running, and cycling as well as space for sitting and relaxing.

FORM & AMENITIES

The Linear Park should include both natural and developed features. Amenities can include a trail or walkway with wayfinding signage, seating areas, benches, or small play areas. The park can incorporate points of interest along its length such as art work or water features. A Linear Park can focus on natural amenities, where possible, such as a stream or canopy trees.

SIZE

No minimum or maximum



Rendering of a Linear Park Atlanta, GA

NATURAL AREA

DESCRIPTION

Natural Areas are intended to preserve natural resources and habitats for smaller wildlife while providing spaces where people can reconnect with nature amidst urban life. These spaces should be designed to protect natural features such as woodlands, streams, and wetlands.

FUNCTION

Natural Areas should function as areas for active recreation, accommodating walking, jogging and/or biking, plus passive uses such as relaxing or picnicking.

FORM & AMENITIES

Natural Areas should be mostly wooded and undeveloped. They can include bicycle and pedestrian trails that allow for 5-15 minute travel throughout the area. These areas may also include small improvements such as kiosks with trail maps, small parking areas, bike racks, and picnic tables or benches. Resource protection and green infrastructure services should be considered with any proposed improvements.

SIZE

.5 acre or larger



Rivanna Trail Charlottesville, VA



Washington Square Park New York, NY



Princes Street Gardens Edinburgh, UK

GREEN

DESCRIPTION

Greens are large, multi-functional open spaces predominately covered with grass or turf. Although specific locations for Greens are not shown within the Conservation Network, they should be located near high-density residential areas and designed as accessible, public amenities and community gathering places. Greens should be visible from adjacent streets, along pedestrian routes, and surrounded by development that helps activate and overlook the space.

FORM & AMENITIES

Greens are intended to support a wide range of active and passive recreation opportunities, such as sports on game fields, playgrounds, informal play or picnicking on open lawns, casual gatherings, community events, strolls along walking paths, or seating areas to simply enjoy nature or admire an art installation. The design of Greens should accommodate small-scale daily use and larger organized activities. Individuals, families, and large groups should be able to sit, play, socialize, and relax comfortably.

Greens are expected to be surrounded by streets or building fronts to encourage regular use. Walkways should connect to surrounding developments and neighborhoods as well as to sidewalks and shared-use paths on nearby streets.

FUNCTION

Greens should consist primarily of open lawn areas suitable for flexible use, with limited paving to support paths, seating areas, and gathering spaces. Although predominantly flat, Greens may include gradual elevation changes to create visual interest and invite informal seating or play. Trees should be planted around and within Greens to provide shade and respite from the sun or heat and to define spaces. Larger Greens should also include public restrooms and covered pavilions to support large gatherings and sporting events.

SIZE

.5 acre or larger

Conservation and Private Development

AMENITIES AND OPEN SPACE IN PRIVATE DEVELOPMENT

Private development and redevelopment is expected to contribute to the overall Conservation Network within Rio29. Each development will be required to provide additional amenity space/open space on-site for the residents, employees, and visitors of the site to use.

▲ Current County regulations call for 15%-20% of planned developments to be dedicated to on-site amenity space or open space. This standard should be maintained with development in Rio29. The majority of on-site amenity spaces in Rio29 development should be usable, ground-level spaces that connect to trails or paths. For example, the amenity space should not be overly steep or inaccessible to users. However, it could be appropriate for some of the on-site amenity space to be provided indoors or on rooftops or balconies, especially within the Core areas.

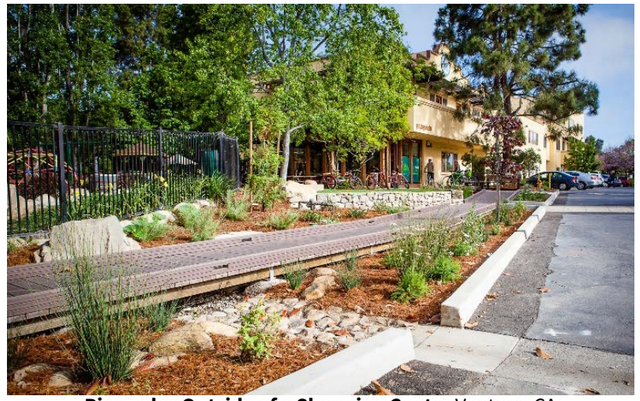
Where possible, amenity spaces within private development should be connected to the Conservation Network via pedestrian and bicycle facilities. Privately-owned amenities that provide important connections to the Conservation Network should be open and accessible to the public. Development of property adjacent to a public amenity space identified on the Conservation Plan should have the opportunity to contribute to the development of those facilities or expand upon existing facilities, as a substitution for required on-site facilities.



Doyle-Hollis Park Emeryville, CA



The Green at College Park Arlington, TX



Bioswales Outside of a Shopping Center Ventura, CA

TREE CANOPY

Private development will also play an important role in contributing to the tree canopy of Rio29. Each private development should provide a minimum percentage of the site as tree canopy. The current tree canopy requirement for development in Albemarle County is 10-15% of the site. In the interest of increasing tree canopy in Rio29, the County will consider ways to incentivize increased tree canopy within private redevelopment so that developers provide an even higher percentage of tree canopy than the 10-15% requirement.

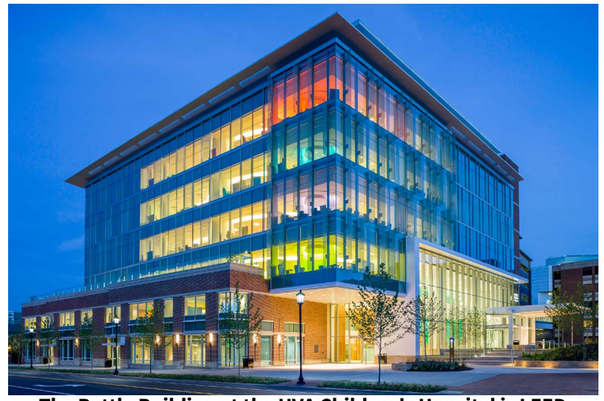
SUSTAINABLE DESIGN

Beyond minimum requirements for amenity spaces and tree canopy, private developers should be encouraged to pursue sustainable site and building design choices. The County should consider incentives for developers who pursue LEED certification, low impact development (LID), green roofs, alternative energy sources (such as solar and wind power), and creative stormwater strategies that can provide benefits beyond stormwater treatment (such as enhanced amenity spaces).

By putting these practices in place, private developers will help reduce water pollution, flooding and the urban heat island effect, improve air quality, and support engaging and welcoming public spaces.

▲ 

The rooftop terrace on the NEMO Science Museum is open to the public. Amsterdam, Netherlands



The Battle Building at the UVA Children's Hospital is LEED Certified Gold.

Recommendations

CREATE VIBRANT PUBLIC SPACES

- Create a connected network of public and publicly accessible private amenity spaces that make it possible for users to walk or ride a bicycle between places.

  Establish public amenity spaces in each quadrant and aim for public spaces to be within a 1/2 mile walking distance of every residence in Rio29.

  Design a variety of amenity spaces (as described in the parks and amenities standards) to accommodate various users and a mix of functions (e.g. passive, active, and social spaces).

- Use zoning to require and incentivize both smaller pockets of usable open space and larger public amenities through private development and public investment.

  Integrate public art work within the public realm (e.g. murals and sculptures in public parks or artist designed bus shelters and bicycle racks).

  Use cohesive design choices to create an identity for the area (e.g. wayfinding signage, street lighting, pavement markings/materials on trails, sidewalks and bike lanes, design of transit stops, pedestrian bridges, etc.).

  Make accommodations for temporary event/"pop-up" opportunities.



IX Art Park
Charlottesville



Artist Painting a Mural
Norfolk, VA



Creative Bike Rack
McGuffey Park, Charlottesville



Beaufort Street Festival
Perth, Australia

ENCOURAGE PLACEMAKING/COMMUNITY BUILDING

Celebrate the area's history across multiple cultures and time periods through both the design of the public realm and place naming.

Build coalitions involving stakeholders and advocacy groups to identify opportunities for authentic community engagement such as participating in the design of public spaces, the selection of art work, and place naming decisions.

Provide opportunities for community-engaged "making" in short-term and temporary placemaking projects/programs (e.g. library youth programs, Eagle Scout projects, volunteerism).

Ensure future stakeholders (youth/teens) are involved in design processes and explore partnerships with area schools for civic education and project-based learning opportunities.

Prioritize selection of art work from local artists in public spaces.

Consider design competitions for the design of public amenity space or public art installations.

Recommendations

PROTECT/ENHANCE NATURAL RESOURCES

Protect existing natural resources including preserved slopes, streams, and significant areas of intact tree canopy.

Find opportunities to restore natural features through redevelopment, such as daylighting of streams that are currently piped underground.

▲ Provide ample trees in outdoor amenity spaces and parking lots to provide shade and reduce heat island effects.

Provide pedestrian and trail connections to nearby natural areas such as Ivy Creek Natural Area and the Rivanna River.

Require minimum open space requirements in private development through zoning and encourage the protection of natural resources to meet the open space requirements.

Encourage development that works with existing terrain and avoids grading activities that create steep slopes or retaining walls taller than 6 feet.



East Falls, Philadelphia

MAKE SUSTAINABLE DESIGN CHOICES

▲ Use Low Impact Design (LID) principles in the design of public facilities and amenity spaces. Encourage the use of LID in private development.

Require minimum tree canopy standards through zoning.

Encourage creative stormwater management strategies that provide multiple public benefits such as improved water quality and enhanced public amenity space.

Encourage the use of green roofs.

Use native plants and water-efficient landscaping in parks and plazas, where possible.



A Sustainable Office Building Los Angeles, CA



LID Landscaping Seattle, WA



Home with Green Walls Seoul, South Korea

KEY OUTCOME

How We Will Measure Progress

Access to a quality amenity space within ¼ mile walking distance.

Achievement of the Conservation Chapter will be measured by the accessibility to a quality amenity space within a ¼ mile (roughly a 5 minute walk) for anyone within Rio29.

Development can help achieve this outcome by improving the quality of an existing public amenity, creating new amenities, or establishing trails & new connections to expand Rio29's green infrastructure systems and pedestrian network.

CHAPTER 5: IMPLEMENTATION

▲ This chapter was not revised as part of the 2026 Update. Images and text remain as adopted in 2018.

Implementation Overview

THE PATH FORWARD

Achieving the vision laid out in this plan will require a collaborative effort between stakeholders and the County. To this end, this chapter identifies policy updates, partnerships, and investment opportunities to support the vision for Rio29. It recognizes that implementation in a timely, predictable, and fiscally responsible manner will be key to encouraging development that achieves the vision and improves the County's quality of life.

Although this plan provides the community's vision for Rio29, it is important to point out that the resulting development in Rio29 will not look exactly how this plan depicts it. The focus for future development will be ensuring development performs as described in the vision. Continued engagement with the community and performance management will be necessary to ensure that the community's needs and expectations are being met. Therefore, this chapter also provides guidance on how the County should conduct future performance management activities in implementing this plan.

ZONING

The County recognizes that much of the development regulation currently in Rio29 does not reflect this plan's vision, and that factors including unpredictability and length of time associated with legislative approvals and development review can be disincentives to creating this vision. A necessary step will be establishing clear expectations for new development proposals, with updates to the Zoning Ordinance and development review processes to create an efficient by-right development process.

PARTNERSHIPS & POLICY

Partnerships and incentives can act as mutually beneficial mechanisms to advance County priorities and ensure a strategic project's viability when it may otherwise be financially infeasible. This section identifies guidelines for public-private partnerships where appropriate, district-based financing options, and the Opportunity Zones federal incentive program.

TRANSFORMATIVE PROJECTS

A series of Transformative Projects have been identified as catalysts for development and redevelopment that will be necessary steps in implementing the Rio29 vision. Transformative Projects are both necessary to support desired growth, such as intersection and transit improvements, and are quality of life projects that will help transform the area into a more livable and walkable place, such as parks and trails.

RECOMMENDATIONS

- Establish a performance management framework for tracking Indicators of Progress and explore implementation of civic technology solutions.
- Facilitate an engaging and inclusive community design process in support of the Recommendations throughout the Plan's chapters.
- Update policies and zoning regulations to achieve the desired form through an efficient, predictable process.
- Pursue partnerships and incentives that advance County priorities and improve the financial viability of strategic projects.
- Undertake Transformative Projects to catalyze the desired development and make the area a popular place to live and work.

PERFORMANCE MANAGEMENT

While basic metrics such as density and building footprint are available for most new development projects, there is currently no framework in place to efficiently track this plan's Indicators of Progress – many of which are related to urban design, infrastructure, or environmental performance. In developing this framework, the following recommendations should be considered:

Complete a database of Rio29's physical conditions and assets.

Establish procedures ensuring that design & environmental performance is reported in development applications.

Establish goals for sustainable infrastructure metrics.

Establish regular reporting procedures for Indicators of Progress and Return on Investment.

Create organizational open data policies and data sharing protocols.

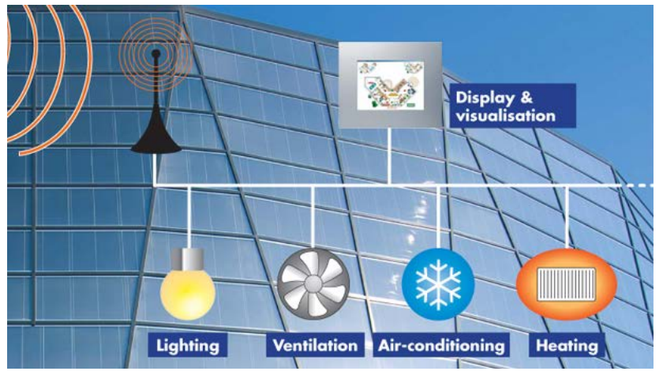
Explore incentives to encourage the utilization of data collection sensors and reporting mechanisms in private development.

Utilize sensor networks (e.g. Internet of Things) in public buildings and right-of-ways to track performance of public investments.

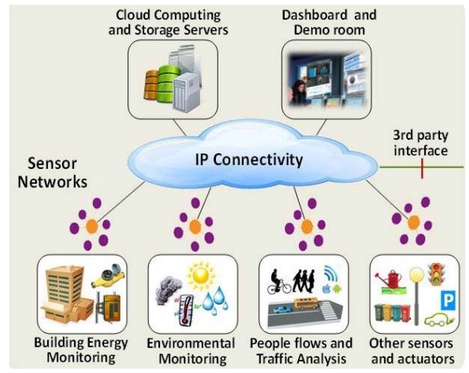




SmartCville 2018 Civic Innovation Day
The County participated in this "hackathon" style event about using technology to improve cities, with a challenge focused on expanding community history and visioning in Rio29 to a greater audience.



Example Components of Building Energy Monitoring Systems



Typical Features of a "Smart City"

Zoning

CURRENT ZONING CONSTRAINTS

Much of the current development regulation in Rio29, including the Zoning Ordinance, does not support this plan's vision for a human-scale mixed-use area. The majority of Rio29 is currently zoned as commercial districts, which have limited opportunities for residential development and setback standards that do not support the desired form. Additionally, other general and supplemental regulations applicable to all zoning districts include site design requirements, such as parking standards, that do not create the desired form.

Although rezoning to a planned development district is always an option, factors including unpredictability and length of time associated with legislative approvals can be a disincentive. Therefore, a necessary step will be establishing clear expectations for new development proposals, with updates to the Zoning Ordinance and development review processes that create an efficient by-right development process.

A FORM-BASED CODE FOR RIO29

In order to provide the regulatory framework needed to achieve the Rio29 vision, amending the County's Zoning Ordinance and Map to include a form-based code tailored to the area is recommended.

A form-based code differs from a conventional (Euclidean) zoning code in that rather than focusing on the use of a property, a form-based code focuses on building form as its organizing principle. By prescribing detailed architectural and site design requirements, developments permitted under a form-based code produce a more consistent, connected, and predictable built environment while allowing greater flexibility of use.

Typical elements of a form-based code can be seen to the right of this page. A form-based code for Rio29 should be crafted to match the recommendations of the Character chapter.



Commercial Zoning in the Rio29 Area

- Highway Commercial
- C1 Commercial
- Planned Development Shopping Center
- Commercial Office
- Planned Development Mixed Commercial

IMPROVED REVIEW PROCESS

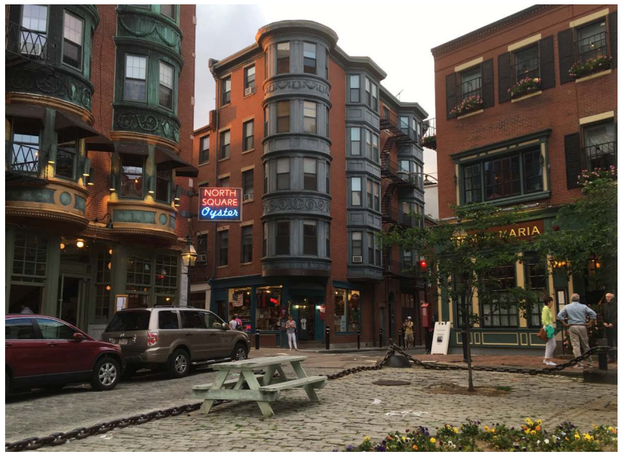
A by-right development proposal may require any combination of initial and final site development plans, subdivision plats, erosion & sediment control permits, stormwater management permits, and certificates of appropriateness.

Uncertainty and length of time spent obtaining these approvals can add significant transaction costs to developers in terms of engineering/site design and land holding costs that are passed on to buyers or tenants, as well as to County staff's time spent reviewing applications.

Improving the by-right development review process to eliminate redundancies and clarify expectations will incentivize development that meets the desired form. The Board of Supervisors has also approved expedited review policies for qualified projects.

Typical Form-Based Code Elements

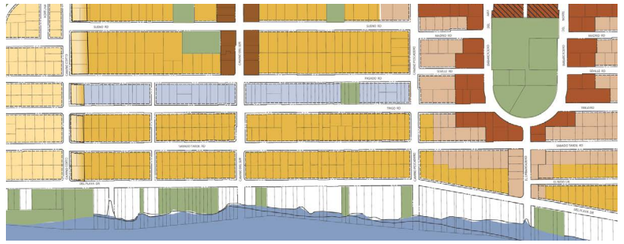
1. **REGULATING PLAN:** The effective zoning map of the regulated area that designates the locations where different building form standards apply.
2. **STREETSCAPE & AMENITY STANDARDS:** Regulations that control the elements of the public realm, such as sidewalks, travel lanes, and street trees, as well as amenities provided by a development.
3. **BUILDING STANDARDS:** Regulations controlling the features and configurations of buildings that define the public realm.
4. **ADMINISTRATION:** A clearly defined and streamlined process for applications and project reviews.
5. **INCENTIVES:** Modified regulations (such as density or height bonuses) as an incentive for advancing a County priority (e.g. affordable units).
6. **ARCHITECTURAL STANDARDS:** Regulations controlling building materials, openings, and appearance.
7. **USES:** Broad categories that allow for street-level activity and minimize nuisance uses.



North End, Boston



Inner Harbor, Baltimore



Example of a Regulating Plan Map

Partnerships & Policy

PUBLIC-PRIVATE PARTNERSHIPS

When financing constraints prevent the advancement of County priorities and projects, public-private partnerships (P3s) may be an appropriate approach to investment. These working relationships are formalized with state, regional, and private entities and often involve economic development or redevelopment programs.

Examples of economic development partnerships may include financing incentives for facility development such as grants, revenue bonds, or tax incentives; infrastructure development assistance; and workforce recruitment and training programs. Partnerships for public facilities may include shared use of a building or facility by public and private entities, such as a parking structure; arrangements involving County financing support; or private design-build-finance concessions.

County entities such as the Economic Development Office, the Economic Development Authority, and the County Executive's Office will be key players in establishing these partnerships. Other state and regional actors that may facilitate these partnerships may include the Virginia Economic Development Partnership (VEDP), the Central Virginia Partnership for Economic Development (CVPED) or the University of Virginia (UVA).

DISTRICT-BASED FINANCING

The County should explore the possibility of using district-based financing to incentivize development in Rio29. Examples of such tools include the creation of Tax Increment Financing Districts (TIFs), Community Development Authorities (CDAs), Business Improvement Districts (BIDs), service districts, or other special districts and zones, e.g. technology zones and economic revitalization zones. These tools could have the mutual benefit of incentivizing development in Rio29 that is consistent with the Plan vision while also helping channel growth that allows the County to concentrate its efforts to provide more efficient delivery of services and infrastructure. BIDs, CDAs, and other business associations may also promote interest in the area and help facilitate organized programming and events.

The use of district-based financing tools needs further study and should be informed by appropriate fiscal analysis and research. Implementing district-based financing should be explored in partnership with the Economic Development Office and should be supportive of the County's economic development goals. However, these tools should be used carefully to ensure that they are promoting a public good, that their use is in line with the Plan vision, and that they do not degrade other Plan recommendations, such as affordable housing and conservation.



Case Study: Woolen Mills

In 2018, County and Commonwealth officials announced a partnership with WillowTree, Inc. to redevelop the historic Woolen Mills factory as the company's new headquarters. The partnership includes state & local grant funding, tax rebates, and performance agreements to spur economic development and investment in both infrastructure and recreational assets.



Case Study: Uptown Normal

Normal, Illinois utilized TIF districts, public-private partnerships, and a business association to support revitalization of its central business district, including a new conference center, transit station, municipal offices, and event spaces.

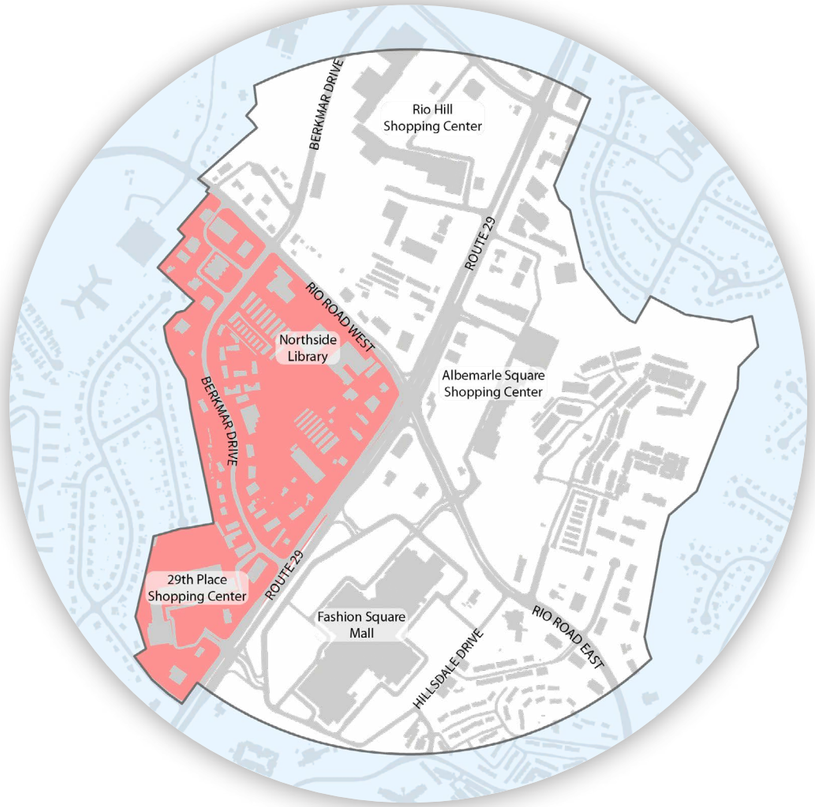
OPPORTUNITY ZONES

The area bounded by Hydraulic Road, Rio Road East, and Route 29 is a designated Opportunity Zone. Opportunity Zones are a relatively new program included in the Tax Cuts & Jobs Act passed by Congress in December 2017. The goal of Opportunity Zones is to encourage long-term investment, economic development and job creation in underutilized areas. States submit Qualified Census Tracts to the U.S. Department of the Treasury to compete for Opportunity Zone designation. The program provides investors the benefit of deferring or lowering capital gains tax on investments made in Opportunity Zones. Investments include either real estate or stocks held in an Opportunity Zone after December 2017. The Charlottesville-Albemarle area has four Census Tracts that are designated as Opportunity Zones, including part of the Rio29 Small Area Plan. Investments in Opportunity Zones can be combined with other programs and partnerships in both the private and public sectors.

While implementing Opportunity Zone benefits is the responsibility of the federal government, the County can help guide investors who are interested in developing properties within the Rio29 Opportunity Zone portion. The County can help support mixed-use development that supports the Rio29 vision and educate both developers and Rio29 property owners about the Opportunity Zone benefits.

OPPORTUNITY ZONE

Opportunity Zones within Rio29



Transformative Projects

OVERVIEW

Achieving the vision for Rio29 will require a series of Transformative Projects to provide the community's desired amenities as well as the infrastructure necessary to support new development in the area. Six "Catalyst" projects have been identified to jump-start new investment in Rio29 and include improved civic spaces and public amenities, bicycle and pedestrian facilities, and public transit facilities. Recognizing that the County will play an important role in supporting and encouraging redevelopment in Rio29, many of the Transformative Projects may be partially or fully funded by the County (or other public agencies such as VDOT). Some private funding will also be expected for those projects that will support adjacent development and redevelopment.

The project descriptions on the following pages provide identify a possible order for projects, a cost estimate, and possible funding sources. Exact project timing will depend on conditions such as financing and will largely be driven by the timing and location of development within Rio29. More detailed costs and funding sources will be determined when a project is engineered and designed.

TRANSPORTATION ANALYSIS

Modeling of the Rio29 area had to demonstrate at least the same transportation performance as the area today, preferably better. The transformative projects were designed to improve the overall performance of the area in terms of level of service and number of trips. The biggest benefit to the area for automobile traffic was achieved by having a better-connected network, with the largest improvements coming from the Hillsdale/Putt-Putt, the Rio29 interchange and the Berkmar/Rio intersections, respectively. The intersection treatments – mostly roundabouts – avoid left turn movements across traffic, which is one of the largest impediments to smooth traffic flow. As a result, traffic flow as a function of level of service is improved over standard treatments and allows additional growth in number of peak hour trips by 15-25%.

Of this increase in the amount of peak hour trips, 10% were projected to be multimodal trips that are currently not practical. The transformative projects enable a shift away from car-exclusive transportaton to transit, biking and walking. An additional advantage of these mulitimodal trips is that they would not be limited by the infrastructure, if these projects were realized. In other words, the multimodal capacity could increase the amount of possible trips from 10% to easily 50% of the area in theory. In practice in the US, however, the numbers seldom exceed 25%.

FISCAL ANALYSIS

Fiscal modeling demonstrates that even with the assumed Transformative Projects' costs to the County, the cumulative net County revenue over the next 20 years could be as much as $100 million, based on forecasted development and associated revenues. "Catalyst" Transformative Projects are assumed to be short term and completed in the first five years of plan implementation. The total cost to the County of these projects is estimated to be $9.5 million. An analysis based on forecasted land use assumptions for Rio29 predicts that cumulative net revenue generated by new investment in the area could be sufficient for the County to cover the cost on the Catalyst Projects by year 8.

PROJECT FUNDING SOURCES

The Plan identifies potential funding sources for each Transformative Project. Several of the projects are anticipated be a combination of public and private funding sources. A summary of potential funding sources is provided below. Costs identified on the subsequent pages are in 2018 dollars and do not account for additional operational costs associated with the projects.

Smart Scale

Smart Scale grants are funded through State and Federal Transportation appropriations and are awarded to Virginia's most critical transportation needs. Albemarle County can apply for projects that address VTRANS needs identified for Corridors of Statewide Significance (CoSS), regional networks, Urban Development Areas, or Safety with a resolution of support from the Charlottesville-Albemarle Metropolitan Planning District Commission (C-A MPO). The C-A MPO may also submit applications on the County's behalf for needs identified on CoSS or Regional Networks (with a resolution of support from the County). Albemarle County is in Tier 1 population threshold and can submit a maximum of 4 applications for each two-year application cycle.

Revenue Sharing

A VDOT grant for federal and state transportation funding in which the locality and VDOT share the cost of the transportation project. 50% of funding comes from state/federal sources, and 50% from local county/private funds, where multiple parties can contribute.

Transportation Alternatives

This grant is used to fund a wide range of projects that support alternative modes of transportation, including pedestrian and bicycle facilities, recreational trails, safe routes to school projects, community improvements such as historic preservation and vegetation management, and environmental mitigation related to stormwater and habitat connectivity. It is funded through the U.S. Department Of Transportation.

Virginia Department of Rail and Public Transportation (DRPT) Grants

DRPT provides grants for public transportation and commuter services that include funding for planning, operating, and/or capital expenses. Numerous grants are awarded each year to public entities and local governments and typically require a small project match.

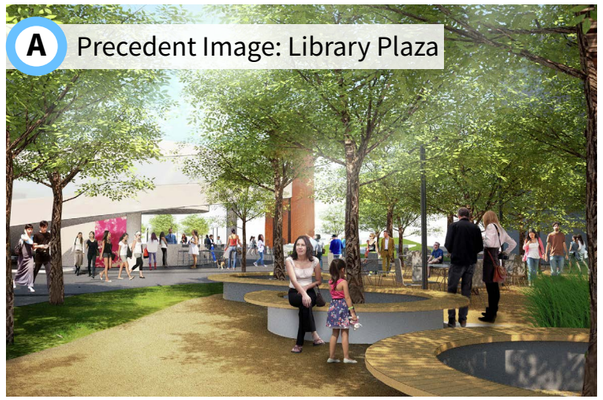
Albemarle County Capital Improvement Plan (CIP)

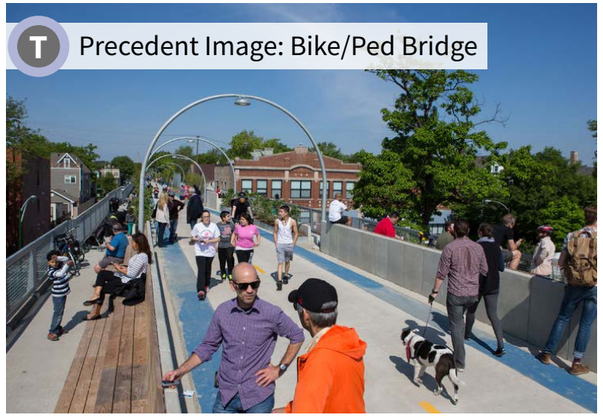
A portion of Albemarle's budget is dedicated to the Capital Improvement Plan (CIP). All public facilities, infrastructure projects and capital equipment must be in the CIP to become reality. The CIP is based on the County's physical needs and development and looks forward 5 – 10 years.

Private Development

Developers may fund projects that are particularly attractive to them. They can also contribute to Albemarle's funds to yield higher grant matches.

Transformative Projects







Catalyst Projects: 0 to 5 Years

- A Library Plaza Phase #1
- B Berkmar Shared-Use Path (SUP)
- C Woodbrook Natural Area Design
- D Rio Road Streetscaping
- E Hillsdale Drive Extension & Realignment
- F Rio and Route 29 Commuter Bus Stop

Future Projects: 5+ Years

(Dependent on Buildout)

- G Library Plaza Phase #2
- H Rio Shared-Use Path/Bicycle Lane
- I Woodbrook Natural Area Construction
- J Rio Rd. Streetscaping Improvements Phase #2
- K Rio Rd. Streetscaping Improvements Phase #3
- L Hillsdale Dr. Extension & Realignment Phase #2
- M Hillsdale Dr. Extension & Realignment Phase #3
- N Route 29 Shared-Use Path
- O Floodable Park & Greenway
- P Linear Park & Stream Daylighting
- Q Route 29 Pedestrian Underpass
- R Berkmar Realignment
- S Circulator Bus
- T Bike/Ped Bridge at Berkmar
- U Dogbone Roundabout at Rio
- V Transit Plaza
- W Rio29 Transit Station
- X Berkmar/Rio Roundabout
- Y Fashion Square Plaza

LEGEND

- Civic Spaces
- Trails, Paths, & Parks
- Road & Intersection Improvements
- Public Transit
- Catalyst Projects
- Long Term



Transformative Projects

A Library Plaza

Phase 1: Land Acquisition, Design, and Temporary Facilities

G

Phase 2: Permanent Plaza Construction



DESCRIPTION

Library Plaza is intended to provide an outdoor public space for citizens and library patrons to gather, read, play, and relax. The space can be used for library programming, serve as a community event space, and provide a much needed place for passive and active recreation. Library Plaza should be designed in collaboration with library staff, patrons, neighbors, and area schoolchildren. The Plan shows the plaza location behind the existing parking area, however, opportunities for the plaza should be explored on all adjacent properties. As mentioned in the Conservation Chapter, Library Plaza could serve as the Central Square for Rio29.

Timing **Phase 1: Catalyst (first 5 years)**
Phase 2: Future

Cost **Phase 1: $2,103,750**
Phase 2: $2,475,000

Funding **Albemarle CIP;**
Private Development

This project supports the vision for **Conservation** and **Character**.

PRECEDENTS



Seattle City Hall Plaza Seattle, WA



IX Art Park Charlottesville

B Berkmar Drive

Shared-Use Path

H Rio Road

Shared-Use Path or On-Street Buffered Bike Lane



DESCRIPTION

Rio29 is currently a missing link of the Northtown Trail, a commuter route under development that is planned to connect the northern neighborhoods within Places29 to the City of Charlottesville.

Existing segments of the trail are beginning to converge around the Rio29 area, from the north along Berkmar Drive and from the east along Rio Road. The proposed trail runs along the east side of Berkmar Drive to Rio Road. From Berkmar Drive, the trail will continue east along Rio Rd. to the eastern boundary of the Plan area and connect to existing portions of the trail.

The trail is expected to be constructed with a minimum 10-foot asphalt path that is buffered and separated from the roadway. The shared-use path should transition to a buffered bike lane along Rio Road within the designated Core areas.

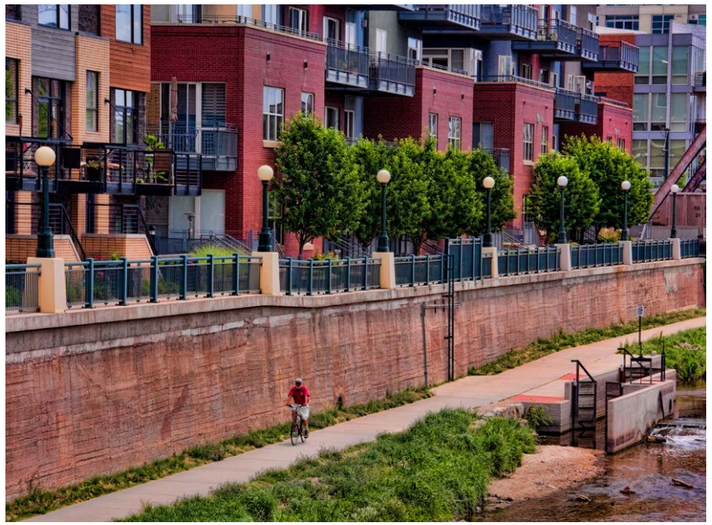
Timing **Catalyst (first 5 years)**

Cost **$925,000; $2,368,000**

Funding **Revenue Sharing;**
Transportation Alternatives

This project supports the vision for **Connectivity**.

PRECEDENT



Cherry Creek Trail Denver, CO

Transformative Projects

Woodbrook Natural Area



C Community Design/ Engagement

I Development and Construction

DESCRIPTION

The County owns a 7.6 acre parcel south of the Woodbrook neighborhood that serves as a stormwater management facility for the surrounding commercial developments. The property is a forest with streams, wetlands, and an informal trail network. While publicly owned, it is not advertised or widely used as a public park.

While the area is intended to maintain its natural setting to provide much needed green space to the area, Phase 1 of the project should focus on engaging the community to help design the park facilities. Community priorities such as safety, accessibility, and trail networks should be taken into consideration in the design. Neighbors from Woodbrook, the apartment communities to the southeast, and students and staff of Woodbrook Elementary School should be invited to provide park design input.

Phase 2 will include the development and construction of the facilities identified in Phase 1.

Timing **Phase 1: Catalyst (first 5 years)**
Phase 2: Future

Cost **Phase 1: $320,000;**
Phase 2: $1,875,000

Funding **Albemarle CIP**

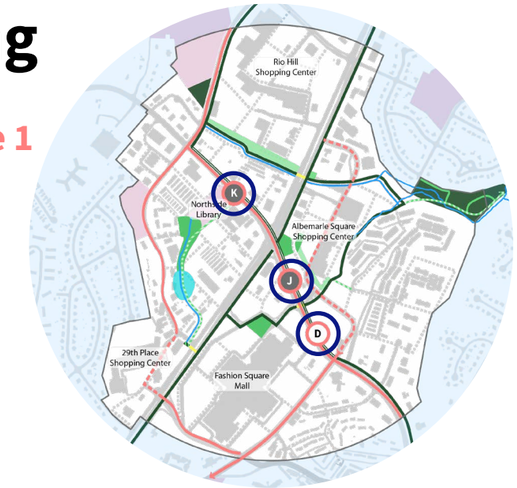
This project supports the vision for **Conservation**.

PRECEDENT



Rivanna Trail Charlottesville

Rio Road Streetscaping



D Rio Road Streetscaping Phase 1

J Rio Rd. Streetscaping Improvements Phase 2

K Rio Rd. Streetscaping Improvements Phase 3

DESCRIPTION

Streetscape improvements to Rio Road are needed to provide more robust bicycle and pedestrian facilities and to improve the environment for street users. Part of the streetscaping planning should include an access management plan to determine where turn lanes can be converted to a treed median.

Needed improvements include re-striping the road to add a two-way cycle track or SUP, widening the sidewalk and planting street trees, improving lighting, and adding street furniture. Where space permits, a landscaped median that alternates with needed turn lanes should be installed.

The timing of these phases will be dependent on when and where redevelopment occurs. Phase 1 priority should be given to providing bicycle and pedestrian upgrades along the street, which should be coordinated with Transformative Projects B and H.

PRECEDENT



Street Trees and Street Lights Chicago, IL

Timing **Phase 1: Catalyst (first 5 yrs)**
Phase 2 & 3: Future

Cost **$3,237,500 per phase**

Funding **Revenue Sharing;**
Transportation Alternatives;
Private Development

This project supports the vision for **Connectivity**.

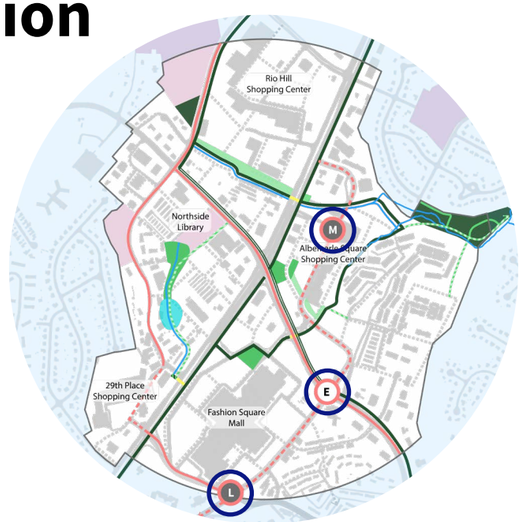
Transformative Projects

Hillsdale Drive Extension

E Phase 1: Upgrading, Realignment, and Roundabout

L Phase 2: Development and Construction

M Phase 3: Upgrading



DESCRIPTION

Phase 1 involves upgrading Fashion Square Drive to public road standards (which include sidewalks, bike lanes and street trees), constructing a roundabout at the intersection of Rio Road, and realigning Putt Putt Place on the north side of the Rio Road intersection.

Phase 2 includes constructing a bridge or overpass that crosses the ravine south of Fashion Square Mall to provide a direct connection between Fashion Square Drive and Hillsdale Drive.

Phase 3 would complete the Hillsdale Extension by upgrading the length of Gardens Boulevard to public road standards. Phases can occur out of order and are expected to occur with the redevelopment of adjacent properties.

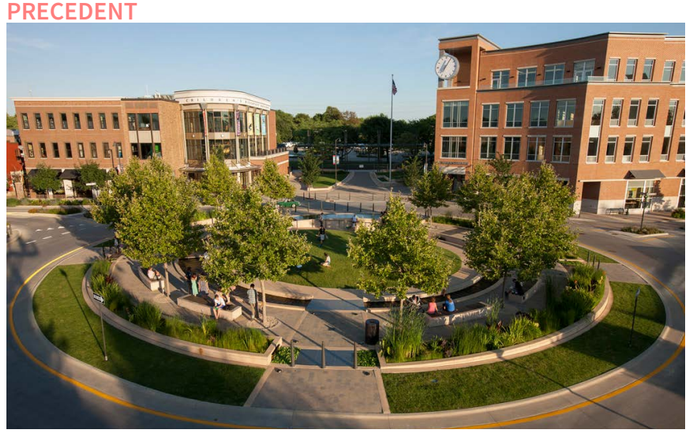
Timing **Phase 1: Catalyst (first 5 yrs)**
Phase 2 & 3: Future

Cost **Ph 1: $8,528,000; Ph 2: $5,535,000;**
Ph 3: $ 2,701,000

Funding **Revenue Sharing; Albemarle CIP; Private Development**

This project supports the vision for **Connectivity**.

PRECEDENT



Roundabout with a Green Center Normal, IL

F Rio29 Commuter Bus Stop

DESCRIPTION

When appropriate, a Route 29 commuter bus stop should run along the Rio29 GSI ramps. To determine appropriate timing, staff should analyze ridership and determine when a stop at this location would be warranted. Concurrent with this analysis, staff should determine if other route changes should be made to accommodate route transfers and improve frequency of service.



Timing **Catalyst (first 5 years)**

Cost **$270,000**

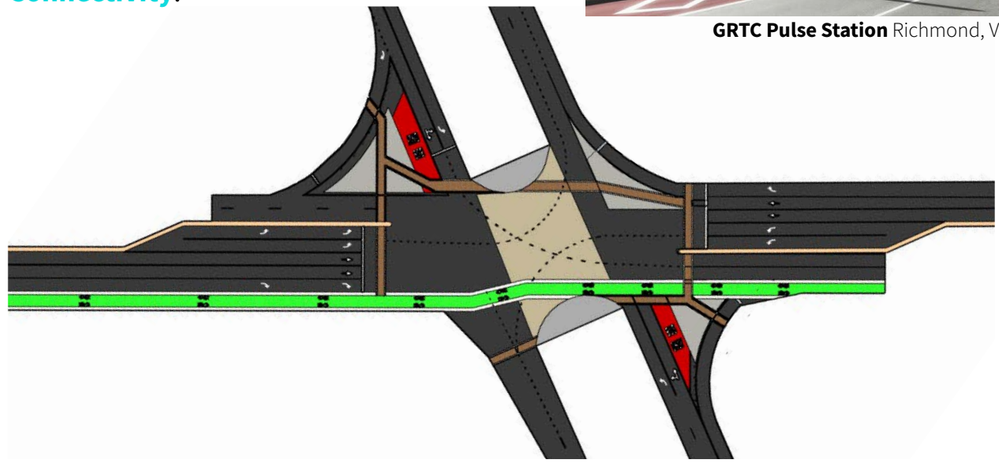
Funding **Revenue Sharing; Transportation Alternatives**

This project supports the vision for **Connectivity**.

PRECEDENT



GRTC Pulse Station Richmond, VA



Example Redesign of the Rio29 Intersection Including More Pedestrian Crossings, Bike Lanes, and Transit Stops

Transformative Projects

N Route 29 Shared-Use Path



DESCRIPTION

A shared-use path is planned along the east side of Route 29. It is anticipated that the trail will connect to other sections of pathway north of the Plan Area. The path should be constructed to accommodate a high volume of pedestrian and bicycle traffic and to provide easy connectivity to the Rio29 transit station.

Accommodations for the shared-use path should be made as adjacent parcels develop or redevelop.

Timing **Future**

Cost **$3,843,750**

Funding **Revenue Sharing; Albemarle CIP; Private Development**

This project supports the vision for **Connectivity** and **Conservation**.



Rendering of a Proposed Shared-Use Path Pisimo Beach, CA

PRECEDENTS



Rendering of a Proposed Shared-Use Path Charlotte, NC

O Floodable Park + Greenway



DESCRIPTION

The County owns a 1-acre stormwater management facility south of Northside Library. The existing facility is an overgrown dry pond that is in need of improvements. The facility should be redesigned as a "floodable park" that can function as both an amenity space and a stormwater treatment facility. Since this area is prone to flooding, it should be designed to accommodate and treat stormwater runoff, but during times of dry weather, the property can serve as a park space. The floodable park should be connected to Library Plaza and to adjacent developments via a greenway trail.

Phase 2 will include the development and construction of the facilities identified in Phase 1.

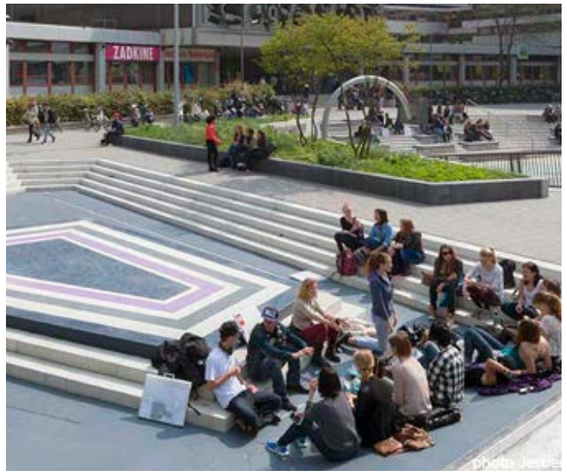
Timing **Future (dependent upon adjacent development)**

Cost **$2,660,500**

Funding **Albemarle CIP; Private Development**

This project supports the vision for **Conservation**.

PRECEDENTS





Water Square Benthemplein Rotterdam, Netherlands

Transformative Projects

P Linear Park and Stream Daylighting

DESCRIPTION

A small linear parcel between the Colonial Auto Center property and Storage Solutions Center serves as an additional County-owned stormwater management facility for the area. This facility should be enlarged to function as a linear park that runs along the stream and lengthened to provide connectivity between Route 29 and Berkmar Drive. Accommodations for the linear park should be made as adjacent properties develop or redevelop.

East of Route 29, the same stream is currently piped under parking lots. The stream is expected to be daylighted as properties in this area redevelop. A shared-use path should be provided along the daylighted stream and connect to the linear park via an underpass below Route 29 (see Project Q). These facilities will provide additional off-street trail connections in the area.



Timing **Future (dependent on adjacent development)**

Cost **$444,000**

Funding **Revenue Sharing; Albemarle CIP; Private Development**

This project supports the vision for **Conservation**.

PRECEDENTS



Saw Mill River Daylighting Project Yonkers, NY



La Rosa Daylighting Project Auckland, New Zealand

Q Route 29 Pedestrian Underpass

DESCRIPTION

Approximately 800 feet north of the Rio29 GSI, an existing culvert pipes a stream under Route 29. This could be a logical spot to add a bicycle and pedestrian underpass to provide an additional crossing of Route 29. If a tunnel is built, it should be well-lit and incorporate artwork, murals or light features to provide a safe and pleasant environment for walkers and cyclists.

(See Appendix A of the VDOT Road Design Manual for tunnel specs)



Timing **Future**

Cost **$2,941,500**

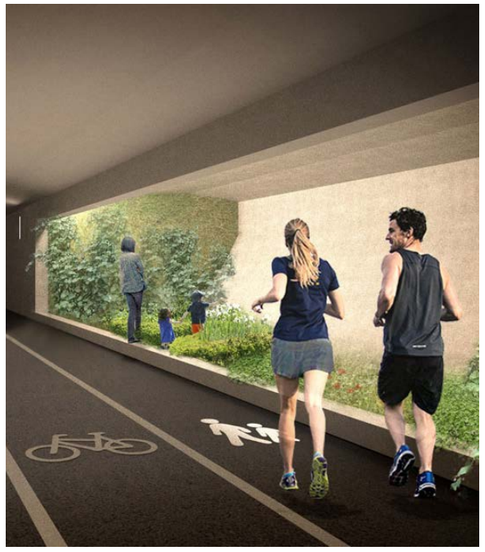
Funding **Albemarle CIP; Transportation Alternatives**

This project supports the vision for **Connectivity**.

PRECEDENTS



LightRails Pedestrian Underpass Birmingham, AL



Rendering of Pedestrian Tunnel Norway

Transformative Projects

R Berkmar Realignment



DESCRIPTION

Currently Berkmar terminates as a right-in right-out intersection with Route 29 and this plan contemplates a realignment of Berkmar Drive to a signalized intersection with Route 29. The final alignment of Berkmar Drive and intersection design will be determined by adjacent redevelopment.

A connection between Hillsdale Drive and Berkmar Drive should be provided, but alternative intersection treatments and designs could be considered to provide for the east to west connectivity south of the Rio29 GSI.

Timing **Future (dependent on adjacent redevelopment)**

Cost **$5,863,000**

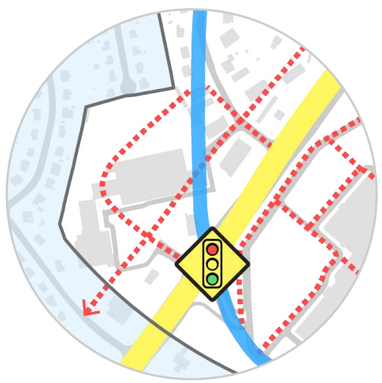
Funding **Revenue Sharing; Smart Scale; Private Development**

This project supports the vision for **Connectivity**.

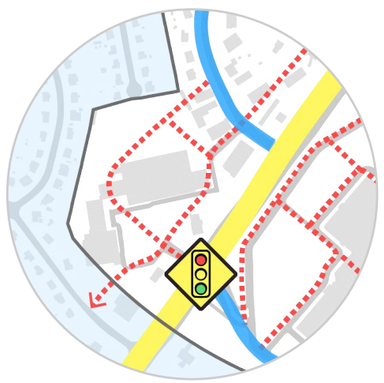
POSSIBLE BERKMAR REALIGNMENT DESIGNS



PLAN A



PLAN B



PLAN C

S Circulator Bus



DESCRIPTION

When demand is sufficient, additional bus service should be provided for the area. A circulator bus route should be considered to provide connectivity between the four quadrants and with service to the transit station. Considerations could be given to automated vehicle (AV) service as technology allows.

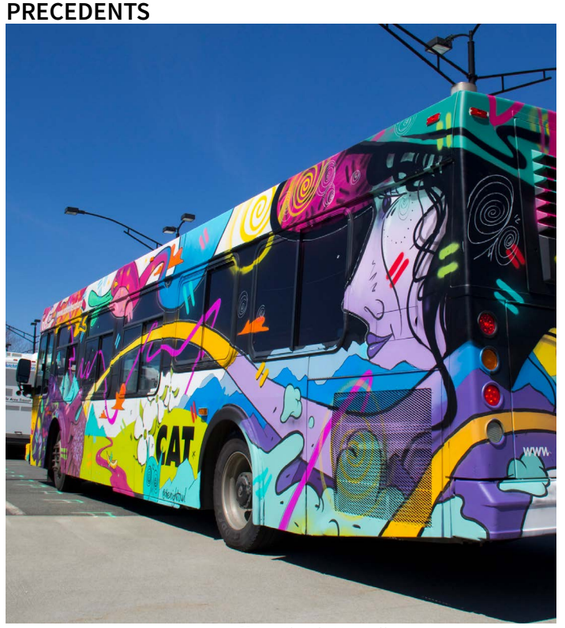
Timing **Future**

Cost **$ 3,937,500**

Funding **DRPT Grants; Albemarle CIP**

This project supports the vision for **Connectivity**.

PRECEDENTS



Free Trolley Charlottesville



Autonomous Vehicle University of Michigan

Transformative Projects

T 29 Bike/Ped Bridge at Berkmar

DESCRIPTION

A bicycle/pedestrian bridge over Route 29 and south of the GSI can be provided between Fashion Square Mall and 29th Place Shopping Center. The topography will allow an at-grade crossing on the Fashion Square Mall side to provide ease of access to pedestrians and bicyclists. The crossing should include landscaping, artwork, or other visual elements that provide a pleasant and interesting environment for pedestrians and cyclists.



This project supports the vision for **Connectivity** and **Conservation**.

Timing **Future**

Cost **$2,405,000**

Funding **Smart Scale; Revenue Sharing; Transportation Alternatives**

PRECEDENTS



Wards Road Pedestrian Bridge Lynchburg, VA



Rendering of 41st St. Bike and Pedestrian Bridge Chicago, IL

U Rio Road Dogbone Roundabout



DESCRIPTION

A dogbone roundabout is proposed for the Rio Road level of the Rio29 GSI. The roundabout will improve traffic flow on Rio29 as well as improve bicycle and pedestrian crossing opportunities. The roundabout will reduce the width of the right-of-way across the existing overpass and leave space for a transit station, bike lanes, and additional pedestrian facilities. An alternative design achieving the same goals could also be considered.

Timing **Future**

Cost **$38,526,250**

Funding **Smart Scale; Revenue Sharing**

This project supports the vision for **Connectivity**.

PRECEDENT



Dog Bone Roundabout Carmel, Indiana

Transformative Projects

V Transit Plaza



DESCRIPTION

An outdoor public space should be provided in the northeast quadrant of Rio29 that provides easy access to the transit stop. The space should be designed as a square or plaza that provides space for passive recreation and can act as community gathering space. Plaza amenities could include seating areas, art installments, a small amphitheater, and/or a central water feature. The park development should be consistent with adjacent redevelopment.

Timing **Future (dependent on adjacent redevelopment)**

Cost **$6,047,500**

Funding **Albemarle CIP; Private Development**

This project supports the vision for **Connectivity**, **Conservation**, and **Character**.



Rendering of Salesforce Transit Center San Francisco, CA

PRECEDENTS



Public Plaza for the Segerstrom Center for the Arts Orange County, CA

W Rio29 Transit Station



DESCRIPTION

A central transit station that allows for the convergence of transit routes connecting Downtown Charlottesville, UVA, and the Airport is planned to be next to or close by the Rio29 intersection. The station should be established when demand is sufficient, or concurrently with a priority bus route or Bus Rapid Transit (BRT) along Route 29.

Timing **Future**

Cost **$8,167,565**

Funding **Smart Scale; DRPT Grants**

This project supports the vision for **Connectivity**.

PRECEDENTS



Blake Transit Center Ann Arbor, MI

Transformative Projects

X Berkmar/Rio Roundabout



DESCRIPTION

A roundabout at the intersection of Rio Road and Berkmar Drive is planned as a long term improvement to help improve moving traffic through the area.

Timing **Future**

Cost **$3,866,500**

Funding **Smart Scale**

This project supports the vision for **Connectivity**.

PRECEDENTS



66th Street at Portland Avenue Roundabout Richfield, MN





"Uptown Circle" Normal, IL

Y Fashion Square Plaza



DESCRIPTION

An outdoor public space should be provided in the southeast quadrant of Rio29 that provides easy access to the transit stop. The space should be designed as a square or plaza that provides space for passive recreation and can act as community gathering space. Plaza amenities could include seating areas, art installments, a small amphitheater, and/or a central water feature. The park development should happen consistent with adjacent redevelopment.

This project supports the vision for **Conservation** and **Character**.

Timing **Future (dependent on adjacent redevelopment)**

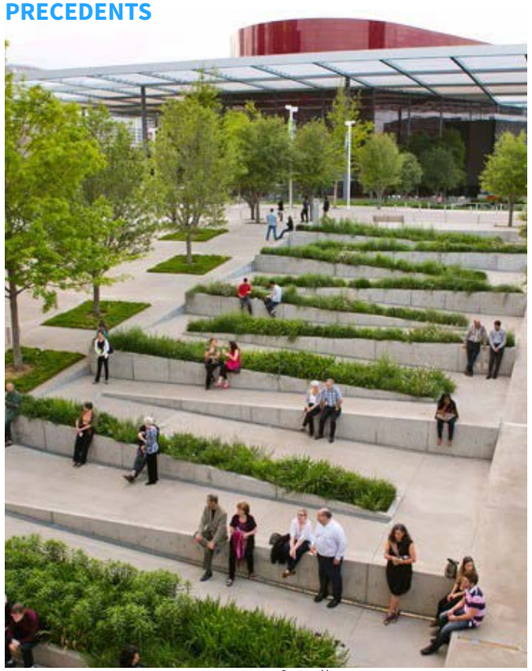
Cost **$2,090,500**

Funding **Albemarle CIP; Private Development**



Lexington Ave Midtown Manhattan, NY

PRECEDENTS



Sammons Park Dallas, TX

APPENDIX

Glossary

Active Uses: Uses that promote an active street life and encourage foot traffic along a street. Examples of active uses include retail, restaurants, coffee shops, museums, or art galleries.

Adaptive Reuse: Reusing a site or building for a purpose different than its original use.

Affordable Housing: Albemarle County defines affordable housing as "housing affordable to households with income not exceeding 80% of the area median income established by the U.S. Department of Housing and Urban Development adjusted by family size". For rental units, expenses include monthly rent and utilities, while for for-sale units, expenses include the mortgage, taxes, and interest paid. The County does not have a local housing authority, however it does contribute funds toward vouchers and the creation of affordable rental units. Affordable housing is also created through state and federal funding, as well as incentive programs such as Low-Income Housing Tax Credit (LIHTC).

Alternative Transportation/ Modes of Transportation: Modes of transportation other than driving alone (single-occupancy vehicle), such as walking, biking, taking public transit, and carpooling.

Architectural Style/Features: The different built elements on a building that make it easily identifiable as originating from a time period or artistic movement. They are the elements that make a building more than a blank box.

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

Bus Rapid Transit (BRT): A bus-based transit system that has dedicated lanes, traffic signals that give the bus priority at intersection, and other features that deliver faster service.

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

Census Tract: Small, relatively permanent statistical subdivisions of a county or equivalent entity that are updated by local participants prior to each decennial census. Census tracts generally have a population size between 1,200 and 8,000 people, with an optimum size of 4,000 people.

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

Comprehensive Plan: A documents that lays out the community's developmental aspirations and long-term vision for the community. The Comprehensive Plan is a policy document intended to act as a guide future decisions and development. The Comprehensive Plan is does not carry the force of law, but can inform County Ordinances, budgets, and other policy decisions.

Connector Street: A street that connects "Through Streets" to "Placemaking Streets", transitioning the speed correspondingly from high to low. Boulevards, Avenues and Local streets can serve as Connector Streets.

Core: A Place Type that is identified in this plan, which is located at the center of the RIo29 node. The Core is intended to have the highest intensity of development, buildings with active ground story uses, and streets that include robust pedestrain facilities.

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

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

Economic Development: The process through which a community works to make its transaction of goods and services, resources, or market responsiveness more sustainable and resilient. Albemarle County's Economic Develpoment vision states a desire to provide the local citizenry an improved standard of living and enhanced quality of life.

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

Façade: The front of a building.

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

Grade Separated Interchange (GSI): A crossing of two roads in which one crosses the other at a higher elevation. There are often on-ramps from the lower road that allow for upper-road access.

Grading: Ensuring a level base or re-shaping the land to have a specified slope.

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

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

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

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

Internet of Things: The interconnection of everyday objects through the Internet, making data transfer easy and commonplace.

Land Use: The purpose that a lot or group of lots is being used for. For example, a lot may be used for commercial, institutional (e.g. schools), residential, or office.

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

Liner Building: shallow buildings along the face of a facility, such as a parking garage, that hide the facility from the street.

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

Multimodal: accommodating or consisting of several different transportation types or modes (e.g. bicycle, transit, etc.).

Glossary (continued)

Node: A center where much of a development's activity occurs, whether economic, social, or transportation.

On-street Parking: Parking that is on the side of the street in designated spaces, usually parallel parking spaces, but can also be angled parking. This type of parking is often metered and/or has time limits.

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

Placemaking Street: A street that acts as a main street or the central corridor of activity for an area and is the locus of the principal destinations of the neighborhood. Boulevards, Avenues and Local streets represent different scales of placemaking streets. These streets have slow speeds so that all modes can interact safely.

Placemaking: A type of project or program that capitalizes on a local community's assets and potential, resulting in public spaces that contribute to people's health, happiness, and well being. Community-based participation is a key aspect placemaking projects.

Public Amenity Spaces: Indoor or outdoor communal spaces that can be used for social or recreational activities. These include plazas, trails, and civic centers.

Public-Private Partnerships (P3): A cooperative arrangement between two or more public/private sectors that allow for previously underfunded projects to become possible

Public Realm: Spaces that are publicly accessible, including streets, squares, parks, and open spaces. These areas can support or facilitate public life and social interaction.

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

Return on Investment: A performance measure that evaluates the efficiency of an investment or compares the efficiency of a number of different investments.

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

Screening: Using landscaping, such as shrubs or trees, to hide less attractive features of an area, including parking lots and dumpsters.

Setbacks: The minimum or maximum distance a building must be from the street, sidewalk, edge of a parcel, or another boundary. Setbacks can be for the front, rear, and sides of a building. In more urban areas, front setbacks often range from 0-10'. This brings buildings close to the street and creates a more active environment, where pedestrians can easily see inside stores and are encouraged to shop and explore.

Small Area Plan (SAP): A specific plan for a portion of the locality's jurisdiction. It is often tailored considering the challenges and goals unique to the SAP's boundary.

Smart City: An urban area that uses many different kinds of data collection that inform efficient decisions. See **Internet of Things.**

Spatial Encosure: The relationship of building height to street width, which can influence the level of pedestrian comfort along a street. The Plan recommends a height to street width ratio between 1:2 and 1:3.

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

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

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

Stream Daylighting: The process of excavating a channel piped under development, parking areas or roads so as to restore the natural hydrology of an area.

Street Capacity: The amount of traffic a street can support. Streets are often measured in terms of their Level of Service. The capacity or LOS can be improved by creating additional street connections and promoting other types of transportation besides driving.

Street Connectivity: How well one street can reach other streets, often determined by intersection density.

Structured Parking or Parking Structure: A multi-storied structure located wholly or partly above grade and designed for the purpose of garaging vehicles.

Superblocks: Used in this plan to describe long, stretches of development that are not broken up by other streets, creating an unfriendly environment for pedestrians.

Surface Parking Lots: Parking that is in the form of spaces on a paved lot.

Sustainable: Meeting the needs of the present without compromising the ability of future generations to meet their own needs. Sustainability has applications in natural resources management, transportation, building construction, and energy consumption, among others.

Through Street: A street that connects the neighborhood to other neighborhoods, allowing higher speeds to traverse longer distances.

Traditional Neighborhood Development (TND): A type of development that is classified by walkable neighborhood centers, diverse and easily accessible land uses, and interconnected streets (i.e. similar to the structure of neighborhoods prior to auto-oriented suburbs).

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

Transit-Oriented Development (TOD): The creation of compact, walkable, mixed-use communities centered around access to train or transit systems.

Two-Way Cycle Track: A physically separated bike lane that allows bicycle movement in both directions on one side of the road.

Urban Development Area (UDA): Places designated for higher density in a locality's comprehensive plan that incorporate the principles of **Traditional Neighborhood Development.**

Walk Score: A number between 0 and 100 that measures the walkability of any address, provided by private company, WalkScore.com. The higher the number, the more walkable the address is considered to be.

Walkable/Walkability: The measure of how friendly an area is to pedestrian activity.

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

Zoning District: An area that is designated for certain uses as permitted by the Zoning Ordinance.

Zoning Code/Ordinance: A law that determines whether certain uses and designs are allowed under the district in question. May also regulate lot size, placement, bulk, density, and the height of structures.

Engagement & Feedback

For more information on public comments, see the online summaries here.

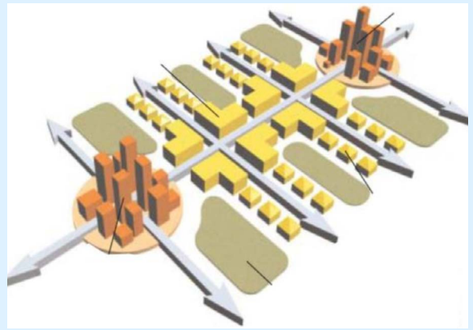
PHASE 1: VISIONING

Community Meeting #1 (9/15/2016)
The desires for walkability, amenity spaces, and a wider mix of uses emerges as key themes.



Community Meeting #1

Community Meeting #2 (12/12/2016)
Feedback on 3 alternatives:
The community embraced the concept of the 15-minute walkable community with development centered around nodes, but citizens felt they should concentrate on Rio29 in the short term.



Node Concept Presented at Community Meeting #2

Board of Supervisors & Planning Commission Joint Work Session (1/16/2017)
Both bodies endorsed the node concept and approved moving forward with a focus on Rio29.



Community Meeting #3

PHASE 2: DESIGN

Community Meeting #3
(5/11/2017) Design charrette & Open House: The community worked through a number of exercises focused on design and amenity choices for the Rio29 node. Alternative concepts emerged around the organization and intensity of development within the node.

Community Meeting #4
(7/27/2017) Feedback on 3 alternatives: Staff and consultants presented three design alternatives: Streets, Squares, and Station. There was strong support for idea of a transit hub associated with the "Station" concept, but the “Squares” concept had the strongest amount of support.

Community Meeting #5
(1/25/2018) Draft Design Concept: The draft design concept centered development around a central station, and pulled the "squares" from each quadrant closer to the station to allow for transit hub accessibility.

Board of Supervisors & Planning Commission Joint Work Session
(1/30/2018) The Board endorsed both the draft connectivity plan and framework for realizing the vision.



Station



Streets



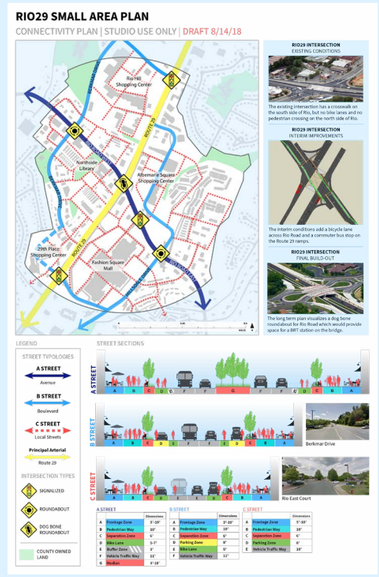
Squares

PHASE 3: ADOPTION

Community Meeting #6
(8/9/2018) Final Small Area Plan Draft meeting

Public Hearings & Adoption





Connectivity Plan Draft Shown on 8/9



Community Meeting #6

Historical Context

Early Inhabitants (10,000 BC to 1789)

The Monacans

The Monacans lived in the central Virginia Piedmont between the James River and the Blue Ridge Mountains. They spoke a Siouan language. Monacans during the Late Woodland Period (c. 1000-1607) probably farmed maize and squash, and likely used bow and arrow technology.

John Smith included Monasukapanough, a village along the north bank of the Rivanna River, in his map of Virginia in 1608. Monasukapanough was a Monacan village that was occupied sporadically for several centuries.

Smith's map records more than 200 Indian towns. Many of the place names remain in use today.



"It was of a spheroidical form, of about 40 feet diameter at the base, and had been of about twelve feet altitude, though now reduced by the plough to seven and a half, having been under cultivation about a dozen years."

-Thomas Jefferson, Notes on the State of Virginia (1785)

John Smith's 1608 Map of Virginia



In 1754, Thomas Jefferson observed Indians conducting a ceremony at the mound near the South Fork of the Rivanna.

Later, he recounted a party passing on its way to a mound "with expressions which were construed to be those of sorrow". The Indians were still paying their respects to those laid to rest in the mound.

In 1784, Jefferson excavated a burial mound (He called them "barrows").



Burial mounds in the Ohio Valley attributed to the Hopewell peoples, similar to the ones observed by Thomas Jefferson

Antebellum (1789-1860)

The Carr Family

Major Thomas Carr (1678-1738) of King William County accumulated more than 10,000 acres between 1730 and 1737 north of present-day Charlottesville, along the north fork of the Rivanna River and west of the Southwest Mountains.

Carr gave most of the land to his son, John Carr, who then passed the land on to his sons. John Carr's sons built elegant, Jeffersonian-type houses in Albemarle County.



Samuel Carr built the first house in Dunlora, across the river from Bentivar (above).

Garland Carr built Bentivar (below), a single-story, double-pile home on a bluff overlooking the fork of the north and south branches of the Rivanna River.



Thomas Carr built Carrsbrook (below), located on a high bluff above the south fork of the Rivanna River. The home had sweeping views of the river valley and the Southwest Mountains. Thomas Carr also built Glen Echo.



Historical Context provided by the Albemarle County Historic Preservation Committee. For the full presentation of their research, please click **here**.

Antebellum (1789-1860)

Brookhill

Brookhill (right) was built around 1815, by James “Cutfinger” Minor and the Rivanna River north of Charlottesville.

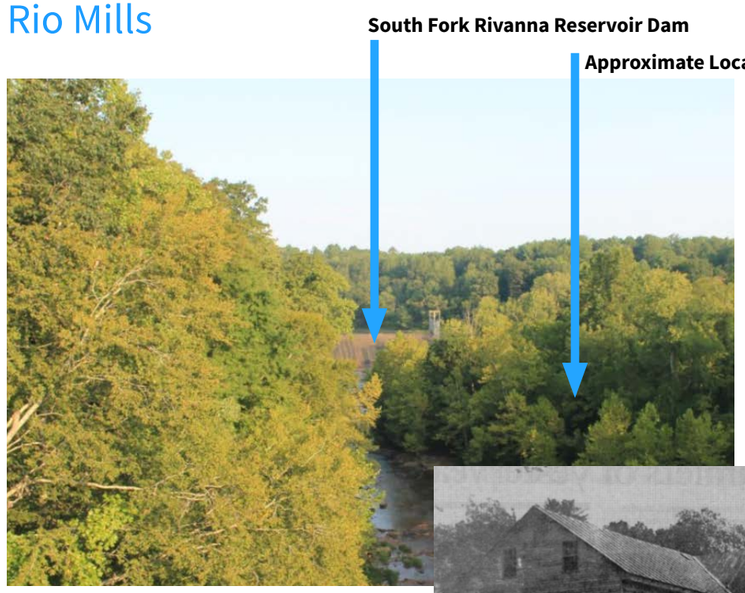
The house differs from the typical brick Federal house with its asymmetrical plan. Brookhill’s entrance hall and salon are located at the rear of the house for greater privacy.

In 1857, the dentist Dr. Charles Minor, James Minor’s cousin, conducted a school for boys at the house.



Photo by Margaret Maliszewski

Rio Mills



The community of Rio Mills was founded in the 1830s when William H. Meriwether built the first mill there. The mill was located downstream from the present-day South Rivanna Reservoir dam. The construction of two additional mills followed.



Upriver from Rio Mills was the mill village of Hydraulic. This village was built in the 1830s and the mill supplied much of the lumber used to build the University of Virginia.

By mid-century, the mill grew to include a grist and merchant mill, a miller’s house, a cooper (barrel maker), a blacksmith, a country store, and a post office.

Hydraulic had become the head of navigation for the Rivanna River, processing wheat and tobacco and sending it downriver to Richmond and beyond. Rio Mills stopped operating in the early 20th century, and little evidence of it remains.

Civil War (1860-1865)

Battle of Rio Hill

In 1864, General George A. Custer set out with 1,500 men to raid Albemarle County. The raid was meant as a diversionary tactic to distract from the cavalry raid on Richmond. They marched from Stanardsville to and on to Earlysville, and arrived at the covered bridge at Rio Mills.

On February 29th, they launched a surprise attack against the Stuart House Artillery Battalion. Here, there were about 200 men in winter quarters under the temporary command of Captain Marcellus Moorman.

These winter quarters were located on the slope behind what is now Agnor-Hurt Elementary School on Berkmar Drive.

1864 Campbell Map of Albemarle County





Harper’s Weekly depiction of Custer's Raid into Albemarle County, February 29th-March 1st, 1864

During the skirmish at Rio Hill, Custer mistakenly believed that he and his men were outnumbered and thus retreated. They set the Rio Mills bridge on fire on their way out, leaving only foundations and mill stones to mark the bridge’s existence. Alfred R. Waud, a well-known newspaper artist, accompanied Custer’s expedition and sketched the drawing below of the burning bridge.



"Burning a Bridge on the Rivanna, Feb. 1864" by Alfred R. Waud

Post-Emancipation (1865- mid-1900s)

Postbellum Communities

After the Civil War, the freedmen could buy small tracts of land on the edges of plantations in the area, where some had been enslaved. Many land owners appear to have been former slaves or descendants of former slaves of Carrsbrook (or other plantations in the area). In 1868, 6 men purchased and divided a 50-acre tract.

By 1880, a mixed community of black and white residents called Cartersburg was thriving. Cartersburg was located south of the Rio bridge along the old road to Charlottesville.

The families supplemented the produce of their small, steep plots with work on white-owned farms, on the railroad, and in domestic service. Census data lists several men as blacksmiths and women as laundresses.

By 1891, there were almost 60 black landowners in an area that included the interconnected neighborhoods of Georgetown, Webbland, Hydraulic, Union Ridge, Allentown, and Cartersburg.

Union Ridge Baptist Church

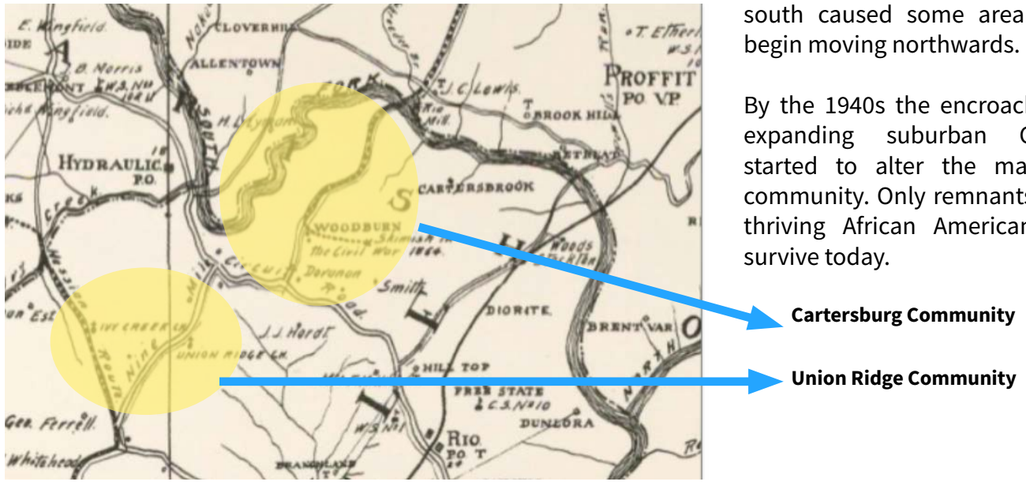


Salem Church, known today as Union Ridge Baptist Church (above), was founded two years after the war ended. The church was at the heart of the community.

In 1876, African American preacher George Crawford gave the congregation a quarter-acre for a church building. The church still stands today as the home of an active Baptist congregation.

Limited opportunities in the Jim Crow south caused some area residents to begin moving northwards.

By the 1940s the encroachments of an expanding suburban Charlottesville started to alter the makeup of the community. Only remnants of the once-thriving African American community survive today.



1907 Massie Map of Albemarle County

Rio Today



The South Fork Rivanna Reservoir was constructed in 1965-1966. **Photo by Stephen Barling**

Cartersburg and Rio Mills Over the Years

1937



1957



1974



Metrics

The Key Outcomes and other indicators outlined in this section can be considered as factors upon which to evaluate new development proposals (where appropriate) and the implementation of the Plan. Tracking these outcomes and indicators will likely require the development of the Performance Management framework outlined in the Implementation Chapter.

CONNECTIVITY

Key Outcome: Build-out of a Complete Street network.

Achievement of the Connectivity Chapter's recommendations will be measured by the implementation of a network of Complete Streets that can safely and comfortably accommodate vehicular, bicycle, and pedestrian traffic.

As the existing network is improved to meet the recommended standards for cyclists and pedestrians (and as a result, transit) and new connections are made, more vehicular trips can be converted to other modes and vehicular traffic will be accommodated by improved network performance.

In the near term, this Key Outcome could be quantified using a facility-based analysis method. An increase in the percentage of linear feet of the total street network meeting the recommended standards in the Plan for bicycle and pedestrian facilities (percent completion of network) would represent progress.

Weights could be considered for areas where there are no bicycle/pedestrian facilities, where facilities are undersized or substandard or only available on one side of the street, and where the plan's standards are satisfied.

When capacity permits, future analysis should consider a quality-weighted model such as a Level of Traffic Stress/Level of Service model. This analysis should also account for the agglomeration effect of having a longer completed section of a facility, since multiple unconnected sections could be treated the same as a single uninterrupted section under the facility-based method.

Additional Indicators

A Connected Network: Higher intersection density; smaller average block size; increase in linear feet of bicycle/pedestrian facilities.

Designed For All Users: Increase in bicycle amenities (e.g. parking, lockers, fix stations); maintenance of Level of Service (LOS) for existing roadways.

A Multi-Modal Hub: Increased frequency of bus service; increased residential proximity to transit stops; increase in number of improved transit stops; diversified mode share including an increase in trips made by transit; decreased travel time to a central transit station.

Forward Looking: Improvement in transit technology applications; increase in electronic vehicle charging stations; decrease in vehicle miles traveled (VMT).

CHARACTER

Key Outcome: Efficient utilization of land for active and economically productive uses.

Currently, Rio29 has a large amount of underutilized land, including single-story buildings, excess surface parking, and stormwater facilities. Due to its strategic location within the Development Areas, Rio29 has the potential to become a hub for transportation, housing, and economic growth.

Creating a dense, attractive, human-scale urban environment will reinforce walkability and provide more opportunities for housing and employment. New development and redevelopment meeting the Character Chapter's recommendations will represent progress towards this outcome.

More efficient utilization of land within the study area could be quantified by a ratio comparing the land area dedicated to standalone "inefficient" uses such as unshared surface parking or stormwater management areas to the square footage of the total active or productive uses on the site. It is assumed that the inefficient uses do not contribute to the area's economic vitality, to connectivity, or to quality of life within the area.

Total square footage of a building, as opposed to footprint, should be considered to account for multistory development that uses land efficiently and creates the desired human-scale environment. Structured or shared parking solutions are assumed to be more efficient uses and would not count towards the land area dedicated to inefficient uses, as well as stormwater solutions that are incorporated into the building design or serve as a functional component of an amenity space. Roadways and other connectivity features should not be included in calculations, as they are captured in the Connectivity Chapter's key outcome.

Additional Indicators

Identity: Increase in public art; establishment of architectural requirements and a cohesive wayfinding identity.

Human Scale: Increase in average enclosure ratio along Rio Road; increases in shared and structured parking.

Range of Housing/Use: Increase in affordable units (gross or as percentage of all units); increase in diversity of housing types (e.g. “mixed middle” housing); increase in number of mixed-use developments; increase in net density of new developments.

Vibrant Streets: Increased transparency of ground-story building frontages in the core; increased on-street parking; increased foot traffic.

Encourage Form and Flexibility of Use: Update the zoning code to reflect the vision.

CONSERVATION

Key Outcome: Access to a quality amenity space within ¼ mile walking distance.

Achievement of the Conservation Chapter will be measured by the accessibility to quality amenity spaces within a ¼ mile (roughly a 5 minute walk) from anywhere within Rio29.

Development can help achieve this outcome by improving the quality of an existing public amenity, creating new amenities, or establishing trails & new connections to expand Rio29's green infrastructure systems and pedestrian network.

This Key Outcome could be quantified using a network analysis method to identify the percentage of land area within Rio29 where an amenity space can be accessed within the 1/4 mile walking distance parameter.

As new amenity spaces and new pedestrian connections are created, this percentage should increase, representing progress towards the outcome. Weights could be considered for the quality of an amenity space to capture where it does not meet the standards for area or amenities identified in the Plan.

Future analysis could also consider linkages to adjoining neighborhoods and access to regional trail networks and parks.

Additional Indicators

Vibrant Public Spaces: Increase in usage of public spaces; Increase in linear feet of shared-use paths and trails; increase in outdoor amenity spaces.

Community Building: Continued community engagement; increased participation in volunteer projects and programs.

Natural Resources: Increases in tree canopy area and connection; increase in stream daylighting; reduction in heat island effect.

Sustainable Design: Increase in developments incorporating LID techniques or qualifying for LEED certification.

Transportation Modeling Overview

INTRODUCTION

The Rio29 area consists of mixed use development and exhibits relatively high traffic volumes due to the presence of several shopping centers and the Fashion Square Mall. Though current travel patterns are driven by these commercial centers, Albemarle County is examining the need for connectivity improvements given anticipated future land use and the desire to accommodate all modes of transportation. To aid in the planning process, Kimley-Horn has estimated future travel demand and performed intersection-level traffic analyses to determine possible future intersection performance. The purpose of their work was to provide an existing network year of failure and a summary of operations under each build scenario at the following four intersections:

- Rio Road at Hillsdale Drive/Putt Putt Drive
- Rio Road at Fashion Square/Albemarle Square
- Rio Road at US 29
- Rio Road at Berkmar Drive

The results of this analysis were used to develop recommended intersection configurations and may be utilized by Albemarle County to prioritize implementation. All analyses were performed assuming a base year of 2018 and a future year of 2045.

SUMMARY OF MODELING METHOD

A small area model was developed in TransCAD using existing intersection turning movement counts during the PM peak hour to develop a base year origin-destination (O-D) matrix. This base year O-D matrix was compared at an aggregate level to the current Charlottesville regional model and calibrated to the base year O-D matrix from the regional model.

Based on proposed land use in the area, future site trips in the model traffic analysis zones (TAZs) were calculated using TransCAD's traffic impact analysis (TIA) tool. Using the growth factor method, these future site trips were distributed based on the base year O-D matrix to create a future year O-D matrix. External station traffic volumes were grown based on historic information and engineering judgment and adjusted in the future year network. Finally, volumes in the final future year O-D matrix were reduced by assuming internal capture and transit/non-motorized trip utilization will total 10%.

TRAFFIC FORECASTING AND INTERSECTION-LEVEL ANALYSIS

Using outputs from the small area model, traffic volumes and turning movement counts were estimated for the PM peak period under the following build scenarios:

- 2018 No-Build – Existing Conditions
- 2018 No-Build (Interim analysis at US 29) – Existing Conditions with only a single through lane in each direction of Rio Road at US 29 to accommodate bike lanes
- 2045 No-Build (with existing land use) – Existing network with existing land uses grown at 1% per year to 2045
- 2045 No-Build (with proposed land use) – Existing network with future proposed land uses
- 2045 Build 1 – Future proposed network and future proposed land uses
  - Right-in/right-out at Fashion Square/Albemarle Square
  - Signal control at Berkmar Drive, US 29, and Hillsdale Drive/Putt Putt Place
- 2045 Build 2 – Future proposed network and future proposed land uses
  - Right-in/right-out at Fashion Square/Albemarle Square
  - Roundabouts at Berkmar Drive, US 29 ("dog bone" configuration), and Hillsdale Drive/Putt Putt Place

In each case, raw model outputs were adjusted where it was deemed necessary to facilitate network volume balancing or correct model bias. These traffic volumes were used as inputs in Synchro Version 9 and SIDRA Intersection Version 8.0, and operational measures of effectiveness—levels of service (LOS), delays, and volume-to-capacity ratios—were calculated for each intersection as summarized in **Tables 1-4** below.

TABLE 1: RIO ROAD AT HILLSDALE DRIVE/PUTT PUTT PLACE

Scenario	LOS (Delay [s/veh])	Maximum Volume-to-Capacity Ratio
Base Year No-Build - *Unsignalized*	SB - D (25.2) EBL - B (14.9)	-
Future Year No-Build (Existing Land Use) - *Unsignalized*	SB - E (35.0) EBL - C (18.7)	-
Future Year No-Build (Proposed Land Use) - *Unsignalized*	SB - F (153.3) EBL - C (20.4)	-
No-Build Year of Failure[A]	2025	
Future Year Build 1 - *Signalized*	D (37.5)	0.90
Future Year Build 2 - *Roundabout*	C (24.6)	0.87

[A]Based on two-way stop control and proposed land use

TABLE 2: RIO ROAD AT FASHION SQUARE/ALBEMARLE SQUARE

Scenario	LOS (Delay [s/veh])	Maximum Volume-to-Capacity Ratio
Base Year No-Build - *Signalized*	D (38.6)	0.70
Future Year No-Build (Existing Land Use) - *Signalized*	C (29.5)[A]	0.85
Future Year No-Build (Proposed Land Use) - *Signalized*	E (56.9)	0.93
No-Build Year of Failure	N/A	
Future Year Build 1 and 2 – *Unsignalized (Right-in/Right-out)*	SB - C (15.1) NB - B (14.5)	-

[A]Improvements to delay in future year based on signal timing adjustments

TABLE 3: RIO ROAD AT ROUTE 29

Scenario	LOS (Delay [s/veh])	Maximum Volume-to-Capacity Ratio
Base Year No-Build - *Signalized*	E (56.6)	0.96
Base Year No-Build Interim Solution - *Signalized*	F (86.9)	1.38
Future Year No-Build (Existing Land Use) - *Signalized*	E (70.8)	1.13
Future Year No-Build (Proposed Land Use) - *Signalized*	F (96.5)	1.27
No-Build Year of Failure[A]	2030	
Future Year Build 1 - *Signalized*	D (53.5)	0.82
Future Year Build 2 - *Roundabout*[B]	West - C (24.4) East - B (11.9)	West - 0.91 East - 0.62

[A]Based on signal control and existing land use
[B]Each half of dog bone roundabout analyzed independently

TABLE 4: RIO ROAD AT BERKMAR DRIVE

Scenario	LOS (Delay [s/veh])	Maximum Volume-to-Capacity Ratio
Base Year No-Build - *Signalized*	C (30.3)	0.72
Future Year No-Build (Existing Land Use) - *Signalized*	C (34.2)	0.86
Future Year No-Build (Proposed Land Use) - *Signalized*	D (47.2)	0.96
No-Build Year of Failure	N/A	
Future Year Build 1 - *Signalized*	C (29.9)	0.83
Future Year Build 2 - *Roundabout*	C (19.2)	0.76

RECOMMENDATIONS

Based on the results summarized in **Tables 1-4** on the previous page and interpolation of traffic volumes at interim years between 2018 and 2045, it was determined that the intersection of Rio Road and US 29 will be over capacity by the year 2030 if existing network connectivity and land use do not change. Modifications to the existing network proposed in the Rio29 Connectivity Plan, particularly the realignment of Hillsdale Drive and Putt Putt Place, would substantially reduce volumes at the intersection of Rio Road and US 29 and provide acceptable future year operations regardless of intersection control. The following section provides recommended treatments for each intersection in the study area based on the minimum lane configurations required to provide an acceptable level of service.

RIO ROAD AT HILLSDALE DRIVE/PUTT PUTT PLACE

2018 and 2045 No-Build: This intersection currently operates with moderate delays on the minor street approach (Putt Putt Place) but is anticipated to exhibit long delays on the minor street approach in 2045 if the existing lane configuration and two-way stop control remain in place. Furthermore, if proposed land use changes materialize, this intersection will be over capacity by the year 2025. Given that the realignment of Putt Putt Place and Hillsdale Drive may alleviate congestion at other intersections in the study area, it is recommended that the build alternative be constructed as soon as funding allows.

2045 Build: For the build condition, it was assumed that this intersection would be realigned to create a four-leg intersection with Hillsdale Drive. This new intersection was analyzed as both a signalized intersection and a roundabout in the future year.

RIO ROAD AT FASHION SQUARE/ALBEMARLE SQUARE

2018 and 2045 No-Build: This intersection currently operates at LOS D and is anticipated to operate at LOS C (with existing land use) or LOS E (with proposed land use) in 2045 if existing lane configurations and split-phased signal control remain in place. This intersection is anticipated to improve between the base and future year scenarios with the existing laneage due to improved signal timings at this and adjacent intersections. Though the intersection does not fail in the future year regardless of land use, the minor street approaches are near capacity in the base year and signal timing adjustments would be necessary to keep this intersection operating at an acceptable LOS in 2045.

2045 Build: For the build condition, it was assumed that this intersection would become unsignalized and the approaches at Fashion Square and Albemarle Square become right-in/right-out. Though the northbound and southbound approaches operate at LOS B and C in 2045, respectively, conversion of this intersection to right-in/right-out will likely have significant impacts to traffic volumes at Hillsdale Drive and US 29. Consequently, these impacts should be considered prior to removing left-turn access at this intersection.

RIO ROAD AT ROUTE 29

2018 and 2045 No-Build: This intersection currently operates at LOS D and is anticipated to operate at LOS E (with existing land use) or LOS F (with proposed land use) in 2045 if existing lane configurations and signal control remain in place. In both cases, the volume-to-capacity ratio is greater than 1.0 on multiple approaches, and interpolation of traffic volumes suggests that this intersection will be over capacity by 2030 regardless of land use or adjustments to signal timing. Thus, it is recommended that overall network connectivity be enhanced prior to failure such that traffic volumes at this intersection are reduced.

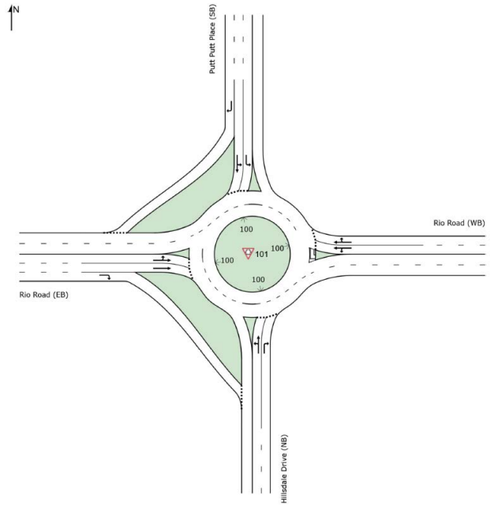
2045 Build: For the build condition, this intersection was analyzed under signal control and as a dog bone roundabout.

RIO ROAD AT BERKMAR DRIVE

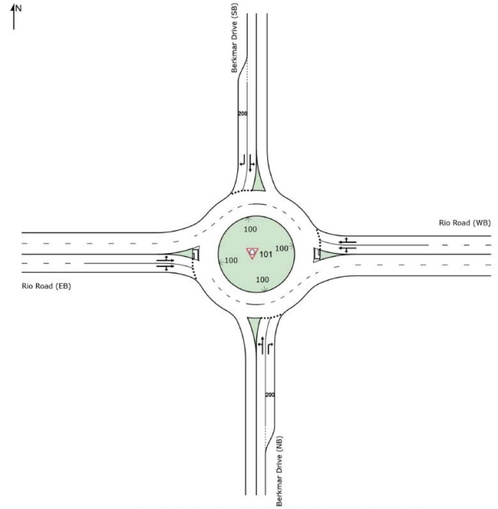
2018 and 2045 No-Build: This intersection currently operates at LOS C and is anticipated to operate at LOS C (with existing land use) or LOS D (with proposed land use) in 2045 if existing lane configurations and signal control remain in place. Adjustments to signal timing to optimize operations at this intersection are recommended should the current study area network remain in place for an extended period.

2045 Build: For the build condition, this intersection was analyzed under signal control and as a roundabout.

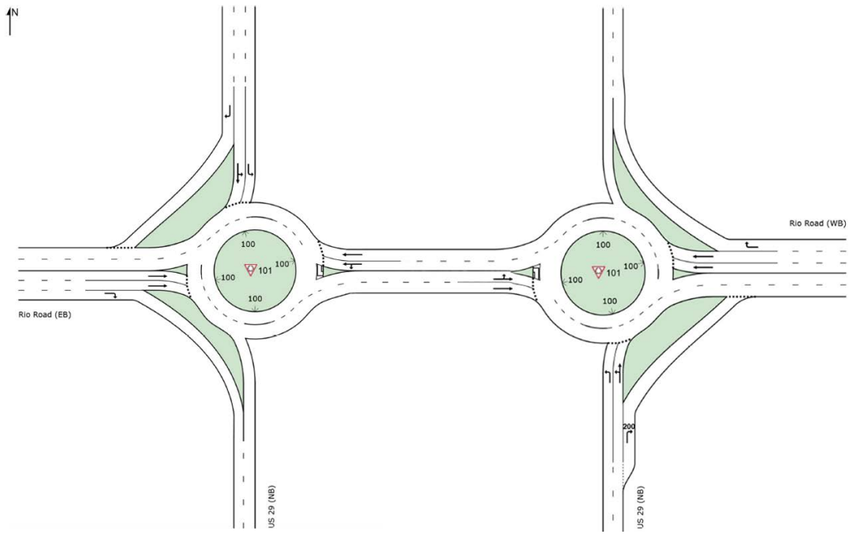
SKETCHES OF FUTURE BUILD CONDITIONS



RIO ROAD AT HILLSDALE DRIVE/PUTT PUTT PLACE



RIO ROAD AT BERKMAR DRIVE



RIO ROAD AT ROUTE 29 (DOG BONE INTERSECTION)

Fiscal Modeling Overview and Assumptions

General Approach to Land Use Projections

Purpose
- Generate output of potential development intensities by Place Type to inform the economic analysis and traffic models
- The projected capacities for each Place Type are then applied to the Land Use Map for use in the economic and traffic analysis models
- Retail development assumed to reflect current intensity with little to no growth, and redistributed within the area in a variety of physical forms (i.e. mixed-use)
- Office output reflects expectation of significant growth in the market

Place types
- Study Area limits and Land Use Map generally follow the Place Types Plan from the Rio29 Small Area Plan study
- The Flex category was further delineated in to two Place Types to reflect areas that were either predominantly **Residential** or predominantly **Commercial**

Base Assumptions: Core Area
- Highest intensity place type with active first floor uses
- Focused on land fronting Rio Road east and west of Route 29
- Base Unit: per acre (equivalent to 60'-70' depth over 2 blocks avg. 350 ft length)
- Typical street oriented, ground-floor retail with office or residential uses above
- Height: 3 to 6 stories (avg. 4)
- Parking: none provided; supportive parking occurs behind the buildings as part of the Urban Core areas
- Retail: 40k gsf – ground floor retail for typical 350' – 400' block length
- Residential: above retail; avg 4 stories over retail; 80 units per acre for 50% of the Core area blocks = 40 units per ac avg.
- Office / Institutional: above retail; avg. 4 stories over retail; 80k gsf per ac for typical Core area block

Base Assumptions: Urban Core Area
- High intensity, horizontal and vertical mixed-use patterns;
- Retail with office or residential uses above; MF residential; structured parking
- Height: 3 to 6 stories (avg. 4)
- Parking: to support 260k non-residential uses plus 250 residential units (surface: 500 spaces per 20 ac unit; structured: 1000 spaces = equivalent of 2 large decks of shared parking)
- Open Space / BMP: at 20% total land area
- Retail: 100k gsf per 20 ac unit; assumes mix of traditional retail sites and vertical mixed-use retail patterns (ground floor retail)
- Residential: 250 units; equivalent of one typical MF development per 20 ac unit
- Office / Institutional: 200k gsf per 20 ac: equivalent of two 3 to 4 story development sites

Base Assumptions: Flex Commercial Area
- Height: 3 to 6 stories (avg 4)
- Parking: to support 208k non-residential uses plus 250 residential units (surface: 400 spaces per 20 ac; structured: 800 spaces = equivalent of 2 decks of shared parking)
- Open Space / BMP: at 20% total land area
- Retail: 100k gsf per 20 ac; assumes mix of traditional retail sites (at 20k gsf per ac) and vertical mixed-use retail patterns (ground floor retail)
- Residential: 250 units; equivalent of one typical MF development per 20 ac;
- Office / Institutional: 160k gsf per 20 ac; equivalent of two 4 story development sites

Base Assumptions: Flex Residential Area
- Height: 2 to 5 stories (avg 4)
- Parking: to support 95k gsf non-residential uses plus 500 residential units (surface: 300 spaces per 20 ac; structured: 800 spaces in decks = two decks of shared parking)
- Open Space / BMP: 30% = 20% open space plus 10% BMP of total land area
- Retail: 25k gsf per 20 ac; assumes minimal amount of neighborhood retail
- Residential: 500 units; equivalent of two typical MF development per 20 ac unit
- Office / Institutional: 75k gsf per 20 ac; equivalent of one - 2 to 3 story development site
- Residential: 250 units; equivalent of one typical MF development per 20 ac;
- Office / Institutional: 160k gsf per 20 ac; equivalent of two 4 story development sites

Base Assumptions: Edge Area
- Height: 1 to 3 stories (avg 2)
- Parking: to support 84k gsf non-residential uses plus 48 residential units (surface: 100 spaces per 20 ac; = decks; equivalent of one large or two small decks of shared parking
- Open Space / BMP: 20% of total land area
- Retail: 25k gsf per 20 ac; assumes minimal amount of neighborhood retail
- Residential: 48 units; single-family attached transition to existing single-family land uses at 12 units/ac
- Office / Institutional:60k gsf per 20 ac; equivalent of one - 2 story development site

Fiscal Analysis Background & Assumptions
- Reviews annual net revenue streams to Albemarle County General Fund based on prescribed land use assumptions
- Analysis focuses on net new development over a 20-year period
- Totals are cumulative revenue and expenditures for the entire period
- Annual absorption estimates by land use are based on Places29 market demand forecasts, adjusted to current market conditions
- Net fiscal benefits that results from the future land uses are ultimately compared to the County's share of costs for transformative projects to support/promote quality growth

Rio29 Future Land Use Assumptions
- Over a 20-year period, Rio29 area could add nearly 2.6 million square feet of commercial space and 3,650 residential units
- Absorption assumptions for the 20-year period are based on the Places29 market analysis, adjusted to current trends
- Low retail capture is based on the assumption that much of the new retail will be redevelopment of existing (see Table 1)

Gross General Fund Revenue Streams
- Over 20 years, the Rio29 area could generate an estimated total of $238 million in gross revenue to the general fund
- This number represents the cumulative total of each annual period (See Table 2 and Pie Chart 1)

General Fund Expenditures
- Based on forecasted land uses, the Rio29 area could start generating positive general fund cash flow in year 2
- At year 20, the estimated annual net revenue could be more than $8 million
- The cumulative net revenue to the County over the 20-year period could be $99.1 million

Fiscal Considerations

Forecasted Rio29 Annual Net Revenue
- Over 20 years, the Rio29 area could require an estimated $139 million in County expenditures related to the general fund
- Expenditures are largely based on per capita extrapolations of current service levels (See Table 3 and Pie Chart 2)

Fiscal Return for Phase 1 Transformative Projects
- Phase 1 transformative projects are assumed to be short-term, completed in the first five years of the analysis period
- Total cost to the county, based on assumed revenue sharing and public-private partnership opportunities, is $9.5 million
- Based on forecasted land use assumptions for the Rio29 area, cumulative net revenue is enough to cover the cost to the County on all of the Phase 1 projects by year 8 (See "Revenue per Year")

Table 1: Rio29 Future Land Use Breakout, 20-Year Analysis Period

Land Use	Build-Out Square Feet/ Units	Analysis Period Capture	Analysis Period Total	Annual Average
Commercial	**Square Feet**		**Square Feet**	**Square Feet**
Retail (FX, EG)	934,625	25%	233,656	11,683
Retail (C, UC)	404,675	15%	60,701	3,035
Office (FX, EG)	1,610,225	65%	1,046,646	52,332
Office (C, UC)	791,000	90%	711,900	35,595
Lodging/Hotel (FX, EG)	312,750	67%	208,500	10,425
Lodging/Hotel (C, UC)	312,750	100%	312,750	15,638
Commercial Square Feet	4,366,025		2,574,154	128,708
Residential	**Units**		**Units**	**Units**
Multifamily (FX, EG)	4,382	68%	3,000	150
Multifamily (C, UC)	650	100%	650	33
Residential Units	5,032		3,650	183

Source: Kimley-Horn, 2018

KIMLEY HORN FINANCIAL MODELING FOR TRANSFORMATIVE PROJECTS

	Project Title	Phase	PE	RW	Construction	Total	Assumptions
A	Library Plaza Design	1	$618,750.00	$1,485,000.00	$-	$2,103,750.00	Assumed this will be in current truck lot behind Northside Library
G	Library Plaza Construction	2	$-	$-	$2,475,000.00	$2,475,000.00	Assumed approximately 55,000 SF Assumed RW will = 60% of Construction Costs Assumed PE = 25% of Construction Costs
B	Berkmar Drive Shared-Use Path	1	$125,000.00	$300,000.00	$500,000.00	$925,000.00	Assumed 0.4 mile stretch between Rio Road and Woodbrook Drive Assumed RW will = 60% of Construction Costs Assumed PE = 25% of Construction Costs
H	Rio Road Shared-Use Path or On-Street Buffered Bike Lane	2	$320,000.00	$768,000.00	$1,280,000.00	$2,368,000.00	Assumed 0.75 mi stretch between Berkmar and Glenwood Station Lane Assumed RW will = 60% of Construction Costs Assumed PE = 25% of Construction Costs Assumed half length = buffered bike lane and will need widening and half 10' multi use trail
C	Woodbrook Natural Area Design	1	$320,000.00	$-	$-	$320,000.00	Assumed Belmont Concensus Building Fee
I	Woodbrook Natural Area Construction	2	$375,000.00	$-	$1,500,000.00	$1,875,000.00	Assumed no RW since County owns park, 25% PE
D	Rio Road Streetscaping #1	1	$437,500.00	$1,050,000.00	$1,750,000.00	$3,237,500.00	Assumed length of 1 mile of Rio Road, Each phase 0.33 miles
J	Rio Road Streetscaping #2	2	$437,500.00	$1,050,000.00	$1,750,000.00	$3,237,500.00	Assumed Crozet Ave Streetscape Construction cost, inflated to 2018 dollars
K	Rio Road Streetscaping #3	3	$437,500.00	$1,050,000.00	$1,750,000.00	$3,237,500.00	Assumed RW will = 60% of Construction Costs, PE = 25%
E	Hillsdale Drive Extension #1	1	$1,040,000.00	$3,328,000.00	$4,160,000.00	$8,528,000.00	Assumed 1 dual lane roundabout, 0.1 miles of Streetscape for Fashion Square Drive, 0.1 miles new 2 lane road on putt putt Assumed 80% RW costs, PE=25%
L	Hillsdale Drive Extension #2	2	$675,000.00	$2,160,000.00	$2,700,000.00	$5,535,000.00	Assumed 250' long, 36' wide Bridge Assumed 80% RW costs, PE=25%
M	Hillsdale Drive Extension #3	3	$365,000.00	$876,000.00	$1,460,000.00	$2,701,000.00	Assumed improvements will run from intersection with 29 along Gardens Boulevard to Intersection with Rio Road (0.5 miles) Assumed 60% RW costs, PE=25%
F	Rio29 Commuter Bus Stop		$150,000.00	$120,000.00	$600,000.00	$270,000.00	Assumed 2 Bus shelters Assumed 20% RW/utilities cost, PE=25%
N	Route 29 Shared-Use Path		$468,750.00	$1,500,000.00	$1,875,000.00	$3,843,750.00	Assumed no roundabout, since listed in title but not narrative on slide Assumed 1.5X cost factor to account for "higher standard of trail" Assumed 80% RW costs, PE=25% Assumed length approximately 1 mile
O	Floodable Park and Greenway	1 2	$200,000.00 $332,500.00	$- $798,000.00	$- $1,330,000.00	$200,000.00 $2,460,500.00	Assumed 200K for concept design and facility development phase 1 Assume 25%PE and 60% RW/utilities for phase 2 Assume 0.2 mile greenway connection Assume floodable park = 1 acre
P	Linear Park and Stream Daylighting		$60,000.00	$144,000.00	$240,000.00	$444,000.00	Assume 600' of linear park/greenway Assume 25% PE and 60% RW
Q	Route 29 Pedestrian Underpass		$397,500.00	$954,000.00	$1,590,000.00	$2,941,500.00	Assumed 60% RW/utilities cost, 25% PE Assumed 20% increase for Maintenance of traffic and 20% increase for excavation Assumed tunnel 170' long, 20' wide, 1' thickness, box culvert concrete class A4 = 900$/CY Assumed bridge over 29 to accommodate culvert
R	Berkmar Realignment		$715,000.00	$2,288,000.00	$2,860,000.00	$5,863,000.00	Assumed 0.75 miles of 2 lane new road construction Assumed 2 new traffic signals Assumed 80% RW/Utilities and 25% PE
S	Circulator Bus		$787,500.00	$-	$3,150,000.00	$3,937,500.00	Assume no RW/utilities, 25% PE Assumed circulator cost = $90/revenue hour with estimated 35,000 revenue hours (source: 10 year plan for DC circulator bus)
T	29 Bike/Ped Bridge at Berkmar		$325,000.00	$780,000.00	$1,300,000.00	$2,405,000.00	Assumed Cost of Wards Road Pedestrian Bridge (1.3 million) Assumed 60% RW/utilities cost, 25% PE
U	Rio Road Dogbone Roundabout		$5,206,250.00	$12,495,000.00	$20,825,000.00	$38,526,250.00	Assume 60% RW/Utilities, 25% PE
V	Transit Plaza		$737,500.00	$2,360,000.00	$2,950,000.00	$6,047,500.00	Assumed 80% RW/Utilities, 25% PE Assumed 1.5 acre of Plaza in existing parking lot area in NE quadrant
W	Rio29 Transit Station		$1,103,725.00	$2,648,940.00	$4,414,900.00	$8,167,565.00	Assumed 60% RW/Utilities, 25% PE Source: FRED transfer center cost (5 million) inflated to 2018
X	Berkmar/Rio Roundabout		$522,500.00	$1,254,000.00	$2,090,000.00	$3,866,500.00	Assume 60% RW/Utilities, 25% PE
Y	Fashion Square Plaza		$282,500.00	$678,000.00	$1,130,000.00	$2,090,500.00	Assumed approximately 25,000 SF Assumed RW will = 60% of Construction Costs Assumed PE = 25% of Construction Costs

Gross General Fund Revenue Streams

- Over 20 years, the Rio29 area could generate an estimated total of $238 million in gross revenue to the general fund
- This number represents the cumulative total of each annual period (See Table 2 and Pie Chart 1)

Table 2: Gross Annual General Fund Revenue Streams

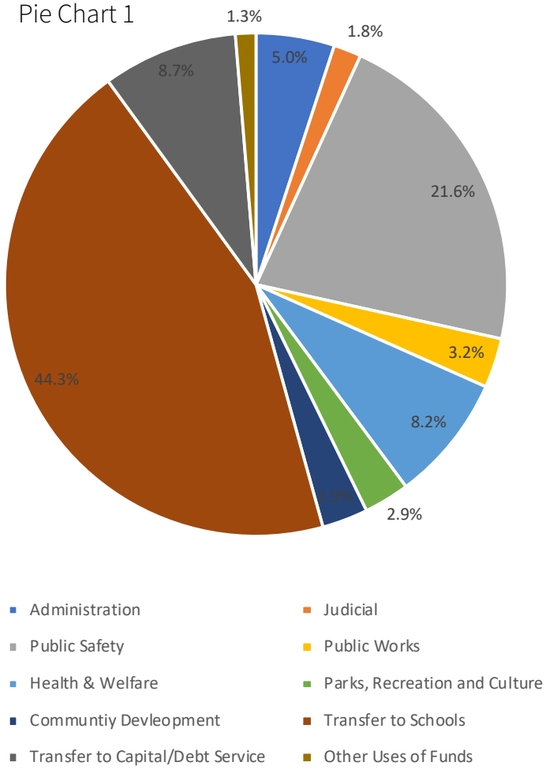
ALBEMARLE COUNTY GROSS ANNUAL GENERAL FUND REVENUE	Cumulative 20-Year Total
GENERAL PROPERTY TAXES	
Real Estate	$136,327,463
Public Service	-
Local Personal Property	$40,532,539
Machinery & Tools	-
Mobile Homes	-
TOTAL GENERAL PROPERTY TAXES	**$176,860,002**
OTHER LOCAL TAXES	
Penalty and Interest	-
Sales Tax	$11,513,245
Utility Taxes	$3,470,514
Business License (BPOL)	$23,870,108
Short-Term Rental	-
Vehicle Registration	$2,217,004
Bank Franchise	-
Clerk Fees	$1,489,322
Transient Occupancy	$10,196,901
Food & Beverage Tax	$8,126,996
TOTAL OTHER LOCAL TAXES	**$60,884,091**
PERMITS AND FEES	
Animal License	$63,313
Land Use	$18,945
Courts	$23,483
Other Permits and Fees	-
TOTAL PERMITS AND FEES	**$105,741**
TOTAL ANNUAL GENERAL FUND REVENUES	**$237,849,834**

Source: Kimley-Horn, 2018.

General Fund Expenditures

- Based on forecasted land uses, the Rio29 area could start generating positive general fund cash flow in year 2
- At year 20, the estimated annual net revenue could be more than $8 million
- The cumulative net revenue to the County over the 20-year period could be $99.1 million

Pie Chart 1



Forecasted Rio29 Annual Net Revenue

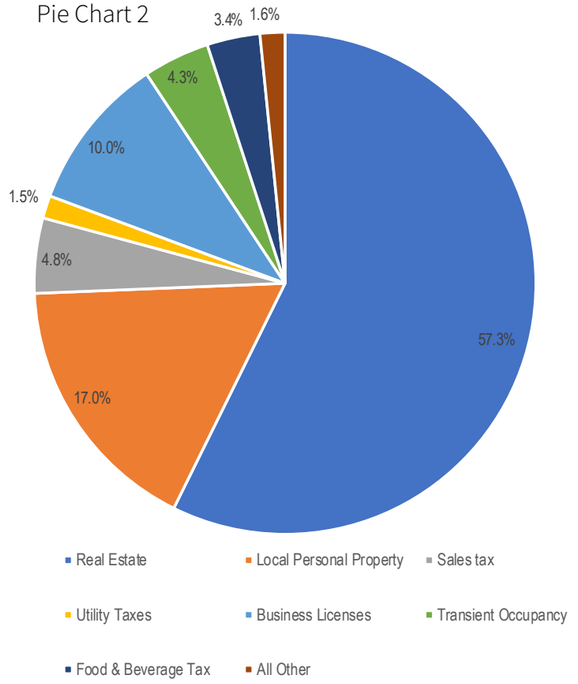
- Over 20 years, the Rio29 area could require an estimated $139 million in County expenditures related to the general fund
- Expenditures are largely based on per capita extrapolations of current service levels (See Table 3 and Pie Chart 2)

Table 3: Gross General Fund Expenditure Streams, 20-Year Analysis Period

ALBEMARLE COUNTY GROSS GENERAL FUND EXPENDITURE STREAMS	Cumulative 20-Year Total
GENERAL FUND EXPENDITURES	
Administration	$7,002,112
Judicial	$2,462,890
Public Safety	$30,037,642
Public Works	$4,428,574
Health & Welfare	$11,345,676
Parks, Recreation and Culture	$4,065,762
Communtiy Devleopment	$4,089,210
TOTAL GENERAL FUND DEPARTMENTAL EXPENDITURES	**$63,431,866**
Revenue Sharing	-
Transfer to Schools	$61,454,378
Transfer to Capital/Debt Service	$12,063,159
Other Uses of Funds	$1,825,404
TOTAL GENERAL FUND NON-DEPARTMENTAL EXPENDITURES	**$75,342,940**
TOTAL ANNUAL GENERAL FUND EXPENDITURES	**$138,774,806**

Source: Kimley-Horn, 2018.

Pie Chart 2



Fiscal Return for Phase 1 Transformative Projects

- Phase 1 transformative projects are assumed to be short-term, completed in the first five years of the analysis period
- Total cost to the county, based on assumed revenue sharing and public-private partnership opportunities, is $9.5 million
- Based on forecasted land use assumptions for the Rio29 area, cumulative net revenue is enough to cover the cost to the County on all of the Phase 1 projects by year 8 (See "Revenue per Year")

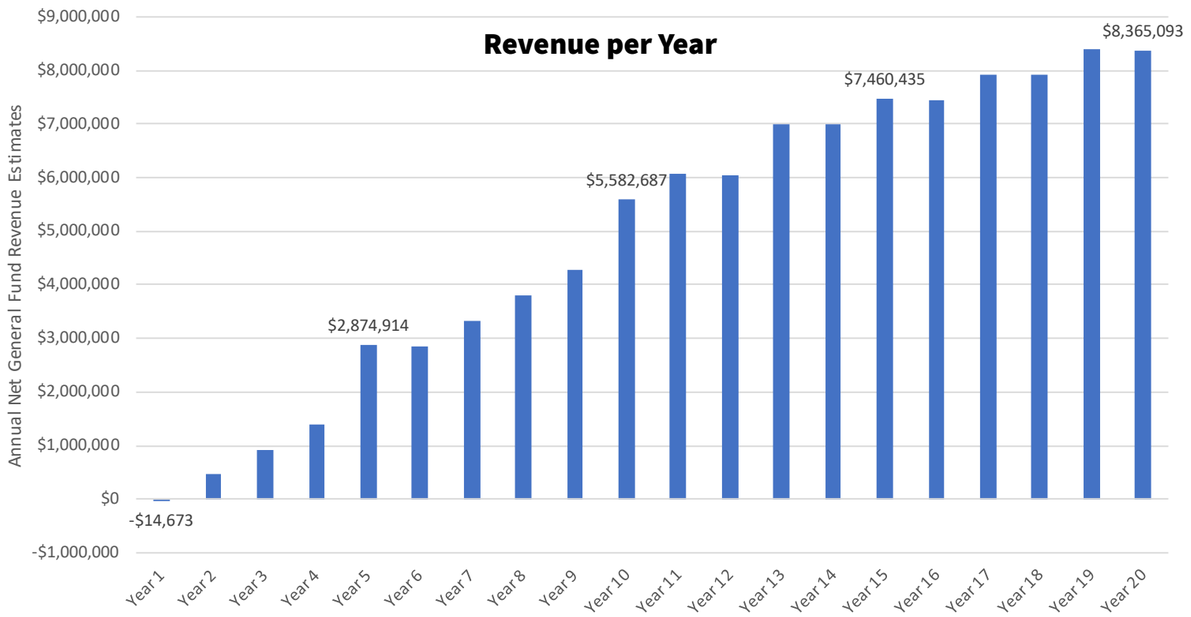


Image Citations & References

IMAGE CITATIONS

Page 4 Albemarle County Employees

Page 5 Left to right: *Hydraullic Mural* (n.d.). [Digital Image]. Retrieved from https://charlottesvillemuralproject.org/murals/; Wren, Kayli. (August 10th, 2017). Albemarle County Employees; VDOT. (2016, Sept 15). [Digital Image]. Rio29 Grade Separated Interchange Aerial. Retrieved from https://www.flickr.com/photos/vadot/sets/72157670771145303/

Page 6 Left to right: Google Maps (Summer 2018). *Rio29 area.;* Google Maps (Summer 2018). *Rio29 area.*

Page 7 Top: Google Maps (Summer 2018). *Rio29 area.* Remaining: Albemarle County Employees

Page 8 All photographs: Albemarle County Employees; Map graphics: Albemarle County Employees + Google Maps (Summer 2018). *Rio29 area.*

Page 9 Top Left: Albemarle County Historic Preservation Committee. (May 2018). [Digital image]. *Massie Map of Albemarle County.* Retrieved from http://www.albemarle.org/upload/images/Forms_Center/Departments/Community_Development/Forms/Historic_Preservation/HPC%20Rio%20Cartersburg%20final.pdf
Bottom Left: Albemarle County Historic Preservation Committee. (May 2018). [Digital image]. *Custer's Raid.* Retrieved from http://www.albemarle.org/upload/images/Forms_Center/Departments/Community_Development/Forms/Historic_Preservation/HPC%20Rio%20Cartersburg%20final.pdf
Top Middle: Top: Google Maps (Summer 2018). *Rio29 area.*
Top right: VDOT. (1954; 2018, June 21). *Comparison of Route 29, Present and Past.* [Digital image]. Retrieved from https://twitter.com/VaDOT/status/1009828886006456321/photo/1.
Bottom Right: *Fanfare Opens Fashion Square.* (1980, March 5). [Microfilm, Digital Image]. Retrieved from https://www.dailyprogress.com/125yearsofprogress/the-grand-opening-of-fashion-square-mall-was-this-day/article_529de202-0051-11e7-a073-c33c2c0948ab.html

Page 10 Top right: Renaissance Planning Group (n.d.). *Node concept.* [Digital Simulation]. Middle: Renaissance Planning Group (n.d.). *Design Alternatives.* [Digital Simulation].

Page 13 Albemarle County Employees

Page 14 All Photos: Albemarle County Employees

▲ **Page 16** All Photos: Albemarle County Employees.

▲ **Page 17** Top left: Albemarle County Employees + Google Maps. (Summer 2018). *Berkmar Drive.* Top right: Crawford, Murphy & Tilly. (February 10, 2017). *West Florissant Avenue "Great Streets" Project.* [Digital rendering]. Retrieved from http://www.cmtengr.com/2017/02/10/complete-street/. Bottom left: Albemarle County Employees + Google Maps. (Summer 2018). *Hillsdale Drive.* Bottom right: *Robust Multi-modal Avenue.* (January 8, 2018). [Digital Image]. Retrieved from https://www.midtownatl.com/about/news-center/post/midtown-alliance-aims-to-advance-a-robust-multi-modal-network-in-2018.

▲ **Page 18** Top + bottom left: Albemarle County Employees. Top right: *City of Decatur.* (n.d). [Digital Image]. Retrieved from http://www.visitdecaturgeorgia.com/plan/shopping-dining-and-services-guide. Bottom right: SBS. (2015). [Digital image]. *Downtown Hudson, OH.* Retrieved from https://amacsmallbiz.com/customers-prefer-to-shop-buy-local-how-to-help-them/

▲ **Pages 19** Top left: Albemarle County Employees + Google Maps. (Summer 2018). *Rio East Court.* Bottom left: Albemarle County Employees + Google Maps. (Summer 2018). *Greenfield Terrace.* Top right: Albemarle County Employees + Google Maps. (March 2026). *P St NW Washington DC.* Bottom right: Google Maps. (March 2026). *SW 2nd St Beaverton OR.*

▲ **Page 20** Left: Google Maps. (Summer 2018). *Rio29 area.* Right: Google Maps. (June 2019) *Glenwood Avenue Raleigh NC*.

▲ **Page 21** Albemarle County Employees

Page 22 Left: Strong Towns. (n.d.). [Digital image]. *Blurry walking people.* Retrieved from https://www.strongtowns.org/journal/2016/8/4/want-community-build-walkability Right: *Indianapolis Cultural Trail.* (n.d). [Digital image]. Retrieved from https://www.travelingmom.com/family-vacation-destinations/midwest-destinations/indianapolis-cultural-trail-connects-downtown-districts/

Page 23 Top: *Digital rendering of Richmond's Bus Rapid Transit.* (n.d.). [Digital rendering]. Retrieved from https://rvamag.com/politics/rvas-rapid-transit-bus-line-could-be-precursor-to-city-wide-light-rail.html Bottom right: *Hampton Roads Transit (HRT) Norfolk Transit Center.* (n.d.). [Digital image]. Retrieved from https://www.alpolic-americas.com/project/hrt-transit/ Bottom Left: Krueger, P. (2011, June 22). *Rush Hour on the Dunsmuir Separated Bike Lane.* [Digital image]. Retrieved from https://www.flickr.com/photos/pwkrueger/5862685992

Page 24 Albemarle County Employees

Page 25 Top left: Albemarle County Employees Bottom left: Shurtleff, Andrew. (n.d). *Charlottesville's Downtown Mall.* [Digital Image]. Retrieved from https://www.richmond.com/news/virginia/at-charlottesville-s-downtown-mall-has-only-gotten-better-with/article_847eb506-2d07-5184-ae0f-1633074462cd.html. Bottom right: Steve Price & Urban Advantage. (n.d.). *Evolution of Form-Based Codes.* [Diagram]. Retrieved from https://formbasedcodes.org/content/uploads/2015/05/FBC-PlannersWeb-Article-Dec2014a.pdf

Page 29 Top right: WoodWorks. (n.d.). *Haven at Avalon.* [Digital Image]. Retrieved from http://www.woodworks.org/project/haven-at-avalon/. Middle right: *Single Family Attached Townhouses in Mt. Pleasant, SC.* (n.d.). [Digital Image]. Retrieved from https://impactnorth.com/rosehaven Bottom right: S.B. Architects. (n.d.) *Mixed-Use Development in Omaha, NE.* [Rendering]. https://www.bisnow.com/san-francisco/news/mixed-use/mixed-use-84577

Page 30 Albemarle County Employees

Page 31 Top left: Curbed Los Angeles. (January 18, 2018). *Rendering of Chavez Gardens.* [Digital Image]. Retrieved from https://la.curbed.com/2018/1/18/16903366/metro-boyle-heights-development-affordable-housing. Middle left: *Apartment in Budapest, Hungary.* (n.d.). [Digital image]. Retrieved from https://www.booking.com/hotel/hu/gozsdu-court-apartment.en-gb.html
Middle right: *Multicultural mixed-use community.* (n.d.). [Digital image]. Retrieved from http://www.countyhealthrankings.org/communities-in-action/creating-a-multicultural-mixed-use-community-in-greenbridge-wa Bottom left: *Duplex Housing in Denver, CO.* (n.d.). [Digital Image]. Retrieved from https://www.thewbba.com/duplex-apartment-exterior/duplex-apartment-exterior-best-of-pearl-street-duplex-residence-contemporary-exterior/ Bottom right: Wolf Ackerman Architecture and Design. (n.d.). *South Range Multi-Family Housing.* [Digital image]. Retrieved from http://www.wolfackerman.com/south-range/ Top right: Form-Based Codes Institute. (n.d.). *Example of Form-Based Code.* [Diagram]. Retrieved from https://formbasedcodes.org/definition/

Page 32 Albemarle County Employees

Page 33 Green Infrastructure Center, Inc. (July 25, 2018). *Percent Tree Canopy of Select Virginia Cities.* [Chart]. Retrieved from PowerPoint presentation "Protecting and Restoring Urban Tree Canopy for Stormwater Management in Harrisonburg, VA".

Image Citations and References (continued)

Page 35 Top left: Albemarle County Employees Bottom middle left: Hembrow, D. (April 9, 2014). *Dutch Cycle Path. [*Digital Image]. Retrieved from http://www.aviewfromthecyclepath.com/2014/04/is-that-shared-use-path-do-dutch-cycle.html Bottom left: Complete Blocks. (n.d). *Rama Road After.* [Digital Image]. Retrieved from http://www.completeblocks.com/blog/2014/6/3/14-rama-road-in-front-of-rama-elementary-school. Top right: Albemarle County Employees Bottom right: *The Blue Ridge Parkway Foundation.* (n.d). Price Memorial Park Picnic Area. [Digital Image]. Retrieved from https://www.kidsinparks.com/price-memorial-park-picnic-area.Bottom middle right: *Atlanta Parent.* (n.d). Retrieved from https://www.atlantaparent.com/kids-hiking-trails-nature-walks-atlanta/.

Page 36 Middle left: James Corner Field Operations and LAND Studio. (n.d.). *Cleveland's Public Square.* [Rendering]. Retrieved from https://archpaper.com/2014/07/clevelands-public-square-could-break-ground-soon-thanks-to-8-million-cash-boost/ Bottom left: Hoboken, NJ. (n.d). *Southwest Resiliency Park.* [Rendering]. Retrieved from https://www.hobokennj.gov/resources/southwest-park. Top right: SWA. (n.d.). *San Jacinto Plaza, El Paso, TX.* [Digital Image]. Retrieved from https://www.swagroup.com/projects/san-jacinto-plaza/. Bottom right: Outdoor Project. (n.d.). *Bryant Park.* [Digital Image]. Retrieved from https://www.outdoorproject.com/adventures/new-york/parks-wilderness/bryant-park.

▲**Page 37** Bottom left: City of Atlanta, GA. (n.d.). *Linear Park along Martin Luther King Jr. Drive.* [Rendering]. Retrieved from https://saportareport.com/linear-park-partial-road-diet-works-mlk/. Top right: *Rivanna Trail Entrance.* (n.d.). [Digital Image]. Retrieved from http://www.rivannatrails.org/page-1617298/11063298. Middle & bottom right: Albemarle County Employees

▲**Page 38** Top left: Blue-Green Building (n.d.). *Doyle-Hollis Park, Emeryville.* [Digital Image]. Retrieved from http://bluegreenbldg.org/bioretention/doyle-hollis-park-emeryville/. Middle left: *The Green at College Park.* (n.d.). [Digital Image]. Retrieved from https://inhabitat.com/the-green-at-college-park-is-the-first-certified-sustainable-sites-initiative-sites-landscape/. Bottom left: *Keeping Our Waters Swimmable- Bioswale Project at Patagonia HQ and Swimmable California Day* (n.d.). [Digital Image]. Retrieved from https://www.patagonia.com/blog/2013/07/keeping-our-waters-swimmable-bioswale-project-at-patagonia-hq-and-swimmable-california-day/. Top right: *Permeable Pavers.* (n.d.). [Digital Image]. Retrieved from http://www.cascadiaconsulting.com/portfolio/project/low-impact-development-trainings-and-code-updates. Bottom middle: *Nemo Rooftop Terrace - Secret Spots in Amsterdam*. Retreived from https://www.feel-local.com/visit/nemo-rooftop-terrace. Bottom Right: Odell Associates Inc. (n.d). *Battle Building at UVA Health System.* [Digital Image]. Retreived from https://www.odell.com/portfolio/battle-building-at-uva-health-system/.

Page 39 Top & Bottom left: Albemarle County Employees Top right: Carl Douglas Photography. (September 20, 2016). *Neon District.* [Digital Image]. Retrieved from http://caroldouglasphotography.com/blog/2016920neon-district-norfolk. Bottom right: *Perth Street Festival.* (n.d.). [Digital Image]. Retrieved from https://www.arcadedarwin.com/eventos-events/nggallery/slideshow.

Page 40 Bottom left: The Sanguine Root. (July 2013). *East Falls, Philadelphia.* Retrieved from http://www.thesanguineroot.com/?page_id=2367. Bottom middle: Arch20. (n.d.). *New Sustainable Office Building.* [Digital Image]. Retrieved from https://www.arch2o.com/gehry-partners-design-new-sustainable-office-building-adjacent-headquarter-los-angeles/. Top right: Metropolitan Gardens. (May 2012). *Madison Valley Stormwater Park.* [Digital Image]. Retrieved from http://metropolitangardens.blogspot.com/2013/05/madison-valley-stormwater-park.html. Bottom right: *Home with Green Walls, Seoul, South Korea.* (n.d.). [Digital Image]. Retrieved from https://www.altenergymag.com/content.php?post_type=2117.

Page 41 Albemarle County Employees

Page 42 Bottom Left: Honeywell. (n.d.). *Sensor Systems for Building Services.* [Diagram]. Retrieved from https://www.peha.de/cms/front_content.php?client=1&lang=2&idcat=599 Bottom Right: City of the Future (n.d.). *CEIM Platform.* [Diagram]. Retrieved from https://www.peha.de/cms/front_content.php?client=1&lang=2&idcat=599 Top & Middle Right: Albemarle County Employees

Page 43 Top and Middle: Albemarle County Employees Bottom: Form-Based Code Institute. (n.d.). *Regulating Plan Map.* [Digital Map]. Retrieved from https://formbasedcodes.org/definition/.

Page 44 Top: *Willowtree.* (n.d.). [Digital image]. Retrieved from https://twitter.com/willowtreeapps/status/1034173557515972610. Middle & Bottom: Albemarle County Employees.

Page 45 *The Graduate, Charlottesville.* (n.d.). [Digital Image]. Retrieved from https://moore.edu/about-moore/moore-stories/this-weeks-story/my-article8.

Page 46 Top: *Public Plaza* (n.d.). [Digital rendering]. Retrieved from https://www.archdaily.com/772857/michael-maltzan-architecture-designs-dynamic-public-plaza-for-the-segerstrom-center-for-the-arts/55e50fb6e58ece03130001d5-michael-maltzan-architecture-designs-dynamic-public-plaza-for-the-segerstrom-center-for-the-arts-image Topmiddle:Adam Alexander Photography. (2015). [Digital Image]. *Chicago 606 trail.* https://www.tpl.org/blog/chicago-historian-on-the-606#sm.00001q3padxn0aextunagwuxsdcal Bottom middle: Snøhetta. (n.d.). [Digital rendering]. *Underwater pedestrian tunnel with hydroponic vegetation.* Retrieved from http://www.abitare.it/en/habitat-en/urban-design-en/2016/03/12/snohetta-dreams-of-a-submerged-tunnel-in-the-fjords/

Page 47 Left: *Public Plaza.* (n.d.). [Digital Image]. Retrieved from https://www.ggnltd.com/seattle-city-hall-plaza-and-civic-center-campus/ Middle: Albemarle County Employees Right: *Cherry Creek Trail* (n.d.). [Digital Image]. Retrieved from https://www.365limodenver.com/spend-you-best-vacations-at-cherry-creek/

Page 48 Left: *Rivanna Trailhead.* (n.d.). [Digital Image]. Retrieved from http://www.rivannatrails.org/page-952644 Right: *Bushnell park.* (n.d.). [Digital Image]. Retrieved from http://suisman.com/bushnell-park-north-nearing-completion/

Page 49 Left: *Normal, IL Roundabout* (n.d.). [Digital Image]. Retrieved from http://imgadewz.pw/AwardWinning-Design-The-Circle-in-Uptown-Normal-IL-is-a-multi.html. Top right: *Digital rendering of Richmond's Bus Rapid Transit.* (n.d.). [Digital rendering]. Retrieved from https://rvamag.com/politics/rvas-rapid-transit-bus-line-could-be-precursor-to-city-wide-light-rail.html. Bottom left: Victoria Glasgow (Summer 2018). *Rio29 GSI Interim-Step Redesign* [SketchUp Model].

Page 50 Left: *Rendering of proposed shared-use path.* (n.d.). [Digital rendering]. Retrieved from http://www.pismobeach.org/622/Shell-Beach-Rd-Streetscape-Project Middle left: *Rendering of proposed shared-use path.* (n.d.). [Digital rendering]. Retrieved from http://www.completeblocks.com/blog/2014/6/3/14-rama-road-in-front-of-rama-elementary-school Middle right: *Water Square Benthemplein.* (n.d.). [Digital Image]. Retrieved from http://www.urbanisten.nl/wp/?portfolio=waterplein-benthemplein Right: De Urbanisten (n.d.). *Waterplein Benthemplein.* [Digital Image]. Retrieved from https://land8.com/waterplein-benthemplein-reveals-the-secret-of-versatile-water-squares/.

Page 51 Left to right: *Daylighting of Saw Mill River.* (n.d.). [Digital Image]. Retrieved from http://www.psands.com/saw-mill-river/; Boffa Miskell. (n.d.). *La Rosa Stream Daylighting.* [Digital Image]. Retrieved from http://www.landezine.com/index.php/2016/09/la-rosa-reserve-stream-daylighting-by-boffa-miskell/; *Rainbow Light Tunnel.* (n.d.). [Digital Image]. Retrieved from http://www.fubiz.net/en/2017/01/03/rainbow-

Image Citations and References (continued)

light-tunnel-in-birmingham/; Snøhetta. (n.d.). [Digital rendering]. *Underwater pedestrian tunnel with hydroponic vegetation.* Retrieved from http://www.abitare.it/en/habitat-en/urban-design-en/2016/03/12/snohetta-dreams-of-a-submerged-tunnel-in-the-fjords/

Page 52 Left to right: *Colorful Charlottesville Area Transit Bus.* (n.d.). [Digital Image]. Retrieved from https://tomtomfest.com/2016/06/02/cat-receives-vta-award-city-canvas/; Hutmacher, L. (2018). *University of Michigan's Driverless shuttle.* [Digital Image]. Retrieved from https://news.engin.umich.edu/2018/06/mcity-driverless-shuttle-launches-on-u-ms-north-campus/

Page 53 Left to right: *Ward's Road Pedestrian Bridge in Lynchburg.* (n.d.). [Digital Image]. Retrieved from https://www.bankersteel.com/wp-content/uploads/2018/06/Banker_LU_WardsBridgeweb_8.jpg; City of Chicago (n.d.). *Pedestrian Bridge.* [Digital rendering]. Retrieved from https://chicago.curbed.com/2017/6/6/15745676/chicago-construction-bronzeville-41st-street-bike-pedestrian-bridge; Structurepoint (n.d.). *Keystone Parkway at 106th Street.* [Digital Image]. Retrieved from https://www.structurepoint.com/engineering-and-infrastructure/project/keystone-parkway-at-106th-street.

Page 54 Left to right: Transbay Program. (n.d.). *Rooftop Park Plaza* [Digital rendering]. Retrieved from https://salesforcetransitcenterretail.com/.; Michael Maltzan. (September 3, 2015). *Public Plaza for the Segerstorm Center for the Arts.* [Digital rendering]. Retrieved from https://www.archdaily.com/772857/michael-maltzan-architecture-designs-dynamic-public-plaza-for-the-segerstrom-center-for-the-arts.; Coombe, Douge. (n.d.). *AAATA Blake Transit Center.*[Digital Image]. Retrieved from http://www.secondwavemedia.com/concentrate/devnews/circulatorbus0383.aspx.

Page 55 Left: *66th Street at Portland Avenue Roundabout.* (n.d.). [Digital Image]. Retrieved from https://www.wsbeng.com/wsbpedia/blog/the-roundabout-craze. Top middle right: Hoerr Shaudt. (n.d.). *Uptown Normal Roundabout I.* [Digital Image]. Retrieved from https://www.hoerrschaudt.com/project/uptown-normal/. Bottom middle left: Hoerr Shaudt. (n.d.). *Uptown Normal Roundabout II.* [Digital Image]. Retrieved from https://www.hoerrschaudt.com/project/uptown-normal/.
Middle right: *Privately Owned Public Space.* (n.d.). [Digital Image]. Retrieved from https://tclf.org/601-lexington-avenue. Right: *ADA compliant ramp.* (n.d.). [Digital Image]. Retrieved from https://landscapeperformance.org/case-study-briefs/att-sammons-park.

Page 56 Albemarle County Employees

REFERENCES

Page 7
Library Citation: M. Gillette, personal communication, July 2018
Charlottesville Regional Chamber of Commerce. (Sept 2017). *The Chamber Jobs Report 2017.* Retrieved from https://cvillechamber.com/wp-content/uploads/2016/09/2017JobsReport2.pdf.
Urban Ring Vacancy: CBRE Charlottesville Office, 2017 Report
Dollinger, J. (2015). *Millennials Favor Walkable Communities, Says New NAR Poll.* Retrieved from https://www.nar.realtor/sites/default/files/reports/2015/nar-psu-2015-poll-press-release.pdf
Walk Score. (n.d.) Why Walk Score? Retrieved from https://www.walkscore.com/professional/why-walkscore.php
Beyard, M & Pawlukiewicz, Michael. (2001). *Ten Principles for Reinventing America's Suburban Strips.* Retrieved from https://www.trpc.org/DocumentCenter/View/319/Ten-Principles-for-Reinventing-Americas-Suburban-Strips-PDF?bidId=

Page 8 The Associated Press. (2017, Sept 19). *Retail chains filing for bankruptcy protection in 2017.* Retrieved from https://www.usatoday.com/story/money/2017/09/19/retail-chains-filing-bankruptcy-protection-2017/682133001/

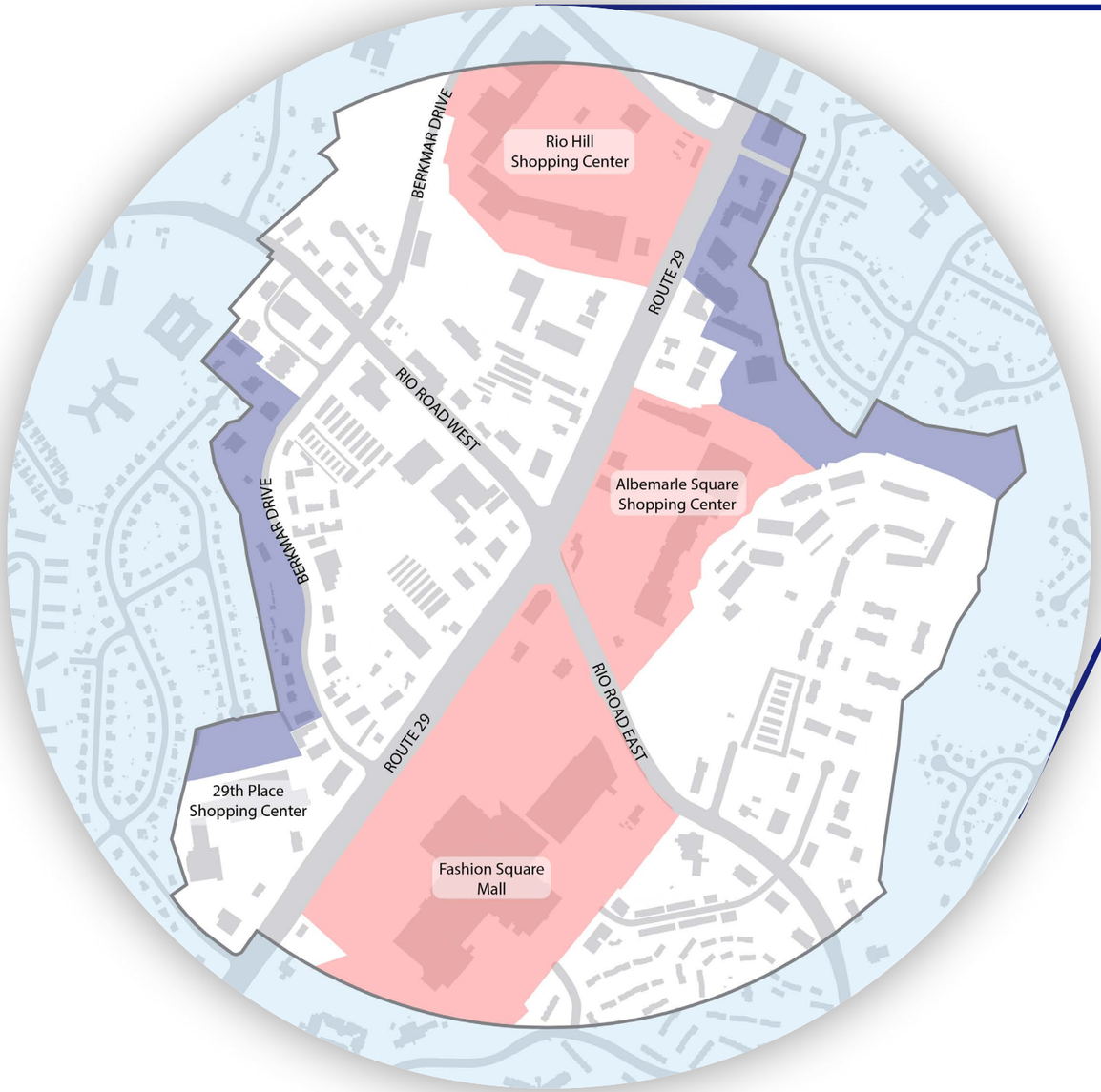
Page 15 Virginia Department of Rail and Public Transportation. (October 2013). Multimodal System Design Guidelines. Retreived from http://www.drpt.virginia.gov/planning/multimodal-guidelines/.
National Association of City Transportation Officials. (October 2013). Urban Street Guide. Retreived from https://nacto.org/publication/urban-street-design-guide/.
Virginia Department of Transportation. (2005). Road Design Manual. Retreived from http://www.virginiadot.org/business/locdes/rdmanual-index.asp.

Page 43 The Daily Progress. (July 5, 2018). Four local Opportunity Zones poised for an influx of investment. Retrieved from https://www.dailyprogress.com/news/business/local/four-local-opportunity-zones-poised-for-an-influx-of-investment/article_808dc2f0-80c9-11e8-b475-4bbe120e050b.html.
IRS. (October 2018). *Opportunity Zones Frequently Asked Questions.* Retrieved from https://www.irs.gov/newsroom/opportunity-zones-frequently-asked-questions.

Pages 60-62 The Albemarle County Historic Preservation Committee. (May 2018). Rio Mills and Cartersburg: Forgotten Stories of the Rivanna. Retrieved from http://www.albemarle.org/upload/images/Forms_Center/Departments/Community_Development/Forms/Historic_Preservation/HPC%20Rio%20Cartersburg%20final.pdf.

Character Plan

▲ FUTURE PLACE TYPES IN RIO29



PLACE TYPOLOGIES

Core

Flex

Edge



▲ **Core** character areas center on Destination Streets with the highest intensity and most urban forms of development. Buildings with extensive fenestration and taller ceiling heights on ground floors, street trees, furniture, and lighting enhance the pedestrian experience.



Flex character areas accommodate a range of building forms and uses, including dense residential development. Buildings should be designed to make pedestrians comfortable.

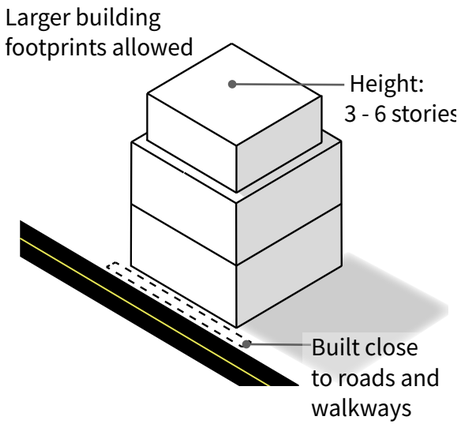


Edges are areas of less-intense development next to existing neighborhoods. Buildings are expected to have lower heights and smaller building footprints.

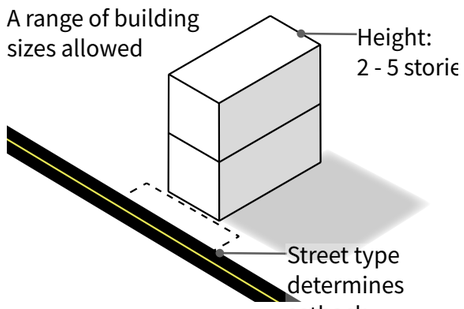
Form & Site Design Standards

Building Size & Location

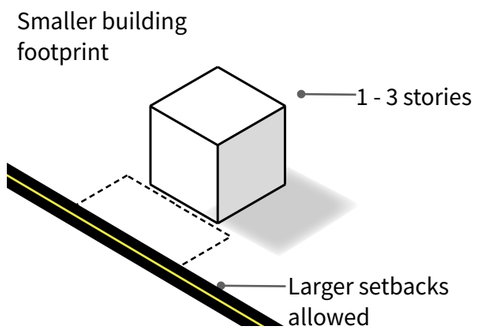
CORE



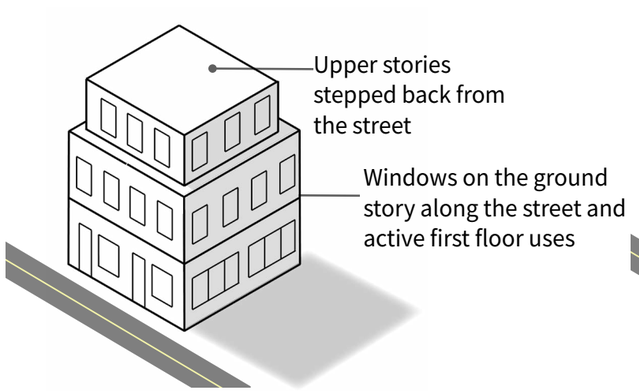
FLEX

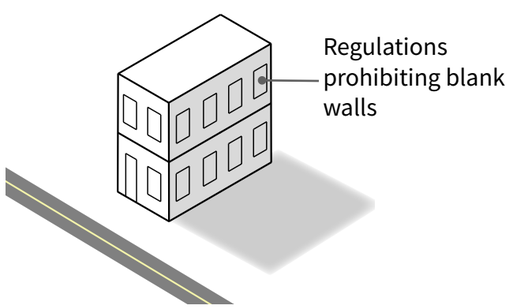


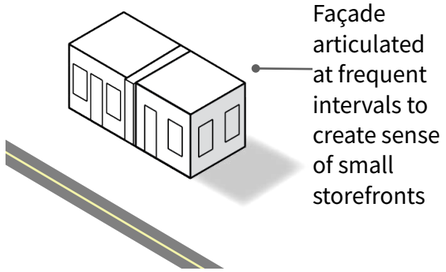
EDGE



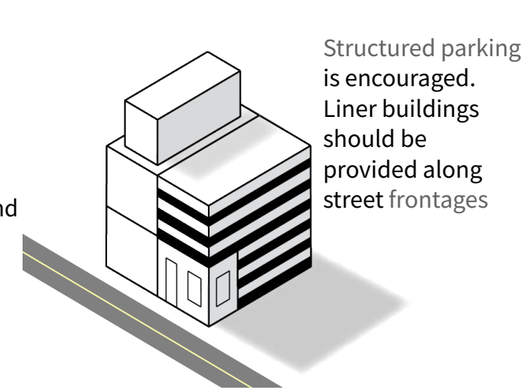
Architectural Standards

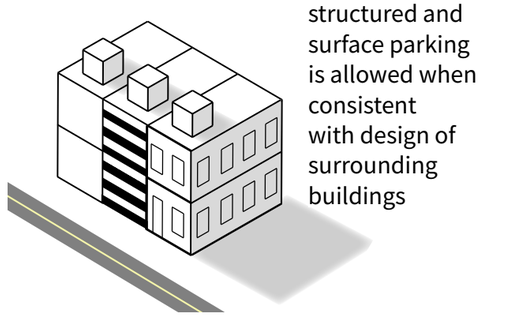


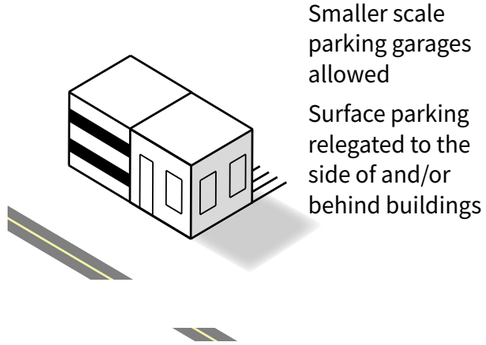




Parking







Form & Site Design Standards

URBAN CORE & CORE

HEIGHT: Buildings should be 3-6 stories tall along street frontages, public spaces, and amenities.

BUILD TO/SETBACK: Buildings should be setback 3 feet from the edge of right-of-way and can be extended up to 10 feet to allow space for patio seating. Right-of-way width is determined by street sections shown in the Connectivity Chapter.

The majority of the street frontage façade should be built to the setback line to 1) establish consistent building forms on both sides of the street and 2) contribute to a sense of spatial enclosure along the street.

STEPBACK: Taller buildings should incorporate stepbacks to help reduce the overall scale of a building and to create an appropriate spatial enclosure ratio. To establish an appropriate spatial enclosure ratio:

- Buildings along Boulevards should be stepped back above 4 stories or 50 feet.
- Buildings along Avenues and Local streets should stepback above 3 stories or 40 feet.

BUILDING SIZE & LOCATION: Building façade breaks should break up large buildings, or a long stretch of buildings, along a street frontage. Façade breaks not only promote walkability but also provide pedestrian/automobile access to the sides and rear of a building.

PARKING: Structured parking should be encouraged in the Urban Core and the County's Zoning Ordinance should be updated to allow structured parking as a by-right use.

When fronting along streets, structured parking should have "liner buildings" along the ground story street frontage. Liner buildings are thin buildings that line the edge of a street or public space, the uses of which promote active street life, such as a coffee shop or an artist's studio.

Off-street surface parking is discouraged in the Urban Core, but may be allowed by exception when screened and relegated to the sides and rear of buildings.

Shared parking between uses is encouraged to reduce the overall amount of parking in the Core areas.

Parking minimums within the Zoning Ordinance should be reduced or eliminated to encourage more compact development, alternative transportation choices, and to facilitate the construction of affordable/workforce housing.

BLOCK SIZE: Blocks of 200 - 300 feet in length should be used in the Core to promote walkability and to provide multiple routes to destinations.

Larger blocks may be allowed by exception if internal circulation is designed to promote walkability, frequent façade breaks are incorporated to allow bicycle/pedestrian circulation throughout the site, and the minimum vehicular connectivity as shown in the Connectivity Plan is established.

FLEX

HEIGHT: Buildings should be 2-5 stories tall. Internal buildings of fewer than 2 stories may be acceptable if they are not along street frontages or adjacent to public spaces/amenities.
Building heights of up to 6 stories may be allowed by exception, especially if the development helps achieve other County initiatives such as the provision of affordable housing, consistency with economic development goals, or if the development is within Opportunity Zone areas.

BUILD TO/SETBACK: Buildings should be setback 3 -10 feet from the edge of right-of-way (right-of-way width should be determined by street sections shown in the Connectivity Chapter).

Most of the street frontage façade should be built to the setback line to 1) establish consistent building forms on both sides of the street and 2) contribute to a sense of spatial enclosure along the street.

STEPBACK: Buildings along Boulevards should be stepped back above 4 stories or 50 feet.

Buildings along Avenues and Local streets should be stepped back above 3 stories or 40 feet.

BUILDING SIZE & LOCATION: The Flex areas may consist of a wide range of building types and sizes. Buildings with larger footprints should avoid large, uninterrupted walls along streets and should incorporate façade breaks to promote walkability.

PARKING: Structured and surface parking are permitted in the Flex areas, and both parking types should be allowed as a by-right use through zoning.

All parking should be relegated to the sides and behind buildings, and should be screened from streets and public parks/amenities.

Shared parking between uses is encouraged to reduce the overall amount of parking needed.

BLOCK SIZE: Blocks should be 300 - 400 feet in length.

Larger blocks may be allowed by exception if internal circulation is designed to promote walkability, frequent façade breaks are incorporated to allow bicycle/pedestrian circulation throughout the site, and the minimum vehicular connectivity as shown on the Connectivity Plan is established.

EDGE

HEIGHT: Buildings should be no more than 3 stories tall.

BUILD TO/SETBACK: Buildings can be set back up to 25 feet in the Edge areas. Features such front porches and stoops are encouraged to foster a pedestrian-friendly atmosphere when larger setbacks are used.

STEPBACK: Buildings are limited to 3 stories in height. Stepbacks are not necessary in Edge areas.

BUILDING SIZE & LOCATION: Buildings should have smaller footprints to encourage consistency with adjacent residential neighborhoods.

PARKING: The majority of the parking in Edge areas will be surface parking and on-street parking.

Structured parking may be allowed by exception for smaller parking structures that are well screened and consistent with the character of the area.

All parking should be relegated to the sides and rear of buildings and should be screened from streets, public parks/amenities, and adjacent residential areas.

Shared parking between uses is encouraged to reduce the overall amount of parking needed.

BLOCK SIZE: Blocks should be 400 - 600 feet in length.

(see "Block Size" in the Flex Zone column for additional details and special exceptions)

STEPBACK DIAGRAMS

URBAN CORE, CORE, & FLEX AREAS

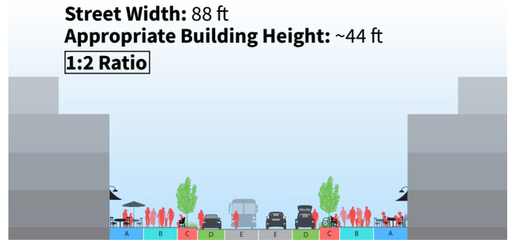
BOULEVARD
Buildings can be up to 6 stories tall in the Urban Core/Core areas and 5 stories tall in the Flex areas. Above the 4th story or 50', the building should be stepped back an additional 15'.



AVENUES
Buildings can be up to 6 stories tall in the Urban Core/Core areas and 5 stories tall in the Flex areas. Above the 3rd story or 40', the building should be stepped back an additional 15'.



LOCAL STREETS
Buildings can be up to 6 stories tall in the Urban Core/Core areas and 5 stories tall in the Flex area. Above the 3rd story or 40', the building should be stepped back an additional 15'.



Spatial enclosure is the relationship of building height to road width. People walking along the streets can feel confined when buildings are too tall and streets are narrow. People can have the opposite feeling of exposure when a street is too wide, structures are short, and buildings are setback far from the street.

To maintain a good sense of enclosure and a comfortable human scale, The Design Manual for Urban Roads and Streets recommends a building height to street width ratio between 1:2 and 1:3.

Appropriate Building Heights are calculated using the ratios from The Design Manual for Urban Roads and Streets. Buildings above the recommended height should be stepped back to reduce the feeling of confinement while continuing to allow for taller buildings in appropriate locations.

Uses

A mixture of uses are permitted within all Place Types in Rio29 to encourage a variety of options for residential, employment, recreational, cultural, and civic uses. Rather than prescribing a specific set of uses and densities, the uses are intended to provide flexibility by listing broad categories of appropriate uses. Flexibility in use can better position property owners to respond to market changes and can encourage a wider variety of housing types, especially smaller, more affordable units. The form standards described on the previous pages will appropriately limit the density and intensity of development that a site can handle, and will ensure that development is consistent with adjacent neighborhoods and that it promotes pedestrian activity and active street life.

URBAN CORE

GROUND STORY: Active uses should line the ground story of buildings fronting the public realm to promote an active street life and pedestrian activity. Active uses include retail, commercial, restaurants (excluding drive-thrus), public, civic, or institutional uses.

Other uses with the same general character as those listed above may be permitted as long as an applicant can demonstrate that the proposed use promotes foot traffic, provides a public service, and/or provides visual appeal.

RESIDENTIAL:

Multi-family residential

NON-RESIDENTIAL:

Retail sales and general commercial service

Hotel

Institutional

Office/R&D/Flex

Light Industrial/Manufacturing/Storage/Distribution/Auto Sales + Service uses are not encouraged in the Urban Core. These uses may be permitted by exception when an applicant can demonstrate minimal impact on surrounding uses. These uses may be appropriate in a mixed-use development when relegated behind other buildings or with liner buildings along the street frontage.

CORE

GROUND STORY: Active ground-story uses are encouraged.

Where active uses are not feasible (due to market conditions or other circumstances), other uses listed below may be permitted as long as the form allows for future conversion to active uses.

RESIDENTIAL:

Multi-family residential

Single-family attached/ townhouses may be permitted by exception

NON-RESIDENTIAL:

Retail sales and general commercial service

Hotel

Institutional

Office/R&D/Flex

Light Industrial/Manufacturing/ Storage/Distribution/Auto Sales + Service uses are not encouraged in the Core. These uses may be permitted by exception when applicant can demonstrate minimal impacts on surrounding uses. These uses may be appropriate in a mixed-use development when relegated behind other buildings or with liner buildings along the street frontage.

FLEX

GROUND STORY: Flexible

RESIDENTIAL:

Multi-family residential

Single-family attached/ townhouses

NON-RESIDENTIAL:

Retail sales & general commercial service

Hotel

Institutional

Office/R&D/Flex

Light Industrial/ Manufacturing/Storage/ Distribution/Auto Sales + Service uses may be appropriate when an applicant can demonstrate minimal impacts on surrounding uses, especially residential uses, and the public realm.

EDGE

GROUND STORY: Flexible

RESIDENTIAL:

Multi-family residential

Single-family attached/ townhouses

Single-family detached

NON-RESIDENTIAL:

Retail sales and general commercial service

Hotel

Institutional

Office/R&D/Flex

Light Industrial/ Manufacturing/Storage/ Distribution/Auto Sales + Service uses are not encouraged, but may be appropriate when applicant can demonstrate minimal impacts on surrounding residential neighborhood uses and the public realm. Screening should be provided adjacent to existing neighborhoods.



A Multi-Family Residential Building (Core or Flex scale) Alpharetta, GA



Single-Family Attached/Townhouses (Flex scale) Mt. Pleasant, SC



Mixed-Use Development (Urban Core or Core scale) Omaha, NE

Connectivity Plan

FUTURE STREET NETWORK

The Connectivity Plan proposes a grid-like street network for Rio29. A connected grid can better connect existing and future residents on the periphery of the Plan to Rio29's center of activity (ie. the "Core" area, which is detailed in the next chapter). A connected grid can also connect neighborhoods to one another without diminishing the quality or the character of the neighborhoods within or around Rio29. Proposed streets should be designed for motorists, pedestrians, bicyclists, and transit riders. The grid network provides more direct routes to destinations that will allow people to more easily walk, bike, or drive to locations within Rio29.



STREET TYPOLOGIES

BOULEVARD

AVENUE

LOCAL STREET

THROUGH CORRIDOR

Route 29

INTERSECTION TYPES

Signalized

Roundabout

Dog Bone

Streets shown in the Connectivity Plan that are dotted convey the approximate street locations. The Street network overall shows a conceptual plan that achieves the Plan's goals for connectivity. Redevelopment and new development in Rio29 will determine the exact placement of streets.

STREET DESIGN AND SCALE

The Connectivity Plan proposes a hierarchy of streets based on street capacity (how many people, cars, bikes, and buses it can accommodate) and function. The scale and design of streets should be both a reflection of a street's capacity as well as a street's role in the network.

As an example, a street that is designed to hold a high amount of traffic can traverse through different areas of the community and serve different functions along its length. One segment can be designed to carry traffic quickly through an area and another segment of the same street can be designed as a main street, serving as a destination for the community, while still maintaining the same capacity through both segments.

In Rio29, the boulevard (Rio Road) is an example of a street serving these different functions. The boulevard is the highest capacity street that connects traffic from outside Rio29 to Rio29's activity center. Within this center, or "Core" area of Rio29 (detailed in the Character chapter), Rio Road should be designed as a main street with slower traffic speeds so that all modes of transportation can interact safely. When designed appropriately, the boulevard can maintain its high capacity through the Core without altering the neighborhood character.

The street design and function can also impact what uses are appropriate along a street. Many businesses seek busier streets that provide drive by-traffic and therefore they often prefer to be located onon a high capacity street within the slower-speed Core area. Residents, however, do not want cars driving quickly through their neighborhoods, and may choose to locate in the Core along roads where speeds are slower. The resulting street could have a mix of uses and become an activity center for the area.

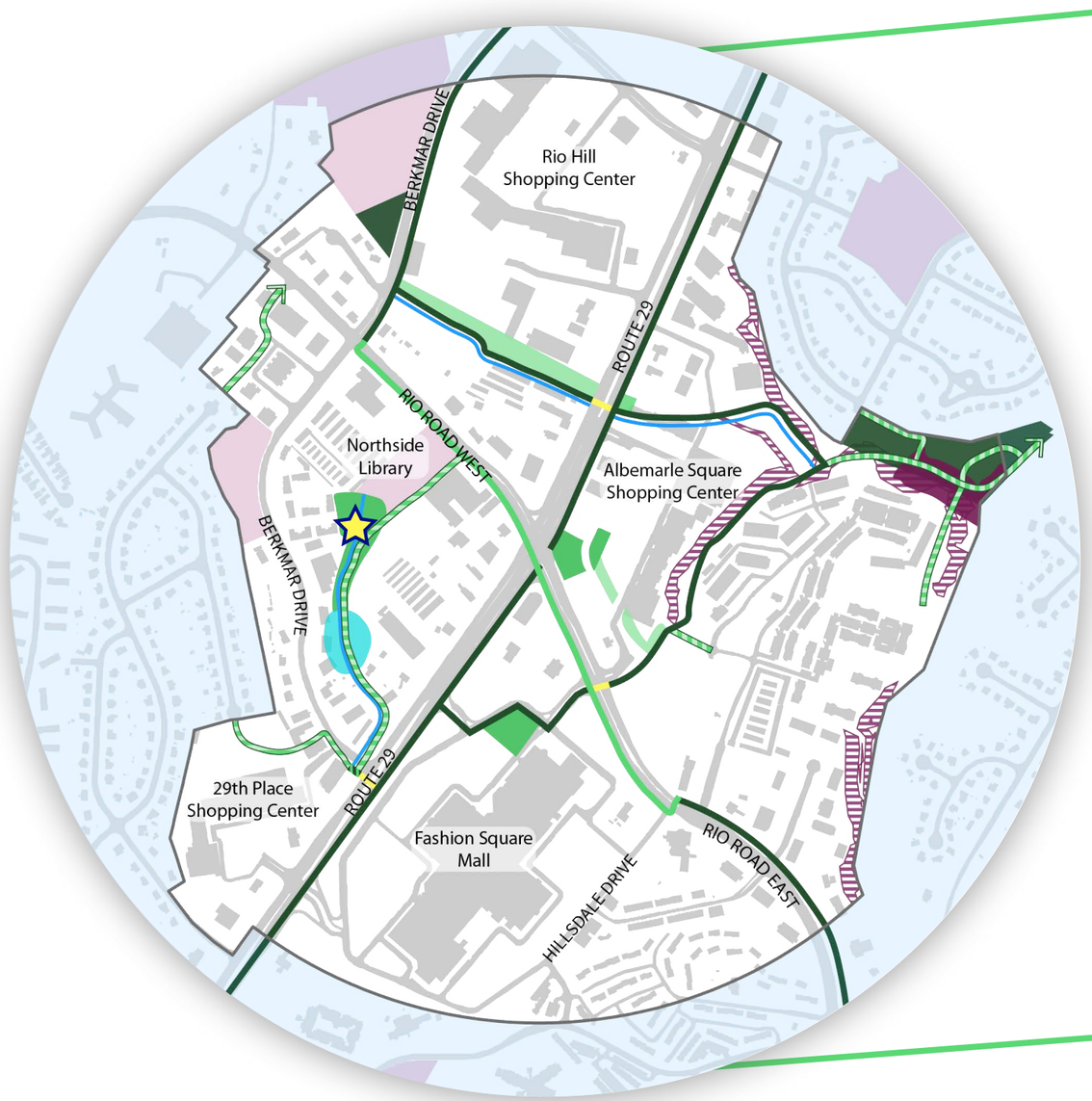
Alternatively, some residents may not wish to live along the high capacity streets but still want easy access to the Core area. Local streets can provide quieter streets with

NOTE: Street sections shown on the next several pages were developed using guidance from the Virginia Department of Rail and Public Transportation's Multimodal System Design Guidelines, The National Association of City Transportation Officials Urban Street Design Guidelines, and The Virginia Department of Transportation's (VDOT) Road Design Manual. Best practice recommendations from these guidelines were adjusted to reflect existing conditions and local preferences.

Cross sections depict "optimal" dimensions or a range of allowable street element dimensions. Variations and reductions to widths may be permitted to accommodate special circumstances, such as existing streets with constrained rights-of-way, and where an equivalent alternative can be provided. Appropriate transitions to adjacent properties must be provided where width reductions are permitted. Reductions in road width may be permissible, where deemed appropriate by VDOT. Furthermore, flexibility needs to be provided to allow for streets to evolve over time as needed. All public streets are subject to VDOT approcal.

Conservation Plan

FUTURE CONSERVATION NETWORK



TRAIL TYPOLOGIES

SHARED-USE PATH (SUP)

TRAIL

TWO-WAY CYCLE TRACK OR SUP

PUBLIC AMENITY SPACES

- LINEAR PARK
- PLAZA/GREEN
- NATURAL AREA
- FLOODABLE PARK
- COUNTY-OWNED LAND
- THE SQUARE*
- PEDESTRIAN CROSSING
- EXPOSED STREAM

CRITICAL RESOURCES

- PRESERVED SLOPES
- 100' STREAM BUFFER

** The final location for the Square will be determined based on how the area redevelops, but it is anticipated that one of the identified plazas/ greens will serve as The Square (see Page 35).*

ABOUT THE CONSERVATION NETWORK

County-owned property and critical resources provide the foundation for the Conservation Plan. The Plan highlights how underutilized County-owned properties can be re-imagined as key public amenity spaces, while also providing important ecosystem services to the surrounding area. The Conservation Plan shows a Conservation Network that is made up of Public Amenity Spaces, Trails, and Critical Resources. The Conservation Network is expected to be developed (and, in some cases, preserved) through a combination of public investment and private redevelopment activities.

The Plan recommends the protection of existing critical resources. Currently, all of the critical resources are within the northeast quadrant of Rio29. These consist of several preserved slopes along the northern and eastern periphery of the plan boundary, as well as a perennial stream just south of the Woodbrook Neighborhood. These areas should be protected with future development.

The Plan also recommends outdoor public amenity spaces within each quadrant of Rio29. Three of the four quadrants (northeast, northwest, and southwest) contain County-owned properties that provide stormwater treatment for adjacent development. The Plan envisions how these publicly-owned properties can be redesigned to become public amenity spaces for active, passive, and/or social recreational opportunities, all while continuing to treat stormwater runoff.

The Conservation Plan proposes a Linear Park in the Northwest quadrant and Plazas/ Greens within the other three quadrants. There are two Natural Areas recommended in the northern quadrants and a Floodable Park proposed in the southwest quadrant.

One of the Plazas/Greens should serve as the Square or central amenity space for Rio29. The Square is intended to provide a space that can accommodate large gatherings and events, and should be associated with a civic facility such as a library or a school.

Another potential element of the Conservation Network is the green street. All streets in Rio29 are expected to include street trees, but some streets could be designed to have additional green amenities. Green streets are those that give priority to pedestrian circulation, open space, and/or stormwater treatment. Though specific streets are not identified on the plan as green streets, developers and the County should be encouraged to pursue green street designs where possible. Green streets could take the place of identified trials, shared use paths, or required open space, if these facilities are adequately incorporated into the design of the street.

Public Spaces Typologies

THE SQUARE

DESCRIPTION
The Square is expected to be a central amenity space for Rio29. The Square should be adjacent to and designed to complement an existing or future civic use or building, such as the Library, Transit Station or possible future School Center . The final location for the Square will be determined based on how the area redevelops, but it is anticipated that one of the identified plaza/green areas will serve as The Square.

FORM & AMENITIES
The Square is expected to be an urban space with pavers, trees, and other landscaping techniques. It should be located at or near a prominent intersection, surrounded by building fronts with active ground story uses in an intensely developed area. Amenities should include a central feature such as an amphitheater, event space, fountain, or prominent art installment. The space should also incorporate passive recreation areas, seating areas, and planted elements.

FUNCTION
The Square is intended to function as a primary outdoor civic space for the area. It should be designed to accommodate a variety of functions and uses, including, but not limited to, event spaces and social open spaces that can be used for formal and impromptu gatherings. Space for passive recreation, outdoor games, farmers' markets, outdoor learning spaces, food trucks, and/or small events or concerts could be accommodated in the Square.

SIZE
No larger than 1 block





Southwest Resiliency Park Rendering Hoboken, NJ



San Jacinto Plaza El Paso, TX



Bryant Park Manhattan, NY

PLAZA/GREEN

DESCRIPTION
Plazas/Greens are identified within three of the four quadrants. It is expected that one of the plaza/green spaces will serve as the Square.

FUNCTION
The Plaza (also called "the green" because it can be paved or green) is intended to provide outdoor gathering space for the adjacent office, residential and commercial uses. Plazas should function as passive open space to provide space for relaxing, sitting or strolling, as well as casual gatherings, picnics or organized events. Plazas should be framed by the surrounding buildings or roads on all sides and they should be designed in a way to provide connectivity to the greenway network and transit station.

FORM & AMENITIES
Plazas should be designed as relatively flat open areas that can be can be paved or green. They can include planted space, seat walls, benches, fountains, gathering space, art work (such as cooling art, functional art, traffic calming art), small amphitheater, gazebos, and/or spray grounds. Larger Plazas could also accommodate playgrounds, sports fields/courts, and active recreation (but this should not be the only amenity).

Plazas should be constructed as adjacent areas redevelop. Final design should be determined during future planning efforts in conjunction with the community, Albemarle County staff and developers.

SIZE
.5-5 acres

Public Spaces Typologies

LINEAR PARK

DESCRIPTION
A linear park is a park that is longer than it is wide and incorporates a trail along its length. The proposed linear park within the northwest quadrant incorporates a stream and a trail that provide connectivity from the northeast quadrant (via the pedestrian underpass under Route 29) to the Berkmar shared-use path and Agnor-Hurt elementary.

The linear park in the northeast quadrant is for a smaller greenway park providing connectivity from the transit station to the greenway trail running north to the Woodbrook Natural Area and other area trails.

FUNCTION
The linear park provides a swath of green space within an urban area that would not normally have such amenities. It should serve as an important link in the area's green network by providing connectivity to other amenities and trails. The linear park serves as an area for both active and passive recreation. The trail provides both an opportunity for walking, running, and cycling as well as space for sitting and relaxing.

FORM & AMENITIES
The linear park should include both natural and developed features. Amenities can include a trail or walkway with wayfinding signage, seating areas, benches, or small play areas. The park can incorporate points of interest along its length such as art work or water features. A linear park can focus on natural amenities, where possible, such as a stream or canopy trees.

SIZE
No minimum or maximum

NATURAL AREA

DESCRIPTION
Natural areas are areas intended to preserve and protect natural resources and to provide opportunities for respite from the surrounding urban environment. Natural areas should be designed to protect natural resources such as woods, streams, or creeks.

FUNCTION
Natural areas should function as an area for active recreation that accommodates walking, jogging and/or biking, plus passive uses such as relaxing or picnicking.

FORM & AMENITIES
Natural areas should be mostly wooded and undeveloped. The space can include bicycle and pedestrian trails that allow for 5-15 minute travel throughout the area. These areas may also include small improvements such as kiosks with trail maps, small parking areas, bike racks, and picnic tables or benches. Resource protection and green infrastructure services should be considered with any proposed improvements.

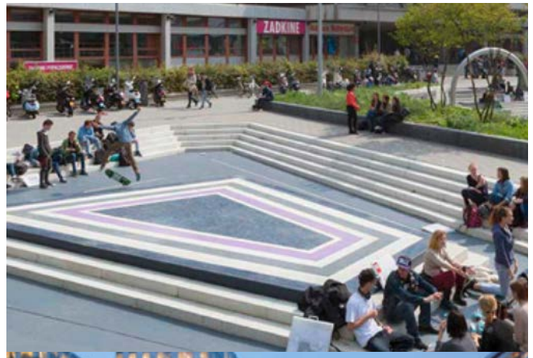
SIZE
.5 acre or larger

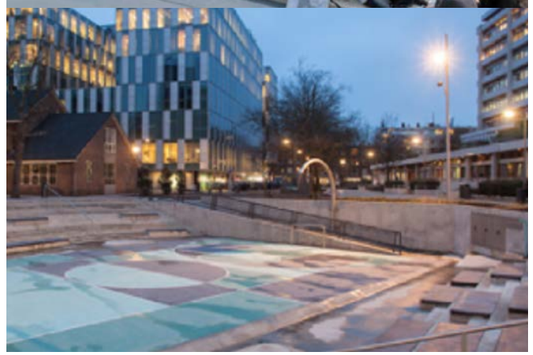


Rendering of a Linear Park Atlanta, GA



Rivanna Trail Charlottesville, VA





Water Square Benthemplein Floodable Park
Rotterdam, NL

FLOODABLE PARK

DESCRIPTION
The floodable park is a space that can serve two functions, as both a park space and stormwater facility. It takes advantage of the need for both park space and stormwater treatment in the area. After a heavy rain, the park space may be flooded but after the water subsides, the area will be a usable park space.

FORM & AMENITIES
Floodable parks can be permeable hardscape surfaces and/or natural greenspace. They can include both active/passive recreation facilities, such as play areas, fields, benches, picnic areas, plazas and walking trails.

Floodable parks should be designed with some elevation change so that the water retention areas are lower in elevation. Proposed landscaping should incorporate flood-tolerant plants. The design should take into consideration long-term maintenance of proposed facilities and it should be designed to flood with minimum maintenance.

FUNCTION
The floodable park that is proposed for the southwest quadrant of Rio29 is currently a stormwater retention facility that is owned and operated by the County.

The park is shown over a slightly larger area to incorporate some land from adjacent parcels so that when these properties redevelop they have the option to use the facility for stormwater treatment. The additional land can provide more usable space for the park and increase the capacity of the retention facility.

The floodable park can provide both active and passive recreation opportunities for residents of adjacent developments and patrons of the library. The park should be connected via trail to the library and the adjacent plaza.

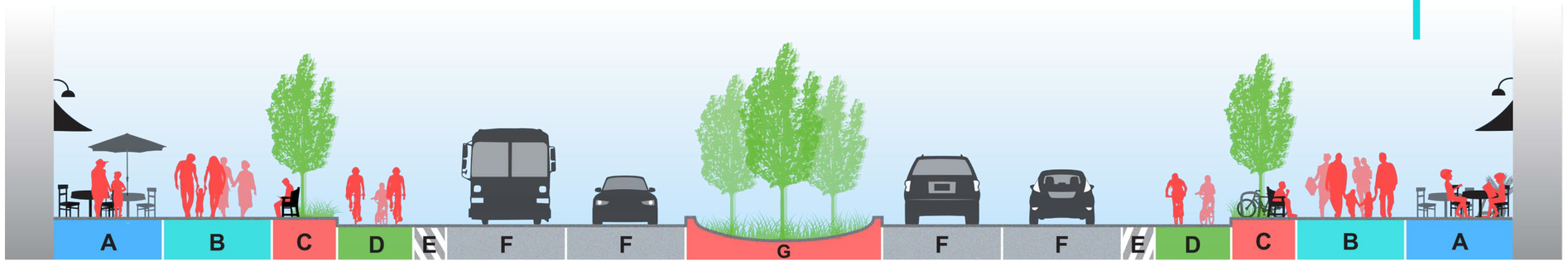
Other floodable parks can be incorporated into private developments and redevelopment in the area to meet the needs for private open space and stormwater management.

SIZE
.5 acre or larger

Standards and Guidelines

Boulevard

Rio Road East & West



Boulevards (4 lanes across) are large scale, landscaped streets designed to be high capacity streets with low speeds. Rio Road is the only proposed Boulevard in Rio29. It is expected that Rio Road will continue to function as a high capacity 4-lane roadway that serves both local and through traffic. Significant improvements to bicycle and pedestrian facilities along Rio Road will allow this street to also serve as a bicycle and pedestrian boulevard.

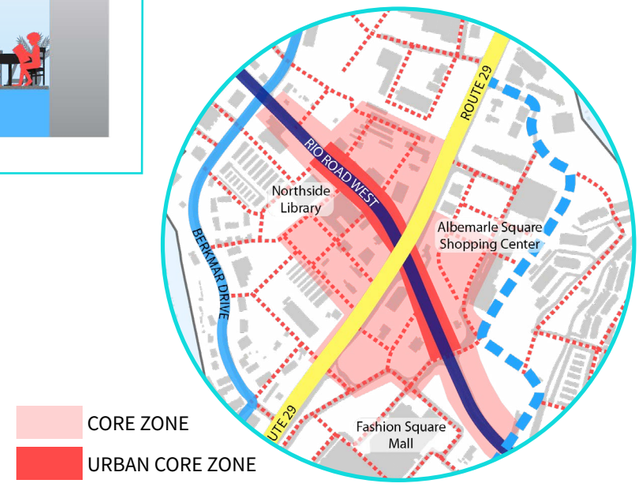
The median along Rio Road can serve a variety of purposes. It can contibute to traffic calming by being visually interesting; it can contibute to the tree canopy and beautification of the street; and it can provide a break for pedestrians crossing the street. Where space allows, the medians should also be designed to contain bioswales. Bioswales are landscape elements designed to remove debris and pollution from stormwater runoff and can be an important contributor to the regional stormwater treatment in Rio29.

Streets **Inside of the Core** are intended to be placemaking streets with speeds of 25 - 30 mph. Land uses include more retail, room for café tables, more focus on pedestrian activities/seating, and wider facilities. Parking is easily accessible: the Rio Core has plenty of off-street parking adjacent to uses.

Streets **Inside of the Core** are intended to be placemaking streets with speeds of 25 - 30 mph. Land uses include more retail, room for café tables, more focus on pedestrian activities/seating, and wider facilities. Parking is easily accessible: the Rio Core has plenty of off-

What is the Core?

The **Core** is intended to have the highest development intensity. Streets in the Core area (see map below) should have wider pedestrian sections and wider bike lanes to accommodate the heavier flow of pedestrian and bike traffic. For more information on the Core Zone, see page 25.



		Inside of the Core	Outside of the Core
		Dimensions	Dimensions
A	Frontage Zone	3’-10’	3’-10’
B	Pedestrian Zone	10’ [1]	6-8’ [1]
C	Separation Zone	6’	6’
D	Bike Lane	5’	5-7’
E	Buffer Zone	3’ [2]	3’ [2]
F	Lane Width	10.5’	11’
G	Median	6’-10’	6-10’

[1] A Shared-Use path may be provided in lieu of bicycle/pedestrian facilities outside of the core if deemed appropriate by Transportation Planning staff and can provide for appropriate transition to adjacent facilities.
[2] Buffer zone can be reduced in width where a physical barrier is provided and where appropriate transitions are provided to adjacent properties, if deemed appropriate by VDOT and Planning staff.

EXISTING CONDITIONS



Rio Road West, Looking NE



Rio Road East, Looking NW

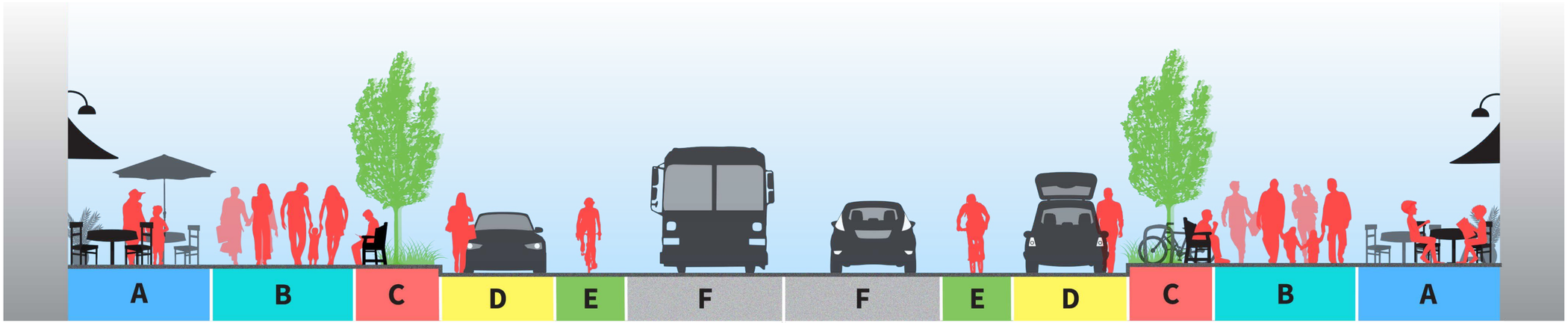
PRECEDENTS



Rendering of West Florissant Avenue “Great Streets Project” St. Louis, Missouri

Avenue

Berkmar and Hillsdale Drive



Avenues (2 lanes across) are intermediate-sized landscaped streets designed to be medium capacity streets with low speeds. Hillsdale Drive and Berkmar Drive are both Avenues. Avenues in Rio29 have only two travel lanes but are still designed to carry a significant volume of both automobile and bicycle/pedestrian traffic. An important feature of the Connectivity Plan is the interconnection between Hillsdale and Berkmar Drive. The Plan proposes an extension of Hillsdale Drive east of Fashion Square Mall and Albemarle Square with a roundabout at Rio Road. Berkmar Drive is realigned to a signalized intersection with Route 29 and connects to the new Hillsdale Drive south of Fashion Square Mall. Alternative alignments and intersection treatments could be possible for these streets, but it is important that connectivity between the two streets be provided.

The Avenue shown for future Hillsdale Drive in the Northeast quadrant of the Plan is an alignment identified by the current property owner. However, as shown, this street would interfere with areas of preserved slopes and a future greenway trail. The final design and alignment of this portion of street should be sensitive to these features and be designed in a way to not disturb the slopes and to maintain a greenway connection in this area.

		Inside of the Core	Outside of the Core
		Dimensions	**Dimensions**
A	**Frontage Zone**	**3’-10’**	**3’-10’** [1]
B	**Pedestrian Zone**	**10’**	**6’-8’**
C	**Separation Zone**	**6’**	**6’**
D	**Parking Zone**	**8’** [2]	**8’** [2]
E	**Bike Lane**	**5’** [3]	**5’** [3]
F	**Lane Width**	**10.5’**	**11’**

[1] Larger frontage zones could be approved by exception, when a street is near the Core, to allow for a future transition for a wider pedestrian zones and to accomodate outdoor seating as the area grows.
[2] Appropriate locations for on-street parking should be determined in collaboration with Planning and VDOT staff during project design. On-street parking is not expected or required for the entire length of the street.
[3] A buffer may be added if necessary. A Shared-Use path may be provided in lieu of bicycle/pedestrian facilities outside of the core, if deemed appropriate by Transportation Planning staff and VDOT and can provide for appropriate transition to adjacent facilities.

Streets **Inside of the Core** are intended to be placemaking streets with speeds of 25 - 30 mph. Land uses include more retail, room for café tables, a focus on pedestrian activities/seating, and wider facilities.

Streets **Outside of the Core** are intended to be connectors with speeds of 25 - 35 mph. These will have less retail, more office/residential, no café tables, less space for gathering, more room for ease of travel/narrower facilities.

EXISTING CONDITIONS



Berkmar Drive



Hillsdale Drive

PRECEDENTS

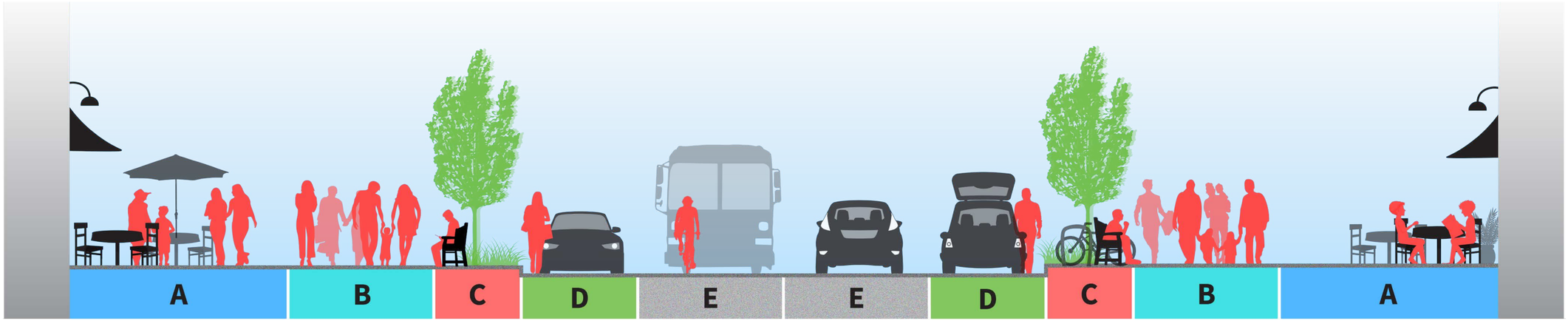


Multimodal Street Cumberland County, PA



Midtown Atlanta Atlanta, GA

Local Streets



Streets **Inside of the Core** are intended to be placemaking streets with speeds of 25 - 30 mph. Land uses include room for café tables and wider facilities.

Streets **Outside of the Core** are intended to be connectors with speeds of 30 - 35 mph. These will have no café tables, more lawns/front yard space, and narrower facilities.

Local Streets are low-capacity, low-speed streets that form the majority of Rio29's the street network. Local Streets are expected to fill in as redevelopment of private property occurs. Local Street locations on the Connectivity Plan are conceptual and do not need to be located exactly as shown. At a minimum, the same number of streets and connections should be provided and block sizes should be between 200-600 feet where possible, depending on location (see the Character Chapter for more on block size).

		Inside of the Core	Outside of the Core
		Dimensions	Dimensions
A	Frontage Zone	5'-15'	5'-15' [1]
B	Pedestrian Zone	10' [2]	6'
C	Separation Zone	6'	6'
D	Parking Zone	8' [3]	8' [3]
E	Lane Width	9'-10'	9'-10'

[1] Larger frontage zones could be approved by exception when a street is near the Core to allow for a future transition for wider pedestrian zones and to accomodate outdoor seating as the area grows.
[2] Reduction to 8' pedestrian zone may be permitted where right-of-way limitations exist and appropriate transitions are provided to adjacent properties, if deemed appropriate by Planning staff.
[3] Appropriate locations for on-street parking should be determined in collaboration with Planning and VDOT staff during project design. On-street parking is not expected or required for the entire length of roadways.

EXISTING CONDITIONS



Rio East Court



Greenfield Terrace

PRECEDENTS



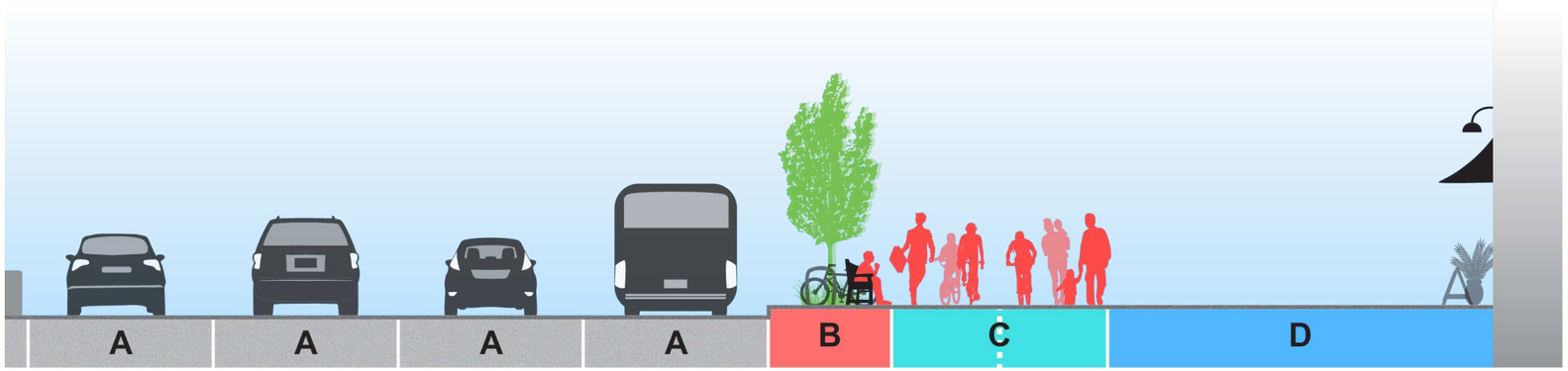
Decatur, GA



Hudson, OH

Through Corridor

Route 29



Through Corridors are high capacity streets designed to carry inter-neighborhood traffic at 40-55 mph. Route 29 is designated as a Corridor of Statewide Significance by VDOT and must continue to function as a high capacity Through Corridor. Additional signals, intersections, and at-grade crossings of Route 29 will not be feasible with this plan. Though significant changes to the travelway may not be feasible, the Plan recommends a shared-use path along Route 29 to allow for the road to serve as a corridor for commuting bicyclists and pedestrians. The path is contemplated on the east side of Route 29, though future planning efforts could identify the need for facilities on both sides. Two locations for bicycle/ pedestrian crossings of Route 29 are identified in the Connectivity Plan.

The existing ramps bring traffic to and from Route 29 and Rio Road and act as connector street transitions by slowing speeds to more safely accommodate multi-modal traffic. The ramps can provide opportunities for future transit stops. They should also include shared-use paths or equivalent pedestrian and bicycle facilities to allow commuters to access Rio29 from points north and south.

		Dimensions
A	Lane Width	12’
B	Separation Zone	8’
C	Shared-Use Path	14’
D	Frontage Zone	5-25’



This line demonstrates where the street design shown to the left can be applied.



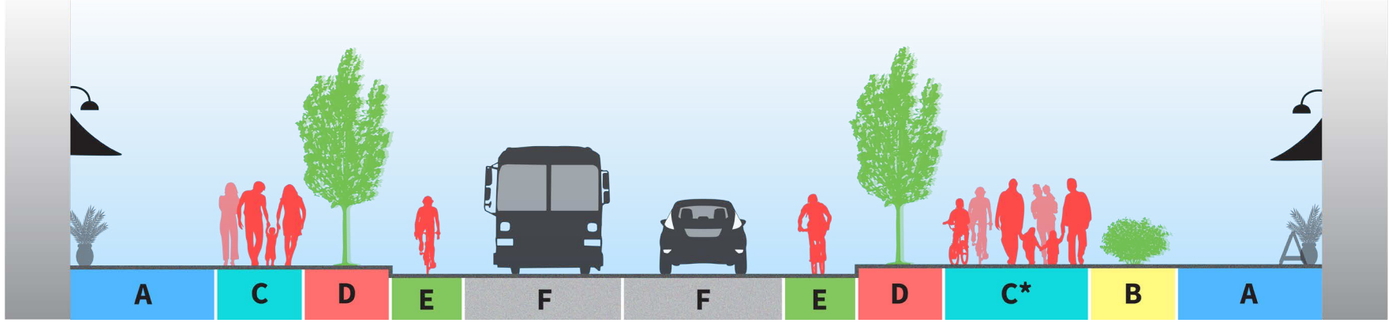
Existing Conditions: Route 29 South on Ramp Approaching Rio Road



Potential Future Improvements: Route 29 South on Ramp Approaching Rio Road

The Northtown Trail and Shared-Use Paths

Avenue Section with Shared Use Path in lieu of Sidewalk



In 2017, a paved shared-use path (SUP) was constructed along the new Berkmar Drive extension across the South Fork Rivanna River to Hollymead Town Center. Currently the southern terminus of the SUP is Hilton Heights Road, just north of Rio29. The County has secured funding to extend the SUP from Hilton Heights Road south to Rio Road. For this section of Berkmar Drive, the eastern side of the street will have a SUP in lieu of a sidewalk, as shown in the Avenue street section above.

		Dimensions
A	Frontage Zone	3’-10’
B	Separation Zone	4-6’
C	Pedestrian Way	6’
C*	Shared-Use Path	6’-8’
D	Separation Zone	6’
E	Bike Lane	5’ [1]
F	Lane Width	11’

[1] A buffer should be provided if space permits. A Shared-Use path may be provided in lieu of bicycle/pedestrian facilities outside of the core, if deemed appropriate by Transportation Planning staff and can provide for appropriate transition to adjacent facilities.



Northtown Trail Along Berkmar Drive

Location and Design of SUPs

Shared-use paths can offer recreational opportunities and can serve as direct commuting routes. There may be segments of Rio29 streets that are identified by future planning efforts where shared-use paths would be appropriate. In these instances, it may be appropriate to substitute shared-use paths for sidewalks and/or bicycle lanes; though in some circumstances both could still be appropriate. The street section above shows the Avenue street section with a shared-use path in lieu of a sidewalk on one side.

Shared-use paths are paved with a minimum width of 10 feet to provide ample space for use by pedestrians and bicyclists. Shared-use paths within areas of high use, such as within the Core areas of Rio29, should be wider to accommodate a high volume of pedestrians and bicyclists. A minimum of 14 feet is recommended for high-traffic areas. Final location, width, and design of shared-use paths should be determined by County Transportation Planners and VDOT staff.

The Northtown Trail

The Northtown Trail is a conceptual bicycle/pedestrian trail that is planned to extend from the Charlottesville Downtown Mall to Lewis and Clark Drive in northern Albemarle. The Northtown Trail is envisioned as a shared-use path that will provide a commuter route for bicyclists and pedestrians. The goals for the Northtown Trail are to provide a safe and efficient bicycling option within the Places29 Corridor and to provide access to and from locations of interest within this corridor. Overall, the trail should increase bicycle and pedestrian mobility in the region.

Segments of the Northtown Trail route along Berkmar Drive and the John Warner Parkway are already completed, and other segments along Berkmar Drive and Rio Road East are currently in the planning and design phases. As such, the Rio29 Plan presents an opportunity to fill a crucial gap in the Trail network. Connecting the Northtown Trail through Rio29 would provide a continuous route from the City of Charlottesville to Hollymead Town Center in Northern Albemarle.

A final alignment for the Northtown Trail through Rio29 has not yet been determined. The largest challenge for this portion of the route is determining how to get bicycles and pedestrians safely across Route 29. The plan recommends a short-term solution of adding a two-way cycle track or SUP along Rio Road that crosses Route 29 at the existing Grade Separated Interchange (GSI). More study is needed to determine if a safe crossing can be provided at the intersection without significantly affecting the Level of Service for motorists. Staff should work cooperatively with VDOT to identify solutions in providing a continuous bicycle/pedestrian route through Rio29. If a crossing cannot be accomplished at the GSI, a bicycle/pedestrian bridge or underpass (Transformative Projects **Q** and **T**) should have increased priority so as to connect the converging pieces of the Northtown Trail across Route 29.

Northtown Trail

