

Bradley County Comprehensive Plan



Adopted by the Bradley County Regional Planning Commission

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Bradley County Comprehensive Plan

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Chapter 1: Overview

PLAN OVERVIEW

A comprehensive plan provides a vision for how the community should grow in the future, maintain public facilities and services in response to growth, and maintain a high quality of life for its residents. The **2035 BCC Joint Strategic Plan**, adopted in 2011, recommended that Bradley County engage in a comprehensive plan update in a separate yet coordinated effort with the Cities of Cleveland and Charleston to create a shared vision for the future and discuss future growth in a county-wide setting.

This plan is a framework to help the elected and appointed officials, property owners, developers, and citizens understand community-wide aspirations for long-range development. It is a tool to assist these individuals and the community in making informed decisions about development within the county, and to analyze how development may affect property values, demand for infrastructure, community services and facilities, utilities, and business opportunities throughout the county. The plan will not change existing zoning, land uses, or development regulations on private property. Likewise, comprehensive plans are not budgets, capital improvements plans, or construction plans and do not have an associated cost to implement. Costs incurred by the county, that is, the tax payers, are the result of maintaining and expanding infrastructure, services, and facilities to serve existing populations and new growth.

Implementation is a key element of success of a comprehensive plan. Since the plan is a non-regulatory tool, it provides advisory recommendations, but in order to enact these recommendations, the county must utilize other tools consistent with the vision of the comprehensive plan. The recommendations contained in this plan are provided for guidance and can only be implemented through additional action by the county.

COORDINATED AREA PLANS

In addition to recommending coordinated county-wide and city-wide plans, the **2035 BCC Joint Strategic Plan** identified three areas for additional planning focus: the Southern Corridor Area, the Northern Corridor Area, and the Central City Area. Area plans were prepared for these

areas to focus on planning issues in the areas in more detail than provided in a comprehensive plan. The scope and location of each of these areas can be viewed on the **Future Land Use Plan Map**. For additional information and development guidance for these areas, refer to the *Southern Corridor Area Plan*, the *Northern Corridor Area Plan*, and the *Central City Area Plan*.

PLAN CONTENTS

This plan is a guide for public decision making and will be used by elected and appointed officials to evaluate future proposals or policy changes to ensure consistent decisions are made. It was drafted in coordination with equivalent plans for the Cities of Cleveland and Charleston to ensure that decisions made about the region’s future are consistent and compatible.

The plan is structured as follows:

- **Guiding Principles:** statements that set the tone and serve as the foundation for plan elements.
- **Plan Goals:** statements of desired outcomes, or the major aspirations of this plan.

The guiding principles and plan goals resonate throughout the six plan elements (or chapters). Each plan element (with the exception of the Overview and Implementation chapters) includes background information, goals, and recommendations to accomplish the goals.

- **Chapter 1: Overview** introduces the plan and process, and provides some general background information. The guiding principles and plan goals are stated in this section.
- **Chapter 2: Land Use** addresses the future development within the county. The maps and definitions in this chapter address density of development and appropriate land uses for areas throughout the county. The future land use designations are based on those designated in the **2011 Land Use Plan**, with some expansion in the small area planning areas and where future development may be impacted by changing trends and development pressures.
- **Chapter 3: Transportation** establishes the strategy for the management of the county’s transportation network to accommodate anticipated growth. This chapter includes the county’s Major Thoroughfare Plan.
- **Chapter 4: Utilities** establishes the background and provides recommendations for utility services within the county, including telecommunications, electrical power, natural gas, potable water, and sanitary sewer.
- **Chapter 5: Facilities and Services** establishes the background and current levels-of-service for schools, parks and recreation, fire and rescue, police, and the emergency management agency. The chapter provides recommendations for these services in order to accommodate new growth, and provides location standards to consider when planning facilities.
- **Chapter 6: Implementation Toolbox** provides recommendations to implement the plan and element goals.

COUNTY OVERVIEW AND PLANNING HISTORY

PLANNING HISTORY

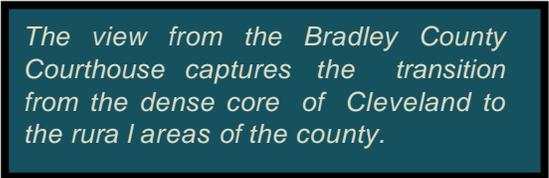
The Bradley County Regional Planning Commission adopted a **General Plan** in April 1971, addressing land use, housing, and major thoroughfares. In 1994, the commission conducted a more specific study to plan for the county's future and adopted the **Existing Land Use and Future Land Use Plan** for 1995-2010. This comprehensive plan updates the 1994 plan, revising the goals and implementation strategies for land development and providing an updated vision for future development in Bradley County.

Bradley County has been cooperating with the City of Cleveland and planning for future growth and city annexation in a formalized setting since 1998, when Tennessee adopted legislation (Public Chapter 1101) requiring cities to create urban growth boundaries as a solution to urban sprawl. The urban growth boundary allows the city to adapt its boundaries to accommodate growth through annexations within the urban growth boundary.

DEVELOPMENT PATTERN

In preparation for the **BCC 2035 Joint Strategic Plan** and the comprehensive plan, the consultant team analyzed the existing geography and development patterns within the county. Additional information on the existing conditions in the county can be reviewed in the strategic plan.

While the county does not have many regulations protecting natural features or encouraging rural character preservation, the natural landscape and market have contained most of the unincorporated development to areas near the City of Cleveland's urban growth boundary and along the Route 64/Waterlevel Highway corridor in the east central portion of the county. The exception is the Lauderdale Highway corridor east of exit 33, where the city and county have partnered to provide services to promote economic development. This area has primarily been developed recently with industrial and distribution facilities increasing the commercial traffic on roads in the northern part of the county. Existing development regulations allow densities that are wide ranging and can accommodate significant development if sewer and water are available, but areas without these services are limited to about one unit per five to seven acres.



The view from the Bradley County Courthouse captures the transition from the dense core of Cleveland to the rural areas of the county.

Approximately 20% of the land in the unincorporated county is devoted to residential use. It has been the largest element in Bradley County's growth. Mobile homes are found throughout, making up approximately 10% of the county's housing stock. Development has been greatest where both water and sewer are available.

Commercial growth in Bradley County has been significant, however, regional shopping has remained in the City of Cleveland, or in areas annexed by the city. Some commercial activity has been developed along the arterial roads in the county, but is primarily oriented towards local

residential customers. Major industrial sites are located to the east and southeast of Cleveland. Wacker Chemie, a major German industry, has recently moved to the City of Charleston and will significantly affect employment and the economy. Amazon.com also has a distribution facility in Bradley County.

GEOGRAPHY AND NATURAL FEATURES

A major feature of the region's geographic formation is the series of parallel ridges and valleys within Bradley County. These ridges and valleys impact the suitability of land to accommodate development, and create natural constraints including steep slopes and flooding.

The dynamic topography of the county creates flooding challenges and contributes to the about 17,600 acres of land susceptible to flooding, particularly along Candies Creek and South Mouse Creek. Bradley County is a participant in the National Flood Insurance Program (NFIP). Resolutions on the books permit development in floodplain area, provided elevation certificates prove the structure's first floor is one foot above the 100-year flood elevation and conformance to some other restrictions. Structures in the floodway and in-fill of the floodway are prohibited.

In addition to limiting the developability of land, the ridges and valleys of the surrounding county make the construction of east-west connecting roads very challenging. Cleveland has strong road connections within its core area surrounding the downtown, but faces limited connections to eastern and western portions of the county. Due to this, the carrying capacity of much of the county's existing road network to support additional development in a safe manner is limited. In addition, severe slopes present challenges in the provision of utilities, other municipal facilities, and adequate drainage.

Planning for future land use in Bradley County requires an understanding of the capabilities and limitations of the soils. Limitations imposed by the soils can be overcome to some extent, but at a greater development cost or by less intensive development. Some areas have several limitations on the ability to support development because of the presence of steep slopes, poor soil conditions, location in flood prone areas or wetlands and hydric soils. The majority of the county has severe limitations for septic systems associated with residential development due to soil conditions, as shown on the **Septic Suitability Soils Analysis Map**. Development problems are reduced considerably where public sewer is available, which allows for more dense development.

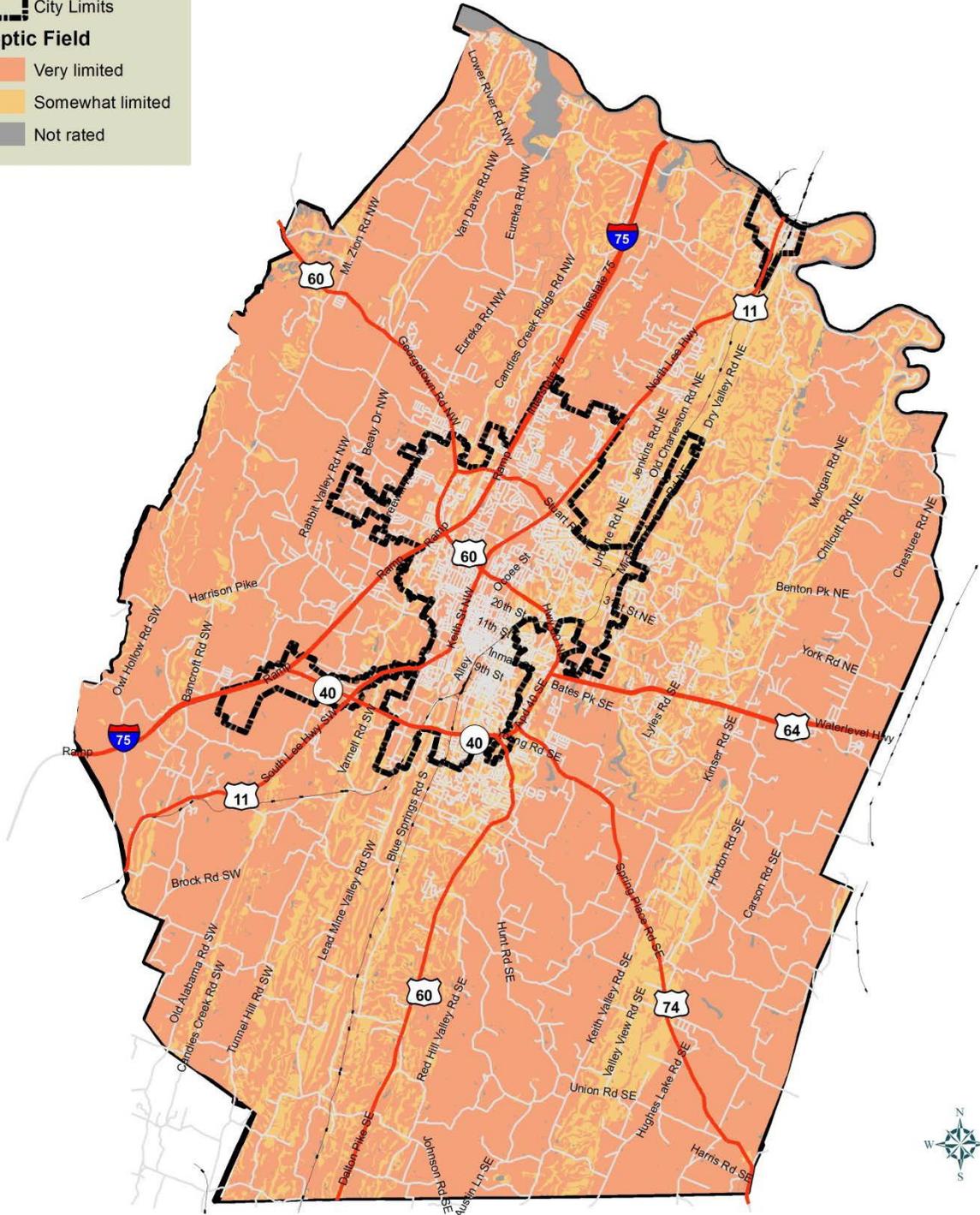
SEPTIC SUITABILITY SOILS ANALYSIS MAP



City Limits

Septic Field

- Very limited
- Somewhat limited
- Not rated



PLAN GUIDING PRINCIPLES

These guiding principles set the tone and serve as a foundation for plan elements, goals, and recommendations. These statements represent public values expressed through the process regarding how the county should be planning for the future. As a result, the considerations of these principles should be balanced when making public decisions. In shaping the implementation of the plan goals and policies for the broader public good, the county will also consider the impacts on individuals and neighborhoods.

- 1. The community highly values private property rights and responsibilities. Tools to help the community manage the demands of growth will need to respect this value of private property rights.**
- 2. The community enjoys a low-tax environment and the plan and recommended tools should be designed to maintain a low tax structure, while adequately providing for the safety of the current and future citizens.**
- 3. Given the strong possibility that the cities and county will continue to face a fiscally challenging future due to national economic trends, as well as the low-tax environment of this region, decisions about the issues addressed in this plan should be made with careful consideration of fiscal impacts.**
- 4. The community highly values citizen driven initiatives, private investment, a market based economy, and non-government approaches, rather than a focus on government oriented approaches to community development.**
- 5. Given that the county does not operate in isolation and is affected by the decisions made at various organizational levels, coordination between governmental agencies is essential to land use and infrastructure decisions.**

Key Findings of the BCC 2035 Joint Strategic Plan

- The region is expected to grow by 32,000 people by 2035, approximately the same as the current population of the City of Cleveland.
- Employment growth is anticipated to keep pace with residential growth helping to off-set the fiscal impacts of a growing population.
- Maintaining a balance of employment, retail, and residential uses within the BCC Region is important to maintaining revenue streams for the local jurisdictions.
- The region has the land to accommodate the anticipated growth; the key to fiscal sustainability will be where growth occurs and in what pattern.
- As growth continues, demand will be placed on county services requiring additional personnel, operation, and capital facilities. Regardless of which jurisdiction provides these services, maintaining the accustomed levels-of-service will require revenues beyond what can be generated under current revenue structures.
- Coordinated land use, transportation, service delivery, and capital improvement planning will help prepare the region for future expenses of serving new populations.

PLAN GOALS

These plan goals express the major goals, or statements of desired outcomes, which this plan aims to accomplish. These goals reflect the community’s vision for the future and serve as targets to direct policy decisions, development, and general progress towards that vision. Each goal is supported by additional focused goals and recommendations in its respective chapter.

LAND USE

Provide a future land use plan that helps to preserve area character and quality of life while managing future growth.

TRANSPORTATION

Provide a transportation system which is safe and efficient for all users.

UTILITIES

Provide adequate and timely utilities and public facilities relative to the location and timing of growth in the most cost effective manner possible.

FACILITIES AND SERVICES

Provide high quality facilities and services in coordination with land use and transportation plans.

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Chapter 2: Land Use

BACKGROUND

This element serves as the primary physical and geographic plan component used to guide future growth and development decisions. This chapter describes and builds upon the existing land uses, discusses the characteristics and implications of projected growth and establishes various land use goals. To realize these goals, the **Future Land Use Plan Map** and associated future land use descriptions address the location and characteristics of future development within Bradley County. This chapter provides the opportunity to strengthen existing development while planning for future growth and development within the county. The recommendations within this chapter provide general guidance for future development within the county and are not intended to be parcel specific.

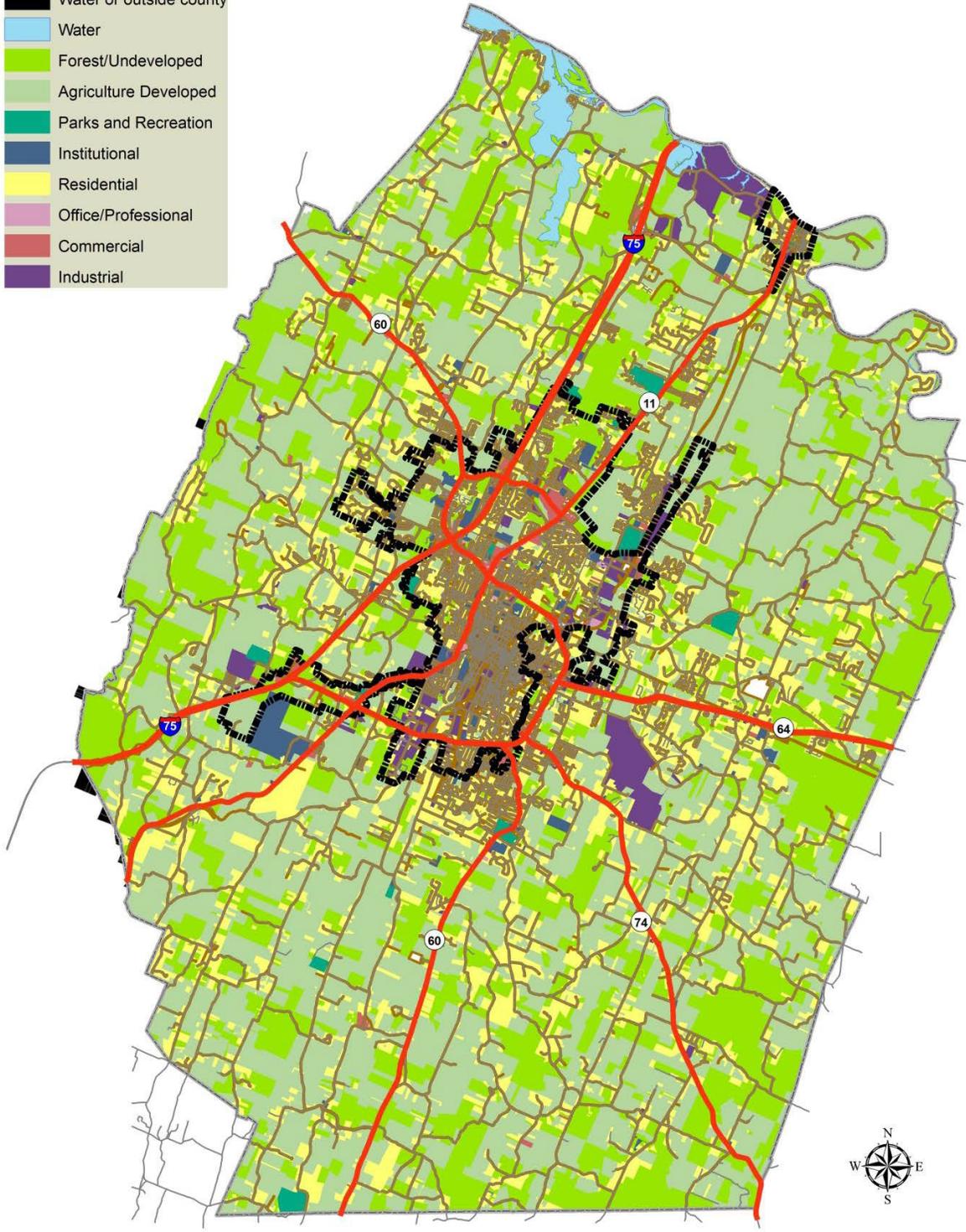
The *Future Land Use Plan*, through its recommendations and general vision, aims to provide guidance in the county development review process and provide some predictability to help in the planning and providing of infrastructure and public facilities in a fiscally responsible manner.

<i>Existing Land Uses</i>		
Category	Use Examples	% of Land Area
Agriculture Developed	<ul style="list-style-type: none"> • Farming • Agribusiness 	48%
Forest/Undeveloped	<ul style="list-style-type: none"> • Natural areas 	27%
Residential	<ul style="list-style-type: none"> • Single-family homes • Apartment buildings 	20%
Industrial	<ul style="list-style-type: none"> • Manufacturing • Distributing 	2%
Institutional	<ul style="list-style-type: none"> • Government offices • Schools 	1%
Parks and Recreation	<ul style="list-style-type: none"> • Parks • Passive open space 	1%
Commercial	<ul style="list-style-type: none"> • Retail • Personal services 	>1%
Infrastructure	<ul style="list-style-type: none"> • Roadways • Utility easements 	>1%
Office/Professional	<ul style="list-style-type: none"> • Medical offices • Professional offices 	>1%

EXISTING LAND USE MAP



-  City Boundary
-  Water or outside county
-  Water
-  Forest/Undeveloped
-  Agriculture Developed
-  Parks and Recreation
-  Institutional
-  Residential
-  Office/Professional
-  Commercial
-  Industrial



FUTURE GROWTH FORECASTS

Bradley County and its municipalities have grown steadily over the past two decades and are expected to continue to grow for at least the next several decades. According to the **2035 BCC Joint Strategic Plan**, the population of Bradley County is estimated to reach 131,212 residents by 2035.

The highest rate of growth is expected to occur within the first five years, as the county is projected to grow at a rate of 1.64%. After 2015, growth is forecasted to taper off to 0.95% per year during the last five year period from 2030 to 2035. This means that Bradley County could experience an influx of 8,300 new residents between 2010 and 2015, with the number of new residents decreasing to about 6,000 residents every five years thereafter.

Following the blended growth scenario of the strategic plan and applying the projected population growth rates, the unincorporated county will gain an estimated 55% of the projected growth in the county. Over the 25 year planning horizon, the unincorporated county is estimated to gain 17,600 new residents, demanding approximately 7,700 new housing units.

CAPACITY FOR GROWTH

Approximately 36% of the land area in Bradley County - including its municipalities - is committed to some type of development (such as residential, commercial, industrial, institutional), leaving over 137,000 acres of land available to potentially accommodate future growth without redevelopment. The **2035 BCC Joint Strategic Plan** analyzes the development capacity of the county by applying current maximum zoning densities to potential development areas and yielding a capacity of 372,000 new housing units and 88.4 million square feet of building area for non-residential uses when excluding naturally constrained land. As shown in the tables below, Bradley County has capacity to accommodate the forecasted growth and the majority of future development capacity exists in unincorporated portions of the county, specifically in areas zoned for forest, agriculture, and residential use.

Growth Forecast 2035 BCC Joint Strategic Plan

As part of the **2035 BCC Joint Strategic Plan**, a series of demand and capacity analyses were conducted to estimate the potential future growth of the county-wide planning area, and to assess whether the county could accommodate those estimates under current regulations. The findings of the plan include:

Total Population Increase

- 32,000 new residents estimated county-wide
- 17,600 new residents estimated in unincorporated areas
- County-wide population is estimated to reach 131,212 by 2035

Estimated New Housing Demand

- 14,000 new homes estimated county-wide
- 7,700 new homes estimated in unincorporated areas

Estimated New Jobs

- 19,000 new jobs estimated county-wide

FUTURE LAND USE PLAN GOALS

- **Promote quality commercial, mixed-use, and employment generating development in areas currently serviced by utilities.** Incentivizing the use and development of sites with existing infrastructure can be more cost effective for the community than building new infrastructure to serve greenfield sites.
- **Effectively manage development pressure in rural and agricultural areas of the county to maintain its low-density, rural character.** Much of unincorporated Bradley County is rural or agricultural in nature. To preserve this low-density rural character, the intensity, density, and character of development must be effectively managed.
- **Enhance existing village cores as small-scale, community-focused business areas.** Village cores provide established business centers at a small-scale. Enhancement of these areas within the context of the surrounding village character promotes economic vitality of rural villages while preserving rural character.
- **Preserve and enhance regional natural and environmental assets.** Bradley County is home of many regional natural and environmental assets, including the Candie's Creek Wildlife Management Area and the Hiwassee River. Measures should be taken to limit development impacts on these areas and preserve these areas as the county develops.
- **Promote a balance between incoming development and surrounding natural resources and ecological communities.** New development should be designed within the context of the existing community and with sensitivities to natural and ecological features. The county may consider the adoption of environmental performance standards specifically tailored to industrial areas and future employment areas to limit the potentially negative impacts of these higher intensity developments on natural surroundings.
- **Ensure that adequate transportation and utility infrastructure is in place in conjunction with development.** Anticipating the need for system capacity improvements prior to increased development pressure in an area will allow for necessary improvements to be timed with development. Bradley County should coordinate with utility providers to plan for utility expansion in accordance with future land use plans.

FUTURE LAND USE PLAN

The **Future Land Use Plan Map** depicts the recommendations for the future land use pattern within unincorporated Bradley County. Future land use areas shown on the map are not intended to be parcel-specific. Rather, the map and recommendations are intended to be used together to provide general direction in the quality, intensity, and locations of various land uses appropriate in various areas of the county. The **Future Land Use Plan** is intended to provide physical guidance in the pursuit of the county's vision for future development. Detailed land use information for portions of the county within the Northern Corridor Area, Central City Area and Southern Corridor Area can be reviewed in each respective Area Plan, while information for areas located within the urban growth boundary can be reviewed in the **City of Cleveland Comprehensive Plan**.

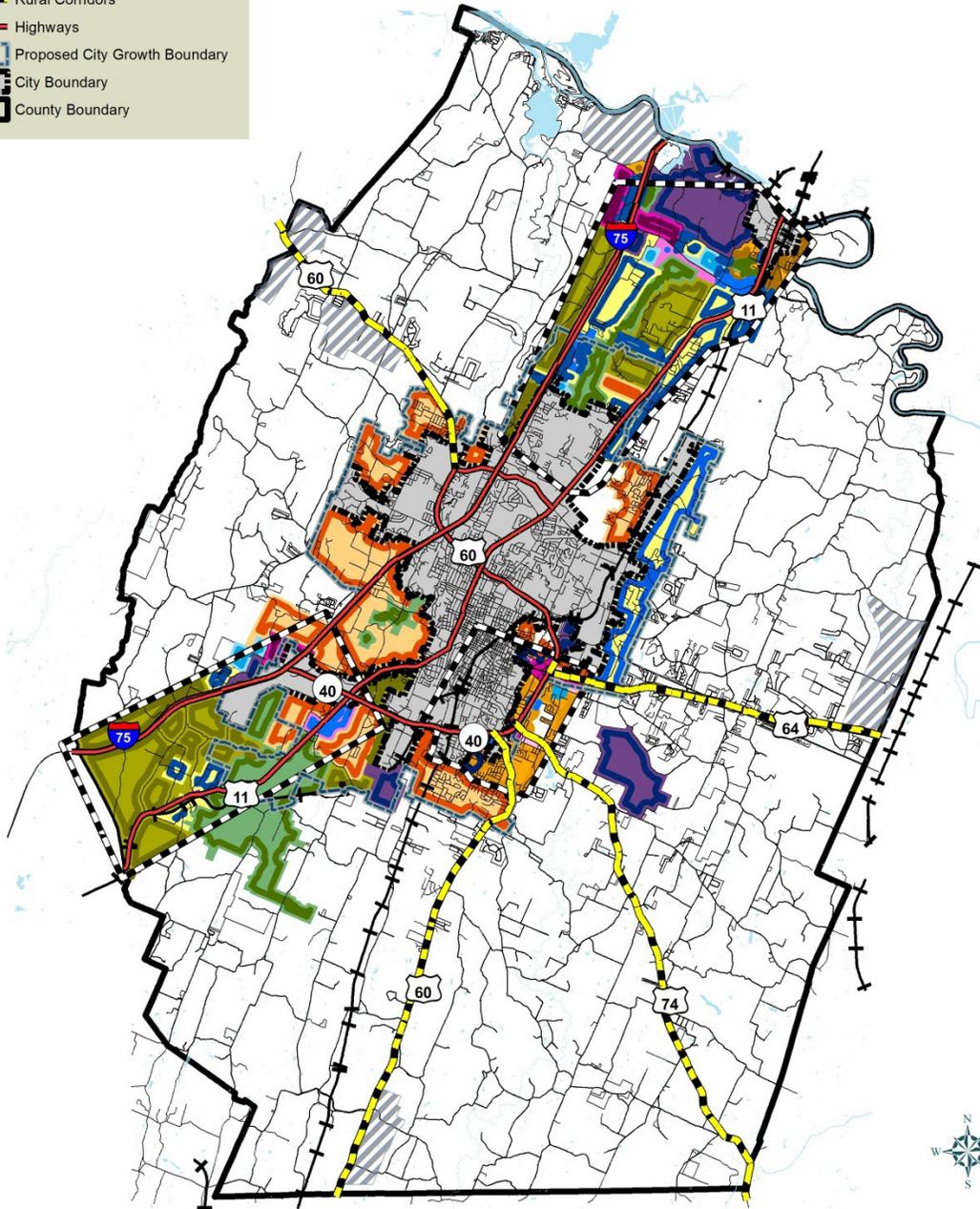
Large portions of the county are recommended for just four future land use categories, continuing the framework of land use planning historically followed within the county. These land use categories are:

- Forest, Agriculture, Residential
- Future Employment
- Industrial
- Commercial

In the fringe areas around the City of Cleveland and the area plan study areas, additional future land use classifications are recommended. Some of these uses are recommended for very small areas of the county but are included here as part of the coordination in planning for the transition areas between the cities and the unincorporated county. These categories include:

- Natural Conservation
- Public
- Rural Residential
- Low-Density Single-Family Residential
- Medium-Density Single-Family Residential
- Low-Density Neighborhood Residential
- High-Density Neighborhood Residential
- Village Mixed-Use
- Low-Density Neighborhood Mixed-Use
- Medium-Density Community Mixed-Use
- High-Density Regional Mixed-Use

BRADLEY COUNTY FUTURE LAND USE PLAN MAP



GENERAL DEVELOPMENT REVIEW GUIDELINES

The following development guidelines have universal application when land owners or developers make requests for a change in zoning or request subdivision or development approval in the county. The governing bodies will use these guidelines to evaluate a proposed development for consistency with the plan's guiding principles, goals, and recommendations.

- ✓ Residential densities should be context sensitive if located in areas with established neighborhoods.
- ✓ When possible, features like historic sites or landmarks or sensitive natural features should be incorporated into the development design to provide maintenance of local character while providing suitable building sites for new homes and businesses.
- ✓ Context sensitive transitions between uses of different intensities should be used to buffer the lower intensity use from the noise, odor, or light impacts of the more intense use (for example, a buffer between a business with truck traffic and a residential neighborhood). Transitional treatments like landscaped buffers, fences, wooded areas, or setbacks and open spaces can be effective ways of reducing negative impacts on existing development.
- ✓ The subdivision or development design considers safe and accessible pedestrian connectivity within neighborhoods and to community amenities such as parks, schools, commercial centers or other amenities within a five or 10 minute walk (approximately ¼ mile). Sidewalks, trails, or roads may be adequate depending on traffic volumes.
- ✓ An infrastructure capacity analysis should show adequate capacity in facilities to support the additional demand created by a development. New developments should pay for themselves regarding required improvements to public infrastructure including but not limited to new or improved roads, sewer and water services, and schools. Level-of-service standards should be established to ensure that systems can accommodate new growth, and that levels-of-service are maintained or improved.
- ✓ Development proposed in areas without centralized sewer availability should provide adequate site area to accommodate on-site septic treatment, and wells for potable water. Where soil conditions are prone to septic treatment failure rates, adequate land for replacement systems should be provided or alternative treatment methods employed.
- ✓ Infrastructure improvements should be adequate for the proposed development as well as connection or additional capacity to serve anticipated future growth in the same service area.

FUTURE LAND USE DESCRIPTIONS

These future land use categories correspond to those categories shown on the **Future Land Use Plan Map**. Each future land use category is described below. Descriptions include a narrative description of character, some images of example uses, and supporting recommendations.

Forest, Agriculture, Residential

The forest, agriculture, residential category addresses a range of land uses associated with rural and low-intensity development. These areas accommodate important natural resources and agricultural assets, while providing for residential use and growth in rural portions of Bradley County. Residential densities in these areas may be up to four units per acre in areas with utilities, but should be developed with sensitivity to its surroundings. Non-residential uses are encouraged along identified rural corridors. Agricultural and agri-business uses are economically desirable businesses encouraged in these areas.



Example Uses

- Agriculture and animal husbandry
- Agri-business and boutique agriculture
- Single-family residential homes
- Retail and service uses along Rural Corridors

Future Employment Area

The future employment area category allows for the development of employment generating commercial and industrial uses within Bradley County. These areas include sites which have been identified as prime for future commercial or industrial uses in the **Bradley County Land Use Plan** and the **2011 Land Use Plan** update, as well as land well positioned to accommodate spill-over development from existing employment centers and neighboring communities.



Development Recommendations

- Future development of these sites should be done in a manner sensitive to the surrounding community and the environment in order to reduce the impact on nearby properties, uses, and natural resources.
- When considering future development of these sites, the ability of roadways to safely accommodate freight traffic should be considered.

Example Uses

- Retail and service uses
- Warehouse, manufacturing, and distribution centers
- Research, technology, and office centers and parks
- Institutional uses, such as schools, churches, and public facilities

Commercial/Rural Corridors

The commercial category provides for a range of commercial uses including service, retail, and hospitality. The general areas adjacent to identified rural corridors are appropriate for commercial development (see the Rural Corridors section at the end of this chapter for more information on rural corridors). Commercial future land uses are primarily corridor commercial establishments that may occur in concentrations, or as single site developments in outlying areas of the county. The outlying commercial uses may be designed to serve commuter populations, travelers, or rural populations. Commercial uses along rural corridors can vary in intensity but will usually be in the range of a floor-area ratio between 0.20 and 0.25.

Floor Area Ratios

Floor area ratio (FAR) describes the ratio of a building's total floor area to the size of the parcel of land on which the building is built.

$$\text{FAR} = \frac{\text{Total floor area}}{\text{Total lot area}}$$

Development Recommendations

- Commercial development may occur in areas with or without centralized sewer and water services. When located along one of the rural corridors, sufficient on-site capacity will be necessary for sewer and water services.
- Ensure adequate access management practices are in place to manage access from commercial developments to county roadways. Access management practices help maintain the functionality

and capacity of roads as properties along them develop.

Example Uses

- Retail and wholesale
- Restaurants and personal services
- Office space
- Institutional uses, such as schools, churches, and public facilities

Industrial

The industrial category allows for industrial and warehouse uses of medium to high intensity. Industrial uses may include research facilities, assembly plants, warehouses, distribution centers, and manufacturing plants. Support office and retail would be included in this category. Industry relating to agricultural use and services should be encouraged. The scale of industrial areas is typically larger than 30 acres. Floor area ratios for industrial developments typically range from 0.15 to 0.25.



Development Recommendations

- Development in industrial areas should occur in a manner sensitive to the surrounding community in order to reduce impact on nearby properties, uses, and natural resources.
- Depending on location in relation to urban service boundaries, urban services may not be available in some industrial areas. Sites in industrial areas not serviced by public sewer and water should be large enough to accommodate the appropriate facilities on site.
- The capacity and condition of rural roadways should be analyzed prior to new development to ensure adequate capacity exists for increased vehicular traffic. Several winding and rural roadways exist throughout the county and could create congestion and safety issues with increased peak-hour and freight traffic. Roadways may need to be improved or densities limited in these areas to prevent congestion and safety concerns.

Example Uses

- Manufacturing, warehousing, and distribution
- Research and technology centers
- Support retail and service uses

Natural Conservation

The natural conservation category represents areas where new development should be reviewed for impact on natural resources. These areas are less suitable for development due to severe environmental constraints such as ridge lines, hillside slopes, hilltops, or potential

flooding. These areas also include important natural resources and agricultural assets which have been identified by their current owners as features that are to be preserved. Areas which have been voluntarily maintained or restored to a natural state for the express purpose of the preservation of passive open space, wildlife habitats, natural resources, areas of agricultural importance, or environmental aesthetics also fit within this category. Due to the challenging topography, most of these areas would likely be most suitable for lower density residential development, or continued forested or agricultural uses. Most of the existing areas designated with this classification are in excess of 10 acres; however, lot sizes will vary.



Development Recommendation

- In considering potential development in natural conservation areas, special consideration should be given to the location of floodplains, steep slopes, or poor draining soil on building sites.

Example Uses

- Woodlands, forest
- Wetlands and waterways
- Nature trails
- Wildlife management areas
- Single-family homes
- Agriculture

Public

The public category includes publicly owned or operated facilities and institutional non-governmental uses. Public areas include uses relating to community services, such as government buildings, community centers, and educational facilities. The scale of public facilities should be determined based on the populations and projected populations served. The areas designated on the **Future Land Use Plan Map** represent existing or planned locations for public uses. Additional, unidentified locations for public uses may be located in other areas.



Development Recommendation

- The location of future facilities should be coordinated with other agencies and departments to identify opportunities for co-location of related facilities and to ensure cooperation and compatibility of future facilities.

Example Uses

- Government offices
- Public utilities and facilities
- Public parks and open space

Rural Residential

The rural residential land use category indicates areas suitable for large lot residential use patterns. The rural residential category is limited in its applicability within the county to the Northern and Southern Corridor Areas. This category intends to provide a transition from denser areas closer to development to predominantly agricultural areas, and to preserve the rural character in existing neighborhoods throughout the county. The average lot size for rural residential areas is five or more acres.



Development Recommendation

- Rural residential areas are typically not provided with urban levels-of-service. Depending on location in relation to urban service boundaries, rural levels-of-service generally will not include sanitary sewer and stormwater drainage facilities. Rural residential is generally not recommended in areas where urban services are or will be available.

Example Uses

- Single-family uses
- Institutional uses, such as schools, churches, and public facilities
- Parks and recreation uses

Low-Density Single-Family Residential

The low-density single-family residential category is the basic residential classification for single-family detached homes located on medium to large lots. Future development in these areas will be of lower densities than other residential areas, but may be of higher densities than rural residential areas. Lots in low-density single-family residential areas should be between 0.5 and two acres (a density of 0.5 to two units per acre).



Development Recommendations

- Residential development in low-density single-family residential areas is limited to single-family homes and accessory structures. Accessory dwelling units may be appropriate in some areas as determined by the county.
- Residential developments in low-density single-family areas should be designed with current and future transportation needs in mind. If new roads are required, new roads should connect one existing public roadway to another to improve access and mobility throughout the county.

Example Uses

- Single-family uses and accessory structures
- Institutional uses, such as schools, churches, and public facilities
- Parks, open space, and recreational facilities

Medium-Density Single-Family Residential

The medium-density single-family residential category supports slightly denser single-family residential development. Lots in medium-density single-family residential areas range from 0.16 to two acres (a density of 0.5 to six units per acre). This use is recommended as the primary designation for most of the City of Cleveland's urban growth boundary.



Development Recommendation

- Residential development in medium-density single-family residential areas is limited to single-family homes and accessory structures. Accessory dwelling units may be appropriate in some areas as determined by the county.

Example Uses

- Single-family uses and accessory structures
- Institutional uses, such as schools, churches, and public facilities
- Parks, open space, and recreation facilities

Low-Density Neighborhood Residential

The low-density neighborhood residential category allows for single-family dwellings, but also provides the opportunity for attached units and small-scale multi-family buildings as the area transitions to higher density residential uses, commercial centers, or mixed-use centers. This category primarily applies to areas adjacent to the City of Charleston or in the unincorporated neighborhoods to the southeast of APD 40 included in the Central Area Plan. Densities in low-density neighborhood residential areas range from two to eight units per acre, with sensitivity to the existing neighborhood context.



Development Recommendations

- New residential development should be sensitive to existing character, in terms of density and dwelling type. In cases where there is not an existing development pattern, a development could include a range of lot sizes.
- Additional recommendations for the Hardwick Farms Master Plan Development Area can be reviewed in the section regarding Future Land Use Special Areas.

Example Uses

- Single-family residential uses (both attached and detached) and accessory structures
- Small-scale multi-family residential structures
- Institutional uses, such as schools, churches, and public facilities
- Parks, open space, and recreation facilities

High-Density Neighborhood Residential

The high-density neighborhood residential category allows for the highest intensity of purely residential development. This category has very limited applicability in the unincorporated county and is applied to the existing neighborhoods adjacent to the City of Cleveland's southeast boundary. Average lot sizes for single-family detached homes in high-density neighborhood residential areas may range from 0.16 to 0.5 acres. A density of four to 12 units per acre, with higher densities possible in some locations and in some multi-family development, is appropriate in this category.



Development Recommendations

- New residential development should be sensitive to existing character.
- Densities exceeding 12 units per acre may be appropriate in some areas, as determined by the county and an assessment of infrastructure capacity.

Example Uses

- Single-family residential uses and accessory structures
- Multi-family residential buildings including two-family, three-family, townhouses, apartments, and condominiums
- Institutional uses, such as schools, churches, and public facilities
- Parks, open space, and recreation facilities

Village Mixed-Use

The village mixed-use category recognizes lower-density and rural areas which feature a combination of residential, retail, service, and institutional uses. These areas should feature retail and service uses tailored to serve, and appropriate for, the surrounding residential population and agricultural activities. The village mixed-use category applies to the small center of McDonald, and the Hiwassee Street frontage properties in the City of Charleston. Other small commercial centers throughout the county may be appropriate for this designation in the future. Residential units in village mixed-use areas feature average lot sizes between 0.5 and two acres per unit (with a density of 0.5 to two units per acre). Non-residential uses in the village mixed-use area feature a scale between 5,000 and 10,000 square feet with a service radius of about one mile.



Development Recommendations

- New development should be designed in a manner sensitive to village character and surrounding properties to limit the impact of development on the community. Development intensity should maintain a modest scale (less than 10 uses or buildings) that are loosely clustered along rural corridors or the intersection of major roadways within communities such as McDonald or Charleston.
- Given the low-density nature of rural villages, a mix of uses may be best realized through encouraging horizontally mixed-use corridors in or adjacent to low to moderate density single family neighborhoods.
- The McDonald village mixed-use area, located in the Southern Corridor Area, is not serviced by public sewer and water. Sewer treatment will need to be provided on-site, and wells will be necessary for water. Lot sizes should be adequate to accommodate necessary facilities on site.

Example Uses

- Small-scale services including gas stations, restaurants, bed and breakfasts, and inns
- Small-scale rural oriented commercial businesses including markets, convenience stores, feed and seed, and agricultural supply stores
- Detached single-family residential

Low-Density Neighborhood Mixed Use

The low-density neighborhood mixed-use category recognizes lower density developed areas which support a combination of residential, retail, service, and institutional uses at an appropriate scale to serve a neighborhood. This category applies to business developments along major thoroughfares at the fringe of urban areas and along Lauderdale Highway within areas with or proposed for neighborhood residential development. The uses in these areas should be focused on serving local populations and be developed with sensitivity to context. Priority should be placed on commercial, office, and semi-public uses in these areas however, residential development at densities up to four units per acre is suitable. Non-residential floor areas typically range between 10,000 and 20,000 square feet with a service radius of about two miles.



Example Uses

- Retail and services
- Offices
- Single- and multi-family residential
- Institutional uses, such as schools, libraries, churches, and public facilities

Medium-Density Community Mixed Use

The medium-density community mixed-use category supports a mix of land uses of appropriate scale to serve the surrounding community. The area should feature retail, service, office, and institutional uses in both horizontal and vertical mixed-use settings, while accommodating residential uses. Non-residential uses in medium-density community mixed-use areas feature a scale between 20,000 and 100,000 total square feet of floor area and a service radius of approximately five miles. Single-family detached residential units in medium-density community mixed-use areas feature average lot sizes between 0.16 and 0.5 acres. Residential densities up to 12 units per acre are appropriate in this category.



Development Recommendation:

- These developments, somewhat like traditional downtowns, are automobile oriented and must include adequate parking for residential and business uses; however, a park-once experience supported by a pedestrian friendly environment is encouraged.

Example Uses

- Commercial, retail, office, and service uses with a five mile service radii
- Personal and professional services
- Offices
- Mixed density residential
- Institutional uses, such as schools, libraries, churches, and public facilities
- Parks, plazas, and open space

High-Density Regional Mixed Use

The high-density regional mixed-use category allows for higher-density mixed-use developments appropriate for retail, service, office, entertainment, and residential uses to serve the region. These areas feature non-residential concentrations of 100,000 square feet of floor

area or more and service areas of more than five miles. Densities ranging from two to 12 units per acre, with higher density development being appropriate in some areas, are appropriate in these areas. These developments are automobile oriented and should include adequate parking to accommodate residential and business uses; however a park-once experience supported by a pedestrian friendly environment is encouraged.



Example Uses

- Regional scale retail and services
- Offices
- Multi-family residential
- Parks, plazas, and open space

RURAL CORRIDORS

Several Rural Corridors have been identified throughout the county to recognize roadways prime for future development once adequate funding is secured to extend utilities and services. These corridors are shown on the **Rural Corridor Overview Map**. The Rural Corridors identified radiate from the City of Cleveland, connecting Bradley County residents and business to various regional destinations outside of the county.

The identified Rural Corridors include:

- Dalton Pike
- Spring Place Road
- Waterlevel Highway
- Georgetown Road
- South Lee Highway

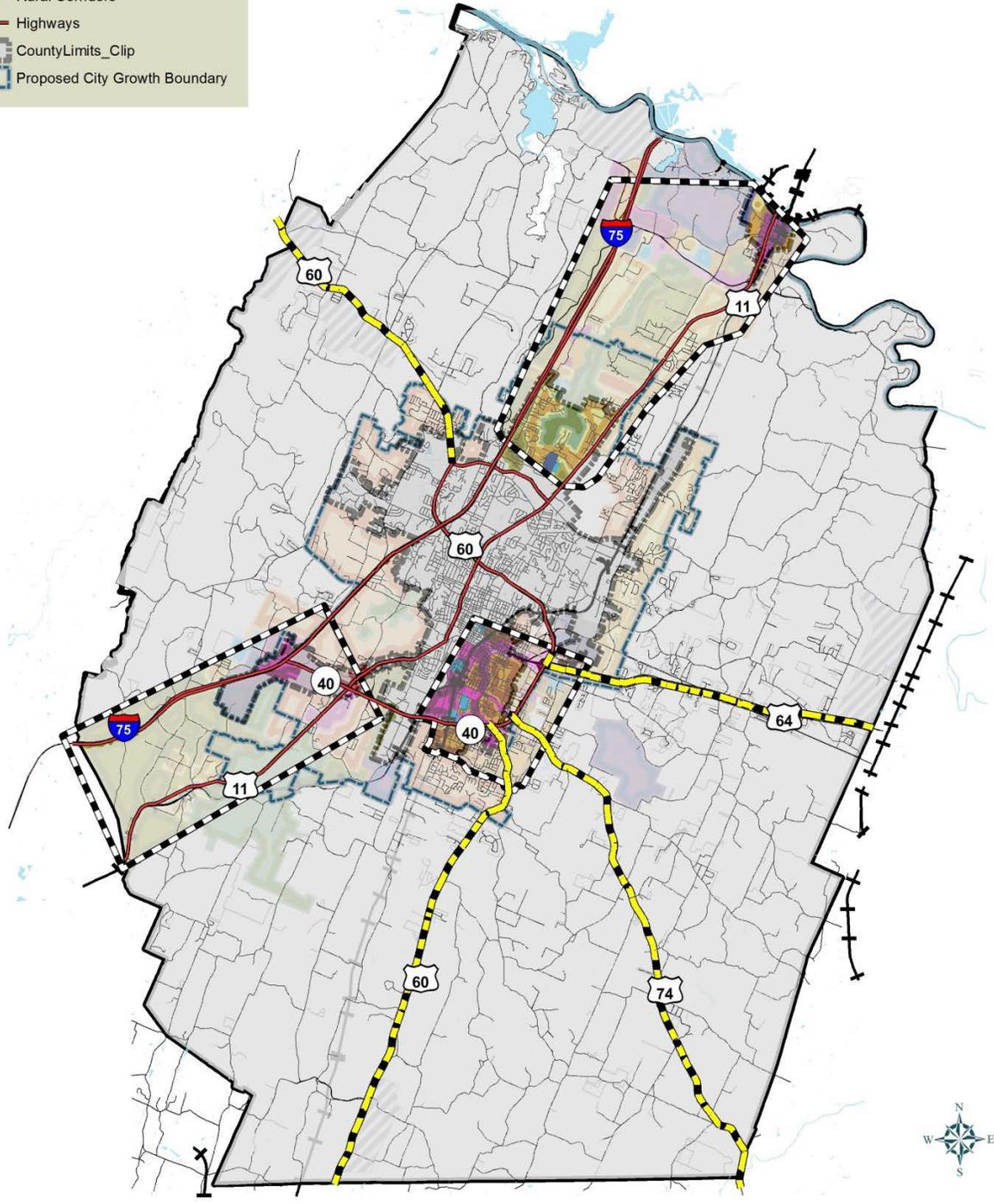
Rural Corridor Development Guidelines

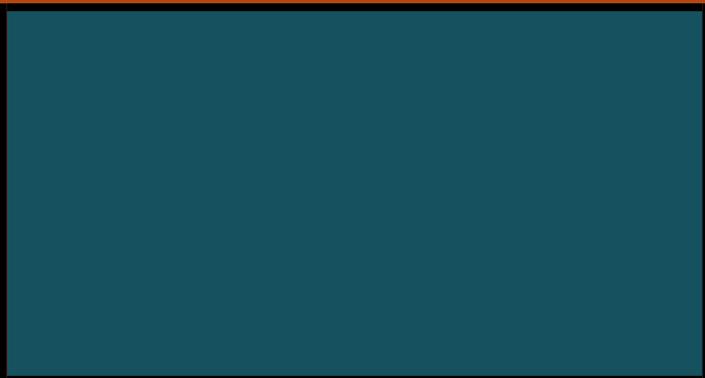
- Coordinate with other departments, agencies, and jurisdictions to plan phased utility and service expansion along Rural Corridors.
- Limit industrial and freight traffic to Rural Corridors and major routes to reduce congestion in rural communities.
- Develop design guidelines and site standards to ensure that future development complements the existing character of rural roadways.
- Develop a tool to assess the implications of future development on transportation infrastructure, utilities, public services, and surrounding uses to ensure that new development pays for itself and adequate capacity exists to accommodate development.

RURAL CORRIDOR OVERVIEW MAP



- Rural Corridors
- Highways
- CountyLimits_Clip
- Proposed City Growth Boundary





Chapter 3: Transportation

BACKGROUND

This element serves as the primary plan component used to guide decisions about major thoroughfares and other transportation networks in the county. This chapter is associated with the recommendations made in **Chapter 2: Land Use** and includes recommendations that recognize the relationship between the county's transportation networks and the accessibility of private and public properties. The primary focus of this chapter is on the road and major thoroughfare elements; however, the county has other transportation networks that are associated with the movement of goods and people through the county. Those elements are addressed in discreet sections following the *Major Thoroughfare Plan*.

Transportation systems considered include:

- Major Thoroughfares and Roads
- Walking and Bicycling Systems
- Transit
- Rail
- Waterways
- Aviation

EXISTING ROADWAY CONDITIONS

Functional Classification

Individual roads and streets do not serve travel independently but as part of a network of roads through which traffic moves. Functional classification defines the nature of this movement by defining the roles roads or streets should play in serving the flow of trips and the types of access provided to adjacent properties. Functional classification describes the importance of a particular road or network of roads to the overall system and, therefore, is critical in assigning priorities to projects and establishing the appropriate highway design standards.

The roadways in the region are functionally classified into the categories of interstate, freeway, principal arterial, minor arterial, collector, and local roadways as depicted on the **Current Functionally Classified Roads Map**. There are approximately 925 miles of roads within unincorporated Bradley County. Of these facilities, approximately 200 miles of roadways are functionally classified. The roadways that see higher traffic volumes and speed include interstates (I-75), freeways, principal and minor arterials and collector roads. Local roadways usually see lower traffic volumes, are of lower speed, and serve residential areas.

Safety

Addressing safety concerns is critical to maintain a safe transportation system. The National Cooperative Highway Research Program (NCHRP) estimates that two-lane road crashes increase 15% for narrow shoulders and 21% for no shoulders. For the purposes of this plan, safety was assessed based on consideration of roads with no shoulders, travel lane widths of less than 11 feet, and an average daily traffic volume of more than 1,000 vehicles per day. As illustrated in the **Narrow 2-Lane Classified Roadways Map** many roadways in the county have less than 11 foot travel lanes. Safety along these narrow roadways will be of increasing concern as growth occurs in surrounding areas.

Freight Transportation on Roadways

County-wide and regional freight demands are likely to increase given the region's strategic location, availability of industrial lands, and labor force. Bradley County's freight infrastructure is extensive and multimodal, including key regional/national truck corridors such as Interstate 75, a Norfolk Southern Railroad trunk line, and an inland waterway link to the Mississippi River system via the Hiwassee River.

Important truck freight routes include:

- I-75
- APD 40 Bypass (US 64/74)
- Waterlevel Highway (US 64/74)
- Paul Huff Parkway
- Stuart Road
- 20th Street
- SR 60/Dalton Pike/Georgetown
- SR 40
- Old Tasso Road
- Lee Highway/Keith Street (US 11)
- SR 308 (Lauderdale Memorial Hwy)
- US 74
- Michigan Avenue Road
- Lower River Road
- Westland Drive
- 6th Street
- Wacker Boulevard

Key links that are expected to see significant truck freight growth include:

- 25th Street between Interstate 75 and US 64/APD 40
- APD 40 between Interstate 75 and US 11
- Dalton Pike/SR 60 south of Cleveland
- Georgetown Road/SR 60 to the northwest of the City of Cleveland
- Lauderdale Memorial Highway/Lower River Road west of Interstate 75
- US 11 between 25th Street and the McMinn County line
- US 11 between APD 40 and Harrison Pike

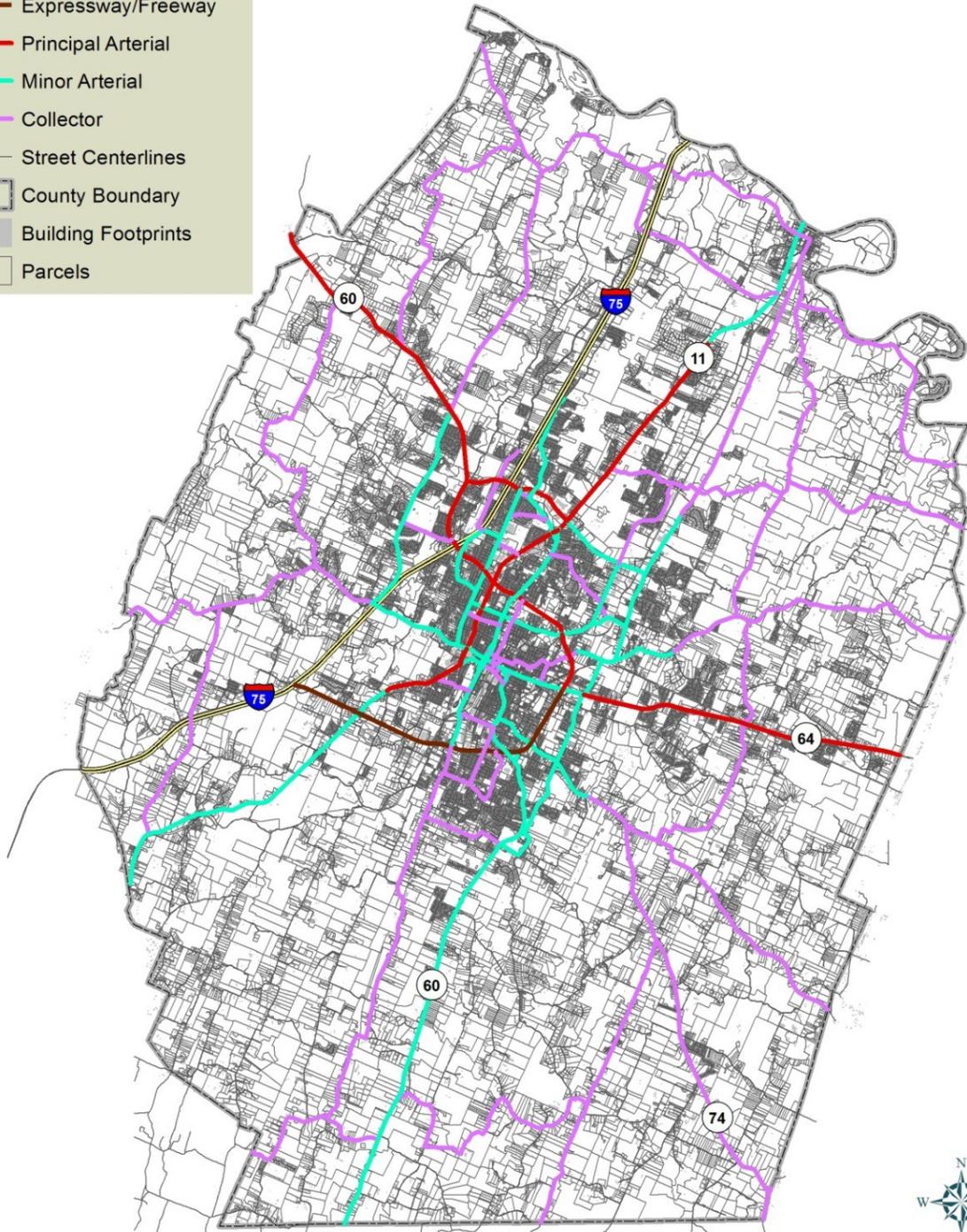
- US 64/US 74/APD 40 east of Cleveland

CURRENT FUNCTIONALLY CLASSIFIED ROADS MAP

Legend

Functional Classification

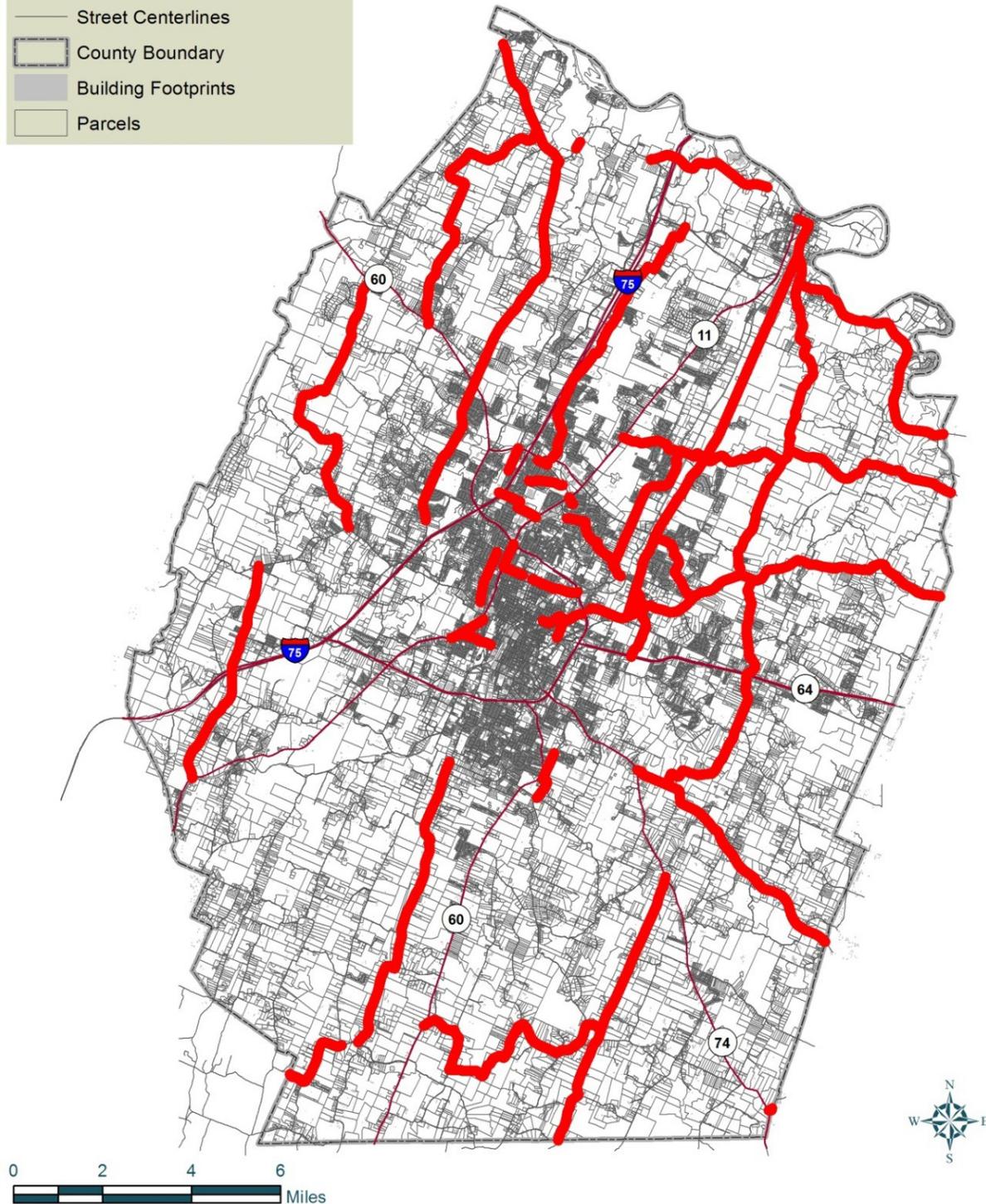
- Interstates
- Expressway/Freeway
- Principal Arterial
- Minor Arterial
- Collector
- Street Centerlines
- County Boundary
- Building Footprints
- Parcels



NARROW 2-LANE CLASSIFIED ROADWAYS MAP

Legend

-  Less than 11 Foot Travel Lanes
-  Highways
-  Street Centerlines
-  County Boundary
-  Building Footprints
-  Parcels



MAJOR THOROUGHFARE PLAN GOALS

- **Manage roadways and roadway capacity in order to promote an efficient, safe, and secure transportation network.** The capacity of roadways is influenced by a number of design factors including but not limited to roadway width, number of lanes, types of traffic (passenger or freight), straightness/curviness of the roadway, and number of access points and intersections. The county can manage the capacities of existing and future roadways through management practices and standards for roadway design and access management. The design profiles for various roadways should be related to their function in the county's network hierarchy, as well as the future land use recommendations.
- **Promote access management and roadway design which accommodates all users.** For roadways to function as major thoroughfares they need to have limited interruptions in traffic flow. Roads serving major employment centers should have capacity for heavy freight traffic, and roads primarily providing access to homes should discourage high speeds and non-residential traffic to promote safety and accessibility to individual properties. Access management standards can be used to maintain adequate levels-of-service on roadways by managing the frequency and design of access points. Access management is particularly important along US 60 (Georgetown Road/Dalton Pike), US 11 (Keith Street/Lee Highway), and US 64 (APD 40/Waterlevel Highway).
- **Manage the mix and impacts of freight traffic on the surrounding areas while promoting efficient business connections throughout the region.** The county should explore cost effective options, such as signage and traffic patrol, to limit heavy truck traffic to designated roadways. Signalization, intersection design, and exploration of alternative routes for freight traffic should also be considered.
- **Integrate land use and transportation planning to ensure compatibility.** Through this comprehensive plan, the county is coordinating the future land use recommendations with the *Major Thoroughfare Plan* to ensure that the potential future growth can be accommodated while maintaining or improving upon current roadway levels-of-service.
- **Provide adequate transportation infrastructure in the faster growing northern and southern areas of the county.** Include transportation improvements for the Southern and Northern Corridors as priorities in the *Major Thoroughfare Plan* and ultimately any capital improvement plans. The MPO has already identified several projects in these locations that are included in the MPO's *2035 Regional Transportation Plan*.
- **Manage and preserve the existing transportation system to meet transportation needs and control public costs.** Develop a maintenance and improvement program for local roads that allows for coordination of improvements with regular maintenance to reduce overall investments.
- **Strategically develop capacity of transit and bicycle/pedestrian systems to provide viable low-cost personal transportation, reduce vehicle emissions, and promote community health.** Include sidewalks, bike lanes, greenways, and transit infrastructure in designs for specific rights-of-way and improvements.

MAJOR THOROUGHFARE PLAN AND RECOMMENDATIONS

The following constitutes the *Major Thoroughfare Plan* for Bradley County. The *Major Thoroughfare Plan* integrates transportation needs of the region, through the Cleveland Area MPO, and provides the strategies needed to implement roadway improvement projects in cooperation with the Cities of Cleveland and Charleston, the Tennessee Department of Transportation (TDOT), and the development community.

The *Major Thoroughfare Plan* has three main elements:

- Committed and Planned Projects,
- Functionally Classified Roadways, and
- Implementation Policies.

These elements work in tandem with proposed future land use policies and other policy recommendations of the comprehensive plan.

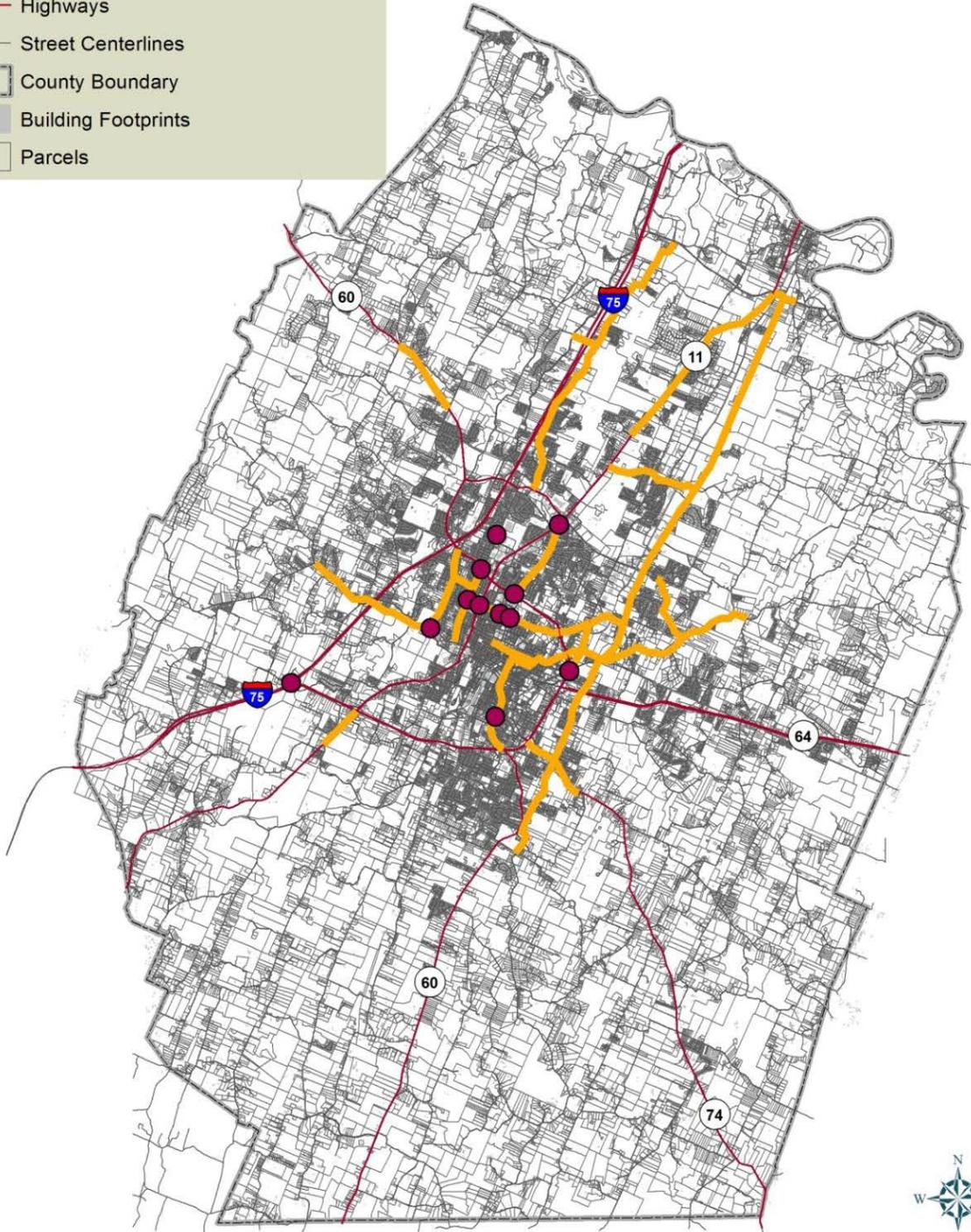
COMMITTED AND PLANNED PROJECTS

In May 2011, the Cleveland Area MPO adopted the region's *2035 Regional Transportation Plan*. In this plan, transportation deficiencies were identified and tested based on anticipated growth scenarios developed as part of the *BCC 2035 Joint Strategic Plan*. These planned highway projects, as presented in the MPO's *2035 Regional Transportation Plan* are shown on the *Major Thoroughfare Plan Map*. These project improvements are hereby incorporated into Bradley County's *Major Thoroughfare Plan*.

MAJOR THOROUGHFARE PLAN MAP

Legend

-  Intersection/Interchange Improvements
-  Roadway Improvements
-  Highways
-  Street Centerlines
-  County Boundary
-  Building Footprints
-  Parcels



PROPOSED FUNCTIONAL CLASSIFICATION

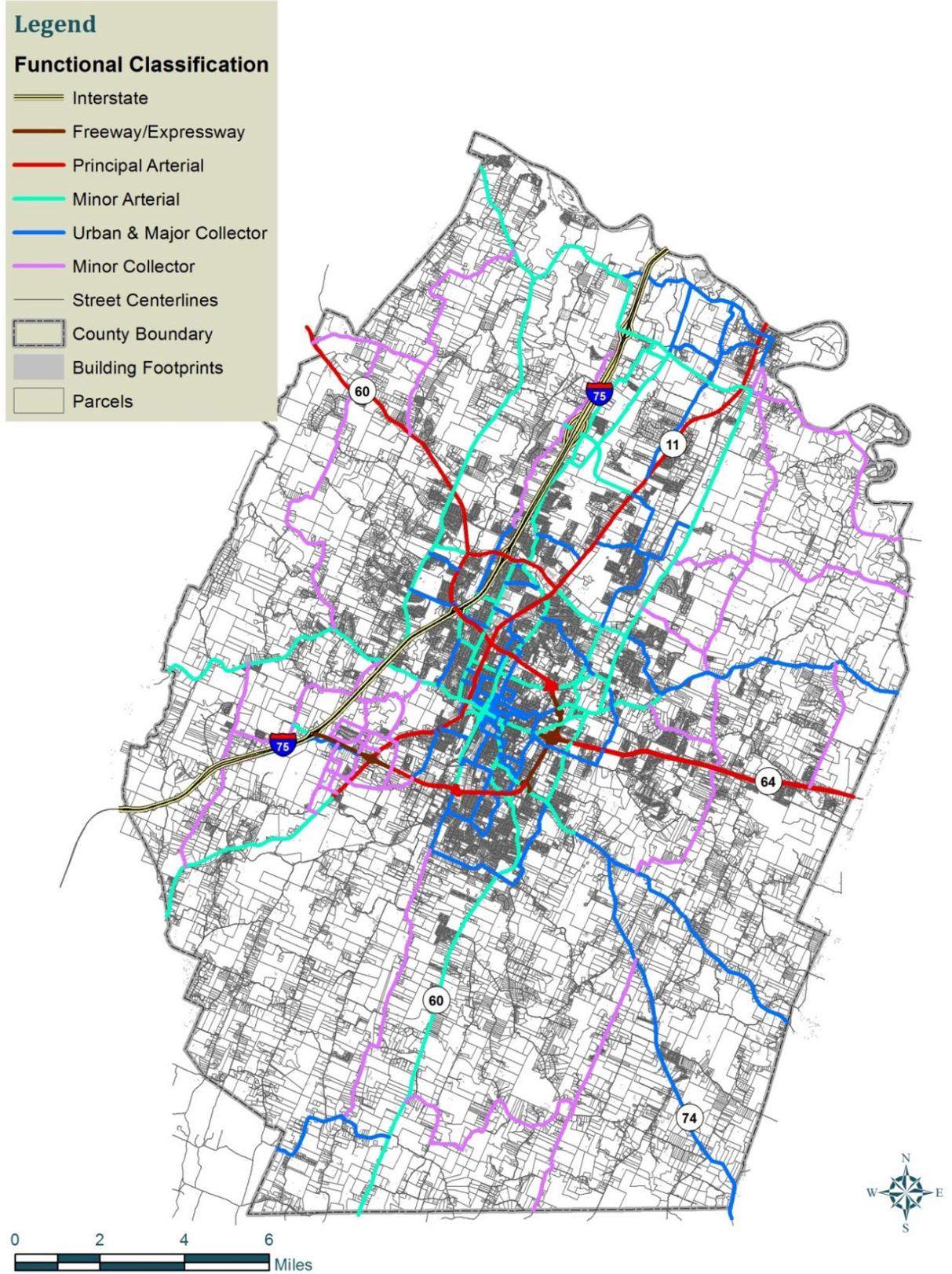
Based on a thorough review of previous plans, planned roadway improvements, proposed future land policies, and existing roadway functions and design the following proposed functionally classified roads have been designated. These roadways are hereby an element of the **Major Thoroughfare Plan** and are intended to facilitate mobility and well planned growth. Minimum right-of-way requirements have been established for these classified roads and are consistent with planned improvements as well as future land use and growth plans.

The widths presented in the following table are total right-of-way and will generally be measured symmetrically from the existing roadway centerline. The **Proposed Functionally Classified Roads Map** illustrates proposed roadway classifications.

<i>Required Minimum Road Right -of-Way</i>	
Road Type	Right-of-Way (Feet)
Principal Arterial	120
Minor Arterial	80
Urban & Major Collector	70
Minor Collector	50
Local Roads	40-50
Interstate & TDOT Access Controlled Roadways	Per TDOT Standards

Right-of-way requirements are to be achieved when private development occurs and/or as part of a planned roadway improvement. There are a number of proposed roadway concepts that are identified on the functional classification map as “proposed”. These roadway concepts are development driven and would only occur if initiated by private development request.

PROPOSED FUNCTIONALLY CLASSIFIED ROADS MAP

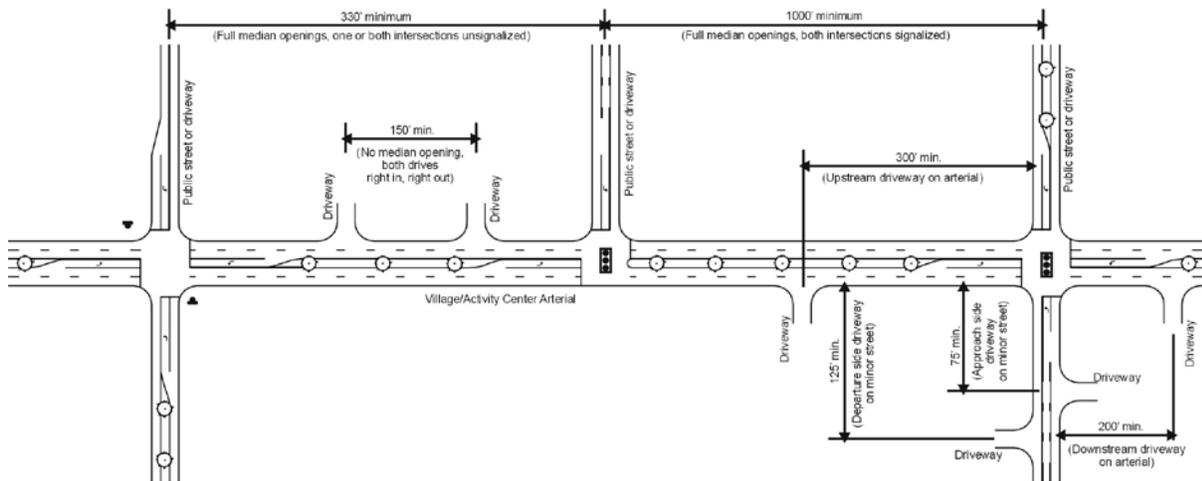


ACCESS MANAGEMENT

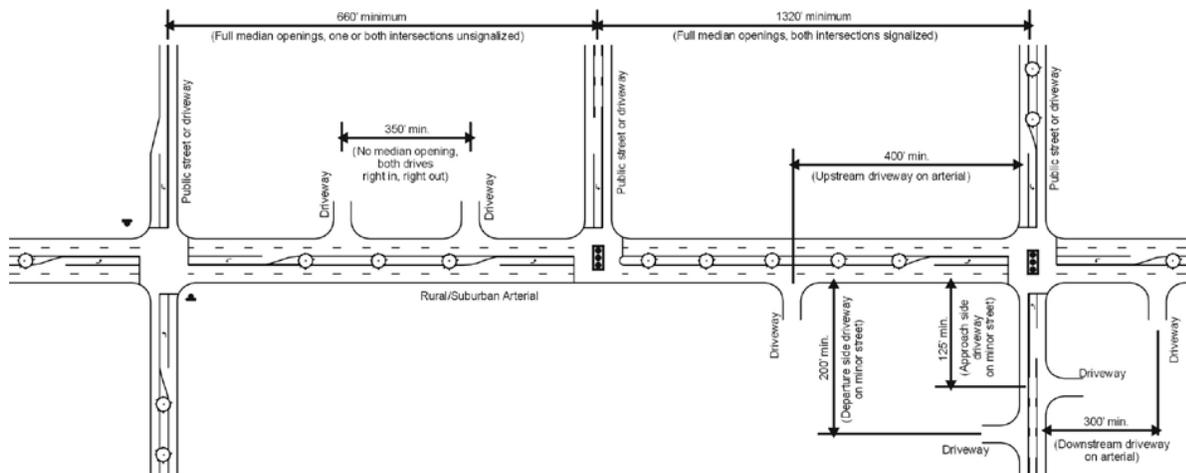
Good access is critical to the success of development projects, but too many access points can cripple the transportation network from a mobility perspective. A major part of appropriate corridor development within the city will include the proper restriction and provision of new intersections on roadways.

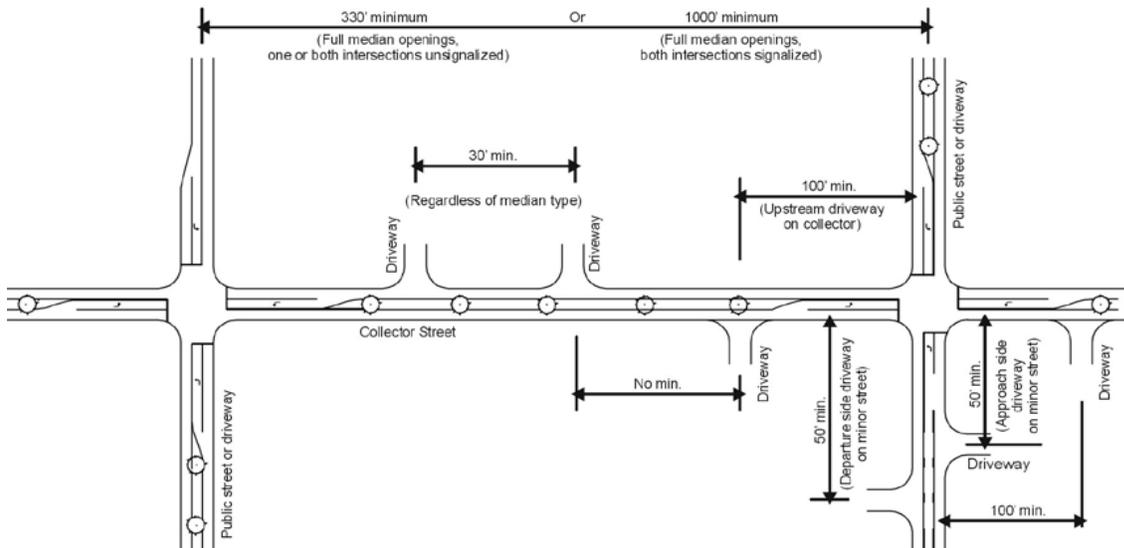
The figures below provide guidelines on the appropriate spacing of roadway access for different types of roadways within the *Major Thoroughfare Plan*. These guidelines are provided as general aids in planning new access points and have been made to provide optimal intersection spacing in accordance with the access policies of TDOT. It may be that factors such as property lines, grades, sight distances, building locations, etc. prevent the strict application of these guidelines. In this case, a traffic engineer should analyze the existing and proposed traffic impacts with respect to a new access point.

Principal Arterial

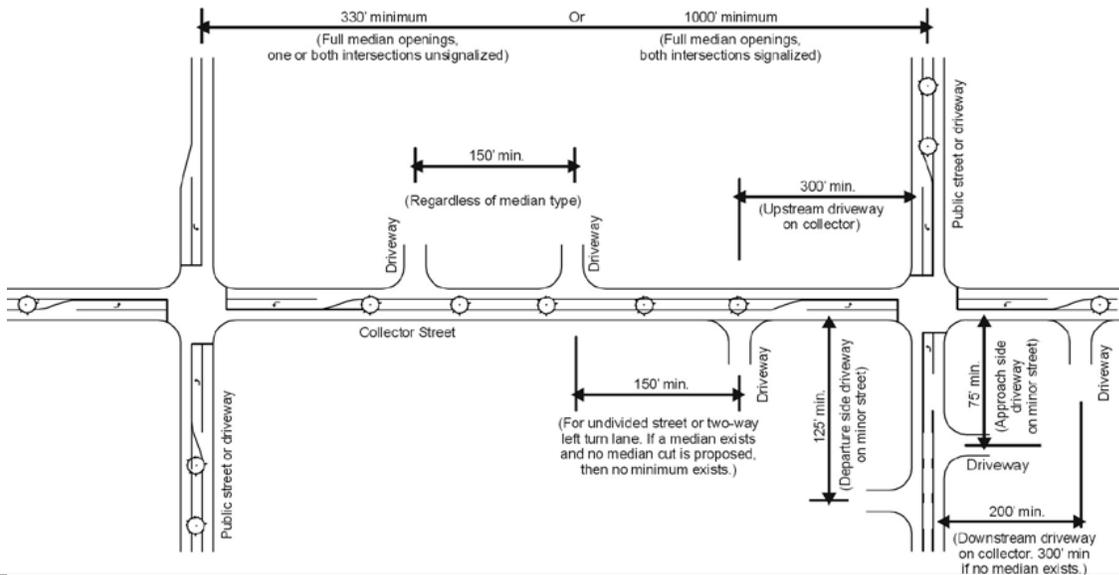


Minor Arterial





Minor/Rural Collector



Urban/Major Collector

COMPLETE STREETS APPROACH

As roadway congestion in many areas across the country has increased and mobility needs and environmental issues have become more prominent, the need to provide safe areas for alternative modes of transportation has become an important aspect of transportation planning. To address this issue, many city, county, and metropolitan areas are adopting a complete streets approach in designing transportation improvements. A complete streets approach addresses the needs of bicyclists, pedestrians, transit users, freight, and motor vehicles for people of all capabilities including those with disabilities, children, and older people. The approach considers all modes of transportation from the beginning of the project. Including the design of facilities for alternative modes of transportation from planning to construction is more effective and less costly than having to retrofit facilities in order to provide bicycle, pedestrian, and transit accommodations.

Including complete streets from the beginning of a project does not mean that every street will accommodate every mode of transportation. However, it does mean that alternative modes of transportation should be considered for all planning, design, and construction projects so that a continuous and consistent transportation system for all users is created.

A safe and friendly environment for pedestrians and bicyclists can be accomplished by the use of a design system that divides a street into zones. These zones, as shown in the “Provisions for Complete Streets” figure on the following page, are the:

- frontage zone;
- pedestrian travelway;
- buffer zone;
- on-street parking;
- bike facility; and
- travel lane.

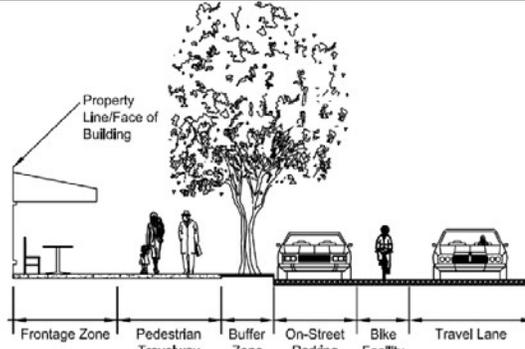
Each zone will vary depending on the density and type of land use in the area. The zonal dimensions shown in the figure are provided for guidance. In some situations, physical constraints may prevent the desired widths. In these situations, the maximum practical width that meets Americans with Disabilities Act (ADA) and American Association of State Highway Transportation Officials (AASHTO) standards should be used.

The frontage zone is the area between the edge of the right-of-way and the pedestrian travelway, where a storefront or development may be located. This zone accommodates awnings, landscaping, café seating, and other obstructions that should be placed outside of the pedestrian travelway. Bicycle racks are sometimes located in this area.

The pedestrian travelway, or the sidewalk, is the area provided for pedestrians to walk. The width of the sidewalks varies from five feet to 12 feet. Depending on land uses and densities, sidewalks may not be feasible in all areas, especially in rural areas.

A buffer zone is often provided to allow space between motor vehicle traffic and pedestrians. This space is where trees, lighting, transit stops, and other amenities can be provided. Placing these features outside of the pedestrian travelway makes the environment more inviting. In denser areas and in the downtown, on-street parking may be provided. On-street parking helps create a pedestrian friendly environment by serving as an additional buffer between the travel lanes and the sidewalk.

Provisions for Complete Streets



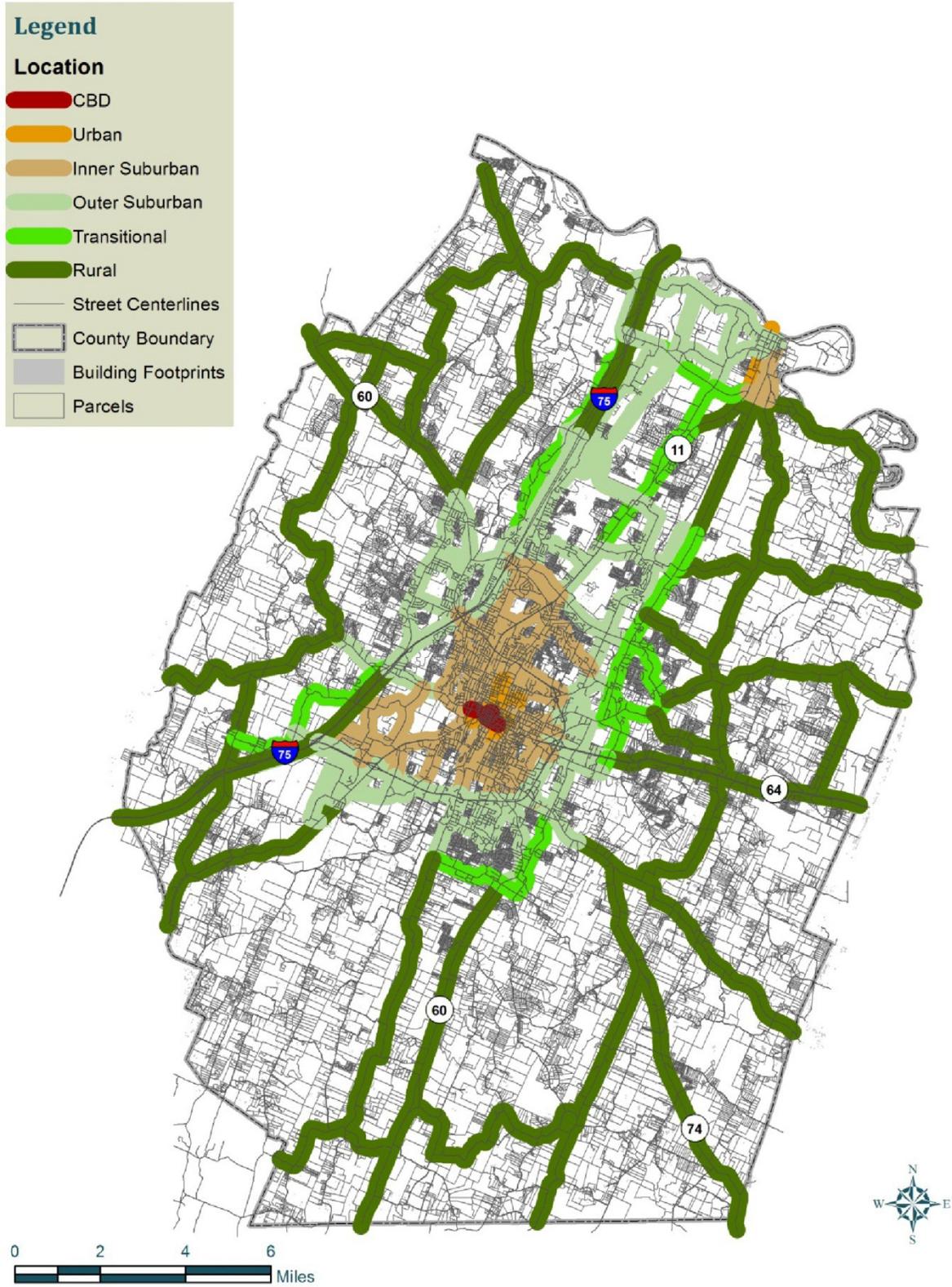
	Frontage Zone	Pedestrian Travelway	Buffer Zone	On-Street Parking	Bike Facility	Travel Lane
Downtown/Urban Core	4'-12'	6'-12'	6'	7'-8'	4'-6'	10'-12'
Urban	3'-12'	5'-10'	4'-6'	7'-8'	4'-6'	10'-12'
Inner Suburban	--	5'	4'	7'-8'	4'-6'	10'-12'
Outer Suburban	--	5' or SP	4'	--	SSR	10'-14'
Transitional	--	SP or PS	--	--	PS	10'-12'
Rural	--	SP or PS	--	--	PS	10'-12'

SP = Side Path (A minimum of at least 5-feet wide with a minimum of a 5-foot buffer)
 PS = Paved Shoulder (A minimum of 4- to 6-feet wide depending on roadway traffic volumes and speeds)
 SSR = Signed Shared Roadways (Referer to AASHTO and MUTCD standards)

Draft for Steering Committee Review (8-20-13)
Major Thoroughfare Plan and Recommendations

Each of the aforementioned zones provides a range of appropriate design solutions for accommodating all roadway users. The **Proposed Functionally Classified Roads District Designation Map** provides district designations based on proposed future land use policies for each functionally classified road. The complete streets design solutions are recommended as general aids in planning new streets and in planning for the accommodation of non-motorized forms of transportation. These standards should be used in developing appropriate accommodation provisions which are more closely linked to the character and setting of development rather than exclusively on roadway capacity standards.

PROPOSED FUNCTIONALLY CLASSIFIED ROADS DISTRICT DESIGNATION MAP



RECOMMENDATIONS FOR OTHER MODES

WALKING AND BICYCLING SYSTEM

The sidewalk and greenway systems provide safe pedestrian routes for county residents. Sidewalks are commonly found in the City of Cleveland's downtown and established neighborhoods. Due to the low-density nature of the unincorporated county, many areas do not feature public sidewalks. In addition to public sidewalks, a paved greenway provides access to employment, shopping, residences, and amenities along a broad and densely developed area running through the City of Cleveland along the South Mouse Creek corridor and in the City of Charleston.

Recommendations

Low-density areas of the county often do not see the levels of pedestrian traffic observed in the municipalities, and therefore may not be appropriate for public sidewalk expansion. However, to build a transportation network that accommodates all users, areas in which demand for public sidewalks exist should be identified. The installation of sidewalks should be timed with development. The county should explore measures to ensure that the cost of new sidewalks and other amenities that will be required to accommodate new growth in the county are paid for by the developer and development when possible.

TRANSIT

Public transportation services in Bradley County are provided by the Southeast Tennessee Human Resource Agency (SETHRA), which provides demand response (curb-to-curb paratransit services) within its nine-county service area. SETHRA uses smaller buses and lift-equipped vans to provide services. Within the City of Cleveland SETHRA operates a deviated fixed-route system, meaning that the buses operate on established routes and serve regular bus stops, but the buses can also pickup/drop-off riders a short distance off the route.

Recommendations

Providing a transit system as an alternative to the single-occupancy vehicle is a means for people who do not have cars to travel independently, and also serves as an option for people that want to reduce their dependency on their vehicle. However, due to the low-density nature of the unincorporated county, fixed-route systems are limited to Cleveland. The following recommendations are provided for transit services in Bradley County which are consistent with regional initiatives established by CUATS, SETHRA, and the Cleveland MPO:

- Identify locations for potential park-and-ride lots near I-75, to support park-and-ride bus service to Chattanooga
- Operate longer service hours to attract working patrons, particularly those working evening retail hours
- Explore operating special events related services such as service to county parks on summer Friday evenings

RAIL, WATERWAYS, AND AVIATION

Rail

There are 30 public at-grade rail crossings in Bradley County. The crossing with the heaviest rail traffic is located at 20th Street, which handles approximately 29 trains per day, typically moving between 15 and 30 miles per hour. The next most heavily used crossings are those at Cass Street, Market Street, Wool Street, and Sheffey Road in Charleston, all of which serve the industrial land uses in that area.

Recommendations

To guarantee that the region remains competitive in the area of shipping, Bradley County must ensure that the existing railroads are adequately maintained, that the system improvements are made, especially those involving safety, and that the land uses that are located in or around the railroad are compatible with rail services. As with all regions throughout the southeast, freight transport, particularly rail, is forecasted to grow exponentially over the next 25 years both in terms of the number of trains and carloads.

Waterways

Inland waterway access in Bradley County is provided by the Hiwassee River, which is maintained by the Tennessee Valley Authority (TVA) at an authorized depth of 10 feet. The river forms the boundary between Bradley County and neighboring McMinn County, and connects the region to the Tennessee River approximately 22 miles to the west. There currently are six intermodal port facilities on the Hiwassee River, two of which are located in Bradley County and are owned and operated by the Olin Chemical Corporation.

Recommendations

The county should continue to support upgrades to Tennessee's inland waterway system. Potential upgrades that should be considered include replacing aging infrastructure at major locks and dredging rivers in key locations to allow use by deeper barges.

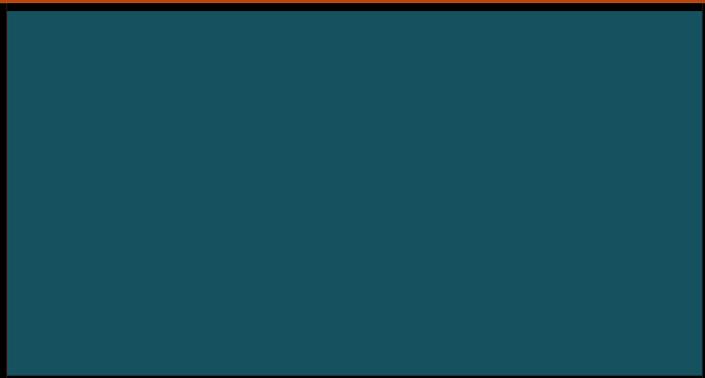
Aviation

Air transportation plays an important role within a local economy of a region and offers a diversity of transportation options to industry and private individuals. Cleveland Regional Jetport, located off of Tasso Lane near Michigan Avenue, is now operational. The new airport consists of a runway constructed with proper safety, parking apron, terminal building, 25 hangars, and two 10,000 gallon fuel tanks. Integration of the new airport and aviation transport within the region is essential to serving existing and attracting new industry to the region, and in making more efficient use of existing transportation resources.

Recommendations

The county should continue to cooperate with the City of Cleveland, Cleveland Municipal Airport Authority, and TDOT on future airport system needs. Continued and ongoing coordination of transportation improvements and development intensity surrounding the airport can ensure that the integrity and efficiency of the airport is preserved into the future.

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Chapter 4: Utilities

BACKGROUND

Utilities are the infrastructure associated with providing essential services and connectivity to the homes and businesses of Bradley County. These amenities are provided by quasi-governmental agencies and government departments. They have two major topics in common: they require infrastructure such as wires or pipes to deliver services, and they also must have capacity to produce the service which is delivered. This aspect is measured as a level-of-service (LOS). A LOS can be used as both a measure of existing performance and as a benchmark or attainable target to which future plans will strive. This chapter explains the existing and recommended conditions associated with the utilities provided by governmental or quasi-governmental agencies as they are associated with the estimated growth and development which would be consistent with the land use and transportation recommendations of this comprehensive plan. In addition to discussing the utilities individually, this chapter provides recommendations on utility planning in light of potential future annexation and growth. This chapter is structured to include the background and current levels-of-service, goal statements, and recommendations for each of the following utilities:

- Telecommunications
- Electrical Power
- Natural Gas
- Potable Water
- Sanitary Sewer

Since some utilities act as a catalyst for high intensity development, a proposed urban service boundary was delineated in the *Southern Corridor Area Plan*, beyond which municipal services would not be provided and efforts would be made to preserve rural character. More information on this boundary can be reviewed in the areaplan.

TELECOMMUNICATIONS

BACKGROUND AND CURRENT LEVELS-OF-SERVICE

Land line telecommunications services are available throughout the county and are privately-provided on an on-demand basis. The services available include a fiber optics trunk and numerous private high-speed internet service providers and systems vendors, whose offerings and services are regulated federally as well as by the Tennessee Regulatory Authority. As would be expected, a more robust offering is available within the city and along major transportation routes than in some of the more rural areas of the county. EPB's GIG service is the region's most powerful fiberoptic network. Cable TV and digital communications facilities within the county are owned and operated by Charter Communications with a number of available service providers. In addition to these various land line and cable telecommunications systems, wireless TV and other digital communications services are available via satellite systems and service providers. Cellular communications tower facilities and services are available within the City of Cleveland.

Tier 1 internet service provider (ISP) offerings are available in the county and facilitate high-performing internet protocol (IP) backbone in speeds up to 40 Gbps (gigabits per second) and managed internet services include data speeds ranging from 1.5 Mbps (megabits per second) to 10 Gbps.

Multiple-ring systems are also available and can provide alternate routing between backbone nodes for enhanced service reliability and service redundancy strategies enable further system reliability for high-demand business applications. Fiber-based ring services facilitate failure-resistant networks and move a high volume (up to 9.75 Gbps) of voice/VoIP, video and data traffic between branch offices, data centers and other locations.

While businesses and larger users, like schools, continue to rely on hardwired communication to their facility, end user and personal/residential communications are moving toward wireless services. Wireless services available within the city and county include voice and data local area network (LAN) and wide area network (WAN) systems utilizing GSM, HSPA, HSPA+, and LTE standards on the fastest mobile broadband network infrastructure available nationally. Wireless fidelity (WiFi) networks and related systems are also available.

Based upon telecommunications level-of-service information gathered in 2010 by Connected Tennessee, approximately 75 percent of households within the county have a personal computer (PC) at home (similar to the state-wide average). Of those households, approximately 50 percent subscribe to some sort of home broadband service (more than 10 percent below the state average); although approximately 70 percent of those households with a PC reported that broadband service is available to them. For those connected to broadband services, the average download speed was 4.9Mbps (similar to state-wide averages). The more remote parts of the county have limited services compared to more urbanized areas and along major transportation corridors, as shown on the **Gaps in Broadband Availability Map**.

According to the Cleveland-Bradley County Chamber of Commerce, varying levels of wireless data service are available in almost all of Bradley County, as well as a robust array of digital offerings, fiber-based services, and the enhanced Emergency 911 service.

In part because most of the available telecommunications facilities systems are privately owned, operated and maintained as business enterprises concerned about proprietary systems information, very little data has been provided in the way of specific facilities locations and

current levels-of-service. It has been reported that issues of bandwidth and service speed have been raised with service providers but, to date, no strategy has been identified to address these problems.

GOALS

- **Support the expansion and maintenance of telecommunication facilities in coordination with plans for future growth.** Unincorporated areas of Bradley County do not have access to the same telecommunication service options as more urban areas. The county should coordinate with system providers to identify strategic opportunities for system enhancement and expansion in time with growth and development.

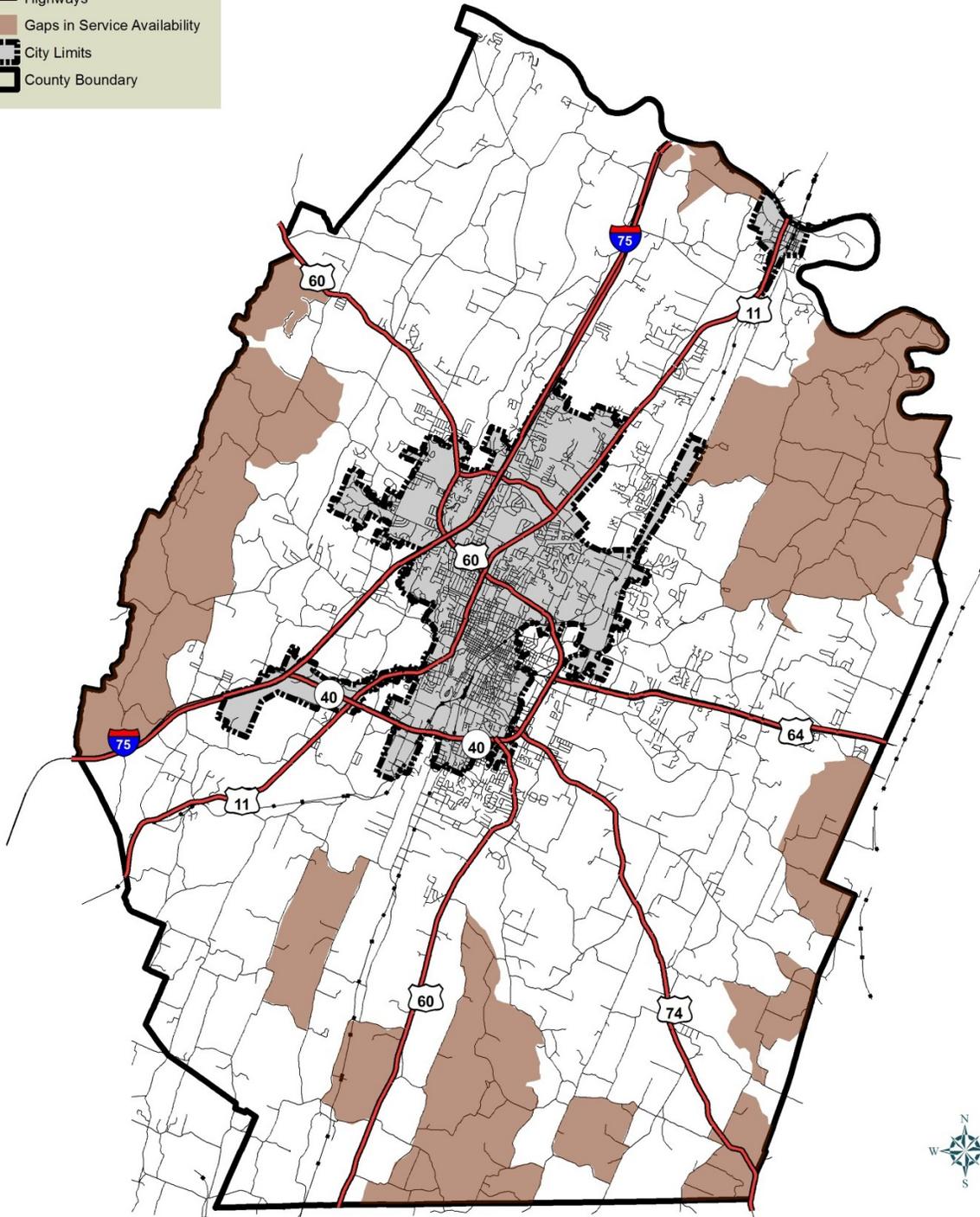
RECOMMENDATIONS

The county should work with organizations and jurisdictions of Bradley County to establish a county-wide task force to conduct a specific study of the issues affecting telecommunications services. This study should aim to define existing service levels throughout the county, identify deficiencies in service levels, project future needs, and identify strategies to meet the foreseen needs. It may also be helpful to identify policies or regulatory changes that could be useful in promoting improved service-delivery cost-effectiveness and in ensuring that the county is well positioned to respond to the needs and opportunities of the future.

The following recommendations offer guidance on the future of telecommunication infrastructure provisions in Bradley County:

- Develop a telecommunication tower and infrastructure plan with emphasis on minimizing the development impacts of expanding infrastructure.
- Ensure co-location opportunities are fully met before permitting new wireless communication facilities.
- Maintain a uniform and comprehensive set of standards for development and installation of communication infrastructure.
- Promote innovation and the introduction of new technologies into existing services to provide diverse choices to meet the needs of Bradley County residents and businesses.
- Conduct an inventory of communication services available in areas classified as future employment areas in the unincorporated county to ensure that adequate communication exists to accommodate and attract employment generating uses.
- Develop a technology master plan integrating county and city agencies with appropriate access to information, recognizing and incorporating overlapping departmental tasks and interests.
- Develop a high-speed communications strategy to introduce high-speed broadband connections to businesses and school sites currently not served, and to improve connection speeds throughout the county. Partner with the EPB to expand the GIG network into areas of the county.

GAPS IN BROADBAND AVAILABILITY MAP



ELECTRICAL POWER

BACKGROUND AND CURRENT LEVELS-OF-SERVICE

As can be seen in the **Electrical Power Service Area Map**, electrical power service is available from three service providers within Bradley County: Volunteer Energy Cooperative (VEC), a regional energy cooperative based in Decatur, TN serving the majority of unincorporated Bradley County; Cleveland Utilities (CU), an agency of the City of Cleveland serving customers within the City of Cleveland and portions of the surrounding area; and Electric Power Board (EPB) of the City of Chattanooga serving portions of western Bradley County adjacent to Hamilton County. Electrical power for these distributors is generated and transmitted by the Tennessee Valley Authority (TVA), world-renowned for the reliability and relative low-cost of the electrical power it provides to its distributors. Each of these service providers is equipped with strategically-located power sub-station connections to the TVA power grid.

As can be seen in the **Electrical Power Service Area Map**, the CU service area generally comprises only the areas in and around the City of Cleveland. Its facilities and grid are separate from the other two electric systems (VEC and EPB) which serve Bradley County. The primary CU system voltage is 7620/13200 volts, but the voltage supplied to their customers is generally 120/240V 1-phase and either 120/208V or 277/480V 3-phase. While a range of other voltages can be supplied, customers are responsible for purchasing transformers needed to supply any such secondary voltages that are not normally provided. The CU system currently receives TVA power via two delivery substations (161 Kilovolts (KV) / 69KV) and provides service to its 29,673 customers via 14 distribution substations (69KV / 13KV), 53.5 miles of 69KV lines and 530 miles of 13KV lines, 109 miles of which are underground. The FY 2013 budget for the electrical division of CU is \$7,588,000. It appears to have a well-established long-range planning process including maintenance of a continuously-updated 10-year capital plan. Based upon current policies, whenever the City of Cleveland begins the process of annexing properties, CU commences negotiations with VEC to acquire facilities required to provide electrical power service to those areas.

In general, VEC and EPB provide similar levels of electrical power as those provided by CU. As on-demand systems, electrical power distribution facilities can usually be provided whenever demand is demonstrated. Commercial and residential service billing rates are structured to provide adequate revenues for self-funded expansion and enhancement. Since VEC currently provides electrical power service within the current urban growth boundaries for Cleveland, consideration will need to be given to potential impacts of future annexation on VEC facilities and customers.

GOALS

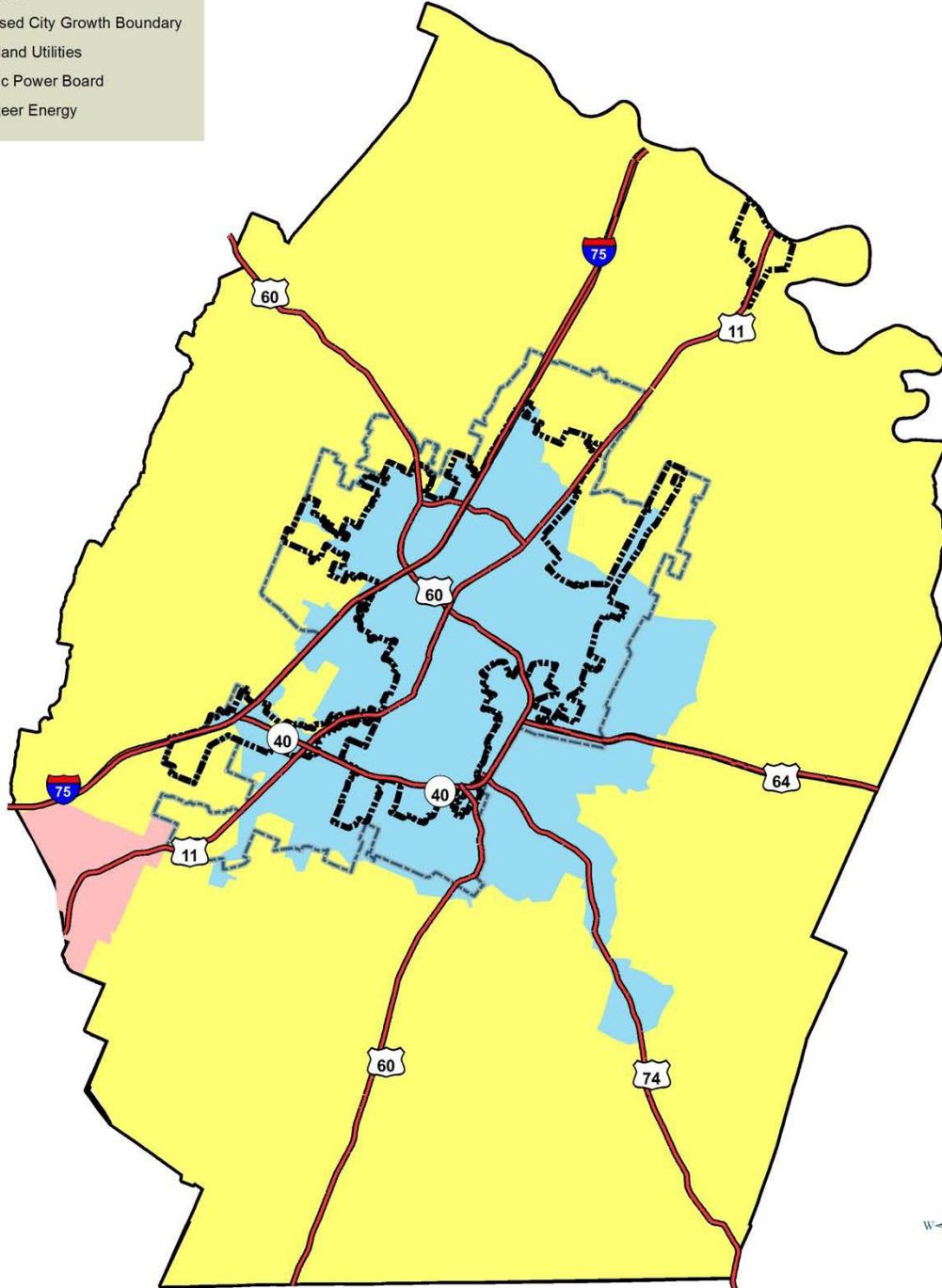
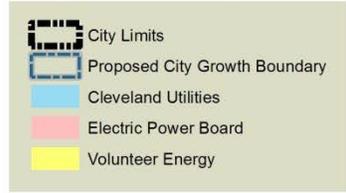
- **Support the expansion and maintenance of electrical power facilities and services in coordination with plans for future growth.** The potential demand of new and expanded residential areas and new industries and businesses should be taken into consideration before the additional demand is placed on the system. This will ensure that a LOS is available which meets or exceeds current levels and that future users will be able to connect to the appropriate service.

- **Promote greater coordination between local governments and county-wide electric service providers to plan for system maintenance and expansion and to strategize for the maintenance of competitive service rates.** Areas of the county and region are facing rising rates for electric service, an issue that could magnify as growth occurs. Proper coordination and planning can ensure a well-maintained system and affordable, predictable rates for customers.

RECOMMENDATIONS

While local jurisdictions and electrical power service providers have coordinated to analyze available electric services in the county, no significant deficiencies in the LOS provision throughout the county have yet been identified. Coordinating the extension of electrical services in new developments with annexations by Cleveland will avoid unnecessary expenses. As the county continues to grow, the county, municipalities, and electrical service providers may consider establishing a county-wide task force to identify policy or regulatory changes that may be required to facilitate more cost-effective services and to help ensure that Bradley County, Cleveland and Charleston are well positioned to respond to future needs and opportunities.

ELECTRICAL POWER SERVICE AREA MAP



NATURAL GAS

BACKGROUND AND CURRENT LEVELS-OF-SERVICE

Natural gas service is available within the city from several providers and suppliers through two delivery methods. AGL Resources, Inc., operates and maintains a conventional in-ground network of facilities providing natural gas service to the commercial, industrial, institutional and residential customers in the most intensively-developed areas of the county, including the City of Cleveland and county industrial parks. AGL Resources expands its facilities on an as-needed or on-demand basis, often at no up-front cost to high-usage customers or in areas near existing facilities.

Volunteer Energy Cooperative (VEC) offers low-pressure propane service from on-site tanks to customers within its electrical power service area without natural gas service as described above. This service is available on a metered “pay-as-you-go” basis at per-gallon billing rates.

According to the Cleveland-Bradley County Chamber of Commerce, there are at least four private firms which also provide propane services within the city, either via bottled “liquefied petroleum” (LP) gas, bulk propane and/or gas carburetion. This indicates that there are no, or few, gaps in natural gas service within the county.

GOALS

- **Support the expansion and maintenance of natural gas facilities and services in coordination with plans for future growth.** The potential demand of new and expanded residential areas and new industries and businesses should be taken into consideration before the additional demand is placed on the system. This will ensure that a LOS is available which meets or exceeds current levels and that future users will be able to connect to the appropriate service.

RECOMMENDATIONS

The county should continue to coordinate with AGL Resources and VEC to ensure that no gaps in natural gas service availability exist in areas of the county where demand for service is or is expected to be. If gaps are identified in areas of current development or potential future growth, system and service expansions should be coordinated with development plans and plans for future growth.

POTABLE WATER

BACKGROUND AND CURRENT LEVELS-OF-SERVICE

As can be seen in the **Water Service Area Map**, there are five public agencies which provide potable water services within Bradley County: CU provides water service to the entire City of Cleveland, the majority of unincorporated Bradley County, and parts of Charleston; Calhoun-Charleston Utility District (CCUD) provides water service to the remainder of Charleston and portions of the surrounding unincorporated county; Savannah Valley Utility District (SVUD) serves the Georgetown area in northwestern Bradley County; Eastside Utility District (EUD) serves some southwestern portions of the county; and Ocoee Utility District (OUD) serves the eastern parts of unincorporated Bradley County. Each of these independent water systems is somewhat interconnected with adjacent systems, providing a measure of emergency back-up redundancy.

As the service areas of these providers have expanded over the past several decades, almost all of Bradley County has gained access to potable water services. As can be seen in the **Water Service Area Map**, the one general exception to this coverage is the narrow band of higher elevation properties along the eastern slopes and crest of White Oak Mountain in western Bradley County. Operating pressures in the adjacent systems are not adequate to serve users at these elevations, and the few isolated residences located in this area must resort to private on-site wells. Private water wells continue to be used in many of the more rural parts of the county, as is the case in the Chatata Valley - Dry Valley area located between the existing CU and OUD system facilities. This area is currently in rural, agricultural use and, due to the prevalence of shallow bedrock, is not considered to be suitable for intensive development.

In addition to providing water to meet domestic needs as well as commercial and industrial demands, water system facilities must also provide services for fire protection. Although many rural communities may have adequate water to meet the day-to-day agricultural, residential and commercial supply needs, the storage and distribution facilities serving these areas may not be adequate to provide the pressures and flows necessary to support fire protection systems.

Hiwassee Utilities Commission

The Hiwassee Utility Commission (HUC) withdraws water from the Hiwassee River, after which it is filtered and treated for use as potable water. Located northeast of the Cleveland city limits and near the City of Charleston, the HUC water treatment plant (WTP) operates under contract with CU and has a capacity of 15.0 millions of gallons per day (MGD), which is considered adequate for near-term future demand projections.

Cleveland Utilities

The CU water system draws water from multiple sources and includes almost 750 miles of distribution lines (of varying sizes and types), serving 30,100 customer meters. Plans are currently underway by CU to install a large-diameter transmission line from the north end of their water system to the south in order to better address projected future supply needs. Now surrounded by other water service providers, there appears to be little prospect for expansion, but future enhancements include additional storage capacity and improved fire protection in developing areas.

Calhoun-Charleston Utility District

CCUD obtains its system water under a wholesale allocation contract with the HUC and currently serves a total of 462 meter accounts in Bradley County, as well as meters in McMinn County. While CCUD expansion within Bradley County is limited due to the location of other water systems, minor system expansion and enhancement opportunities do exist. The City of Charleston should work closely with CCUD when considering land for annexation to ensure that the cost of required enhancements to water system infrastructure is addressed so an adequate water supply for fire prevention can be provided.

Savannah Valley Utility District

The primary SVUD service area is in Hamilton County, where SVUD obtains its system water from three groundwater wells. It serves a total of approximately 8,000 customer meters, 349 of which are located in Bradley County. The SVUD potable water system is also interconnected with that of CU and EUD and, other than the higher elevations along White Oak Mountain, there do not appear to be any un-served areas between the two systems. CU periodically obtains water from SVUD under terms of a wholesale contract.

Eastside Utility District

EUD obtains all of its system supply from the Tennessee River, via its 28.0 MGD WTP located in Chattanooga. There do not appear to be any un-served areas between the CU and EUD service districts. In addition to its retail customers in Bradley County, EUD also supplies wholesale water under contract to CU by means of a transmission line located in South Lee Highway (US 11 / 64) near McDonald.

Ocoee Utility District

The OUD system serves portions of Bradley and Polk Counties. Of its approximately 7,000 customers, 5,200 are in Bradley County. The major source for the OUD system is groundwater which it filters from its own two wells, 1.5 MGD Carpenter Springs and 1.0 MGD Wildwood Springs, both of which are located within its service area. This supply is supplemented by water purchased under wholesale contracts from CU and EUD. Other than one small pocket in the Chatata Valley adjacent to the CU service district, all parts of eastern Bradley County are serviced by the OUD water system. Levels of fire protection service vary widely within the OUD service area.

GOALS

- **Support the maintenance and expansion of potable water services in coordination with plans for future growth.** The availability of potable water services is important, not only to area residents, but also to current and future businesses and industries. Levels-of-service available often impact the scale of a development and what uses can locate in a development, as proper water pressures are required for fire prevention and suppression systems. Potable water services should be maintained, with system expansions planned in time with growth in order to accommodate new users.
- **Maintain high-quality, safe drinking water.** Human activity on the area's natural water systems can change the sediment and contamination levels of the city's water supply. Responsible development practices should be encouraged, to the extent feasible, in the wellhead areas of the Waterville Springs area and the watersheds of the surface

intakes. Other private water conservation efforts should be supported by the city including rain water capture systems and gray water recycling.

RECOMMENDATIONS

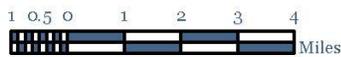
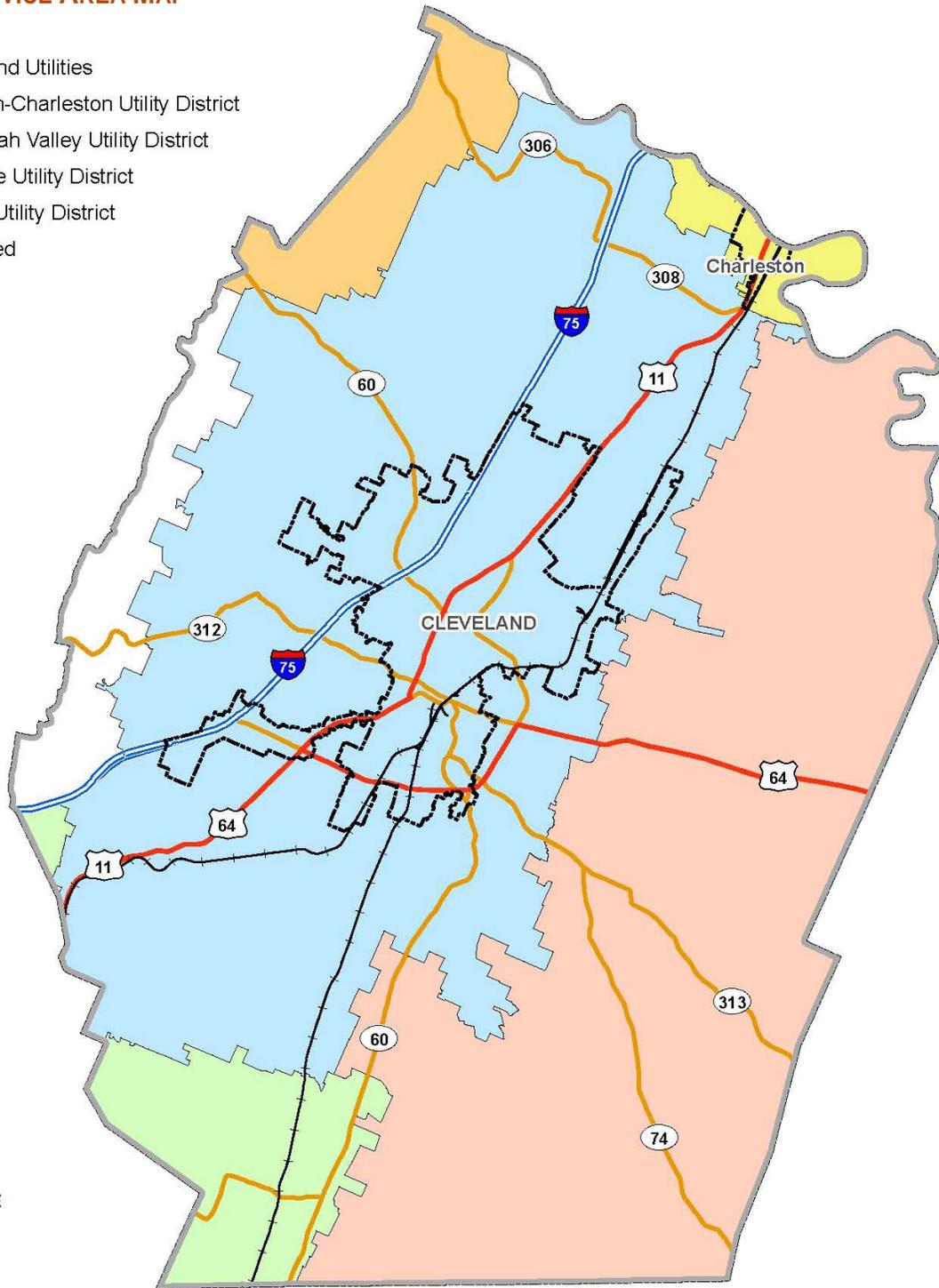
As the county continues to grow, the county, municipalities, and potable water service providers may consider establishing a county-wide task force to study existing capacities and service levels and projected demand to identify system improvements and regulatory changes that may be required to accommodate the projected demand.

The availability of potable water services throughout the county may have been a contributing factor to a sprawling developing pattern. When public water is available in rural areas, development frequently follows. As development intensities increase, so do demands for improved service to better support fire protection. Since current zoning and land development regulations allow relatively high densities on lots currently served by a potable water system, it may be necessary to monitor the potential environmental impacts resulting from these development densities.

WATER SERVICE AREA MAP

Legend

-  Cleveland Utilities
-  Calhoun-Charleston Utility District
-  Savannah Valley Utility District
-  Eastside Utility District
-  Ocoee Utility District
-  Unserved



SANITARY SEWER

BACKGROUND AND CURRENT LEVELS-OF-SERVICE

Two agencies currently provide sanitary sewer service within Bradley County: CU and CCUD. All of the wastewater collected in these two systems is treated at the 29.0 MGD CU wastewater treatment plant (WWTP) on Lower River Road at the confluence of South Mouse Creek with Hiwassee River. A *Cursory Wastewater System Capacity Analysis* prepared in 2010 by the J.R. Wauford & Company, Consulting Engineers, Inc., for CU assessed the WWTP capacities based upon population growth projections made in the *BCC 2035 Joint Strategic Plan*. Projected demand scenarios considered for the WWTP on a 20-year planning horizon analyzed dry-weather flow rates and indicated adequate system capacity was present to accommodate anticipated future growth. The Olin Chemical Company also owns, operates, and maintains a private industrial WWTP on the Hiwassee River.

Cleveland Utilities

In addition to the gravity-operated sanitary sewer interceptor which parallels South Mouse Creek and connects the upper reaches of that drainage basin to the CU WWTP on the Hiwassee River, CU has two main system pumping stations, serving both the Candies Creek and the Chatata Creek drainage basins. The force mains from both of these pump stations are connected to the South Mouse Creek Interceptor in the vicinity of Paul Huff Parkway. Nearby is a major flow equalization facility used to level peak flows and improve the operational effectiveness of the interceptor system. In addition to these four components, the CU system includes over 350 miles of collector and interceptor lines serving approximately 17,900 user connections.

There appear to be areas within the City of Cleveland's current urban growth boundary for which a sanitary sewer system would not be possible without a new pump station (similar to Candies Creek or Chatata Creek) or a collection of small pump stations, both assuming adequate downstream system adequacy. The Little South Mouse Creek drainage sub-basin flows by gravity into South Mouse Creek near Lauderdale Highway. A gravity system in this area could connect to the South Mouse Creek interceptor system, if desired. The Anatole subdivision appears to be served by a low-pressure system pumping back into the existing CU system within the South Mouse Creek sub-basin. If areas north of the Anatole subdivision are to be annexed and served, a low-pressure system might be indicated, since the subdivision may be located too far south (by gravity) of the existing interceptor. This issue should be addressed prior to annexation. Similarly, there appears to be a perimeter strip of land along APD-40 just outside the South Mouse Creek sub-basin and Chatata Creek sub-basin that is designated for future annexation and Cleveland Utility sanitary sewer provision. Service provision in this area will require a row of low-pressure systems, larger pump stations, or an innovative system.

Calhoun-Charleston Utility District

Wastewater from the CCUD service area is collected at a centrally-located sanitary sewer pumping station and sent into the CU-owned, operated, and maintained South Mouse Creek Interceptor. From there it is transmitted under a service agreement for treatment at the CU WWTP. The sanitary sewer system currently serves 156 users. CCUD policy on service connections is to not provide a future sanitary service connection to properties not already

served by its water system. Walker Valley High School is an exception to this, as the school's sanitary sewer system force main is connected to this CCUD force main.

GOALS

- **Support the maintenance and expansion of sanitary sewer services in coordination with plans for future growth.** Sanitary sewer services should be maintained, with system expansions planned in time with growth in order to accommodate new users.
- **Limit the expansion of sanitary sewer services in areas outside of the urban growth boundary in accordance with the comprehensive plan and small area plans.** Sanitary sewer can often act as a catalyst for higher-intensity development. Limiting sanitary sewer services in rural areas may effectively manage development pressures and preserve valued rural character.

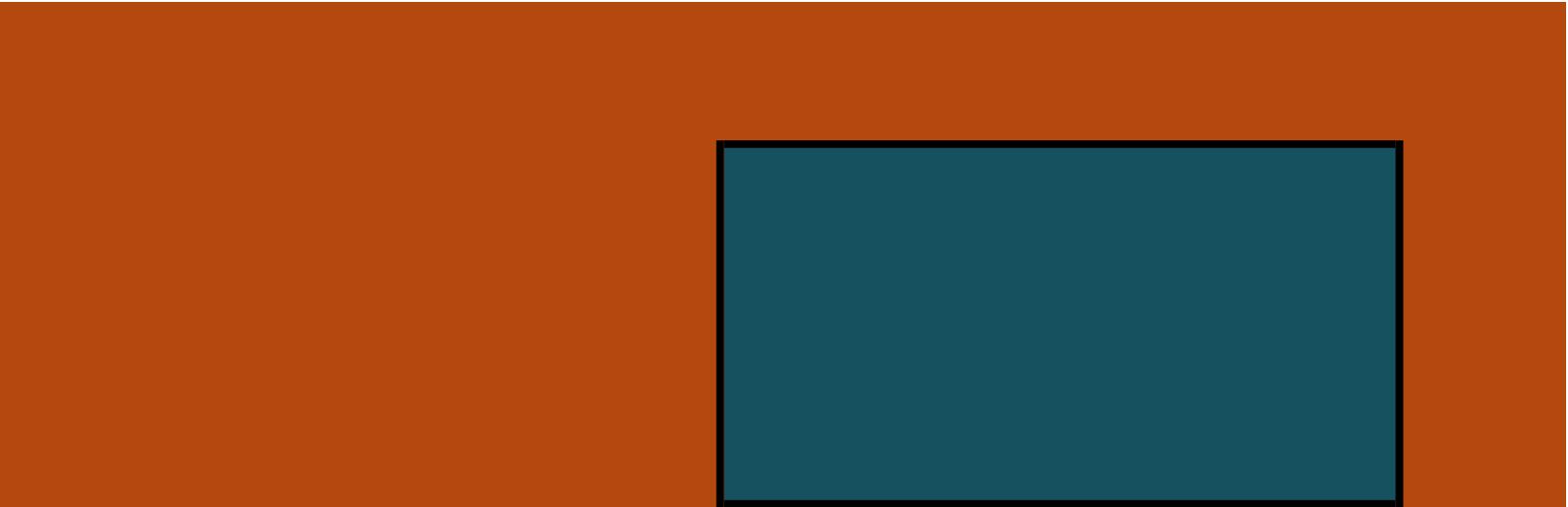
RECOMMENDATIONS

When sanitary sewer service boundary changes are planned and when considering any area for future municipal annexation, planning and budgeting for future facilities should address potential system-wide impacts. The CU WWTP on the Hiwassee River treats all of the wastewater collected within Bradley County and permitted discharge of treated effluent. As growth and development continue and the enforcement of environmental regulations becomes more stringent, wastewater flow and waste load capacity issues become more critical to the future vitality of the entire community. Similarly, the main interceptors, pump stations, and flow equalization system are crucial to managing current and future wastewater flows.

Continued coordination among local economic development professionals and service provider representatives should focus on the numerous issues affecting growth boundaries, sanitary sewer service boundaries, and future development. Providing facilities in advance of growth and service demand is a major challenge, but no specific plans are in place to provide these services in preparation for future demand. In the event that sanitary sewer service is needed outside of current or proposed municipal boundaries, the county should consider establishing a county-wide task force to specifically study these issues and to ensure that the county and its municipalities are well positioned to respond to the needs and opportunities to come in future decades.

If substantial population growth occurs in the Southern Corridor area as projected, the Candies Creek Pumping Station may require enhancement and expansion. Similarly a number of points along the South Mouse Creek Interceptor may also require enhancement to reduce the risk of overflows. Additionally, peak flows, which result from excessive infiltration/inflow (I/I), which originate in the existing CU sanitary sewer system, present serious current and future capacity challenges. Consequently, it is recommended that CU consider conducting a capacity, management, operations, and maintenance (CMOM) study to quantify measures needed to address these concerns and developing a long-range capital improvement plan which can be properly budgeted and implemented.

Due to the soil conditions prevalent in most of Bradley County, additional measures may be needed to ensure that on-site drain-field systems are likely to be successful in areas where development is not served by a sanitary sewer system. Consideration should also be given to other measures which may help ensure that existing and proposed on-site disposal systems operate successfully long-term.



Chapter 5: Facilities & Services

BACKGROUND

Facilities and services include those services and associated facilities providing for the education, safety, and general welfare of county residents. These facilities and services are provided by government departments and quasi-governmental agencies, require facilities and equipment to deliver services, and must have capacity to produce the service which is delivered (or level-of-service (LOS)). The Facilities and Services chapter explains the existing and recommended conditions associated with these facilities and services in relation to the estimated growth and development consistent with the land use and transportation recommendations of this comprehensive plan. This chapter is structured to include the background and current levels-of-service, goal statement, and recommendations for each of the following facilities and services:

- Schools
- Parks and Recreation
- Fire and Rescue
- Sheriff Services
- Emergency Management Agency
- Health Department

SCHOOLS

BACKGROUND AND CURRENT LEVELS-OF-SERVICE

Bradley County Schools is an independent board operated system which includes eleven elementary schools, two middle schools, two high schools, and two alternative facilities. Within its 17 total facilities, Bradley County Schools serves over 10,490 students. The school system analyzes system demand and capacity through annual and short-term strategic plans, with a student per school target to determine capacity. Additional facilities are not needed to accommodate current system demand, but may be needed in the future to accommodate projected growth.

<i>Target Enrollment and Current Capacity</i>		
	Target Enrollment (per school)	Current Additional Capacity (in system)
Elementary	500	300
Middle	1,000	100
High	1,400	100

GOALS

- **Establish level-of-service standards for each educational facility type.** The above background information provides generalized LOS standards based on current operating levels for the school district. These LOS were used to estimate future demand for new facilities as the county’s population increases over the coming decades.
- **Establish site criteria for new facilities that avoid transportation (vehicular and freight) and land use conflicts.** Suggested locational standards and recommendations for suitable locations for new school sites are included in the recommendations, below.
- **Promote safe, multi-modal routes to schools and recreation facilities.** When possible, school sites can be coordinated with access to greenways or trails, or located adjacent to or within residential development.

RECOMMENDATIONS

Based on the estimated growth forecasted in the *2035 BCC Joint Strategic Plan* additional facilities may be needed to accommodate future student populations, as shown in the table below.

<i>Demand for Additional Facilities</i>				
	Target Enrollment	Current Capacity	Estimated Increase	Additional Facilities
Elementary	500	300	1,309	2-3
Middle	1,000	100	693	1
High	1,400	100	924	1

Target LOS should be identified to ensure adequate facilities. School LOS indicators typically include students per classroom, students per teacher, and students per school, among other more qualitative success indicators. To plan for future facilities, as well as the maintenance of current facilities, a long term capital improvement planning process should be established.

The growth patterns in the county should be monitored by the Planning Department and Bradley County Schools on an annual basis to ensure the educational needs of the community are met. Likewise, ongoing coordination with Cleveland City Schools should be encouraged to ensure that school locations continue to effectively serve city and county populations. When

possible, land for additional facilities should be acquired in advance of development pressures to avoid increased land costs.

Location Standards

- Sites should be of adequate size for the planned facility type, as recommended below.
 - Elementary – 10 – 20 acres
 - Middle Schools – 20 – 40 acres
 - High Schools – 40 – 50+ acres
- Sites should be located to provide recreational opportunities appropriate for school-aged children, including playgrounds, athletic fields, and openspaces.
- Sites should be located within central road access to the areas served.
- Sites should be located in areas that have adequate utility service and capacity. Bradley County Schools should work closely with local utility providers to ensure adequate services and to coordinate site selection with utility expansion and provision plans. Extending utilities and services to sites may act as a catalyst to growth; facilities should be planned to serve existing and future populations.

PARKS AND RECREATION

BACKGROUND AND CURRENT LEVELS-OF-SERVICE

The Bradley County Parks and Recreation Department operates and maintains approximately 242 acres of parks and open space within Bradley County. The current facilities include three county parks. The National Recreation and Park Association (NRPA) suggests that 10 acres of parks and open space be provided for every 1,000 residents. With 242 acres serving 57,678 county residents (excluding the population of Cleveland), Bradley County provides approximately 4.20 acres per 1,000 residents.

In addition to county-operated facilities, other recreation facilities and maintained open spaces increase the amount of parkland accessible to county residents. For example, Candie’s Creek Wildlife Management Area, located in northern Bradley County, includes roughly 456 acres of parkland and open space; and Red Clay State Park in the southern end of the county encompasses about 256 acres of parkland and open space. When considering the additional park and recreation opportunities within Bradley County, residents have access to over 1,200 acres of parkland and recreation space. Countywide, 12.93 acres of parkland are provided per 1,000 residents.

	Acres	Population Served	Acres per 1,000 Residents
City of Cleveland	316	41,285	7.65
Bradley County	242	57,678	4.20
Regional Totals*	1,280	98,963	12.93

*Includes Red Clay State Park, Candie’s Creek Wildlife Management Area, and City of Charleston parks.

The Cleveland/Bradley Greenway is a linear park that generally follows the path of Mouse Creek through the center of the county. Multiple phases of the greenway have been completed and several Bradley County schools have expanded the trail network by making their tracks and grounds available. In 2011, the City of Charleston completed a trail design connecting the newly opened Hiwassee River Heritage Center to the Riverfront Park. Opportunities to connect the systems are still being explored. See the Northern Corridor Area Plan for more information.

GOALS

- **Promote safe recreational areas through continued implementation and maintenance of facilities.** Continue partnership with the City of Cleveland Parks and Recreation Department in the maintenance and provision of recreational facilities. Continue partnership with Bradley County Schools to identify future co-location opportunities. Identify opportunities to create a connected, county-wide parks and recreation system.
- **Establish site criteria for new facilities, including avoiding transportation (vehicular and freight) and land use conflicts.** The plan includes locational standards and recommendations for suitable locations for new park and recreation facilities taking into consideration the transportation components.

RECOMMENDATIONS

As the county continues to grow, the current level-of-service of 4.20 acres per 1,000 residents should be maintained, if not increased to meet the NRPA recommended level-of-service. The table below outlines the suggested additional acreage that should be added in time with growth to maintain LOS.

<i>Acres of Parks and Open Space per 1,000 Residents</i>					
	Population	Acres Required - 4.20 acres per 1,000	Additional Acres Required	Acres Required - 10 acres per 1,000	Additional Acres Required
2012	57,678	242	0	577	335
2022	65,543	275	33	655	413
2032	72,143	303	61	721	479

The Hiwassee River is an underutilized recreational asset to the county. Currently, the only point of public access to the river is located along the river in the City of Charleston. Additional opportunities for river access should be identified, and incorporated into a regional park, if possible.

The Bradley County Parks and Recreation Department should continue working with and coordinating programs with the City of Cleveland Parks and Recreation Department to provide a comprehensive parks and recreation system throughout the county. The department should continue to work with local school districts to provide co-located facilities when possible. The county should continue to adopt and maintain park master plans to ensure that existing

facilities are well maintained and that proposed facilities use land efficiently and provide needed facilities. Additional acreage can be added to the system through extending trails and recreation areas in redevelopment projects, particularly in industrial or commercial redevelopment.

Location Standards

As the county grows, additional parkland and recreation facilities should be added to maintain or improve current levels-of-service. The following locational criteria should be considered when selecting locations for future recreation facilities and park sites:

1. Sites for parks, open space, and recreation facilities should be of adequate size for the populations served. Suggested site sizes are as follows:

Facility Type	Minimum Size	Service Area Radius
Community Center	10 acres	1-2 miles
Neighborhood Park	10 acres	1-2 miles
Community Park	25 acres	2-5 miles
Recreation Center	40 acres	2-5 miles
Athletic Complex/Fields	50 acres	5-10 miles
Regional Park	100 acres	30 miles

2. Sites should be selected to provide open space and recreational opportunities to the greatest number of residents.
3. Sites should not be located within 1 mile of existing parks and recreational facilities. Locating sites outside of the service area radii for existing facilities allows a greater number of residents to have easy access to facilities and creates a geographically well-balanced parks system.
4. Sites to be targeted in the county should be 25 or more acres in size. Population intensity in the rural areas is not anticipated to be dense and therefore community or regional scale parks are most practical in these areas.
5. When selecting sites, existing parks and recreation facility plans, trail and greenway plans, and regional initiatives should be considered. Strategically selecting sites based on their location in relation to future local and regional recreation networks may increase safe access to a greater number of county residents and increase general facility use.

FIRE AND RESCUE

BACKGROUND AND CURRENT LEVELS-OF-SERVICE

Bradley County Fire-Rescue (BCFR) was formed in 2006 after a successful merger between the Bradley County Fire and Rescue Departments. BCFR is responsible for providing fire rescue services to unincorporated portions of the County and the City of Charleston, and for providing other rescue operations and emergency medical services to all of Bradley County. The department grew in 2012 and now includes 67 paid staff members, including 63 paid firefighters. The department operates out of five paid stations with 21 paid shift personnel on duty 24 hours a day and four support and administration staff members. In addition to paid personnel, the department is supplemented by approximately 100 volunteer members operating out of 8 volunteer stations. BCFR averages 13 on duty personnel and 14 volunteer personnel per structure fire response. Overall, BCFR operates with 1.09 paid firefighters per 1,000 residents and 1.73 volunteer firefighters per 1,000 residents. The following table shows current level-of-service (LOS) for the county.

<i>Personnel per 1,000 Residents</i>			
	Fire Personnel	Population Served	Personnel per 1,000 Residents
Bradley County Fire	63 / 100*	57,678	1.09 / 1.73*

*Denotes volunteer personnel included in counts.

For the Fiscal Year 2008, BCFR reported 1,029 calls for service, or 17.84 calls per 1,000 residents. Of these calls for service, 147 were fire calls, translating to 2.55 fire calls per 1,000 residents. The table below shows current call-based LOS for the county in comparison to city and regional call-based LOS.

<i>Calls for Service per 1,000 Residents</i>					
	Population Served	Calls for Service	Calls per 1,000 Residents	Fire Calls	Fire Calls per 1,000 Residents
Cleveland Fire	41,285	3,561	86.25	422	10.22
Bradley County Fire	57,678	1,029*	17.84	147*	2.55
Regional Totals	98,963	4,590	46.38	569	5.75

*Denotes 2008 figures.

GOALS

- **Promote continued excellence in fire protection by maintaining and expanding fire and rescue facilities and services in time with anticipated growth.** Planning for future service provision for a growing population will allow the department to maintain or improve current LOS while meeting public demand in a fiscally responsible manner.
- **Establish site criteria for new facilities, including avoiding transportation (vehicular and freight) and land use conflicts.** The plan includes locational standards and recommendations for suitable locations for new fire and rescue facilities taking into consideration the transportation components.

RECOMMENDATIONS

To maintain current levels of service for fire personnel, additional paid staff members and volunteers will be required as the county grows. Based on the estimates of the **2035 BCC Joint Strategic Plan**, the BCFR service area (or the unincorporated county) will gain approximately 17,600 residents by 2035, requiring an additional six paid fire personnel and 48 unpaid fire personnel to maintain existing personnel LOS. Current facilities and planned future stations have capacity for additional personnel, therefore growth in staff required to maintain current LOS can likely be absorbed into existing and planned stations. LOS standards should be established for facilities and equipment to plan for facility expansions or equipment maintenance, upgrades, or procurement ahead of anticipated growth.

The Bradley County Fire-Rescue should continue to work with area water service providers to ensure that the water supply throughout the county is sufficient to provide fire protection services. Deficiencies in the system should be identified in advance of anticipated growth to allow for water system improvements or the procurement of additional equipment for low-pressure situations. The Fire Department and water service providers should ensure that new developments are provided with adequate water supply rates for fire suppression systems.

Location Standards

When identifying the locations of future facilities, the following recommendations should be considered:

- Future fire stations should be located approximately five miles from existing facilities.
- Facilities should be located within five driving miles of target populations and service areas.
- Growth patterns and trends within the county should be monitored by the Planning Department and BCFR to ensure future populations receive efficient services.
- Encourage the co-location of future stations with other safety services facilities.
- Encourage land for safety services be acquired in advance of development pressures when possible to avoid increased land costs caused by an increase in development demand.
- Sites should be of adequate size to accommodate facility and service needs for existing and future populations. Sites should be at least three to five acres in size.

SHERIFF SERVICES

BACKGROUND AND CURRENT LEVELS-OF-SERVICE

The Bradley County Sheriff’s Office is responsible for law enforcement within Bradley County, outside of the City of Cleveland. The Sheriff is an elected position and the department’s bureaus operate under the Sheriff’s Chief Deputy. The office recently reorganized into three bureaus to streamline operations: the Operations Bureau, the Administration Bureau, and the Corrections Bureau. The Operations Bureau includes the Patrol Division, Special Operations (including the Traffic Unit, Drug Interdiction, Judicial Services, and the newly formed Sheriff’s Targeted Area Response Team), and Criminal Investigations Division. The Patrol Division currently operates with 45 patrol officers, five sergeants, and four lieutenants – a total of 54 Patrol Division uniformed personnel. The table below compares current county LOS to current LOS of the Cleveland Police Department and current LOS for the region, which represents the combined LOS for the two departments.

<i>Sworn Officers per 1,000 Residents</i>			
	Sworn Patrol Officers	Population Served	Sworn Officers per 1,000 Residents
Cleveland Police	92	41,285	2.29
Bradley County Sheriff	54	57,678	0.94
Regional Totals	146	98,963	1.48

According to the 2012 Annual Report, the office received approximately 85,000 calls for service. With a 2010 population of approximately 57,678 residents in the department’s service area, this averaged to 858.91 calls for service per 1,000 residents. The table below compares current county LOS to current LOS of the Cleveland Police Department and the region.

<i>Calls for Service per 1,000 Residents</i>			
	Calls for Service	Population Served	Calls per 1,000 Residents
Cleveland Police	55,512	41,285	1,344.60
Bradley County Sheriff	85,000*	57,678	1,473.70
Regional Totals	140,512	98,963	1,419.84

*Approximate number

The Bradley County Justice Center Complex became fully functional in 2004 when the first inmates were housed in jail facilities. The Justice Center Complex includes Sheriff’s

administration, Crime Scene Investigations, Criminal and General Sessions Court, Bradley County Emergency Medical Services, law enforcement training facilities, and the Bradley County Jail. The Justice Center was designed to meet the future needs of the Sheriff's office and the criminal justice center and has approximately 160,000 square feet of space.

Population growth in the county will potentially impact the jail and associated services. In 2011, the average jail population was 389 inmates. With a design capacity of 408 inmates and potential temporary capacity for up to 450 inmates, the jail will have some capacity in the future. Inmate populations cannot specifically be forecasted in relationship to growth, but the current facility allows for some flexibility to absorb some inmate population growth.

GOALS

- **Promote continued excellence in public safety by maintaining and expanding police facilities and services in time with anticipated growth.** Planning for future service provision for a growing population will allow the department to maintain or improve current LOS while meeting public demand in a fiscally responsible manner.
- **Establish site criteria for new facilities, including avoiding transportation (vehicular and freight) and land use conflicts.** The plan includes locational standards and recommendations for suitable locations for new fire and rescue facilities taking into consideration the transportation components.

RECOMMENDATIONS

To maintain existing levels-of-service as the county grows, additional officers will be needed. Based on the estimated growth forecast in the **2035 BCC Joint Strategic Plan**, the department will require an additional 16 officers to maintain current LOS through 2035.

The need for future jail space or court rooms will likely need to be addressed through a facility planning process. For the purpose of this planning process we may apply the current level-of-service of approximately 1.6 square feet of justice center per person in the county. This would result in an additional 1,600 square feet of space for every additional 1,000 persons in the county. Considering the growth projections in the **2035 BCC Joint Strategic Plan**, additional facilities may be needed as the county grows. To maintain current levels-of-service, the Bradley County Sheriff's Office may need to increase facility space by as much as 51,200 square feet as county populations increase. Additional land or a satellite facility may need to be procured as the forecasted growth occurs.

Location Standards

When locating new facilities, the following site standards should be considered:

- Identify sites which will have good central access to the local road network in the community which they serve.
- Sites should be of adequate size to accommodate necessary facilities and operation to service current and future populations. It is recommended that sites be between 1.5 and three acres in size and accommodate approximately 10,000 square feet of operational building space.

- The Bradley County Sheriff's Office should closely monitor growth trends and patterns and work with the Planning Department to monitor where additional services may be needed to accommodate increased populations.

EMERGENCY MANAGEMENT AGENCY

BACKGROUND AND CURRENT LEVELS-OF-SERVICE

The Cleveland Bradley County Emergency Management Agency (EMA) is an independent department of the Bradley County Government, responsible for emergency management activities in Bradley County and the cities of Cleveland and Charleston. The EMA reports to the Bradley County Mayor. The EMA prepares for and mitigates a variety of emergency situations, including natural disasters, hazardous spills, acts of terrorism, and others. For day-to-day emergency response, the EMA plays a support role to local emergency services by providing outside resources and expertise. The current staff of the EMA consists of four personnel positions: Director, Fixed Nuclear Facility Planner, Operations Officer, and Administrative Officer.

The EMA has operated out of its Guthrie Drive facilities since 1997, co-located with the 911 Center. The facility houses office space, food preparation facilities, bunkrooms, and a state of the art Emergency Operations Center (EOC). The nature of the agency requires a centralized consolidated facility that is multifunctional in order to prepare for an array of situations.

GOALS

- **Promote emergency preparedness within the county and its municipalities, and plan for the maintenance of facilities and equipment in relation to anticipated growth.** Emergency preparedness positions the county to efficiently prepare for, manage, and mitigate natural and manmade disasters.

RECOMMENDATIONS

The current facility is of adequate size to accommodate a growing population. A back-up operations facility and associated equipment is needed in the event that the primary facility was damaged or inaccessible during a declared disaster. The need for this facility is not specifically growth based as the back-up location would serve the community well regardless of the rate of future growth.

COUNTY HEALTH DEPARTMENT

The Bradley County Health Department is part of the Tennessee Department of Health. The Department works to promote, protect and improve the health and well-being of the people of Bradley County. Responsibilities of the department include immunization, helping underserved rural areas access doctors, offering early prenatal care and proper nutrition to pregnant women, ensuring that restaurants meet standards of cleanliness, testing and permitting for safe drinking water, and management of the County Morgue. With aging of facilities and a growing population in the county, the Health Department has identified a need for new and expanded facilities including a new morgue.



Chapter 6: Implementation Toolbox

BACKGROUND

This chapter contains actions and descriptions to guide the county in successful implementation of the goals and recommendations discussed throughout this plan. The implementation efforts detailed in this chapter describe the kind of action or effort needed. Many of the plan's recommendations are for ongoing policy that should be integrated into the everyday operations of the county administration. Other recommendations may call for additional study of specific concerns, joint efforts with the Cities of Cleveland and Charleston and regional organizations, or may require specific efforts or allocation of resources.

Since commonalities exist among many of the recommendations, the individual recommendations are discussed within the context of an overarching category:

- Regulations
- Coordination Efforts
- Capital Improvements & Investments
- Focus Area Plans and Updates
- Comprehensive Plan Updates

REGULATIONS

ZONING RESOLUTION AND SUBDIVISION REGULATIONS

The county currently has subdivision regulations and a zoning resolution which it uses to regulate land uses and development practices in the unincorporated county. For the majority of the county, the future land use recommendations are consistent with the current zoning and subdivision regulations. Implementation of the plan recommendations in these areas will require very little or no modifications to existing practices. However, in areas anticipated to experience higher growth pressures, more detailed future land use plans have been prepared.

In these cases, more specific land use recommendations were made in coordination with practices and recommendations made for the City of Cleveland and its growth areas. Some areas in the unincorporated county may require modified regulations that will apply only where special conditions exist, such as significant capacity issues on roadways, provision of central utilities, and resident and land owner requests.

The county should complete a review and possible update of the zoning and subdivision regulations to reduce, modify, or incorporate standards as needed to implement the goals of the Focus Area Plans and to incorporate the community's character into new development. In many areas of the county, current density regulations and site development controls will be adequate to maintain the character of new development. Other situations – such as the introduction of higher intensity development and high-density mixed-use development – may call for additional development guidelines and standards to ensure that new development enhances existing character.

The primary topical areas the county should focus on include:

- **Rural Residential Overlays** – The desire to preserve a low density rural residential character in specific focus areas (particularly in the area near McDonald) could be accomplished through an overlay or zoning standards that help to maintain a maximum density of one unit to five acres.
- **Conservation Subdivision Regulations** – The anticipated growth in the county will bring increased residential development pressures. The county may consider increasing flexibility and development options throughout most of the county by allowing for conservation or cluster style subdivisions which allow for smaller individual lots and reserve or conservation of difficult to develop areas. This could offer options to land owners with challenging topography or features to still achieve development of their land.
- **Site Performance Standards** – Many recommendations within this plan call for a balance to be maintained between new development and surrounding environments and communities. Site performance standards can effectively manage a development's impacts on adjacent properties and nearby environmental assets through the incorporation of standards regarding: screening and buffering, light pollution, noise pollution, on-site stormwater management, and others. These standards could be considered for more intense uses like industrial or commercial development.
- **Environmental Standards** – Efforts should be taken to protect environmentally sensitive areas during the construction process and throughout the life of the development.

Coordination

The location of the City of Cleveland within the county creates a unique opportunity for coordinated efforts, even within each jurisdiction's own resolutions. Coordinating with the Cities of Cleveland and Charleston regarding zoning regulations for the unincorporated county and the urban growth boundaries can allow for cohesive development throughout the county as a whole. Coordination efforts should emphasize areas of the unincorporated county currently within the city's urban growth areas in an effort to ensure that the regulations for these areas work towards achieving the goals of both the county and the city.

OTHER GUIDELINES OR STANDARDS

The county may need to updated existing or adopt special resolutions or regulations to fully implement other elements of the plan. The following topics may be implemented through existing ordinance updates or new standards:

- Subdivision regulations
- Local road standards for public acceptance
- Access management standards for major thoroughfares
- Street connectivity for subdivisions
- Best practices for stormwater management
- Development impact analysis

COORDINATION EFFORTS

This plan was drafted in coordination with comprehensive plans for the Cities of Cleveland and Charleston. Therefore, many of the topics and recommendations in the plan call for coordinated efforts with these jurisdictions, as well as other agencies and organizations. Coordination is an ongoing administrative effort that could result in regulatory actions or agreements among jurisdictions. Coordination efforts can be incorporated into the planning, operation, and maintenance of public facilities, especially transportation facilities, utility infrastructure, and parks. Coordination can lead to more effective and efficient operations, service provision, and facility maintenance. Specific coordination opportunities are identified throughout this chapter.

CAPITAL IMPROVEMENTS & INVESTMENTS

Engage in long-term capital improvement planning to identify needed improvements to infrastructure systems.

PARKS

Current levels-of-service and anticipated growth indicate demand for additional parkland within unincorporated Bradley County. The county should identify options for acquisition of additional parkland through direct purchase or dedication. A capital improvement plan will allow the county to seize low cost opportunities to maintain the current level-of-service as they present them self. Implementation and continuation of provision of services will require ongoing identification and prioritization of action by the Parks and Recreation Department and the County Commission based on available resources. Short- and long-term facility planning efforts, as well as individual park master plans, are effective tools to aid in the provision of adequate parks and recreation space in the future.

Coordination

Identify opportunities for co-location of park facilities and other community amenities. A partnership with Bradley County Schools to co-locate park and recreation facilities with school sites would assist with future park identification and ensure that parks are located in accessible areas of communities. Coordination with the cities of Cleveland and Charleston can identify

additional opportunities for partnerships and to work towards a regional parks and recreation network.

SERVICE PROVISION

The county should monitor the availability of, and constraints to, the provision of water, sewer, and telecommunications services in consideration of development requests. Consistent monitoring of system demand as the county develops will be important in successful implementation of the comprehensive plan, specifically in regards to utility provision recommendations. The county should evaluate the policies in place for the provision of services from various service providers to new development to ensure the general goals and intent of the plan are being upheld.

Coordination

Since utility services in Bradley County are provided by several utility companies, coordination with utility service providers is vital to successful implementation. Partnerships with the utility service providers and the cities of Cleveland and Charleston can ensure that the proper services are in place to accommodate higher intensity development while ensuring that other areas of the county will remain at low and rural levels-of-service for character maintenance and other infrastructure capacity constraints.

FACILITY LEVELS-OF-SERVICE

As the county's residential and business populations grow the demand on public facilities will also increase. The plan makes recommendations to establish existing and targeted levels-of-services, a method of benchmarking the county's services provision under growth pressures. The levels-of-service standards in this plan are a starting point, however, as individual departments and agencies undertake capital improvement planning, more specific levels-of-service may be identified. These benchmarks will allow for county departments to effectively gauge when additional capacity will be needed to accommodate demand. Level-of-service standards should be developed for roads, parks and recreational space, safety services, and schools, as well as other facilities as managed by county departments or agencies.

Coordination

Since some facility and departmental service areas overlap with services provided by the cities of Cleveland and Charleston, coordination in facility planning is key. Coordinating levels-of-service with these jurisdictions can help appropriate levels-of-service near more urban areas, specifically in and surrounding the City of Cleveland and anticipated high growth areas of the Northern Corridor Area and Southern Corridor Area, while maintaining rural levels-of-service in lower density areas of Bradley County.

CAPITAL IMPROVEMENT PLANNING

A capital improvements program is essentially a blueprint for a community's capital expenditures. It coordinates community planning, financial capacity, and physical development to provide a link between the community's vision for the future and annual capital expenditure budgets. Capital improvement plans allow for systematic, simultaneous evaluation of potential projects. With the magnitude of growth forecasted for the county, a sophisticated capital

improvements program should be considered, and should include short-, mid-, and long-term capital improvement planning and regular updates.

Coordination

Coordinating efforts for the county's capital improvement planning with similar efforts of the Cities of Cleveland and Charleston can reveal underserved areas, as well as areas with overlapping services and facilities. Working with other jurisdictions while undertaking a capital improvement planning process can allow the county to provide more efficient and strategically located services and facilities, and extend access to more residents throughout the county.

IMPACT ASSESSMENT OR ADEQUATE PUBLIC FACILITY ASSESSMENT

Impact assessments are tools that can be used on a countywide or project specific basis. An impact assessment is a numeric analysis of the anticipated impact of growth on one or more systems, the recommendations for necessary improvements, and the cost of those improvements. Impact assessment studies often involve the use of geographic and mathematical models that can run growth or development scenarios to measure their impacts on the facility, services, or systems of choice. The county could choose a threshold in size or number of units for which an impact assessment would be required for development approval. Common practice indicates that impact assessments should be strongly tied to established or targeted levels-of-service, and capital improvement programs. To address the funding for the needed facilities, services, or systems, the county could choose from the use of an impact fee, which would pass the cost of the new facility on a per unit cost to the new development creating the demand, or a change in the tax rates for larger areas being served by the new facilities. Disadvantages to impact fees are that they only cover initial capital costs and will not address long-term maintenance expenses for facilities. For more information on Impact Assessments and funding for capital improvements please see the appendix document "Bradley County Financial Toolbox".

FOCUS AREA PLANS

The *2035 BCC Joint Strategic Plan* identified areas for managed growth and reinvestment and infill development, for which small area plans were developed. During this planning process, several corridors were identified for further analysis regarding design and accommodating higher intensities of commercial development. Focus area plans allow for the county to address areas with more complex planning issues with specific strategies and planning approaches.

FOCUS AREA PLAN UPDATES

The *Northern Corridor Area Plan*, the *Southern Corridor Area Plan*, and the *Central City Area Plan* were developed in a coordinated planning process initiated by Bradley County and the City of Cleveland. These plans should be monitored on an ongoing basis and the goals and strategies contained within should be incorporated into daily and ongoing county operations. Annual review of small area plans will allow the county to monitor progress and implementation, as well as note emerging trends and track development patterns. Review and minor updating should be conducted within roughly the first five years. A comprehensive review and full update should be conducted within approximately 10 years.

Coordination

The focus area plans encompass portions of Bradley County, as well as portions of the City of Cleveland and the entirety of the City of Charleston. Planning decisions within these areas should be coordinated among these jurisdictions to promote efficiency in the implementation of plan recommendations.

RURAL CORRIDORS

Rural corridors have been designated throughout Bradley County to recognize roadways prime for future development once adequate funding is secured to extend utilities and services. The county should engage in a focused study of these corridors and identify potential funding sources.

The identified Rural Corridors include:

- Dalton Pike
- Spring Place Road
- Waterlevel Highway
- Georgetown Road
- South Lee Highway

Coordination

As these roadways serve as major connections between Bradley County communities and areas outside of the county, coordination efforts should be encouraged among Bradley County communities as well as with outside jurisdictions. Partnerships should be explored for the purposes of conducting a planning study and securing adequate funding.

COMPREHENSIVE PLAN UPDATES & AMENDMENTS

As mentioned throughout this plan, it is impossible to predict the exact location and intensity of growth. However, planning is the best proactive activity that the county can undertake to prepare for anticipated growth and the future based on best available data and trends. The role of the comprehensive plan is to establish a framework for decision-making. Maintaining the plan as a living document is vital to its success and maintained relevancy. As time progress and the county implements strategies to achieve the goals of the plan, the county should monitor the success of the plan and benchmark its achievements.

The plan is a long-term visionary document that looks at a planning horizon of 10 to 15 years or longer. However, the county may implement strategies and achieve goals of the plan before that time is over, or changes in development trends or other unforeseen factors may change the way the county envisions its future. In these cases, the county should complete and update the plan to keep the document relevant and applicable to the planning challenges within the county.

ANNUAL REVIEW

The goals and recommendations in each chapter of this plan create an effective checklist for monitoring the plan. Each year, county commissioners and planning commissioners should meet to determine which recommendations to focus on in the upcoming year. At this time, the county should reflect on the previous year to evaluate the various accomplishments and areas

Draft for Steering Committee Review

for improvement. An annual review allows for flexibility in determining the tasks the county will undertake based on budgetary constraints or changing community priorities and input.

FIVE-YEAR REVIEW

Major changes and growth can occur in a short time frame. Boundary adjustments and changes in infrastructure, the transportation system, and development methods, as well as in elected bodies, state laws, or other regulations, can impact the recommendations and priorities within this plan. The county should periodically review the document for substantive changes. It may not be necessary to undertake a comprehensive review and update process, but the county should take steps to involve the public in a minor review process to ensure the goals and recommendations are still relevant. The review should also identify major changes in infrastructure, land use, and transportation that may impact plan recommendations.

ONGOING REVIEW

As time progresses, the county should continue to work towards achieving the goals and strategies within the plan. By 2035, many strategies will have been implemented and goals achieved. For this reason, the county should go through an extensive comprehensive planning process every 10 to 20 years, similar to the process which led to the production of this plan. Thorough review and updates of a comprehensive plan at or near the end of its planning horizon ensure that the plan maintains relevancy and adapts to changing trends and preferences within the county.

Coordination

As this plan was developed as part of a coordinated effort with the cities of Charleston and Cleveland, opportunities for coordinated or joint-review should be identified. Methods to track progress on strategies which involve multiple jurisdictions should be delineated and implemented.