

## 4. Future Land Use Plan and Transportation Network

### Introduction

This chapter describes how the recommended future land use plan and multimodal transportation network have been planned and coordinated to achieve the County’s vision of a livable, desirable community. After defining several important terms, the rest of the chapter is organized into three major sections, followed by two shorter concluding sections. First, the Future Land Use Plan section defines the land use designations shown on the Future Land Use Map. It continues with a description of how the land uses are distributed and several key subareas. Then, a discussion of the land use tables and their relationship to urban form completes this first section.

The second section, Parks & Green Systems, covers the open space network and related amenities, including a description of the Parks & Green Systems Map.

The third section describes the multimodal future transportation network: how its design supports convenient access to new and existing land uses and provides a broad range of transportation choices to residents, workers, and visitors. The section addresses roadway elements, transit elements, and bicycle and pedestrian elements. Next, it includes recommended cross sections for key network roads and discusses neighborhood streets and block patterns. After a brief discussion of transit-oriented development, this section concludes with information on potential road improvements beyond 2025.

The fourth section explains the difference between the 20-year implementation timeframe and ultimate buildout illustrated on the Future Land Use Map. Then, it outlines the development capacity that results from the designation and distribution of land uses.

The fifth section is a step-by-step explanation of how to use the maps and tables in the chapter.

***Please note: the Future Land Use Map, Parks & Green Systems Map, and Land Use Tables 1 and 2 are located at the end of this chapter.***

### Definitions

The definitions for several terms used throughout this chapter are listed below:

- “By Exception”— a term used to identify uses or characteristics of uses or structures that are evaluated for appropriateness on a site-specific basis, similar to “special uses” in the County’s zoning ordinance.
- “Flex”—a term used to describe a use made up of two or more activities. In some instances, such an activity may occur singularly in other locations. For example, a flex use might be one where a business assembles small electronic devices, stores them onsite, ships them from the same location, has a showroom where the devices are demonstrated and sold, and includes an office where the business is administered.
- Flex Space—A building designed for a variety of employment uses, which may include: administrative or other office space, Research & Development (R&D), laboratories, and even small assembly or manufacturing areas. The building is

designed so space can be reconfigured as uses change. “Flex space” should not be confused with the “Flex” use designation (see the definition of “Flex” under Land Use Designations above).

- **Large Format Retail or “Big Box”**—A retail establishment of at least 80,000 square feet and as much as 250,000 square feet, usually one story in height, and surrounded by surface parking. Examples include department or general merchandise stores, home improvement/builder’s supply stores, office supply stores, electronics/appliance stores, and others. Generally, the County’s practice has been to exclude grocery stores from this retail category. Several “big boxes” may be located together in a development called a “power center.”
- **Live/work Units**—A primarily residential structure that, in addition to the residence, includes commercial space for one small-scale business or office enterprise. The “work” portion of the unit usually faces the street and is most often located on the first floor of a two (or more) story building or, if the building is a single story, the work portion is in front of the residence—closer to the street. It is important to recognize the distinction between a live/work unit, which will blend comfortably into a residential area, and larger commercial or retail businesses that have apartments or other residential units on a second (or higher) floor. These larger businesses with residential units above are more appropriately located among buildings of similar size in commercial or mixed use areas.
- **Mixed Use**— A term used to describe a development on a single parcel or several adjacent parcels that incorporates different uses. These uses are designed to complement each other and provide activity throughout the day. Uses can be mixed within a single structure (vertical mixed use), such as ground floor retail and upper floor residential, or by mixing individual single-use buildings on the same or adjacent sites (horizontal mixed use).
- **Mixed Use Centers**—A cluster of compatible and complementary uses (horizontally and/or vertically mixed), such as residential, commercial, industrial, office, and institutional in a walkable, pedestrian-oriented urban environment. Mixed use centers vary in scale and can range from ones with small neighborhood-serving uses to ones that serve the entire region. (See Chapter 5, Place Types and Figure 5.1).
- **Place-making**—Refers to the act of designing and arranging buildings, streets, landscaping, and other elements of the community environment into a human-scaled, comfortable, functional, and memorable place that invites people to be active there and supports their activity.
- **Single Use**—A building or parcel that accommodates only one type of use, such as residential, commercial, or light industrial. An example is an office building that offers only office space (it does not contain a restaurant, retail uses, or services for employees working in the building or nearby buildings).
- **Single Use Area**—A large parcel or group of parcels that accommodates only one type of use, such as residential, commercial, or light industrial. The Neighborhood Model discourages single-use areas, except where they are necessary for airports, large manufacturing facilities, or similar uses that are not compatible with other uses. Single use areas are called Districts in this Master Plan.

- **Urban Form (or Built Form)**—The physical urban environment that results from a combination of transportation infrastructure, buildings and other structures, and open spaces.

## **Future Land Use Plan**

The Future Land Use Plan encompasses both the Master Plan text and the Future Land Use Map. The Future Land Use Plan follows the principles of the Neighborhood Model and organizes new development and major redevelopment into a pattern of mixed use centers, with surrounding land uses oriented toward the Centers. In general, achieving the desired pattern of development would mean that all land in the Development Areas would be within one-quarter (1/4) to one-half (1/2) mile of either a Center (Neighborhood Service, Community, or Destination) or the Uptown. However, established suburban neighborhoods like Forest Lakes, Raintree, Dunlora, and Woodbrook retain their current land use pattern and do not include new mixed use centers.

The land use patterns shown on the Future Land Use Map, as well as the network of open spaces shown in the Parks & Green Systems Map, are based on planning concepts outlined in the Neighborhood Model. The Future Land Use Map is central to establishing the desired pattern of Centers and surrounding walkable areas and is closely linked to the network of open spaces and transportation facilities for the area. The transportation network consists of multimodal, interconnected roads and includes routes parallel and perpendicular to US 29. This network of roads is an important prerequisite for Centers with an orientation toward the parallel and perpendicular roads. The multimodal transportation network also includes transit, pedestrian pathways, bicycle routes, and other amenities. The network of open spaces and public parks complements the higher intensity of land uses in the Future Land Use Plan and is essential to creating the livable urban environments envisioned by the Comprehensive Plan.

## **Relationship of Existing and Future Uses**

In addition to preserving existing residential developments, care has been taken to balance existing development—both residential and commercial—with future needs and potential development.

The overall goal for existing residential neighborhoods within the Places29 area is to protect and enhance them. With few exceptions, existing residential uses have the same designation on the Future Land Use Map as they do in the 1996 Land Use Plan. Limited exceptions occur where changes were made to create a better fit between a pattern of new land uses that surround an existing residential area and the residential area. Changes from the existing use to the new use designated in the Master Plan are expected to be driven by the real estate market and decisions made by property owners and developers.

The Community, Industrial, and Regional Service designations in the County's 1996 Land Use Plan that dominate much of the Places29 area have been modified on the Future Land Use Map to accommodate mixed use Centers and uses oriented toward them. These new Centers and surrounding uses will form new Neighborhoods. Except for undeveloped areas, much of this transformation will occur through redevelopment.

Further, the single Industrial Service designation used in the 1996 Land Use Plan has been divided in the Places29 Master Plan into three employment-generating designations in order to recognize the changing nature of industrial uses and the different impacts each type of industry or business may have on surrounding uses. In the past, most industrial uses needed to be segregated because of potential impacts, such as odors, noise, vibrations, and traffic, among others. Today,

many industries, especially those located here in Albemarle County, have only traffic impacts. These “cleaner” industries can be located in the same proximity to residential and commercial development as large office complexes and even large shopping centers; the primary impact of these uses on surrounding property is traffic. The three new employment-generating designations defined below and used on the Future Land Use Map are: Office/Research & Development (R&D)/Flex/Light Industrial, Light Industrial, and Heavy Industrial. These three new land use designations represent a continuum of industrial uses from Office/R&D/Flex/Light Industrial, which is expected to have impacts similar to an office use; to Light Industrial, where the impacts may be greater; to Heavy Industrial, where the impacts usually require that the use be segregated from other nonindustrial uses. It is important to note that the Office/R&D/Flex/Light Industrial designation includes both industrial and commercial or business uses.

## Land Use Designations

This section gives the definitions of land use designations shown on the Future Land Use Map. Part of each definition is a list of primary and secondary uses in that designation. The section after this one defines and gives examples of those primary and secondary land uses. In general, the primary land uses listed under each designation are the main focus of that particular designation; most of the development in that designation should be one (or more) of these primary uses. Secondary land uses are intended as support uses for the primary ones. While these secondary uses should represent a smaller proportion of the development or the building, they are very important to “place-making”; adding them to a Center or the area around a Center increases the mix of uses and makes the area more of a complete Neighborhood. The determination of primary and secondary uses is expected to be made over an entire contiguous designation, not an individual parcel (unless the designation is restricted to a single parcel).

Some uses are also described as “incidental,” which means that they are dependent on the primary use. For example, a showroom where a light industrial business offers its products for sale would be considered a retail use that is incidental to the light industrial use. The distinction between secondary and incidental uses is important. Secondary uses are standalone uses that support the primary uses in an area. For example, neighborhood-serving retail is a secondary land use in Urban Density Residential; mini-marts and small restaurants serve or support the residents of a neighborhood. Another example would be an office supply store located in an Office/Research & Development (R&D)/Flex/Light Industrial designation. On the other hand, an incidental use, such as the showroom mentioned above, is part of an individual business.

There are two Land Use Tables located at the end of this chapter. The guidelines listed in each table, when combined with the information in the land use definitions below, indicate what the urban form of a potential development should be. Land Use Table 1 (LU1) lists the guidelines for the primary and secondary uses in the Centers that are shown on the Future Land Use Map. All of the Centers are designated Urban Mixed Use. Land Use Table 2 (LU2) gives the guidelines for primary and secondary uses in the areas around the Centers. More information about how to use these two tables, the Future Land Use Map, and the Parks & Green Systems Map is given in the section “How to Use the Maps and Tables in this Chapter” located at the end of this chapter.

**Urban Mixed Use.** This designation is used both inside and outside of the Centers. In Centers and in the Uptown, it includes a balanced mix of retail, housing, commercial, employment, and office uses, along with some institutional and open space uses. The types of retail and services, as well as dwelling unit types, vary depending upon the type of Center (see Land Use Table LU1) and the land use designations in the area around the Center (see Land Use Table LU2):

Primary uses: community and regional retail, commercial service, office, and other employment generators, with a mix of residential types. At least two different types of dwelling units are recommended. In the Uptown, office, research & development (R&D), and flex uses are also considered primary uses.

Secondary uses: office, research & development (R&D), and flex (where appropriate in smaller Centers), with open space and institutional uses that are essential to place-making within Centers.

In the areas around Centers (see Table LU2), there is also a limited amount of land designated Urban Mixed Use. These designations are intended to provide space for uses that do not fit within a Center because the use requires more land for larger buildings and/or parking lots. Auto commercial service uses are examples of uses that may require more space than is available for a single use in a Center (see Land Use Table LU2).

**Neighborhood Density Residential.** This designation is used in areas around Centers where single-family detached and attached housing with a gross density range between 3 – 6 units per acre is desired. This designation is also applied to existing residential areas with densities within or below this range (see Land Use Table LU2). This designation is essentially the same as the Neighborhood Density Residential designation in the 1996 Land Use Plan.

Primary uses: single-family residential, including two or more housing types.

Secondary uses: retail, commercial, and office uses that support the neighborhood, live/work units, open space, and institutional uses. Retail, commercial, office, and institutional uses are encouraged to locate in Centers so they are accessible to residents throughout the surrounding area, and so they benefit from co-location with other neighborhood-serving businesses. However, they may be located by exception in areas around Centers designated Neighborhood Density Residential provided they are compatible with surrounding uses.

**Urban Density Residential.** This designation is used in areas around Centers where multifamily housing with a gross density range between 6.01 and 34 units per acre is desired. It is also applied to existing residential areas with densities within this range (see Land Use Table LU2). This designation is essentially the same as the Urban Density Residential designation in the 1996 Land Use Plan.

Primary uses: multifamily and single-family residential, including two or more housing types.

Secondary uses: retail, commercial, and office uses that support the neighborhood, live/work units, open space, and institutional uses. Retail, commercial, office, and institutional uses are encouraged to locate in Centers so they are accessible to residents throughout the surrounding area, and so they benefit from co-location with other neighborhood-serving businesses. However, they may be located by exception in areas around Centers designated Urban Density Residential provided they are compatible with surrounding uses.

**Commercial Mixed Use.** This designation is applied only to areas that are already developed or that have been approved for development as commercial shopping areas. This designation is used in the areas around Centers (see Land Use Table LU2) and is intended to support the eventual

conversion of these areas to a more mixed-use type of development that will support adjacent mixed use centers. These areas have the potential to integrate some nonretail uses, such as multifamily housing, office, or institutional uses, and to develop stronger links with adjacent Centers. In the future, no new Commercial Mixed Use should be designated; retail and other commercial activities will be focused instead into the mixed use Centers.

Primary uses: community and regional retail, commercial service, auto commercial service, and office uses.

Secondary uses: office, research & development (R&D), flex, residential, open space, and institutional uses.

**Office/Research & Development (R & D)/Flex/Light Industrial.** This designation allows a range of employment-generating uses and is applied to the majority of the nonretail employment areas within the Places29 area to create Employment Neighborhoods. These uses are the “new” types of industrial uses that are more employee-intensive and may be less involved with manufacturing. As such, these uses are expected to have the fewest impacts on surrounding uses (e.g., noise, vibrations, odors), although they may have a greater traffic impact due to the number of employees. The designation is used in the areas around Centers (see Land Use Table LU2).

“Office” includes the typical commercial office buildings that may house a variety of users. It may also include professional offices, such as medical or real estate offices, although these offices may also be located in Commercial Mixed Use and Urban Mixed Use areas.

“Research & Development (R&D)” is applied to an administrative, engineering, and/or scientific research, design, or experimentation facility that engages in research, or research and development, of innovative ideas in technology-intensive fields. Examples include research and development of computer software, information systems, communication systems, transportation, geographic information systems, and multi-media and video technology. Development, construction, and testing of prototypes may be associated with this use. Such a business does not involve the mass manufacture, fabrication, processing, or sale of products. Many research & development uses can locate in traditional office buildings or buildings that resemble office buildings, rather than traditional industrial facilities.

“Flex” describes businesses that may include several uses, such as a manufacturing facility with warehouse space for components and completed products, a showroom for sale of the products, and office space where administrative duties for the business take place. Another example is a business “incubator” that supports new businesses. A Flex use may include: research & development, manufacturing, warehousing, distribution, office, retail, customer service, and showrooms, among others. Different businesses will have different combinations of these uses and in varying percentages. Another feature of Flex uses is the need for space that can be reconfigured as a business grows or adds products.

“Light Industrial” is described below. Light Industrial uses that are combined with Office/R&D/Flex uses will not usually have impacts, other than traffic, on adjacent uses. Care needs to be taken that the impacts of light industrial uses are compatible with surrounding uses and the character of the area.

Primary uses: office, research & development (R&D), and flex, light manufacturing/storage/distribution uses.



Secondary uses: retail, commercial, and light manufacturing uses that are associated with the primary uses, residential, open space, and institutional uses.

**Light Industrial.** This designation allows uses that involve manufacturing, predominately from previously prepared materials, of products or parts, and may include processing, fabrication, assembly, treatment, packaging, incidental storage, sales, and distribution of these products. It does not include basic industrial processing (see Heavy Industrial). The Light Industrial designation allows for a range of employment and commercial uses that may have impacts that would not be suitable in or adjacent to residential uses, retail uses, commercial uses, or many types of commercial office or research activities. This designation is applied to areas around Centers to create Employment Neighborhoods (see Land Use Table LU2).

Primary uses: light manufacturing/storage/distribution

Secondary uses: related offices and retail activities (particularly wholesale), research & development (R&D), flex, and other commercial uses that are associated with the primary uses in the area, larger auto commercial service uses, open space, and institutional uses.

**Heavy Industrial.** This designation allows for manufacturing or other enterprises with significant external effects or which pose significant risks due to the involvement of hazardous materials. This designation applies to a range of employment, production, and commercial uses that are likely to create impacts that are not suitable adjacent to residential uses or many types of office or research activities. These impacts include, but are not limited to, noise, vibration, odors, and heavy truck traffic. The impacts may be more intense or more difficult to mitigate than those created by Light Industrial land uses. For example, a manufacturing facility for production of modular homes would require deliveries of significant amount of lumber, fixtures, appliances, and other materials, all of which would arrive by truck. In addition, there would be employee traffic to and from the plant. The completed modules would be shipped from the facility as “wide loads,” requiring escort vehicles. This type of manufacturing facility would have a much greater impact than a typical light industrial facility that manufactured small appliances. Light industrial uses may also be located in this designation. This Heavy Industrial designation is applied to areas around Centers to create Employment Neighborhoods (see Land Use Table LU2).

Primary uses: heavy manufacturing/storage/distribution and warehousing/distribution.

Secondary uses: related offices and retail activities (particularly wholesale), and office, research & development (R&D), flex, and other commercial uses that are associated with the primary uses in the area, larger auto commercial service uses, open space and institutional uses.

**Institutional.** This designation allows for a range of civic uses, such as schools, libraries, parks, recreational facilities, water treatment facilities, and other similar uses on County-owned properties (see Land Use Table LU2).

Primary uses: schools, libraries, parks, recreational facilities, and water treatment, and similar facilities.

Secondary uses: any related facilities that support the primary uses.

**Parks and Public Open Space.** This designation allows for a range of public recreation and open space uses. This designation is used in Centers and the areas around Centers to provide for public

activities. It is also used in combination with Privately Owned Open Space to define the edges of some Neighborhoods (see Land Use Table LU2). The Future Land Use Map shows Public Open Space as a lighter, brighter green (than Privately Owned Open Space described below).

Primary uses: public open spaces, such as parks, greenways, trails, and other public open spaces.

Secondary uses: related institutional uses.

**Privately Owned Open Space/Environmental Features.** This designation includes open space that is owned and managed by private or semi-public entities, such as homeowners associations, private homeowners, commercial or business park land owners, and others. These areas consist of recreational and passive open space amenities, and may include floodplains, steep slopes, wetlands, and other areas with environmental constraints where construction of buildings is discouraged (see Land Use Table LU2). The Future Land Use map shows Privately Owned Open Space/Environmental Features in a slightly darker green (than the Public Open Space described above).

Primary uses: semi-public open spaces, such as semi-public parks, greenways, trails, and other recreational and passive open spaces that are owned by homeowners associations or other similar entities and are open to property owners and their guests.

Secondary uses: related institutional uses.

## Primary and Secondary Uses

Each of the land use designations defined in the section above includes a list of primary and secondary uses that may be found in the designation. As stated above, primary land uses are the main focus of the particular designation; most of the development in that designation should be one (or more) of the primary uses. Secondary land uses are intended as support uses for the primary ones. These secondary uses should represent a smaller proportion of the whole development or the building. Approval of secondary land uses should be based on the designation of the larger area, rather than on a per site or per parcel basis. The following *lists of examples are illustrative, not all-inclusive*, of the primary and secondary land use types that may be found within the designations:

Primary and secondary uses are listed along the left side of Land Use Tables 1 and 2 (LU1 and LU2). Guidelines for developing each of these uses in each Center (Table LU1) are listed under the Center type. These guidelines are intended to encourage development that will support a pedestrian-, bicycle-, and transit-friendly mixed-use environment. Guidelines for areas around the Centers (Table LU2) are intended to encourage development that will support a compact, walkable area. In a few instances, a larger building footprint or use is allowed “by exception.”

**Residential:** includes a variety of homes with a variety of lot configurations. Buildings should not be taller than four (4) stories, unless by exception. Exceptions may be granted where the taller residential building is compatible with the surrounding uses.

*Examples* of primary and secondary residential uses include:

- Single-family attached and detached homes
- Semi-detached and attached single-family houses, such as duplexes, triplexes, quadriplexes, townhouses, atrium houses, and patio houses



- Accessory apartments
- Apartments/condominiums in the form of garden units, street-front “walkups,” mid-rise, and similar configurations
- Townhouses and rowhouses
- Dwelling units above retail, office, and/or commercial uses
- Mobile and modular homes

**Neighborhood Retail:** these businesses are intended to draw a significant portion of their clientele from the surrounding neighborhood. Many customers or clients could walk to the business. These businesses may be clustered. Except where noted otherwise on Land Use Table 2 (LU2), buildings should not be taller than three (3) stories, unless by exception. Exceptions may be granted where a taller retail building is compatible with the surrounding uses and the character of the neighborhood.

*Examples* of primary and secondary neighborhood retail uses include:

- Local retail, such as florist, newsstand, or other similar uses
- Small restaurant or café, or similar businesses serving prepared food and beverages
- Small food sales businesses, such as bakery, deli, butcher, or other similar uses
- Convenience store or small grocery store
- Small pharmacy or drug store
- Personal retail service, such as hair salon, barber shop, dry cleaner/laundry, laundromat, tailor, seamstress, and similar uses

**Community & Regional Retail:** these retail businesses serve a wider market than a single neighborhood, so the majority of their customers will drive (or take transit) to them. Generally, these businesses are also larger than Neighborhood Retail ones. Groups of retail businesses may cluster with smaller neighborhood-scale retail businesses into a shopping center or along a retail street and form the nucleus of a Center. Except where noted otherwise on Land Use Table 2 (LU2), buildings should not be taller than three (3) stories, unless by exception. Exceptions may be granted where a taller building is compatible with the surrounding uses and the character of the neighborhood.

*Examples* of primary and secondary community and regional retail uses include:

- Grocery store
- Pharmacy or drug store
- Department store
- Clothing, book, antiques, gifts, jewelry, crafts, or other specialty retail business
- Hardware store
- Furniture, home appliance, and other household good sales and service
- Farmers’ market
- Restaurant, café, and other businesses serving prepared food and beverages
- Feed and seed stores

- Retail nurseries and greenhouses
- “Big box” or large format retail stores: home improvement/builders’ supply, office supply, department or general retail, and other retail uses that are 80,000 square feet or larger

**General Commercial Service:** these are service businesses open to the general public that rely on customers visiting the business, not primarily retail uses or office uses (with the exception of medical offices). Except where noted otherwise on Land Use Table 2 (LU2), buildings should not be taller than three (3) stories, unless by exception. Exceptions may be granted where a taller building is compatible with the surrounding uses and the character of the neighborhood.

*Examples* of primary and secondary general commercial service uses include:

- Entertainment, such as cinemas, theatres, video arcades, night clubs, or similar uses
- Hotel, motel, inn, or bed and breakfast
- Hospitals, including emergency care/walk-in medical facilities
- Indoor athletic facilities, such as ice skating rinks, laser-tag facilities
- Recreation establishments, such as bowling alleys and pool halls
- Health spas
- Real estate, insurance, attorney, and other professional offices
- Medical offices, including dental, medical, optical, and other similar uses with significant numbers of patients
- Financial institutions, such as banks, savings and loans, and credit unions.
- Day care, child care, nursery
- Reproduction and mailing services
- Funeral homes and crematories
- Veterinary office and hospital, kennel, animal shelter
- Auction houses
- Printing and publishing
- Contractor’s office and storage yards

**Auto Commercial Sales & Service:** these are the auto-oriented commercial uses that require a higher level of site control because of their tendency to create pedestrian-unfriendly environments. Except where noted otherwise on Land Use Table 2 (LU2), buildings should not be taller than two (2) stories, unless by exception. Exceptions may be granted where a taller building is compatible with the surrounding uses and the character of the neighborhood.

*Examples* of primary and secondary auto commercial service uses include:

- Automobile, truck, recreational vehicle, and boat dealerships, sales, service, and/or rentals
- Automobile service station, with or without repair services
- Auto body/repair shop (fully contained in a building with appropriate ventilation and other environmental controls)

**Office:** these are primarily employment uses that, except for the professional offices, involve a limited number of customer visits.

*Examples* of primary and secondary office uses include:

- Professional offices: medical, legal, architectural, engineering, accounting, and similar professional businesses
- Administrative and business offices, including software design and other high-tech related businesses that do not require laboratory or assembly facilities
- Call centers and data processing services

**Research & Development (R&D):** these uses are examples of the “new” industry, with relatively few impacts on surrounding properties, except for possible traffic impacts. Nearly all traffic will be employee vehicles, with some customers and some delivery vehicles. Businesses that require a significant number of deliveries by semi-trailer are considered light industrial uses. Buildings for R&D uses may also include “flex” space that can accommodate different types and sizes of businesses. These uses mix very well with support service uses, such as retail, restaurants, drycleaners, and similar businesses. Except where noted otherwise on Land Use Table 2 (LU2), buildings should not be taller than four (4) stories, unless by exception. Exceptions may be granted where a taller building is compatible with the surrounding uses and the character of the neighborhood.

*Examples* of primary and secondary research & development (R&D) uses include:

- Research laboratories (both wet and dry)
- Research & development
- Communication and information systems
- Offices
- Call centers
- Assembly and fabrication facilities (all indoors, with no external noise, odor, or other nuisance impacts)

**Flex:** a business that combines several uses, such as production of goods, storage, distribution, sales, and office/showroom. Generally, these uses do not create impacts greater than a similarly sized office use. Except where noted otherwise on Land Use Table 2 (LU2), buildings should not be taller than four (4) stories, unless by exception. Exceptions may be granted where a taller building is compatible with the surrounding uses and the character of the neighborhood.

*Examples* of primary and secondary flex uses include:

- Software development, testing, sales, and distribution
- Assembly of a product, storage, sales, and distribution
- Research, development, and testing of a prototype
- Customer service centers/call centers

**Light Manufacturing/Storage/Distribution:** these uses may have some traffic impacts, but little or no noise, fumes, or vibration impacts. In some instances, materials used may be hazardous, requiring the segregation of that use. Except where noted otherwise on Land Use

Table 2 (LU2), buildings should not be taller than four (4) stories, unless by exception. Exceptions may be granted where a taller building is compatible with the surrounding uses and the character of the neighborhood.

*Examples* of primary and secondary light manufacturing/storage/distribution uses include:

- Light manufacturing and assembly, such as jewelry, musical instruments; surgical, medical, and dental instruments and supplies
- Auto body shops (not fully contained in a building)
- Compounding of drugs
- Mini-storage warehouses
- Accessory storage and distribution facilities that may be enclosed or in rear yards
- Contractor's office and storage yards

**Heavy Manufacturing/Storage/Distribution:** these are heavy industrial uses that, because of traffic impacts (particularly from larger trucks and more frequent access), and possibly noise, fumes, and vibration, need to be segregated from other uses.

*Examples* of primary and secondary heavy manufacturing/storage/distribution uses include:

- Manufacture, processing, fabrication, assembly, distribution of products
- Engineering, engineering design, assembly, and fabrication of machinery and components that may involve: machining, babbiting, welding, and sheet metal work
- Concrete and brick manufacturing, and sand and gravel distribution facilities
- Dry cleaning plants
- Concrete mixing plant, storage, distribution
- Machine shops, tool and die, blacksmithing, boiler shops, and similar uses
- Manufacture of building components
- Sawmills, planing mills, wood preserving operations, woodyards
- Contractor's office and storage yards
- Towing and storage of motor vehicles
- Accessory storage and distribution facilities

**Warehousing/Distribution:** these are businesses that rely on semi-trailer trucks to deliver and pick up goods, as well as storage. As a result, these businesses need to be segregated from businesses that are not compatible with heavy truck traffic.

*Examples* of primary and secondary warehousing/distribution uses include:

- Moving businesses, including storage facilities (except mini-storage warehouses)
- Regional or bulk warehouse facilities
- Heavy or refrigerated distribution facilities
- Truck terminals
- Air cargo storage and distribution facilities

**Institutional:** these are public and private facilities, offices, and related facilities; and land reserves for future such facilities.

*Examples* of primary and secondary institutional uses include:

- Public Facilities, such as schools, libraries, parks, and community centers
- Private Facilities, such as, educational, technical, fine arts, and trade schools; places of worship; community centers; clubs, lodges, and civic and fraternal facilities
- Hospitals, nursing homes, assisted living facilities, and convalescent homes

**Open Space:** these are generally undeveloped areas for recreational, visual, and preservation purposes. They may be heavily landscaped. These are areas owned and managed by a public or private entity, including homeowners associations (HOAs).

*Examples* of primary and secondary open space uses include:

- Public, semi-private, or private parks or recreational fields
- Greenways and blueways
- Trails and paths

## **Description of the Future Land Use Map**

The Future Land Use Map (see the end of this chapter) defines the land use pattern and neighborhood structure for the Places29 area. In addition to the location of individual land uses, the Future Land Use Map recommends the distribution of Centers and the arrangement of uses in the areas around the Centers. Additional information about Centers and the areas around Centers is given in Chapter 5, Place Types.

The boundaries of the land use designations shown on the Future Land Use Map were chosen based on existing uses and projected needs. In Neighborhoods 1 and 2, where existing land uses dominate and future development will occur primarily as redevelopment, existing property lines were primarily used to delineate future land uses to the greatest extent possible. In some locations, physical features, such as floodplains, streams, roads, and watershed boundaries were used. In the four corners around the Rio Road/US 29 intersection, stronger consideration was given to the potential shape of the Center than to specific property lines. In these four quadrants, redevelopment is expected to involve land assembly.

North of the South Fork of the Rivanna, the boundaries in largely undeveloped or “greenfield” areas were determined by using criteria related to the desired Center size, the one-quarter to one-half mile walkable areas around Centers, and natural features such as stream valleys and ridges. The land use designations assigned to existing residential neighborhoods, such as Forest Lakes and Airport Acres, are the same as those in the 1996 Land Use Plan, and are more closely based on existing neighborhood/property boundaries.

For areas with adopted zoning map amendments and/or approved site plans, the overall boundaries of these plans were taken into account. Land uses shown within these areas on the Future Land Use Map allow for the development of previously approved projects, but may suggest modifications to the distribution of uses on the site and/or a more intensive set of uses.

## **Distribution of Mixed Use Centers**

The distribution of Centers on the Future Land Use Map follows Neighborhood Model principles and recommendations received from the public and stakeholders. This distribution is also consistent with two major recommendations in the US 29 North Corridor Transportation Study: first, to develop a road network that encourages local trips to occur on parallel and perpendicular routes rather than on US 29 and, second, to employ access management strategies that orient the access to properties along US 29 to those parallel and perpendicular roads. The extent and distribution of Centers is also supported by the market analysis performed as a part of Places29.

Neighborhood Service Centers are spaced along major roadways to provide increased pedestrian and bicycle access to the everyday goods and services offered in these Centers. This spacing also coincides with potential transit stop locations. From a market perspective, these locations have a visual and physical relationship to major roads that makes them accessible to additional customers from outside the immediate neighborhood. Neighborhood Service Center locations recognize the availability of vacant or underutilized sites and the desire to distribute these Centers throughout the area to maximize their accessibility. Some of these Centers will serve residents who live in the areas around them. Other Centers will serve employees whose workplaces are within walking distance. For example, the Centers will not only provide restaurants that cater to employees at lunchtime, but will also provide opportunities to shop for daily needs. This combination will help reduce the need for additional car trips.

There are two concentrations of Community and Destination Centers on the Future Land Use Map. First, the concentration of Community and Destination centers around the intersection of Rio Road and US 29 reflects the area's existing retail function and the potential for major redevelopment. The second concentration is in the large area that includes the Hollymead Town Center, the proposed North Pointe development, the proposed Uptown, and around the intersection of Airport Road and US 29. The Center designations for both areas are consistent with already approved plans. Designating these areas as mixed use centers will help integrate Centers with the surrounding residential and employment neighborhoods.

All of the Centers are designated Urban Mixed Use to allow development of a range of uses that will serve the surrounding neighborhood (Neighborhood Service Centers), the Places29 community (Community Centers), and the region beyond the Places29 area (Destination Centers and the Uptown).

## **Streets and Roads Shown on the Future Land Use Map**

The transportation network shown on the Future Land Use Map includes existing roads and new roads recommended in this Master Plan. It also shows recommended improvements to many existing roads. Where an existing road is shown as a dashed black line, the existing road will be improved, but not necessarily shifted from its existing alignment. The precise location of recommended new roads shown with dashed black lines is flexible and will be determined at the time the road is designed.

## **Key Subareas of the Future Land Use Plan**

There are several key subareas identified in this Master Plan that are particularly important to the community's vision for the Places29 area. Some of these subareas have existing master plans or concept plans that have been incorporated into this Master Plan. Other subareas will need further study and more detailed plans in order to implement the land use patterns described in this Plan. In addition, it will be necessary to make changes and adjustments to current policies and the



administration of development activities in order to achieve some of the Master Plan's goals in these subareas. These subareas are:

- The Rio Road/US 29 area
- The Meadow Creek Parkway
- The Albemarle Place development
- The Hollymead Town Center area
- The Airport Road Corridor and the Uptown area
- The Charlottesville-Albemarle Airport
- The University of Virginia Research Park
- The Rivanna Station Military Base (NGIC facility)

**Rio Road/US 29.** Over the life of this Plan, the area around the intersection of Rio Road and US 29 is expected to redevelop into a vibrant mixed-use area. The southwestern quadrant of the intersection will include a cluster of Community and Destination Centers and a larger Mixed Use Neighborhood.

The potential for the economic revitalization of this area is supported by a set of recommended transportation improvements, which include the grade separation of Rio Road and US 29, as well as a set of “Ring Roads” that will create at-grade connections between the four “quadrants” at signalized intersections east and west of US 29 and north and south of Rio Road. A pedestrian-bicycle bridge between the end of Berkmar Drive and the western edge of the Fashion Square Mall property will increase connectivity between the southeastern and southwestern portions of the intersection area (see a photo simulation of the recommended bridge in Figure 4.1 and a concept plan in Figure 4.2).



**Figure 4.1. A photosimulation of a bicycle/pedestrian bridge over US 29 at Berkmar Drive. The view is from Berkmar Drive looking east toward Fashion Square Mall.**

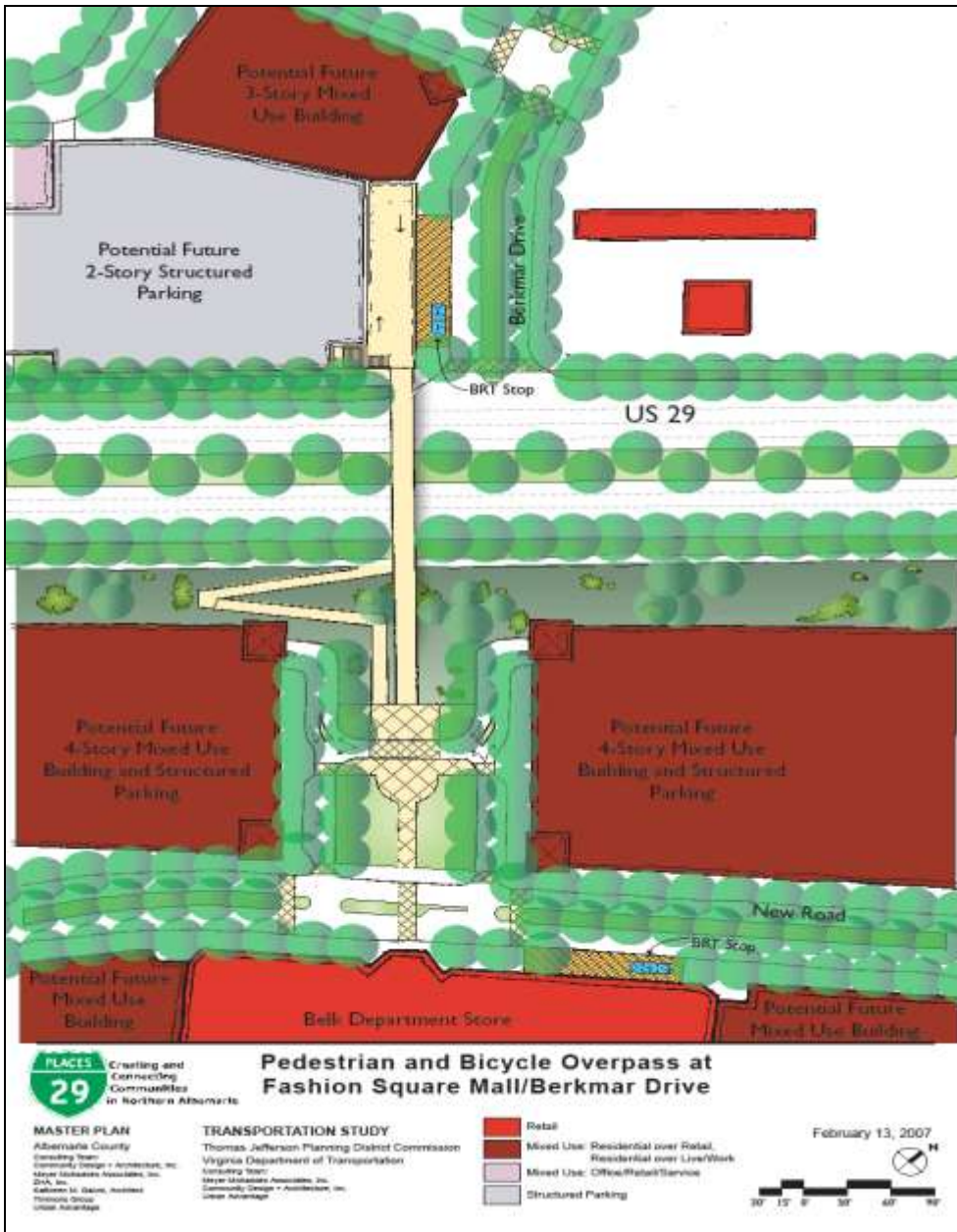


Figure 4.2. A concept plan of a pedestrian bridge over US 29 at Berkmar Drive.

The photo simulation in Figures 4.3 through 4.5 illustrates one possible transformation of the southwestern quadrant of this intersection along Berkmar Drive. This transformation might occur incrementally and be driven by individual decisions made by various property owners. The specific character of the new development will be guided by the design guidelines and by the Small Area Plan recommended for the area.

This area is also expected to be connected to Downtown Charlottesville and the University of Virginia with an enhanced bus or Bus Rapid Transit (BRT) service, once a certain level of redevelopment and land use intensification is reached.



**Figure 4.3. A photosimulation of a mixed-use neighborhood along Berkmar Drive near US 29—existing conditions.**



**Figure 4.4. A photosimulation showing a mixed-use neighborhood along Berkmar Drive near US 29—initial development. The recommended pedestrian bridge is visible just above the center.**



**Figure 4.5. A photosimulation of a mixed-use neighborhood along Berkmar Drive near US 29—development showing new streetscape, parking, bicycle lanes, and pedestrian amenities.**



**The Meadow Creek Parkway.** This road is the subject of the *Meadow Creek Parkway Final Report, May 2001*, prepared by the consultants, Jones & Jones. Funding for the intersection of the Parkway and the 250 Bypass and for the County's portion of the Parkway has been identified and construction of the County's portion of the Parkway is nearly complete. The Parkway will have a linear park area along each side. Land uses shown on the Future Land Use Map in the immediate vicinity of the Parkway are derived from the Jones & Jones study, which still provides guidance for development in the area immediately adjacent to the Parkway and Rio Road corridor. The study recommendations should be considered during review of land use decisions.

**Albemarle Place.** The rezoning for this development in the northwest corner of Hydraulic Road and US 29 has been approved. The project is mixed use and will include retail, a hotel, offices, and residences. The northern portion of the development (north of Sperry Marine) has been designed as a more conventional retail development. The land use pattern approved during the rezoning has been incorporated into the Future Land Use Map.

**The Hollymead Town Center area.** This area, south of Airport Road and west of US 29, has been the subject of five separate rezonings, all now approved. Some of the proposed buildings, streets, and infrastructure have been constructed and are occupied. Others are still at the site plan stage. When built out, the area will include retail, restaurants, offices, an assisted living facility, and residences.

**The Airport Road Corridor & the Uptown.** As the Hollymead/Piney Mountain area continues to grow, this area, along with the Airport, has the potential to become a major destination with a broad mix of commercial, residential, and employment uses. The Centers and residential areas in or near the Airport Road corridor will act as major transit hubs to support the future transit network proposed for the Places29 area. The Uptown would be a vibrant new urban center similar to a traditional downtown and intended to serve the needs of many people in a relatively small area. People can walk throughout the area, patronizing various businesses and amenities. The Uptown will take advantage of regional attractions, such as the Airport, the University of Virginia Research Park, and the new regional retail activities in the Destination Centers at North Pointe and Hollymead Town Center. This area may include a hotel and other uses that support living, working, and entertainment in the Uptown area. The ability to walk to urban services and entertainment from the campus-like setting of the Research Park should make it an even more attractive location for knowledge-based businesses.

The Uptown is a long-term concept—it may take many years for the market to support such a concept in this area. The properties in the area now designated Uptown are currently zoned for industrial uses and it is recognized that these properties can, and may, develop as permitted under the existing zoning designations. The size, location, and orientation of the buildings and infrastructure should be constructed to allow for the ultimate evolution of the area to a more mixed use form. Any portion of the future Uptown owned by the University Foundation is intended to serve as an employment area, which may include supporting commercial uses, to be consistent with the opportunities and constraints of the Foundation's mission.

A more detailed assessment of the Uptown concept is recommended as part of the Small Area Plan process in order to define the purpose, location, and use/design expectations more completely, as well as its market feasibility and timing.

**The Charlottesville-Albemarle Airport** will develop according to its own master plan. The plan should be used as a guide in the review of land use/development decisions related to airport development and expansion. However, integrating the airport into the Places29 area is critical,

both with regard to the quality of the transportation infrastructure and the synergy with surrounding land uses—particularly the Uptown.

Airport operations have impacts that require the Airport to be physically buffered from the surrounding areas. For this reason, the Airport has been designated as a single-use district on the Future Land Use Map, which is not required to follow the Neighborhood Model principles. However, it is no less important that the Airport be well-connected to and integrated into the transportation network, the City of Charlottesville, and the larger region. The Airport’s continued growth will play an important role in the development of the Uptown, Hollymead, and the County.

Over the longer term, the combination of the Uptown, the Airport, the Research Park, and other activities in the area is expected to support the provision of transit service between this northern node of activity and the southern parts of the County and the City of Charlottesville. This service will be available once the necessary ridership levels in the larger Hollymead area have been reached.

**The University of Virginia Research Park** will continue to develop as a major employment center. This Plan offers the University of Virginia Research Park the opportunity to include a more integrated amount of residential and commercial uses.

The land uses in the Research Park that are shown on the Future Land Use Map are consistent with the University of Virginia Foundation’s long-term, conceptual site plan. Future development within the Research Park may continue to develop in a campus-style form and with building footprints that are consistent with the existing zoning.

**The Rivanna Station Military Base** will be home to some of the Defense Intelligence Agency’s (DIA) operations and will be co-located with the National Ground Intelligence Center (NGIC). Over the next few years, several hundred employees are expected to join those now working at NGIC. With the addition of contractors expected to locate in the area to support NGIC and DIA projects, the base will become a major employment center. Those at the base will conduct intelligence, security, and information operations for military commanders and national decisionmakers. (*Environmental Assessment: Expansion of Rivanna Station, Charlottesville, Virginia*, December 2007)

### **Areas Recommended for Small Area Plans**

Small Area Plans are a planning tool used to guide land use, zoning, transportation improvements, open space, and other capital improvements at a higher level of detail than is possible in a master plan. Due to this greater level of detail, a Small Area Plan can identify and address specific local conditions and opportunities for commercial revitalization and mixed-use development. Small Area Plans are a recommended implementation tool for subareas where significant redevelopment activity and transportation improvements are recommended in the Master Plan. The Small Area Plan will allow land uses and the design of road improvements to be coordinated and for the business owners and residents of the planning area to participate in the planning process. The Future Land Use Map recommends preparing Small Area Plans for two areas:

#### **1. The Rio Road and US 29 Intersection Study Area**

The four quadrants around the intersection of Rio Road and US 29 are expected to experience a great amount of redevelopment. In particular, the southwestern quadrant

with its multitude of properties would be well-served by the level of planning and coordination that a Small Area Plan can provide. In addition to encouraging and supporting redevelopment, the recommended road improvements for the intersection of Rio Road and US 29 can be designed during the same small area planning process. More information about the coordination of a small area plan prepared by the County with VDOT's design for the grade-separation is given in Appendix 2, Implementation Project Descriptions in the description of Project Nos. 15 and 42, the intersection improvements at US 29 and Rio Road.

## **2. The Airport Road Corridor and Uptown Study Area**

The Airport Road Corridor and the Uptown include properties that will be redeveloped, as well as properties where substantial new development is expected. Some portions of the area show a pattern of small property ownership, similar to the pattern in the US 29/Rio Road area, while other large areas are under single ownership. Coordination of land uses and the ultimate improvements for the intersections of US 29/Timberwood Blvd. and Airport Road/US 29, along with the complementary jug handle and connecting roads, will be the major goal of this Small Area Plan. Easy access from US 29 to the Airport and the University of Virginia Research Park is essential.

### **Land Use Tables**

This section of the Master Plan describes the two tables that provide information about land uses and development standards required for specific land uses. The tables are intended to encourage mixed-use development and an urban form that supports the development character, transportation network, and environmental goals outlined in the Vision and Guiding Principles. The Land Use Tables LU1 and LU2 (at the end of the chapter) address the following key areas:

- Mix of uses within Land Use designations
- Building size, heights, and footprint recommendations
- Retail and commercial size and specific use recommendations
- Recommended limitations of some key uses

The following discussion of the intent of these development guidelines provides a framework for evaluating uses according to the recommendations made in Tables LU1 and LU2.

#### **Mix of Uses within Land Use Designations**

The Master Plan defines a range of land use types, intensities, and sizes for each land use designation. These recommendations attempt to ensure that uses within each designation complement each other and achieve the purpose of the designation. For example, lower intensity employment uses and auto commercial service uses are not allowed in the urban mixed use portions of the Uptown, because these uses do not support the more active and urban character that is desired for the Uptown. At the same time, these uses are allowed relatively close to the Uptown in nearby Centers and Light Industrial and Office/R&D/Flex/Light Industrial designated areas.

#### **Building Size and Footprint Recommendations**

The land use tables define a maximum building footprint for primary and secondary uses in certain land use designations. These limitations support the desired circulation network and block size in the Places29 area. Single buildings should not be so large that they become a barrier to



pedestrian circulation, particularly within Centers. The building size recommendations are generally smallest in the Neighborhood Service Centers, which complements the character of the residential neighborhoods that surround most of these centers. The tables allow larger building sizes in Community and Destination Centers. In the Uptown, the most intensive part of the Places29 area, the desired building footprint sizes are somewhat smaller to encourage the smaller block sizes that support pedestrian circulation—a very high priority in the Uptown.

### **Retail Commercial Size and Specific Use Recommendations**

One reason to limit the size of retail/commercial building footprints is to support the development of a more pedestrian-friendly circulation network. There are additional reasons for defining a desirable maximum size for retail/commercial buildings or uses in some land use designations. These are related to the desired function and urban design quality of particular places within the Places29 area. For example, under community and regional retail land uses, grocery stores of up to 15,000 sq. ft. are allowed in Neighborhood Service Centers. This recommendation will encourage grocery stores of the usual size (50,000-60,000 sq. ft.) to locate in Community or Destination Centers, but allow smaller scale stores that are compatible with a Neighborhood Service Center to locate there. A small grocery store would not dominate the Center or result in undesirable levels of traffic.

Similarly, the size of single-building footprints in Community and Destination Centers is also restricted. Larger buildings may be permitted by exception if they support the desired urban form of these centers. A smaller building footprint also encourages the construction of multi-level retail buildings for larger retailers.

There are other uses that require special guidance. For example, auto commercial sales and service businesses are required to serve the needs of Albemarle County residents and workers. The US 29 corridor has areas where these uses are provided for today, and, given the high level of regional access to the Places29 area, this is a logical location for auto sales and service activities. However, these uses often conflict with the desired pedestrian environment, and they can be disruptive to the neighborhood character, because they take up so much space. For these reasons, the land use tables limit the maximum size of single auto commercial service uses in the Centers, in addition to limitations on activities that could be a nuisance to adjacent uses.

### **Limitations Regarding Some Key Uses**

There are some uses listed in Tables LU1 and LU2 that have criteria related to business practices and site configuration. These are due to potential conflicts with surrounding uses and the potential for negative impacts on the pedestrian and urban character of Centers and Neighborhoods. An example is the recommendation that, in Centers, all auto commercial sales and service businesses be located within a building (except for employee/customer parking and gas pumps).

**Protection from Nuisance Effects:** Some designations include a criterion intended to ensure that noise, odor, vibrations, and other potential nuisances will not adversely affect the primary or surrounding uses. Examples of this include auto commercial uses and light manufacturing/storage/distribution uses. Typical operating requirements would require that potential nuisance activities occur within buildings and that hours of operation be restricted.

**Protection from Potential Visual Effects:** Some uses rely on storage yards or parking lots that are used for storage of vehicles (e.g., auto sales and service uses). In some designations where the urban character is pedestrian-oriented and creates value for adjacent development, these uses are confined or not allowed.

## Parks & Green Systems

### Open Space Defined

The County’s Comprehensive Plan recognizes the important role of public open spaces in urban development and their pivotal role in establishing the kind of urban environment envisioned for the Development Areas. For Places29, parks and green systems are synonymous with the term “open space.” The term open space has multiple applications. Open spaces may be environmentally sensitive areas which need to be protected, such as floodplain, steep slopes, wetlands, and streams. Created open spaces that are part of Neighborhoods, such as parks, squares, pocket parks, and tot lots, provide an important contrast between built and natural forms within the Places29 area. These open spaces also provide opportunities for social and recreational activities in close proximity to residential, commercial, and employment uses. In addition, if these open spaces are designed to provide a sense of arrival and place, open spaces can become community focal points with a strong civic character. As civic areas, open space may be:

- Landscaped parks, sometimes called village greens or village commons
- Active recreational areas, such as tot lots or playing fields
- Paved plazas with seating areas
- Large parks with a combination of these features
- Grassy lawns or play areas that adjoin institutional uses such as schools or libraries

Most importantly, a civic area is a feature of a Center or Neighborhood that is accessible to the public and/or nearby residents, visitors, or clients (See Figures 4.6 and 4.7).



**Figure 4.6.** An example of a smaller urban open space.



**Figure 4.7. An example of a larger urban open space, showing the relationship of buildings fronting on the green.**

As protected areas, open space may be:

- Lakes, streams, or stands of trees
- Natural features, which are not mowed or accessible
- Passive recreational areas, such as greenway trails and overlooks
- Paved trailheads
- Paved access points for river activities

Protected areas are not usually a central feature of a neighborhood, although they can be. Public accessibility is not required, unless the area contains greenway trails or public river access points. Although most of the County's protected open space is outside of the Development Areas, inside the Development Areas the purpose of this open space is to provide livability through protection of the network of streams and other natural features. These protected open spaces often have the dual benefits of connecting habitats for plants and wildlife and of supporting nonmotorized travel through greenway trail connections. Open space can also be an effective transition between two different land uses. Finally, open space is an amenity that County residents and property owners need and want.

Open space terms used in this section of the Plan (and in the General Design Guidelines for Development Areas section of the Comprehensive Plan) include:

- Parks
- Plazas
- Urban parks
- Open spaces in neighborhoods
- Open spaces of human scale
- Urban open spaces
- Public open spaces
- Squares

- Publicly accessible urban open space
- Plazas
- Pocket parks
- Tot lots
- Built and natural forms

Although the meanings of these terms are fairly well known, each of the terms is defined and described in the Comprehensive Plan, General Design Guidelines for Development Areas.

Albemarle County’s natural features and scenic areas are at the heart of the County’s character and livability—and have attracted many residents to the County. These open spaces also serve as a counterpoint to the urban character of the Development Areas. Because some of the new neighborhoods in the Northern Development Areas will be among the County’s most urban places, it is important to maintain a sense of connectedness to these natural features and open spaces. It is equally important to provide public parks that meet the recreational needs of current and future residents. These parks and other elements of the County’s green systems are described in this section and illustrated on the Parks & Green Systems Map. Additional information about types of spaces in the Development Areas is located in the Neighborhood Model part of the Comprehensive Plan and the General Design Guidelines for Development Areas (also in the Comprehensive Plan).

## **The Parks & Green Systems Map**

The Parks & Green Systems Map (located at the end of the chapter) illustrates the recommended system of public and private open spaces that will serve the active and passive recreation needs of residents, workers, and visitors in the Places29 Area. The map shows a network of linear open spaces that connect the various elements of the green systems in the Northern Development Areas. Such networks provide ecological benefits to flora and fauna, can be integrated into stormwater management solutions, and may be used to create non-roadway connections for pedestrians and bicyclists.

The map also shows the recommended network of existing and proposed trails, multi-use paths, and bicycling facilities that will provide convenient non-vehicular connections between different parts of the Development Areas, the recommended open space amenities located throughout the area, and the major recreational facilities located in the Rural Areas, such as the North and South Forks of the Rivanna River, Ivy Creek Natural Area, and Chris Greene Lake Park.

The map shows several types of environmental features that will require special consideration when planning a new development or redeveloping an existing area. These features include floodplains, stream valleys, steep slopes, wetlands, and other features. Property owners and developers must consult both the Future Land Use Map and the Parks & Green Systems Map to understand fully the development potential of and constraints on a property.

Finally, the Parks & Green Systems Map illustrates key community facilities, such as existing and planned schools, fire stations, and libraries. Showing these facilities with the network of bicycle and trail connections illustrates potential routes to schools and libraries.

Additional information about using these maps and the land use tables is given in the last section of this chapter, “How to Use the Maps and Tables in this Chapter.”

### **Civic Areas: Public Open Space**

Many of the existing public parks in the Places29 area are associated with public schools. Parks associated with schools will continue to provide public playing fields and other facilities for active recreational use. Due to the type of facilities provided, these parks have the potential to attract users from beyond the neighborhoods that immediately surround them. The bicycle paths and trails network shown on the Parks & Green Systems Map provides the necessary connections.

This Master Plan includes specific requirements for public open spaces in future developments. New public open spaces are to be included in every Neighborhood Service Center, Community Center, Destination Center, and the Uptown. Guidance on open space that should be included in civic areas in Centers is provided in Land Use Table (LU1) located at the end of this chapter.

New Centers that are currently undeveloped should provide civic areas approximately in the middle of the development. The illustrations in Chapter 5, Figures 5.1, 5.2, 5.7, 5.9, 5.13., 5.15, and 5.18, show the desired relationship between the public open space and the rest of the Center. At least 10 percent of the total area of new Centers should be devoted to civic areas/public open space, with emphasis on the civic area's role in creating the sense of place. For this reason, a large part of the recommended 10 percent open space should be contained in a single area.

Provision of parks and public open space will be more challenging when Centers are created during redevelopment. Parcel-by-parcel development may not afford opportunities for large civic areas. In this event, at least 10 percent of the area to be redeveloped should be devoted to civic areas. Where a large public amenity, such as a County park, is already within walking distance of the Center, and pedestrian access is or will be provided to the amenity, the required open space may be reduced or even eliminated. However, the amenity must correspond to needs generated by the development. For example, if a property is to be developed as a retail use without any residential uses, a plaza may be more suitable to the development than a public park one-half mile away.

### **Future Civic Spaces (Generalized Locations)**

In addition to the open spaces listed above, the Parks & Green Systems Map gives approximate locations, illustrated with green star shapes, for additional open spaces that are outside of Centers and the areas around Centers. These open spaces are intended to be focal points for development that is further than one-half mile from a Center and beyond the areas around the Centers. The final location of these future civic spaces will be determined either during the planning stages of larger rezonings or during preparation of the Small Area Plans. The approximate location of the open spaces will be determined by analyzing the extent of walkable areas around all the Centers and the Uptown. Whenever new development falls outside the walkable areas, this Master Plan recommends locating an open space to provide a focal point for the new Neighborhood.

### **Privately Owned Open Space and Other Open Space Network Elements**

This designation on the Parks & Green Systems Map combines significant clusters and contiguous areas of steep slopes, the 100-year floodplain, and stream buffers with larger areas of privately owned open space in existing developments. Together, these features combine to create a significant and comprehensive open space network, which may also include space for proposed multi-use paths and trails. Where this designation extends onto private property, it indicates that steep slopes are present and disturbance should be avoided. These slopes should be considered when the property is redeveloped.



**Forested Buffers along US 29.** Forested landscaped buffers, between 30 and 50 feet deep, are recommended along both sides of US 29 north of the South Fork of the Rivanna River to Ashwood Blvd., where they will create a separation between the road and new development. The depth of the buffer will depend on the topographic conditions along the sides of US 29. The character of the buffer is intended to resemble the conditions along the side of the road today. Existing views of rural fields will be preserved and forested areas maintained or replaced as needed to recreate the forested, rural appearance adjacent to the road at the time this Plan is adopted. Maintaining this character will preserve the visual break that exists today between Neighborhoods 1 and 2 and the Development Areas north of the South Fork of the Rivanna River. More information about the nature of this buffer is given in the US 29 Entrance Corridor section of Chapter 7, Design Guidelines for the Places29 Area.

### **Greenways and Blueways**

The County's Greenways Plan contains a number of existing and proposed Greenways in the Places29 area. Additional Greenways are proposed in this Master Plan in the form of multi-use paths and trails shown on the Parks & Green Systems Map. The network of Greenways and Blueways will provide extensive access to County parks, the Rural Areas, and other open spaces, as well as the two Forks of the Rivanna, with their boating and other recreational opportunities.

The Parks & Green Systems Map also shows access points to the Greenway System. Additional locations for access points should be determined during the next update of the Greenways Plan and/or during review of proposals for new development.

The County's Greenways Plan defines the following three types of access points:

1. Major Public Access Points: are located at established activity centers, such as public parks. These access points provide a full range of facilities and services, including restrooms and public parking.
2. Minor Public Access Points: are located at schools, offices, or major commercial areas. Typically, amenities other than public parking are not provided at Minor Public Access Points.
3. Neighborhood Access Points: These are located in or near residential or mixed use development. The developer or neighborhood association will determine the level of amenities and parking provided. Neighborhood Access Points may be located on public or private land.

## **Future Transportation Network**

At one level, the transportation needs in the Places29 area can be defined solely as a supply issue—not having enough capacity on major roadways like US 29, Hydraulic Road, and Rio Road. A supply-side approach toward fixing this problem, while straightforward and easily understood, ignores the complexity of the demand for transportation in the Places29 area and the potential for changing the demand pattern by modifying the pattern of development.

The Places29 area consists of places that people not only want to go *through*, but want to go *to*. Two elements of urban form exacerbate this supply/demand interaction. One is the length of the Places29 corridor and the other is the dispersed pattern of commercial land uses throughout the



Places29 area. The US 29 North Corridor is over 10 miles long, so trips to and from land uses in the southern portion of the Places29 area look like “through” trips in the northern portion. Similarly, trips to and from land uses in the northern portion of the Places29 area look like “through” trips in the southern portion.

The dispersed, low-density, single-use form of development that has occurred in the past along the US 29 Corridor increases travel times and the number of trips for travelers, residents, and employees in the corridor. It also limits the potential effectiveness of transit service. Both of these conditions exacerbate the “demand” portion of the transportation problem by reducing the effectiveness of alternate modes of travel and increasing reliance on travel by autos.

The supply and demand issues are also complicated because US 29 is the only continuous north-south roadway in the Places29 area; nearly all traffic in the Northern Development Areas winds up on US 29, regardless of the length or destination of the trip. Additionally, US 29 serves a relatively small number of trips that are passing through Albemarle County, and, even though their proportion is small, they are important trips from a regional and statewide perspective.

Both supply and demand issues must be addressed by the transportation network for the Places29 area. This future transportation network has to consider a more robust network of roadways that will support multimodal travel together with an urban form that encourages transit, walking, and bicycling. So, while people in the Places29 area will continue to drive, the transportation network needs to expand the choices for movement within and through the area, while the pattern of development takes advantage of and facilitates those expanded choices.

The process used to develop the recommended transportation network for Places29 reflects:

- The urban structure (land use patterns and built form) of the corridor
- The potential for the corridor to accommodate future growth
- How the current traffic operations on US 29 influence travel patterns
- Potential roadway improvements on US 29 and parallel to it
- Potential future roadway connections in and to the Places29 area

The Future Transportation Network, as illustrated in Figure 4.8, includes the following layers:

- Improvements to US 29, which include improvements on parallel and connecting roads that are necessary to support the changes on US 29 (primarily in the areas where major intersection improvements, including possible grade separations, are recommended)
- Improvements to a core network of parallel roads (primarily Hillsdale and Berkmar Drives, and Meadow Creek Parkway) that are needed independent of private development projects
- Roadways necessary to support private development that should be integrated into the corridor network to provide for continuity of movement (Shown in green)
- Roadways projected to be needed beyond the 2025 planning horizon (Shown in blue)

The potential for transit, bike, and walk trips in the corridor was estimated using a series of factors that were applied within the travel forecasting model. The model estimates that about 7,000 trips could occur on transit and that about 9,000 trips could be sufficiently short that they could be accomplished with non-auto modes. In the aggregate, this level of transit use would represent about 2 percent of the overall travel demand and the non-auto potential would be a

similar amount. The combined amounts would reduce the auto trip making by about 5 percent, which could defer the timing of some of the improvements proposed for the corridor, but would not ultimately preclude the need for the proposed improvements.

The Places29 transit evaluation is based on a forecasting methodology that focused more on the three D's (design, density, and diversity of uses in the urban form) than on ridership forecasting techniques; it is important to note that the "transit" numbers are not a ridership forecast—they are an indication of the potential for transit use related to development patterns. The factors used in the transportation model to estimate the number of transit and bicycle/pedestrian trips were very conservative so that the results of the modeling would be valid for the roadway network in the event that transit was not extended beyond the current CTS service and that little additional provision was made for cyclists and pedestrians. It is very likely that transit ridership would be significantly higher once the area builds out in a transit-supportive urban form, and a useful, attractive transit system is put in place. Similarly, as more walkable areas develop and are connected with paths and trails, it is likely that more people will walk and bicycle to transit and/or to their final destinations.

So, in addition to the roadways shown in the Transportation Network, the network includes the following provisions for multimodal travel:

- Three types of transit service: first, an express bus or Bus Rapid Transit (BRT) service on US 29 that initially connects to the Rio Road/US 29 intersection area and later extends to the Uptown near Airport Road, with route extensions that serve the airport and the employment concentrations near Boulders Road. The BRT service would be supplemented with a second type of transit, a circulator service that connects to centers on the parallel road system. The circulator service would integrate with the third type of transit service, the local CTS bus routes in the southern portion of the Places29 area.
- Sidewalks and paths for pedestrians: a network of conventional sidewalks and shared paths that are integrated into the roadway network. Provisions for crossing US 29 are included as signalized crosswalks and within the recommended grade separations at key intersections.
- Bicycle lanes, paths, and trails: onstreet bicycle lanes are linked with a system of green corridors that is integrated with the recommended land uses, a network of multi-use paths and trails to provide for a connected system of bicycle routes.

## Roadway Elements

**Neighborhoods 1 and 2.** The transportation network for the portion of Places29 between the 250 Bypass and the South Fork of the Rivanna River recommends that efforts be made to preserve at-grade intersections at Hydraulic Road, Rio Road, and Hilton Heights Road. Ultimately, when the amount of traffic exceeds what can be accommodated within an at-grade intersection, grade separations are expected to be necessary to handle the number of vehicles passing through these intersections. Circulation in the Rio Road area would be accomplished with access roads or ring roads that would intersect with US 29 at the existing signalized intersections at Albemarle Square and Shoppers World. Parallel roadways in this area are Berkmar Drive and Hillsdale Drive, portions of which currently exist. These roadways would be extended to provide a more complete road network parallel to US 29. A Small Area Planning process will be used to develop the ultimate land use and transportation recommendations for this area.

**Hollymead and Piney Mountain.** From the South Fork of the Rivanna River to Hollymead Town Center, the transportation network recommends, ultimately, a grade separation at Ashwood Boulevard that would be accessed via jug-handle roads. US 29 from the South Fork of the Rivanna to Towncenter Drive would be widened to three lanes in each direction, but would preserve the rural cross section (from the South Fork to Ashwood Blvd.). A parallel road would be added on the west side of US 29 as an extension of Berkmar Drive with a bridge across the South Fork of the Rivanna River to connect to the existing segment of Berkmar Drive. Streets connecting US 29 to Earlysville Road will also be constructed.

From Hollymead Town Center to Lewis and Clark Drive, two existing signalized intersections on US 29—Airport Road and Timberwood Blvd.—will be preserved as at-grade intersections as long as possible. Ultimately, grade separations are also expected to be necessary, although this may not happen until after the 20-year Plan timeframe. The small area planning process will be used to develop the ultimate land use and transportation recommendations. A signal would be added on US 29 at the intersection with Airport Acres North. North Pointe Boulevard would provide a new parallel road on the east side of US 29. The roadway network in the Uptown would be expanded to increase connectivity on the west side of US 29. A signal would be added on US 29 at the intersection of Northside Drive. The six-lane cross section on US 29 would be extended through Lewis and Clark Drive, but would transition back to the existing four-lane cross section at the North Fork of the Rivanna river crossing.

North of Lewis and Clark Drive, signals are recommended at the intersections of US 29 with Austin Drive and Dickerson Road. The cross section of US 29 would remain a four-lane rural divided, except near the signalized intersections where turn lanes would be necessary.

## Transit Elements

The goal of the transit improvements recommended for the Places29 area is to provide an alternative form of transportation for those who prefer transit, as well as those who cannot or choose not to drive. The transportation modeling conducted as part of the US 29 North Corridor Transportation Study showed that, at a minimum, two percent of the total daily trips would be by transit. This is a relatively small number when compared to the levels of transit use found in other parts of the country that have extensive transit networks with attractive service and amenities for riders.

The current transit system in the Charlottesville metropolitan area is a “hub and spoke” system, where most of the looped and overlapping routes serve the City itself. One primary spoke serves the southern portion of the US 29 North corridor, requiring that all potential transit riders use that single route. Such a linear system is much less efficient than one that offers multiple routes, permits riders to walk to the bus stop, and provides amenities, such as benches and signs with route/time information. The current service in the Places29 area is based on a more suburban form of development, rather than the more compact urban form that is proposed in this Plan. So, the current service does not serve as a good basis for projecting the ridership of a new system; any model built on current, observed data would not be an appropriate representation of what could be achieved by a high quality transit system. The transit system recommended for the Places29 area, when combined with the City’s network, is intended to be attractive to a larger percentage of potential users. The recommended service plan outlined in the *Regional Transit Authority Final Report* would increase the attractiveness of transit by significantly improving the reliability of service, reducing travel time, and improving transfers to other routes.

An example of the type of transit system recommended for the Places29 area is shown in Figure 4.9. Two types of service are included in the recommended network. One service type would be express bus service or bus rapid transit (BRT) that would operate on US 29 and would provide a rapid connection from Charlottesville and UVA to Airport Road, the proposed Uptown, and the concentrations of employment at the UVA Research Park, the Rivanna Station Military Base, and the GE facility. Widely spaced stops would be provided at Hydraulic Road, Greenbrier Road, and on either side of Rio Road. This rapid service would be supplemented with local circulator routes that would operate either as bus or streetcar. Transit service will need to be frequent and consistent. Stops will need to be developed with facilities adequate to encourage and support frequent use. Shelters, benches, and route information should be provided at each stop. Service routes and stops need to be well-connected to the community with sidewalks, bicycle facilities, and park and ride lots where appropriate.

## **Bicycle and Pedestrian Elements**

A strong pedestrian- and bicycle-oriented infrastructure that connects Neighborhoods and Centers is a critical component of a healthy and livable community. Providing multi-use paths, trails, and bikeways encourages Places29 area residents to complete more of their trips without getting into their cars, which will provide health benefits, reduce the vehicular miles traveled (VMT), and result in a cleaner environment for the community. The bicycle and trails network illustrated on the Parks & Green Systems Map builds upon the existing and proposed trails in the County's Greenways Plan, as well as existing on and offstreet bicycle lanes, multi-use paths, and trails.

**Bicycle Lanes.** The existing and proposed onstreet bike lanes are closely integrated with the greater network of bicycle facilities formed by a combination of low-speed streets, multi-use paths, and trails. Within this overall network, bicycle lanes provide onstreet facilities for bicyclists throughout a number of the neighborhoods along US 29. The proposed bicycle lanes shown on the Parks & Green Systems Map will enhance the limited network of existing bicycle lanes and accommodate anticipated future increases in bicycle traffic as redevelopment and new development take place in the area.

**Multi-Use Paths.** Multi-use paths are an essential component of the Places29 bicycle and pedestrian network. Multi-use paths are included in the Places29 network primarily along major thoroughfares (e.g., US 29 and portions of Berkmar Drive Extended) where the safe accommodation of pedestrians and bicyclists requires a greater separation from moving traffic and/or where development along the street is dominated by deeper landscaped setbacks and a lower intensity of development. Multi-use paths are also included along major greenways and natural areas. Because of the destinations they serve and the natural character of landscapes they traverse, multi-use paths will be used by bicycle commuters, recreational bikers, and pedestrians. While they typically follow road alignments, in some cases they diverge and provide improved access along natural features.

**Trails.** The network of trails shown on the Parks & Green Systems Map provides access to natural areas and features, as well as recreational amenities throughout the Places29 area. Routed along streams and through preserved areas, they provide residents with opportunities for passive recreation and for escape from the faster pace of urban life. The trails also function as scenic route segments along pedestrian and bicycle trips to shopping and employment destinations.

**Grade-Separated and At-Grade Crossings of US 29.** The ability to cross US 29 safely is essential to the success of the bicycle and trails network. The Parks & Green Systems Map identifies locations where adjacent grades support the construction of grade-separated bicycle-

pedestrian bridges or undercrossings and where at-grade crossings could be located. Bicycle and pedestrian facilities will also be an integral part of all multimodal overpasses across US 29. At the two river crossings, opportunities exist to route multi-use paths or trails underneath US 29. Where pedestrians and bicyclists cross US 29 at at-grade crossings, additional pedestrian refuges will be incorporated into the standard US 29 cross section.

### Cross Sections for Key Network Roads

To support the creation of a multimodal transportation network, this section of the Plan provides guidance on how to integrate all the transportation modes—walking, bicycling, transit, autos, and freight—into the design of the roadway. This guidance is in the form of typical cross sections that illustrate the relationships among modes and the overall lane requirements for key network roads. The cross sections illustrate recommended dimensions for traffic, parking, bike lanes, sidewalks, and paths. Landscape strips, setbacks, and frontage types are also shown on the diagrams. It is important to note that the dimensions shown on each of the cross section diagrams are intended to reflect average conditions and may vary depending upon the right-of-way available for a specific roadway or segment of a roadway. Turn lanes and parking bays are shown on the diagrams to illustrate how these roadway elements fit into the cross section. Not all locations will have the same elements as shown on the sample cross sections.

The responsibility for ongoing maintenance of these roadways is also a consideration. Typically, the Virginia Dept. of Transportation (VDOT) maintains roadways in the County, including most sidewalks. The County has accepted maintenance responsibility for the trees in landscaped strips and medians.

The cross sections recommended in this Master Plan are grouped according to the type of road: US 29, boulevards and other four-lane roads, and avenues and other two-lane roads. The four cross sections for US 29 are repeated and additional cross sections for two-lane and four-lane roadways are provided in Appendix 4. The caption for each cross section contains either a letter in a box or a number in parentheses. These show, on the map at the end of Appendix 4, the roadway segments to which each cross section applies.

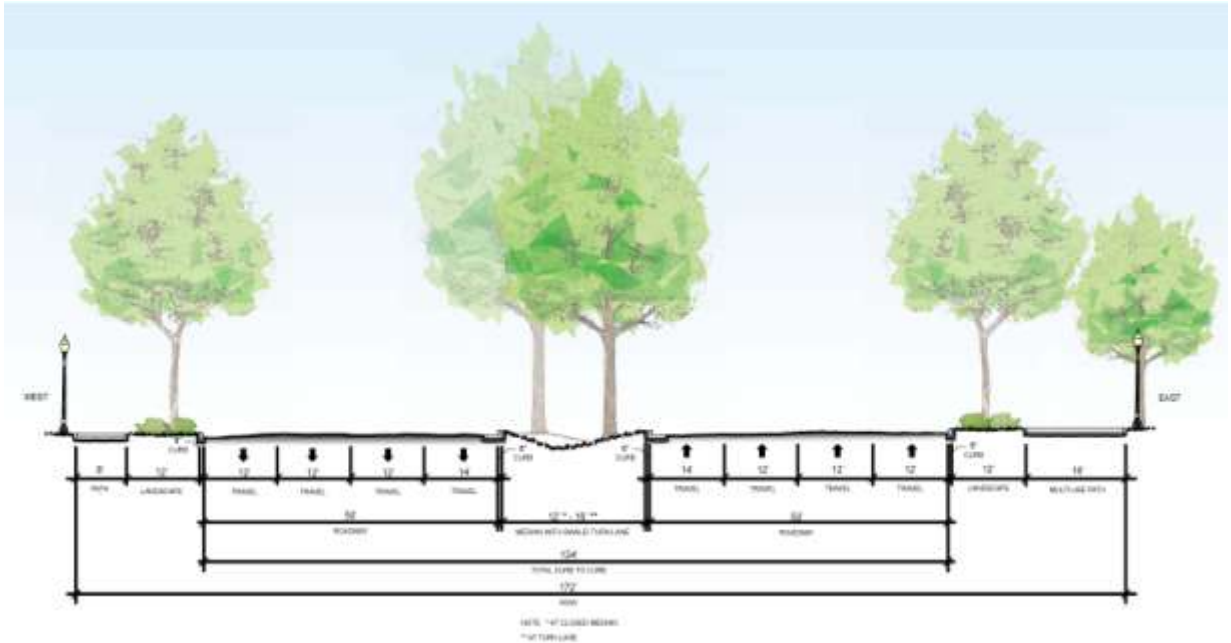
**US 29.** For US 29, there are three general cross sections: four-lane, six-lane, and eight-lane. US 29 will continue to be a multi-lane principal arterial with a modified boulevard design that alternates between urban and rural cross sections as it travels through the Places29 area. Table 4.1 lists the cross sections that occur along US 29. Each cross section is illustrated after the table.

**Table 4.1. Overview of US 29 Cross Sections**

Segment	Basic Cross Section
Hydraulic Road to Polo Grounds Road	Eight through lanes with median, no onstreet parking or bike lanes, urban drainage; sidewalk on one side of the roadway, multi-use (pedestrian and bicycle) path on the other. (See Figure 4.10)
Polo Grounds Road to Hollymead Town Center and Airport Drive to the North Fork of the Rivanna River	Six lanes with wide median, no onstreet parking or bike lanes, rural drainage; pedestrians and bicycles on paths adjacent to the roadway. (See Figure 4.11)
Hollymead Town Center to Airport Road	Six lanes with median and right turn lanes, no onstreet parking or bike lanes, urban drainage; sidewalk/path on one side of the roadway, multi-use path on the other. (See Figure 4.12)

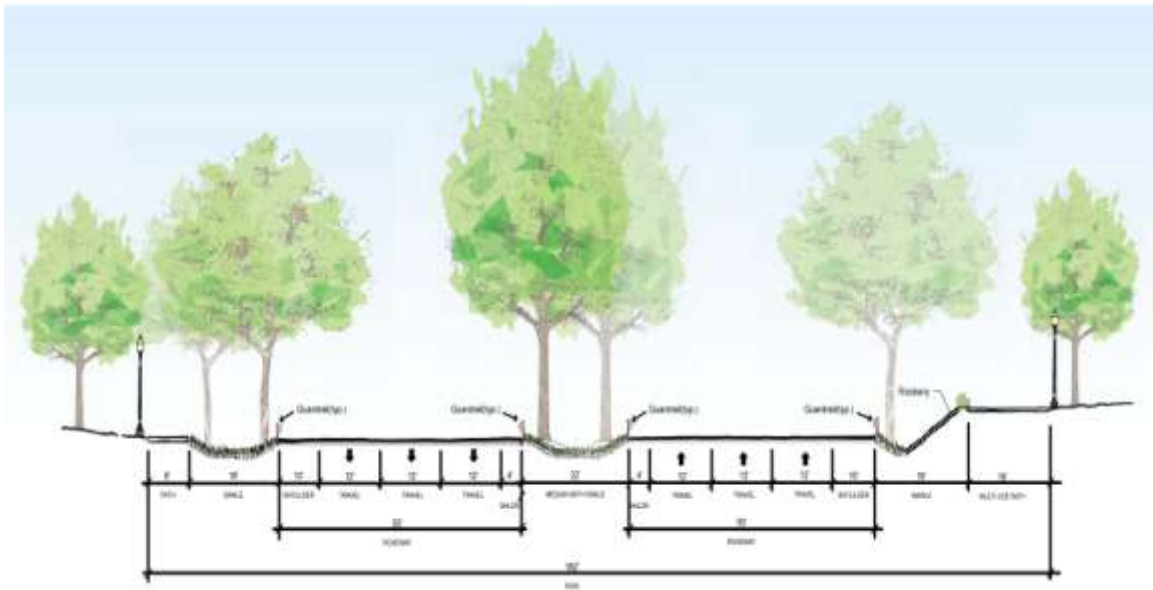


North of the North Fork of the Rivanna River	Four lanes with wide median, no onstreet parking or bike lanes, rural drainage; multi-use path on one side of the roadway. (See Figure 4.13)
--	--



**A**

**Figure 4.10. US 29, a typical eight-lane section, as used from Hydraulic Road to Polo Grounds Road. Right turn lanes may be added, as necessary. Left turn lanes will be incorporated into the median. The multi-use path may be placed on the other side of the street than shown.**

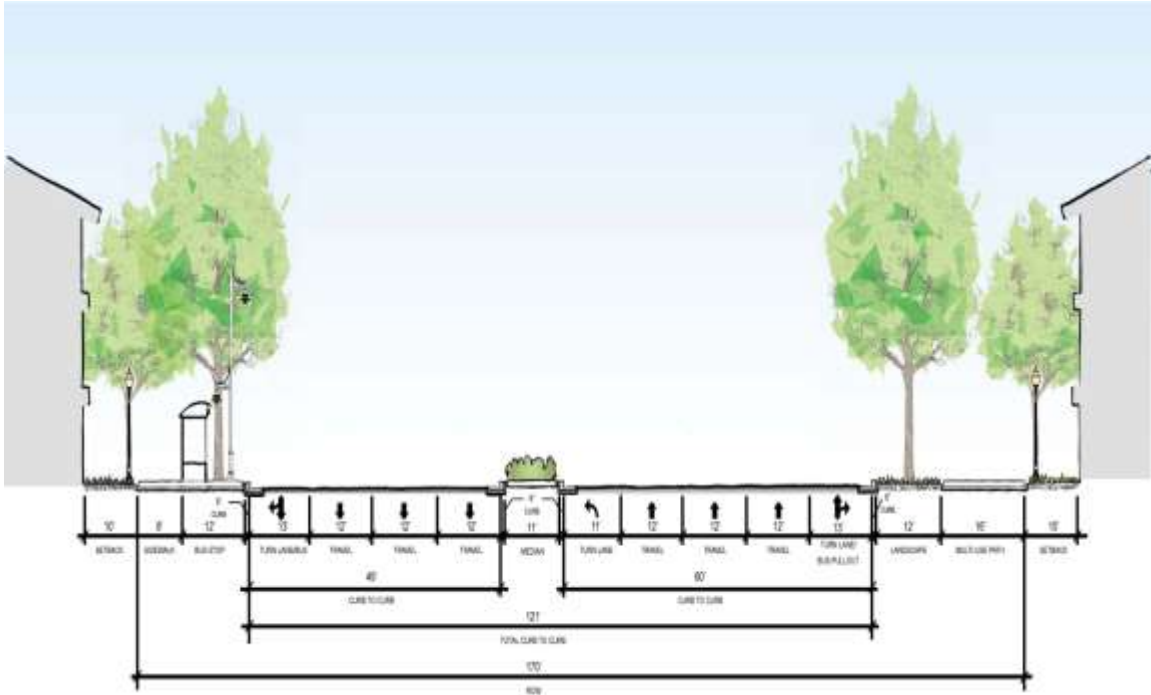


**B**

**E**

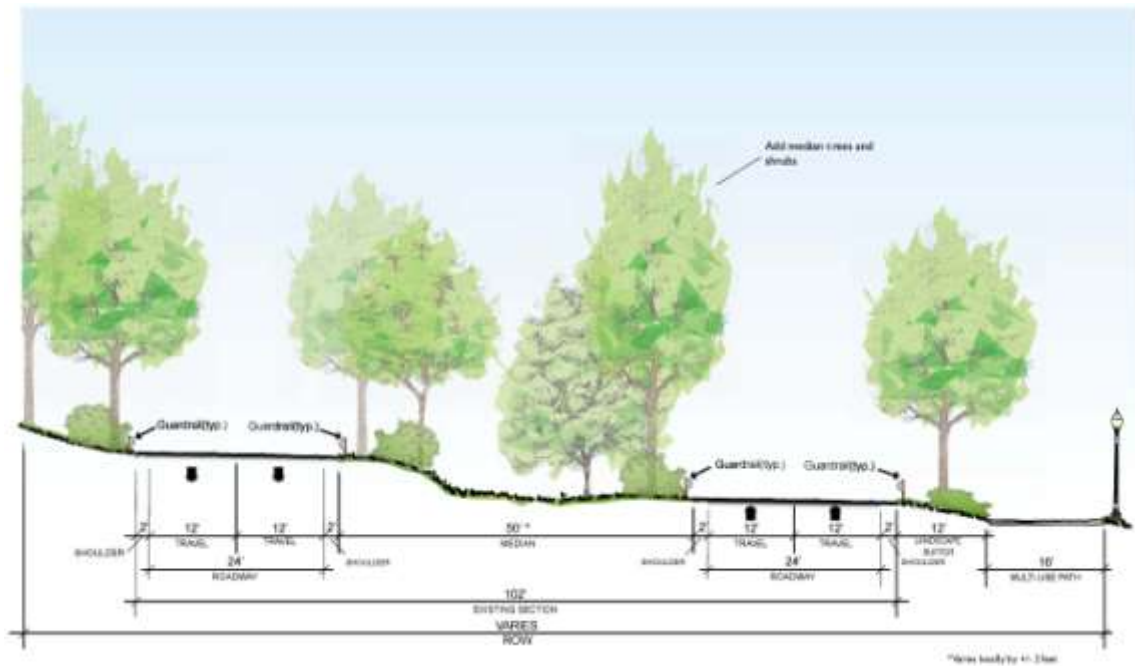
**Figure 4.11. US 29, six-lane rural section from Polo Grounds Road to Towncenter Drive and from Airport Road to the North Fork of the Rivanna River.**





**C**

**Figure 4.12. US 29 Six-Lane Section with Urban Frontage, from Hollymead Town Center to Airport Road. Building setbacks will be 30 feet from the back of the curb. This section shows noncontinuous right turn lanes.**

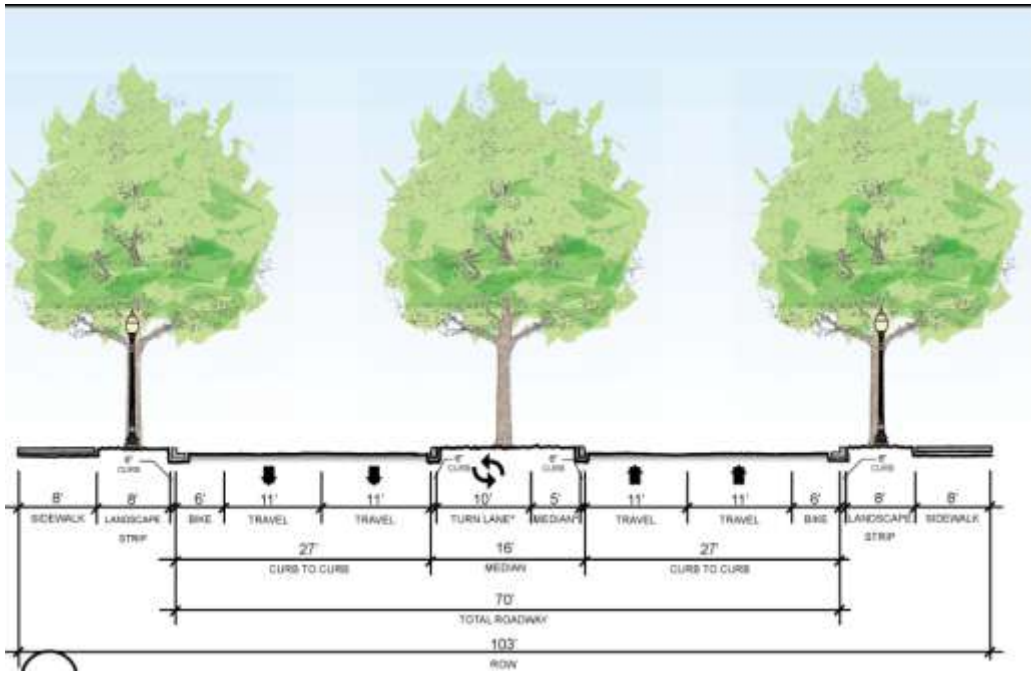


**F**

**Figure 4.13. US 29 Existing Conditions with Added Multi-Use Path and Median Landscaping, located north of the North Fork of the Rivanna River.**

**Boulevards and Other Four-Lane Roadways**

Four-lane roadways in the Places29 area are generally, but not always, boulevards with center medians and include provisions for bike lanes, sidewalks, and onstreet parking. On some roads, the median is a two-way left turn lane. The cross section shown in Figure 4.14 is one example of a typical four-lane roadway. Where the right-of-way is constrained, the median may be narrower, bike lanes may have to be eliminated, and/or sidewalks and landscaped strips narrowed. Where there is sufficient right-of-way, onstreet parking may be added. Where the topography is an issue, the two sides of the roadway may be constructed at different elevations. Additional examples of four-lane road cross sections that incorporate a number of variations from what is shown in Figure 4.14 are included in Appendix 4. The key four-lane roadways in the Places29 area and their cross sections are described below Figure 4.14.



**Figure 4.14. A representative cross section of a four-lane road (7A).**

**Rio Road East.** Rio Road east of US 29 to the Meadow Creek Parkway will continue as a four-lane boulevard with a center turn lane, without onstreet parking, but with onstreet bike lanes and sidewalks on both sides of the roadway. Landscaped strips would separate the sidewalks from the roadway. Portions of this segment of roadway would have an access lane adjacent to Rio Road, which would relocate the sidewalk to the outside of the access lane on one side of Rio Road.

**Hydraulic Road and Rio Road West.** Hydraulic Road and Rio Road west of US 29 would continue as four-lane boulevards with center turn lanes, without onstreet parking, but with onstreet bike lanes and sidewalks on both sides of the roadway. Landscaped strips would separate the sidewalks from the roadway. A continuous two-way left turn lane would be used in place of a median on Hydraulic Road.

**Berkmar Drive.** Berkmar Drive from Rio Road to Hilton Heights Road would be a four-lane boulevard with a 16-foot center median with onstreet bike lanes and sidewalks on both sides of the road. Landscaped strips would separate the sidewalks from the roadway. Segments of Berkmar Drive would have onstreet parking.

There are constrained locations on Berkmar Drive where insufficient right-of-way is available to develop the roadway according to the cross section described above. In those locations, the center median would be reduced to a nominal 4 to 6 feet, and left turns would be made from the inside through lanes rather than from dedicated left-turn lanes.

As Berkmar Drive extends north from Hilton Heights Road, the west side of the roadway might be modified to provide bays for parking with landscaping between the parking pockets and the sidewalk. The onstreet bike lane would be replaced with a multi-use path that would continue across the bridge over the South Fork of the Rivanna River. North of the bridge, Berkmar would be a rural four-lane boulevard with multi-use trails on either side of the roadway. If the Development Area boundary is expanded to include the area through which Berkmar Drive would extend, Berkmar would transition from a rural four-lane boulevard as described above to a four-lane urban section with a median and sidewalks. Ultimately, Berkmar Drive will transition to a two-lane section with sidewalks when it joins Meeting Street in Hollymead Town Center.

**Airport Road.** Airport Road will continue as a four-lane boulevard without onstreet parking, but with onstreet bike lanes and sidewalks on both sides. Landscaped strips would separate the sidewalks from the roadway.

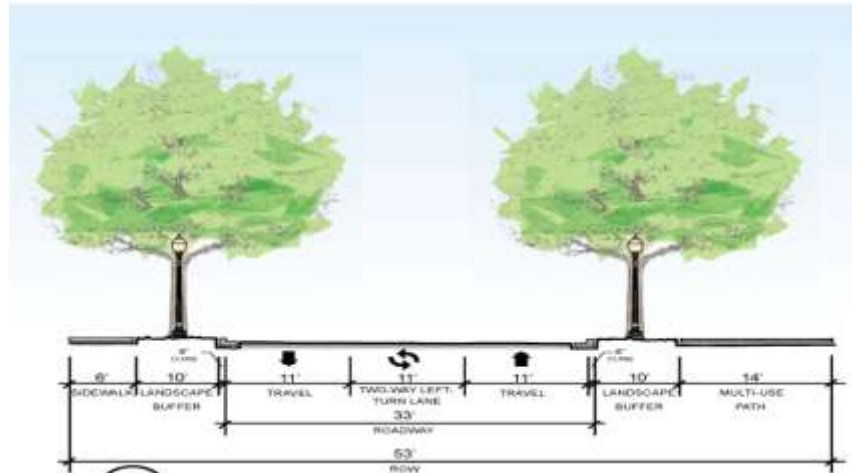
**Innovation Drive/Lewis & Clark Drive.** From Airport Road to US 29, this road will be a four-lane avenue with a center median. One side will have a sidewalk with tree wells and the other side will have a landscaped strip and a multi-use path.

**Dickerson Road (portions).** From Earlysville Road to Quail Run, Dickerson Road will be a four-lane split section road. It will be rural on the west side. On the east side, it will have a curb, sidewalk, and street trees.

**Boulders Road, unnamed roads connecting US 29 to North Pointe Blvd., the portion of Towncenter Drive east of Meeting Street, and Timberwood Blvd.** will also have a four-lane section.

### **Avenues and Other Two-Lane Roadways**

Two-lane roadways in the Places29 area are used for both short trips and access to adjacent land uses. These roadways are multimodal; pedestrians, bicyclists, transit users, and vehicles all have access to the land uses nearby. These roadways are also low-speed and tree-lined. They may include turn lanes and onstreet parking and have buildings close to the street. A typical two-lane cross section is shown in Figure 4.15. In many instances, an existing road will have a constrained right-of-way, so some roadway elements in this cross section may need to be narrowed or eliminated. Additional examples of two-lane roadways are included in Appendix 4. The key two-lane roadways in the Places29 area and their cross sections are described below Figure 4.15.



**Figure 4.15. A representative example of a two-lane road cross section (15). [Minor changes will be made in some of the measurements for sidewalks, landscaped buffers, and multi-use paths]**

**Hillsdale Drive, Berkmar Drive (portions), New Routes in Mixed-Use Centers.** Hillsdale Drive from Greenbrier Drive to Road East, Berkmar Drive south of Rio Road, and several of the new streets in mixed-use centers will be two-lane avenues with center medians, onstreet parking, bike lanes, and sidewalks with tree wells on both sides.

**Towncenter Drive (portions), Ring Roads, Meeting Street (portions), the Uptown Main Street, Northside Drive, Hollymead Drive, Timberwood Blvd.** Towncenter Drive west of Meeting Street and portions of any Ring Roads around the Rio Road/US 29 intersection will be two-lane avenues with onstreet parking and sidewalks with tree wells on both sides. The main street in the Uptown will have a similar cross section, but with wider sidewalks. Meeting Street south of Towncenter Drive will be convertible from two lanes with onstreet parking to four lanes, if needed, by removing the onstreet parking. Northside Drive and Hollymead Drive Extended will have the same traffic zone design, but the sidewalks with tree wells would be replaced on one side by a sidewalk and a landscaped strip and on the other side by a landscaped strip and a multi-use path.

**Albemarle Place Drive Extended and Boulders Road/Piney Mountain Loop (portions).** The Boulders Road/Piney Mountain Loop road will be a two-lane avenue with onstreet parking and bike lanes on both sides. If Albemarle Place Drive is extended north of Greenbrier Drive adjacent to existing residential uses, it will not be expected to have a sidewalk. Buffering and screening will buffer the existing residences from the new roadway.

**North Pointe Boulevard.** North Pointe Boulevard will be a two-lane avenue with a center median and bike lanes and sidewalks on both sides. Landscaped strips will separate the sidewalk from the roadway. This street could be converted to a four-lane section if it were ever required to carry greater traffic volumes.

**Proffit Road.** Proffit Road from Worth Crossing to Pritchett Lane will be a two-lane avenue, with a center turn lane, but without onstreet parking. One side of the roadway will have a sidewalk and the other a multi-use path, both separated from the roadway by landscaped strips. East of Pritchett, Proffit Road will transition to a rural section and the sidewalk will be discontinued.

## **Neighborhood Streets and Block Patterns**

One of the major transportation recommendations of this Master Plan, as discussed above, is to construct a network of roads parallel and perpendicular to US 29 that would give drivers, pedestrians, bicyclists, and transit users alternate routes to destinations. This network of parallel and perpendicular roads will allow a significant number of local trips to be on roads other than US 29 for all or part of their length. The network of parallel and perpendicular roads shown on the Transportation Network Diagram provides the major framework for all of the smaller, local streets that serve individual developments and neighborhoods. It is important to note that the Transportation Network Diagram illustrates the most critical future roadways, but not the full pattern of local streets that is needed to fulfill the connectivity goals of this Master Plan.

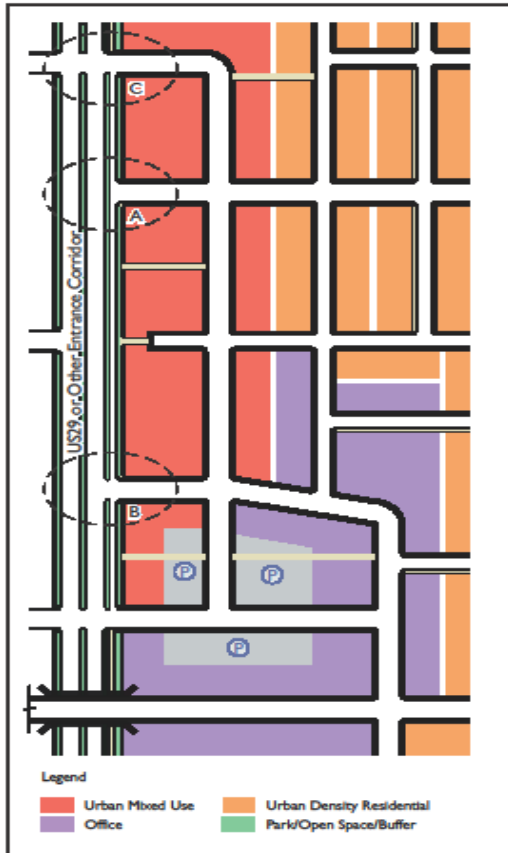
These local streets and the block patterns they form are the subject of this section. Decisions about the street network result in blocks of various sizes. Blocks are one of the most fundamental elements of urban form. Blocks and block size are essential in creating walkable, interconnected neighborhoods. As noted in the Neighborhood Model, the hilly character of Albemarle significantly affects the ability to create a true grid street system. Instead, the recommendations are for street connections that relate more to Albemarle topography. While rectangular blocks may not be possible, parallel and perpendicular connections can mimic blocks.

To create blocks in the Places 29 area, three types of local streets can be used to support development along US 29 while limiting entrances onto US 29. These three streets are a one-way service road, a new main street with its back to the primary arterial, and a perpendicular street arrangement. All the examples below illustrate concepts for US 29, but can easily be adapted for other parallel and perpendicular streets. The three concepts can also be combined in order to accommodate a broad range of local conditions and types of existing and proposed development.

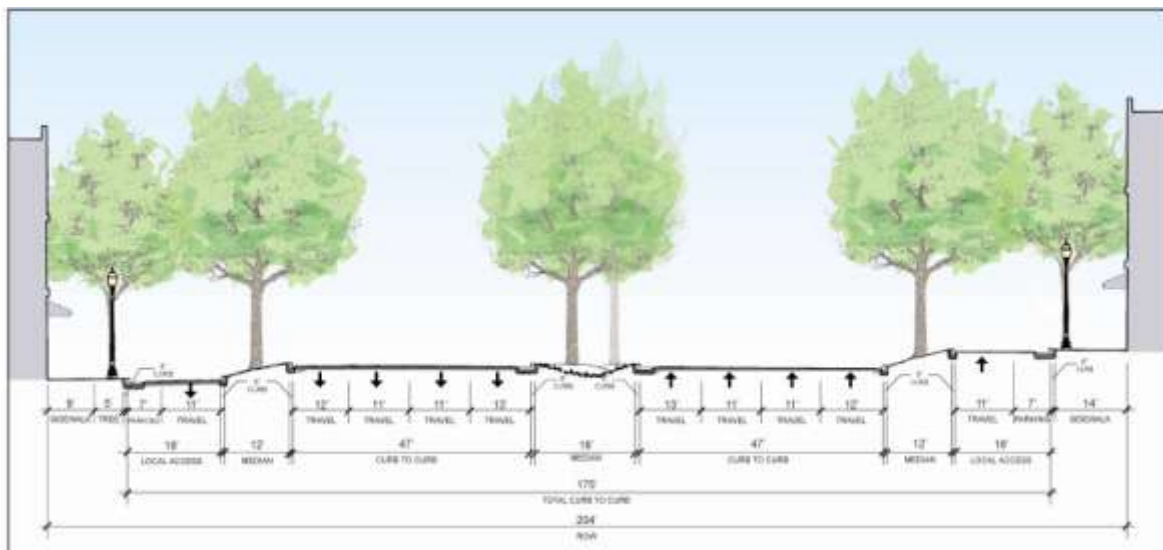
### **Local Access Lane/Service Road (with one-way traffic)**

Figure 4.16 illustrates how a local access lane can help create a block pattern that meets interconnectivity needs while reducing the number of intersections along US 29 or other major road. The local access lane is a low-speed, one-way travel lane that is parallel to major road. The lane provides access to adjacent properties and allows turning movements onto local streets that do not intersect with the center travel lanes of the major road. Local access lanes may also provide parallel or angled parking to support businesses oriented towards the major road and pedestrian activity along the sidewalks between the access lane and adjacent uses (Figure 4.17).





**Figure 4.16.** A Local Access lane, shown on the left side of the diagram just to the right of the Entrance Corridor, facilitates a block pattern that promotes interconnectivity while minimizing the number of intersections along a major road.



**Figure 4.17.** A cross section showing local access lanes on each side of an Entrance Corridor. These lanes create a pedestrian and business-friendly environment along the street edge where onstreet parking and vegetated medians buffer the sidewalks.

A landscaped median buffers activities in the local access lane from the fast moving traffic in the center travel lanes. The main facades and entrances of buildings are oriented toward the pedestrian-friendly local access lane. The photosimulation in Figure 4.18 illustrates the potential streetscape character of such a local access lane along US 29. Local access lanes may be most appropriate for urbanized portions of US 29 south of the South Fork of the Rivanna River.



**Figure 4.18. A photosimulation showing a local access lane along US 29.**

Local Access Lanes are appropriate along major roads with high traffic volumes, where a strong buffer and transition is required between fast moving traffic and the land uses that face the major road. The feasibility of local access lanes depends on local conditions, such as the available right of way, and should be determined through a feasibility study. Local access lanes are an appropriate solution along US 29 (or other major roads).

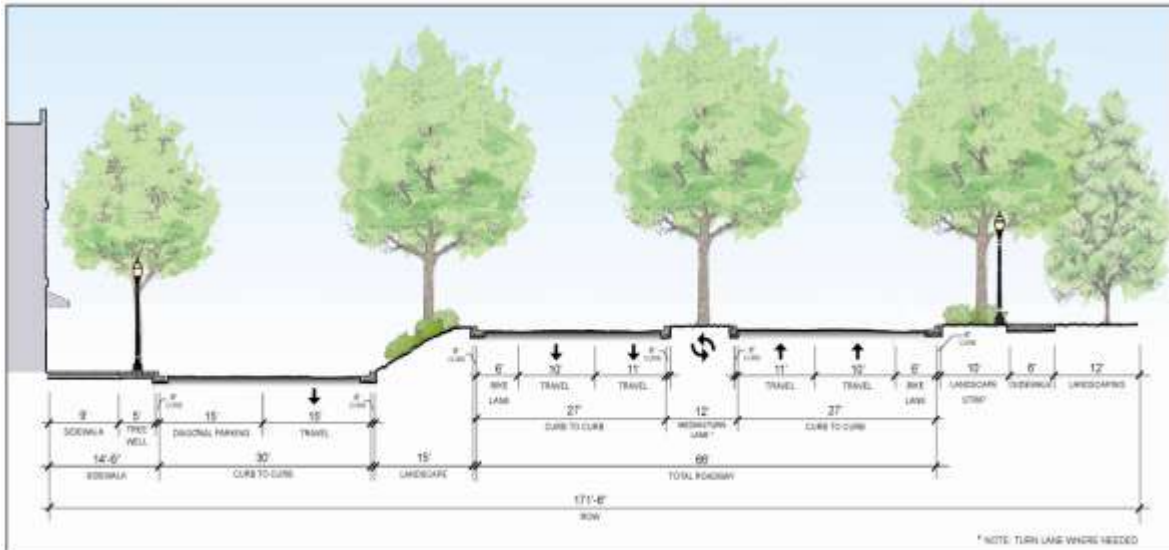
Three types of intersections may occur along a local access lane:

1. An intersecting local road or access aisle forms a T-intersection with the local access lane. In this configuration, the side median of the access lane is continuous and prevents access to the center travel lanes of the major road (see *Location A* in Figure 4.16).
2. A two-lane street intersects with the local access lane and the center travel lanes of the major road. The center median is continuous while the side median of the access lane is broken to allow right-in/right-out traffic movements (see *Location B* in Figure 4.16).
3. A perpendicular cross street with travel and turn lanes intersects with the major road. The center median of the major road is broken to allow left turns onto and/or off the major road at a signal. Under these conditions, the local access lane rejoins the center travel lanes about 50 feet prior to reaching the major cross street. Alternatively, the local access lane may continue to the cross street, where it ends with a right-turn only movement at the intersection (see *Location C* in Figure 4.16).

The photosimulation in Figure 4.19 and the cross section in Figure 4.20 illustrate a local access lane at a smaller scale near Gasoline Alley along Rio Road East. In the photosimulation, the local access lane is on the far side of the street from the viewer. The cross section shows how vehicular connections through surface parking lots (or structured parking) behind the buildings that face the local access lane can be used to facilitate a circulation pattern that allows travel in the direction opposite to that of the access lane.



**Figure 4.19. A local access lane fronts the street in the photosimulation of redevelopment in the Gasoline Alley area.**



**Figure 4.20. A cross section illustrating how the side median of a local access lane can be used to bridge grade differences between the center travel lane and the adjacent development.**

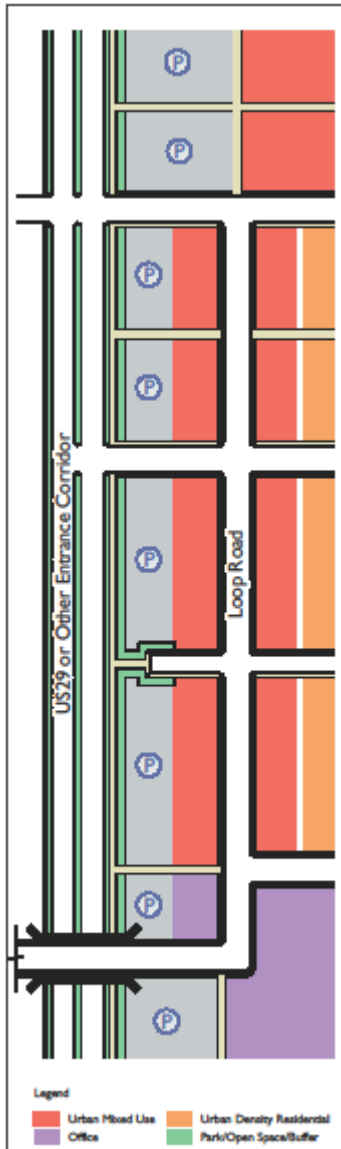
**Loop Road (two-way traffic)**

Similar to a local access lane, the “Loop Road” concept illustrated in Figure 4.21 can also be used to reduce the number of direct street connections to the major road. However, with a loop road, a pedestrian-friendly environment is created along a street that parallels the major road at a distance that allows for development (and parking) to occur between the loop road and the major road. Parking is accommodated behind the buildings that front on the loop road/pedestrian street. As

this locates parking adjacent to and along the major road (or Entrance Corridor), landscape buffers are needed to create a positive pedestrian environment for people using the multi-use paths or sidewalks and to create a coherent visual quality along the Corridor.

The truncated streets or parking access roads between the Loop Road and the major road should be used to create pedestrian and bicycle connections between the pedestrian-oriented loop road and the multi-use paths or sidewalks along the major road.

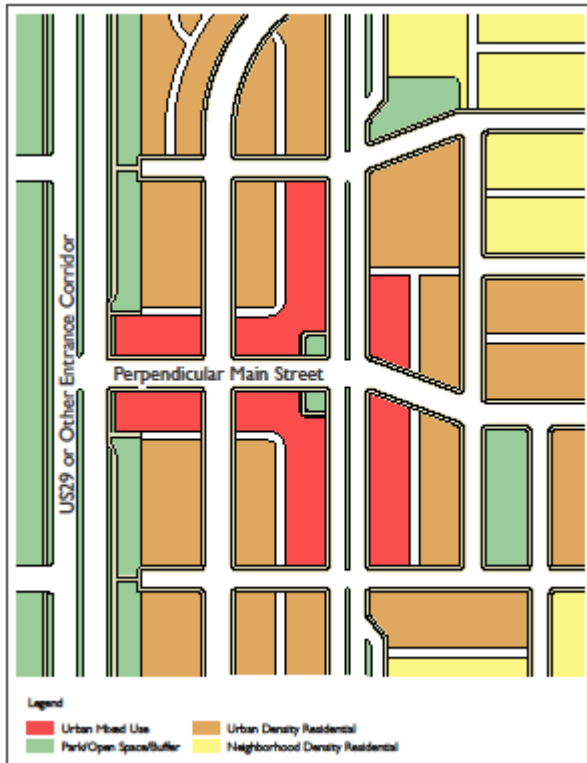
The Loop Road approach is appropriate where the right of way is limited or where topographic conditions do not allow the use of local access lanes.



**Figure 4.21. A Loop Road can be used to minimize the number of direct connections to the major road, while offering a protected pedestrian and business-friendly street environment.**

### Perpendicular Main Street

The concept of the “Perpendicular Main Street” is related to the Centers that are oriented toward a street perpendicular to US 29. North of the South Fork of the Rivanna River, examples of perpendicular main streets include Ashwood Blvd., Airport Road, and Proffit Road. South of the South Fork, Perpendicular Main Streets tie directly into the existing or redeveloping urban fabric along US 29. Figure 4.22 illustrates how block and street patterns can satisfy the guidelines for block size and a multimodal street network. While the perpendicular street is the only street that creates a vehicular link between US 29 and a parallel road (e.g., Berkmar Drive Extended), frequent non-vehicular connections between local streets and the multi-use path along US 29 establish a high level of connectivity for non-vehicular travel modes.



**Figure 4.22. A perpendicular Main Street can be the only street that creates a vehicular link between a major road and a parallel road (i.e., Berkmar Drive Extended). However, frequent nonvehicular connections between local streets and the multi-use path along the major road establish a high level of connectivity for nonvehicular travel modes.**

During review of development proposals, special attention should be given to the need for the parallel and perpendicular roads. The street network developed to serve areas adjacent to major roads should rely on Local Access Lanes and Loop Roads to limit the number of roads intersecting with the major road. Developers should be encouraged to provide those segments of these roads that cross their property. Parallel and perpendicular roads should be designed for lower traffic speeds, with bicycle and pedestrian amenities. Where access to parking lots behind or beside buildings must cross pedestrian pathways or bicycle lanes, adequate signage and markings should be provided to indicate where pedestrians and bicyclists are likely to be present and where they have the right of way.



## Transit-Oriented Development

An expanded and enhanced transit system is recommended for the Places29 area. As new blocks and streets are created, it is important to include areas for transit. In order to attract passengers and provide needed services throughout the area, transit stops should be provided in strategic places and should incorporate amenities to make the system easy to use. Development near future transit stops on all Entrance Corridors should include convenient pedestrian and bicycle connections to these stops and consider the possibilities for transit-oriented development (TOD), if the quality of provided transit services rises to the level of Bus Rapid Transit (BRT).

Future Bus Rapid Transit (BRT) or Express Bus stops on US 29 should include attractive and functional bus shelters and provide ample space to accommodate convenient boarding/alighting, as well as pedestrian circulation past the bus stop. Additional amenities, such as pedestrian-scale lighting, seating, trash/recycling receptacles, wayfinding signage, and bicycle parking should also be considered, as warranted by expected ridership numbers.

## Potential Transportation Improvements beyond 2025

There are several potential roadway improvements and recommendations for further study that have grown out of the US 29 North Corridor Transportation Study. None of these are recommended as part of the transportation network during the 20-year implementation timeframe. However, they may become necessary after 2025.

**Eastern Connector.** The Eastern Connector was identified in the long-range transportation plan for the Charlottesville-Albemarle area for an alignment study. The Albemarle County Board of Supervisors (Board) and Charlottesville City Council (Council) decided in 2006 to fund the Eastern Connector Study jointly. The study area for the Eastern Connector is bounded by Route 250 to the south, US 29 to the west, Proffit Road to the north, and Route 20 to the east.

The result of the alignment study is a preferred alternative that includes either a four-lane or a two-lane road going through Pen Park and, possibly, through Darden Towe Park. It should be noted that there is considerable public opposition to routing the connector through parks. Also, there may be significant federal hurdles to placing a roadway within parks that have received federal funding or for a roadway to be built with federal funding through a park.

Additionally, the study recommended planning for future connections to Polo Grounds Road and to Proffit Road. Neither of those alignments was considered effective within the Eastern Connector timeframe, but the lack of a better option closer to Route 250 sparked recognition that there is a need for planning further into the future for transportation improvements (e.g., a 50-year timeframe). Both options have significant issues and there are potential conflicts with the Southwest Mountain Historic District, Proffit Historic District, and properties already in qualified conservation easement. Additionally, these alternatives may conflict with some goals of the County's Rural Areas Plan. All of these issues would need to be studied further if there is interest in planning for a future connector using either the Polo Grounds Road or Proffit Road alternatives.

Although a preferred alternative for the Eastern Connector was identified in Fall 2008, the Board of Supervisors delayed making a decision on the alignment, indicating that there are no funds available now to pay for the connector. The Board also said it wants to see the results of the National Household Transportation Survey, a regional origin and destination (O & D) study, now being conducted by the Federal Highway Administration and due to be completed in 2010. In addition, the Board would like the MPO Policy Board to be part of the discussion on the choice of alignment.

While an Eastern Connector would improve connectivity within the core of the City and County, connecting the Eastern Connector to Rio Road would have the greatest impact on the US 29 North Corridor. Linking an Eastern Connector to Rio Road would increase the need for a direct southbound to eastbound ramp at the intersection of Rio Road and US 29, rather than a ring road configuration as recommended. Constructing Northern Free State Road would reduce the need for the direct ramp by intercepting traffic north of the Rivanna River.

**Northern Free State Road.** The network analyses indicated that, if Berkmar Drive is extended across the South Fork of the Rivanna River, the Northern Free State Road connection would not be necessary before 2025. However, operations analyses showed that by 2025, several locations on US 29 would be near capacity to the extent that additional development in the northern portion of the corridor beyond 2025 would require additional improvements on US 29. In this post-2025 condition, Northern Free State Road would be necessary to relieve traffic congestion on US 29. An Eastern Connector alignment linked to either Rio Road or Polo Grounds Road would reinforce the need for the Northern Free State Road connection across the river. Accordingly, preserving right-of-way for Northern Free State Road is recommended.

## Development Capacity

This Master Plan distinguishes between growth projected to occur in the Northern Development Areas within the 20-year implementation timeframe and the potential development capacity of the area to accommodate all the land uses designated on the Future Land Use Map. The Future Land Use Map shows land use designations for all of the property in the Northern Development Areas, whether it is likely to develop during the 20-year implementation timeframe or afterward. In fact, it is likely to be decades before all of the land uses shown on the Map have reached full buildout.

## 2025 Growth Projections

The traffic analysis conducted for this plan takes into account the growth projections for the Charlottesville/Northern Albemarle area as established by the 2025 regional growth allocation from the state demographer. The projected growth between the base year for this plan (2005) and the year 2025 are listed in Table 4.2 below. The majority of the projected growth will occur in already approved projects, with the remaining growth assumed to occur in areas surrounding these developments.

## Potential Capacity

Currently, no exact predictions can be made about growth rates and the spatial allocation of growth in the Places29 area beyond the 2025 time horizon. However, using the Future Land Use Map, the potential development capacity, which is the capacity of an area of land to accommodate a designated land use, can be calculated. The calculations of potential development capacity for the Places29 area take into account the range of intensities and the mix of uses that are allowed within the different land use designations shown on the Future Land Use Map. Table 4.2 lists the possible range of potential development capacities for employment and residential land uses in the Places29 area.

It is important to understand that future development will not consistently occur at the highest or lowest end of the range. It is expected that the development capacity—the full implementation of the illustrated land use pattern and neighborhood structure—will occur many years or even decades after 2025.

**Table 4.2. Existing and Projected (2025) Development Capacity for Residential Units and Employment**

	<b>Dwelling Units</b>	<b>Dwelling Units Change</b>	<b>Employment</b>	<b>Employment Change</b>
<b>Existing (2005)</b>	14,200	---	15,900	---
<b>Projected (2025)</b>	21,000	48%	40,900	157%
<b>Development Capacity</b>	37,900	167%	127,200	700%

Source: CD+A. Additional information is in the Assets, Needs & Opportunities Report.

## How to Use the Maps and Tables in this Chapter

The Future Land Use Map and Parks & Green Systems Map should be used to understand the desired community structure for the Places29 area. Together with the Land Use Tables, the maps provide the information needed to determine what land use designations and densities/intensities are recommended in a given location. Both the maps and the tables give County staff, developers, property owners, elected officials, and the public the information to determine land uses and intensities by following three steps:

**Step 1:** Use the Future Land Use Map to determine which Land Use designation is assigned to a specific property and whether the property is located in a Center, in the area around a Center, or in the Uptown. If the property is located in a Center, the type of Center (Neighborhood Service, Community, or Destination) also needs to be noted.

**Step 2:** Use the appropriate Land Use Table to determine which primary and secondary land uses are recommended within a given Land Use designation. Use Table LU1 for property located in Centers and the Uptown and Table LU2 for property *in areas around Centers*. In some cases, certain primary or secondary uses may only be recommended for properties larger than a certain size. Other conditions may include maximum sizes (in square feet) for a use or building footprint.

To use Land Use Table 1, locate the type of Center across the top of the table. Then, look for the desired use on the left hand side of the table. The information in the box at the intersection of the appropriate column and row gives the requirements for the type of use in that Center type.

To use Land Use Table 2, locate the land use designation across the top of the table. Then, look for the desired use on the left hand side of the table. The information in the box at the intersection of the column and row gives the requirements for that type of use in that land use designation.

On the Land Use tables, the term “by exception” means that a larger building footprint or single land use might be supported for one of the Centers or areas around a Center if the larger building or use will fulfill the goals of the Master Plan and the Neighborhood Model, including walkability, compact development, interconnected streets, block and lot sizes, and so on. The decision on whether to allow a larger

footprint building or allow other changes to building form or use will be made as part of the rezoning process; property owners seeking to rezone will need to include the request for larger footprint buildings in their application narratives and concept/application plans.

**Step 3:** Refer to the Parks & Green Systems Map to determine whether an additional open space may be required on or near the subject property. Whether an additional open space will be required as part of development on the subject property depends on the size of the individual property or overall project and the proximity of the property to a mixed-use center.

The Parks & Green Systems Map also provides information about stream buffers, areas of steep slopes, 100-year floodplains, and existing or proposed Greenways, bicycle facilities, and trails that may be recommended for the property.

After completing the steps above, the applicant should refer to Chapter 7, Design Guidelines for the Places29 Area to determine what other standards and guidelines apply to the site design and other physical aspects of developing the property.

**NOTE:** In addition to using the maps and tables as described above, Plan users should also consult the Reference Map to determine if there are any additional recommendations that apply to the area of the Plan they are investigating.