

CITY OF PIPERTON, TENNESSEE

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URBAN GROWTH BOUNDARY REPORT

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## **SUMMARY**

### **Introduction**

This report shows that the City of Piperton has identified an Urban Growth Boundary (UGB) that while large, is very reasonable under both the law and the conditions existing in Fayette County. In developing the boundaries of the UGB for the City of Piperton, caution dictates a larger UGB rather than a smaller UGB.

The City of Piperton has demonstrated a commitment to planning that is completely lacking on the part of Fayette County. Piperton has commissioned and received studies on residential population growth by both the Regional Economic Development Center at the University of Memphis and Land Development Solutions, the City's planning firm. The City has commissioned and received a Master Water and Sewer Development Study that provides both a blue print and projected capital requirements for providing the infrastructure necessary to support future growth in the City's Urban Growth Boundary. Piperton has developed a conceptual Land Use Plan for its proposed Urban Growth Boundary. Piperton has also commissioned a cost-benefit analysis of various fire protection alternatives that will be used to help the City Commission determine the future Fire Protection Policy of the community.

Piperton has adopted significantly stricter zoning and subdivision regulations than Fayette County. Piperton has adopted a clear policy preserving open-space and greenway areas while Fayette County has not. Piperton has implemented policies that are better suited to controlling urban sprawl than those implemented by Fayette County. Piperton has demonstrated the political will to implement a progressive growth policy. Piperton has also taken verifiable measures to insure that municipal services will be provided on a timely basis and in an economically efficient manner.

Fayette County has not exhibited any political will to control urban sprawl. It has granted numerous residential rezoning requests in a manner clearly not in conformity with its adopted land use plan. This has led to a pattern of shotgun style spot zoning. These scattered developments are then used to justify additional rezoning requests in nearby areas. The result has been clusters of development in what were formerly rural areas far from services.

Piperton is doing more to protect the open, rural nature of western Fayette County than Fayette County. Piperton has everything to lose if growth is not properly managed in western Fayette County. Piperton is committed to sustainable growth. It will do a better job of managing growth and providing services in its proposed UGB than Fayette County.

### **Background**

The City of Piperton is currently a small residential community with limited industrial and commercial sectors. The majority of the residents are concentrated in two large lot subdivisions developed many years ago. There are two newer subdivisions that have one or more phases completed and one new subdivision pending final approval by the Planning Commission. The lots tend toward two acres in size with a few smaller lots tending towards one acre. The current demographics reflect a predominantly older population, mostly retirees, with a small but growing presence of younger families with children. The sentiment towards growth tends to be one that considers it inevitable, but does not want to encourage it.

The Board of Mayor and Commissioners has adopted a policy of requiring that residential development be charged the full identifiable costs associated with the cost of providing City services. Piperton does not intend to subsidize City services for residential development in any manner. This should substantially reduce speculative development that often leads to urban sprawl.

Piperton tends to have a rural flavor that is a result of its relatively low population density and the presence of large tracts of undeveloped land that is typically either fallow, in forest or in agricultural production. Current residents have stated that they would like to maintain a rural ambiance as the City grows.

Piperton has identified and implemented a development methodology that is designed to accommodate the growth that is considered inevitable while maintaining a rural ambiance and avoiding urban sprawl. This innovative approach to zoning and planning should allow the City to not only meet the above goals but to also provide services in a cost efficient manner. Additionally, this new development methodology will achieve these goals with the minimum possible restrictions on the rights of property owners.

Several different approaches to dealing with these issues were considered by the Planning Commission and the Board of Commissioners. The common thread between the various approaches was that they all included stringent development restrictions and were designed to result in sustainable development.

## **Planning**

Piperton has adopted a zoning ordinance that significantly reduces the likelihood that cookie-cutter subdivisions and urban sprawl will occur. The City has adopted two residential zoning districts, Rural Conservation (RC) and Low Density (R-1). It will also have a mixed use planned district designed to promote traditional neighborhood designs (TND) with much higher densities.

The R-1 district is intended for use by families and small landowners that desire to divide their property much in line with what is often called a minor subdivision. This district is not intended to be used for general development and is limited to areas of ten acres or less.

The RC district is specifically intended to preserve the rural appearance and nature of the community. In it's basic form it has a minimum acreage requirement of five (5) acres. However, there is a conservation design overlay district (CD-O) that is encouraged in this zoning district that allows densities of up to one (1) house per acre while preserving a minimum of 50% open space in each subdivision. In a CD-O development there are no minimum lot size requirements and the developers have maximum flexibility to design the development to meet market demand. The 50% open space will most often be used to set the development back from existing and planned roads and from neighboring properties. It is anticipated that the open space will often be used for estate lots, gardens, small truck farming operations and grazing.

The TND overlay district is in the final stages of review by the Piperton Planning Commission and is expected to be recommended to, and adopted by, the Piperton Board of Mayor and Commissioners within the next few months. This district requires a mix of uses and is similar in nature to a conventional Planned Development. It allows residential densities of between

three and five houses to the acre and has mandatory requirements for office, commercial, public, and open space areas. It is intended that TND areas will be places for people to gather, work, shop, and recreate.

Piperton is concerned with the prospect of development occurring under the less stringent guidelines of Fayette County in areas that are in the natural growth path of the City. Such developments, occurring under guidelines that do not promote sustainable growth, pose a serious threat to the goals of Piperton. This type of growth is also detrimental to the ability of the City to provide essential services in an economically efficient manner. It is not compatible with the planning policies that have been established for the City of Piperton.

Piperton has endeavored to produce a development plan that leads to a city able to accommodate anticipated growth while maintaining its rural ambiance and sense of community. Development will be diversified to insure economic vitality and a stable tax base. Growth will be sustainable and will result in a city structure that allows for the economically efficient provision of city services. Planning will insure that streets and roads are designed to serve people, not just cars, yet they will still be able to facilitate orderly movement through and around the city. Open space and rural flavor will be maintained while accommodating the mix of uses and densities necessary to have a viable community.

### **Proposed UGB**

The proposed urban growth area (UGB) extends southward along the Fayette/Shelby boundary line from the current City limits at the intersection of where Fletcher Road crosses the Fayette/Shelby boundary line to the Tennessee/Mississippi boundary line. The line then continues roughly eastward along the state boundary line to an imaginary line running generally northward along a line paralleling the private drive known as Wolfport Way. The line continues generally northward following the eastern boundary line of the parcel known as the Wolf River Airport, continuing generally northward across the Wolf River to Shaws Creek. The line then continues roughly northward along Shaws Creek to the point where Alexander Creek enters Shaws Creek. The line then continues roughly northward along the path of Alexander Creek to the point at which it crosses Macon Road. The line then continues generally westward along Macon Road to the point where the Fayette/Shelby boundary line crosses Macon Road. The line then continues roughly southward along the Fayette/Shelby boundary line across the Wolf River to the point at which it meets the current boundary line of the City of Piperton at roughly where Fletcher Road crosses the Fayette/Shelby Boundary line. (see map 1)

It should be noted that the City of Piperton initiated an annexation of roughly 5000 acres of its proposed UGB in July 2001. The area annexed consists predominantly of undevelopable land in the flood plain. The maps included in the main body of this report have largely been updated to reflect the annexed area but the report has not been updated to reflect the annexation since it has not yet become effective.

### **Rationale**

The City proposes the above-described UGB for the following reasons: The proposed area is located on the western side of Fayette County surrounding Piperton to the east and north. This area is already facing high development pressure by people wanting to live outside of Shelby County but within commuting distance to Memphis. The extension of planned, and under construction, roadways will reduce commuting time, making the area increasingly

attractive for development. The interchanges proposed to be located on the west side of Fayette County along Hwy 385 will lead to significant economic development pressure. Municipal infrastructure including water and sewer will be required to meet the demand for economic development. The City of Piperton is the only governmental entity situated to be able to provide such services in an orderly and economically efficient manner.

The zoning and development standards of Fayette County are significantly less strict than those implemented by Piperton. The City of Piperton is concerned about having disorganized urban sprawl occur in an area that abuts its City limits and is likely to eventually be annexed. Such sprawl, developed without adequate infrastructure, will require massive infrastructure improvements when eventually annexed into the City. If included in Piperton's UGB, Piperton can request and receive regional planning authority. If Piperton is able to achieve these goals, it can manage the growth under a comprehensive development plan that should provide a significantly improved result versus what may occur otherwise.

The proposed area is on the western side of Fayette County. This area is to be traversed by Hwy 385 which, when completed, will serve as an outer transportation corridor around the City of Memphis. It will also serve as a high-speed transportation route from the currently rural area into Memphis and surrounding communities. Hwy 385 will also provide a by-pass around Memphis from Interstate 40 to Interstate 55 through a connection with Mississippi Hwy 304. The major road plan includes interchanges at Hwy 57, Ral-LaGrange Road, and Macon Road. TDOT has added a proposed interchange between Ral-LaGrange Road and Macon Road at Monterey Road. Hwy 385 will have six interchanges along the western edge of Fayette County, two of them are to be in eastern Shelby County at the edge of Fayette County, and four of which are in the proposed UGB of Piperton. One of the Shelby County exits is also at the edge of Piperton's current city limits.

Other significant road projects due to be completed within the next 5 to 15 years include a significant upgrade and expansion of Macon Road, a significant upgrade and expansion of Ral-LaGrange Road, the extension of the Wolf River Parkway into the Piperton area, a significant upgrade and expansion of Hwy 57, the extension of Shelby Drive into the Piperton area, a significant upgrade and expansion of Hwy 72, a new by-pass of Hwy 72 through Piperton, the extension of Stateline Road into the Piperton area, and a significant upgrade and expansion of Hwy 196 running north and south through Piperton.

The history of the region is that population has migrated eastward along new transportation routes, generally in anticipation and advance of them. The above listed routes are all either priority one or two on the Memphis MPO road plan, priority one roads are under planning within five years and priority two roads within ten years. The Hwy 385 extension into Piperton is funded, under construction, and expected to be complete to Hwy 57 within three years, property right-of-way acquisition is scheduled to begin in late summer of 2001.

It is the City of Piperton's contention that there will be significant growth in the proposed area without regard to its being included in the City's UGB. Piperton believes that there will be two distinct types of growth. The interchanges along Hwy 385 will stimulate demand for dramatic employment center type growth. Additionally, it is forecast that substantial residential population growth will occur to complement the employment center growth.

The history of growth along the eastern edge of Shelby County is one of explosive growth. The communities of Bartlett, Collierville, Germantown, and Lakeland have all seen dramatic

growth occurring over relatively short periods (see table 2). This growth will most likely occur without regard to the desires of urban planners.

Piperton believes that it is the political entity best situated to insure that the growth that is inevitable in this area is sustainable and to provide the services necessary to serve such growth. The City of Piperton has adopted zoning and subdivision regulations that it feels dramatically exceed that of Fayette County. It has adopted a comprehensive zoning plan, a comprehensive road plan, stringent subdivision regulations, and robust engineering standards within its current boundaries. Piperton believes that the area encompassed by the proposed UGB will be far better served by its more stringent standards. With the area a part of Piperton's UGB, then the City should be able to influence growth through a regional planning area matching the UGB.

Piperton is in the process of implementing a capital budgeting plan that will insure that the infrastructure needs of the UGB will be accommodated in a fiscally responsible manner. Through this capital budgeting process, Piperton has the fiscal ability to provide urban services including water and sewer services to this area.

As a part of the City's determination to adequately fund and provide critical infrastructure services, Piperton had a private act passed in 2000 by the State Legislature that allows it to charge an adequate public facilities fee for items contained within the City's capital improvements plan. This authority was adopted by the City and work is now being conducted to prepare a capital improvements plan that will allow the collection of such fees.

Piperton has completed a comprehensive Water and Sewer Master Planning Study for the entire area encompassed within the proposed UGB (see Section IV). This study not only details the planned infrastructure needed to serve the entire UGB at full build-out, it provides the cost information needed to prepare that portion of the City's capital improvements budget.

With development managed under regional planning authority by the City of Piperton in a manner that precludes "shotgun" style scattered development, the City will be able to readily provide services as requested by developers. Utility districts currently provide electricity and natural gas service.

Piperton currently provides fire protection to a significant portion of this area. The City has begun a comprehensive analysis of the fire department infrastructure that will be needed to serve the proposed UGB. The City's capital budgeting process will insure that the need to provide infrastructure for additional public safety purposes will be satisfied in a fiscally responsible manner.

A graduate student in the planning program at the University of Memphis is working with the City's Fire Chief to determine the economic costs and benefits of various service options. The study will include the costs and benefits of requiring that most residential structures have automatic fire sprinkler systems versus the conventional alternative of only requiring sprinkler systems in very large houses. Sprinkler systems are already required in all non-residential structures.

Due to the current low population of the City, there has not been a need for the City to provide police protection. Law enforcement service is provided by the Fayette County Sheriff's Dept. and will continue to be until such time as growth requires that local law

enforcement be provided. The City is planning for that time and has tentatively decided to implement a Dept. of Public Safety in the model of Johnson City, TN.

In a Department of Public Safety, officers are trained to provide both police and fire protection. Full-time, dual role, officers are supplemented by volunteer firemen and by reserve law enforcement officers who are not necessarily dual role. This model provides a significantly higher level of service than is usually possible in a growing community.

Piperton has made a major commitment to public open space and recreational areas as evidenced in its CD-O zoning district. The City is fortunate to have a significant waterway in the form of the Wolf River. The current land use plan has already designated the entire floodplain to be a green belt area even though it has only recently been annexed into the City's boundaries. The State of Tennessee has already acquired some of the land in the proposed greenbelt.

Piperton is working to adopt innovative ways to both protect additional lands in the greenbelt area and to encourage landowners in the greenbelt area to protect their lands through conservation easements and other methods. Piperton has already taken advantage of a change in Tennessee law that was enacted this spring and adopted the use of transferable development rights (TDR's) into its zoning ordinance and planning process.

The land use plan supplements this natural greenbelt with designated greenway corridors throughout the city. Piperton anticipates that these open spaces will form the cornerstone of a citywide recreational system.

Outside of the CD-O district, the City has established a requirement that developers of residential subdivisions either dedicate 5% of the development to the City for public open space and recreational use or dedicate \$350 per lot to be used for those purposes. The City makes the determination of which will be selected based on the development size and community needs. A fund for the acquisition of recreation facilities has already been established.

Piperton is a dynamic community that does not particularly desire growth but recognizes it is unlikely to escape growth. It has adopted an ongoing planning process that involves the community. It has made a clear policy decision not to encourage growth either by lax zoning laws and regulations or by subsidization of public services. The City recognizes that growth happens. Piperton is willing to accept that because it has no other choice. However, it can and has, implemented ordinances and regulations designed to insure controlled sustainable growth.

As part of the planning process, Piperton has identified one primary area where industrial development will be allowed and encouraged. Two areas along major traffic corridors have been identified as suitable for "big box" retail development. In our conceptual land use plan for the proposed UGB, areas along the route of Hwy 385 have been designated as suitable for employment centers which could encompass campus style light industrial, office or commercial.

The Planning Commission and the City Commission believe that having a comprehensive mix of zoning is essential to having a well-rounded mix of land uses and a diversified tax base. Such areas will also provide for employment opportunities and places to shop within

the community. These areas are compact in layout and are located along the outer fringes of the existing City limits and the proposed UGB.

Even after having adopted what appears to be the most comprehensive zoning ordinance and subdivision regulations in the area, Piperton has not quit. It continues to review its policies and search for ways to improve them. The city has clearly stated that it does not want development to destroy the rural lifestyle that its residents enjoy. Many residents have attended planning commission meetings and recounted that they moved to Piperton for its rural environment. The planning commission is searching for ways to balance the urban densities that will become possible when a sewage treatment facility is completed with the clear desire of the community to retain the low density atmosphere now enjoyed by the community.

This planning process was begun two years prior to PC 1101 becoming law. Piperton has shown its commitment to comprehensive planning through action. Piperton believes that the area proposed for its UGB will benefit from the steps it has initiated to control growth. PC 1101 is designed to foster comprehensive planning over a twenty-year period.

Comprehensive planning over that long of a period is inexact by necessity. Nobody can accurately predict what is going to happen over the next twenty years. Assumptions must be made, since it is inevitable that some assumptions will be wrong, it seems prudent to error on the side of caution.

To repeat what we stated in our introduction, Piperton is doing more to protect the open, rural nature of western Fayette County than Fayette County. Piperton has everything to lose if growth is not properly managed in western Fayette County. Piperton is committed to sustainable growth. It will do the better job of managing growth and providing services in its proposed UGB than Fayette County.

## **INTRODUCTION**

The passage of Public Chapter 1101 on May 19, 1998 legislatively recognized the need for cities and counties to engage in comprehensive land use planning. The legislation requires the cities in each county to work with that county to evaluate their potential for growth over the next twenty years.

The required evaluation encourages:

- defining each municipality's responsibility to manage growth
- developing standards to ensure the efficient use of land
- analysis of the public services needed to support anticipated growth and the capital budgeting necessary to provide such public services.

The law requires each county to prepare a growth plan that recognizes three distinct parameters of growth within the county. These parameters are described as urban growth boundaries, planned growth areas and rural areas. County and municipal governments within the county are required to participate in the process by proposing these boundaries based on anticipated growth, land needs and public service capabilities. The anticipated result should be a tool for efficient and effective land use planning within each county.

### **Attribution**

Amye King of the Local Planning Assistance Office assisted the Piperton Planning Commission in the preparation of this report. She developed the format, and collected and compiled a lot of the information contained within it. Her office provided invaluable support that greatly facilitated the efforts of the Planning Commission.

Luchy Burrell with the Regional Economic Development Center at the University of Memphis worked closely with Piperton to develop independent population projections. Her work was very helpful and is greatly appreciated by the City of Piperton.

Steve Steinbach, of Land Development Solutions, was engaged to serve as the Piperton City Planner in January of 2000. Steve has contributed significant expertise to the City of Piperton since that time. The amendments to this document have been greatly aided by his dedication and efforts. As with Ms. King and Ms. Burrell, his efforts have been significantly appreciated by both the Piperton Planning Commission and the Piperton Board of Mayor and Commissioners.

It should be noted that the City of Piperton accepts full responsibility for the assumptions and conclusions contained within this report. Piperton does not represent that anybody not directly connected to the City of Piperton, is in any manner, responsible for the end result.

The Local Planning Assistance Office and the Regional Economic Development Center may not agree with all of the conclusions contained in this report. The Piperton Planning Commission and the Piperton Board of Mayor and Commissioners fully support this report and the conclusions contained within.

## **Purpose**

Tennessee Code Annotated (TCA) 6-58-106 defines the conditions that must be met in determining urban growth boundaries planned growth areas and rural areas. As part of the process of defining these three territories, each municipality and county must prepare a report that includes: (1) population projections, (2) costs and projected costs of core infrastructure, urban services, and public facilities necessary to accommodate anticipated growth and (3) the land management requirements of future growth. The purpose of this report is to provide the required information supporting the City of Piperton's urban growth boundary proposal.

## **Definitions**

Commercial - Land on which retail or wholesale trades activities and or services occur. Land on which an array of private firms which provides special services are located. This category includes banks, professional offices, personal services, etc., and vacant floor space.

Density – This term is not well defined by Public Chapter 1101, but as it relates to land development, refers to the number of persons, structures, or housing units of a specified area. Highest densities would most often be found in urban areas and lower densities would be found in rural area. The Bureau of the Census defines rural density as 1,000 or fewer persons per square mile, which equates roughly to one unit per two acres.

This standard is a national standard that does not reflect the understanding of rural that many people living in the countryside of America understand. Notwithstanding this, the residential density in Piperton is rural according to the Census; Piperton has approximately 612 persons residing on 1.49-square miles (954-acres) of developed residential land or one (1) unit per four (4) acres. This low level of density would normally be considered rural even by local standards.

Flooding – A general and temporary condition of partial or complete inundation of normally dry land areas from the unusual and rapid accumulation or runoff of surface waters from any source.

Floodplain/Flood Hazard Area – Any land area susceptible to being inundated by water from any source (see flooding).

Multi-family – Land on which more than one dwelling units are located. This includes public housing, duplexes and multi-family residences.

Public/Semi-Public - Land on which educational facilities and all federal, state, and governmental uses are located. Land on which museums, libraries, parks, and similar uses are located.

Single-family – Land on which one dwelling unit is located. This includes all single-family and single mobile homes.

Transportation – Land on which municipal streets, county roads, and state and federal highways are located, including rights-of way. Also included in this category are railroad rights-of-way.

Unimproved Developable Land – Vacant unimproved land (see definition below) without natural or other constraints, which is suitable, with the necessary infrastructure, to accommodate future high-density residential, commercial, or industrial development

Urban Growth Boundary - The City of Piperton and contiguous territory where residential, commercial, and industrial growth is expected, or where the municipality is better able than other municipalities to provide urban services.

Utilities – Land on which utility structures or uses are located.

Vacant Land – Land which either has not been developed or can not be developed. Vacant land can be divided into three general categories:

Vacant Unimproved – Land that currently lies idle or is used for agricultural, or open space purposes and lacks the infrastructure necessary for development.

Vacant Improved – Land located along streets, which currently have adequate water and sewer infrastructure available to support development such as vacant subdivision lots.

## **Methodology**

As a prerequisite to preparing this urban growth boundary report, a survey and analysis of the existing land use and transportation patterns and characteristics were required. An existing land use inventory was conducted and categorized using Fayette County assessment information and a field survey to identify current land use and development patterns. An analysis of the land use identifies the amount of developable, available and unrestricted vacant land. Physical development restrictions have been identified and removed from the vacant land total through a review of regulatory flood plains, slopes in excess of fifteen percent, sink holes identified on USGS quadrangle maps and wetlands identified by the Tennessee Department of Environment and Conservation.

An analysis of the land use and physical land restrictions identifies the available unrestricted vacant land for future development. Public services have been identified and costs associated with expansion within and outside of the City have been determined through studies designed to aid in the creation of the City's Capital Improvements Budgeting Program.

Population projections in 5-year increments have been determined through a comprehensive review and analysis of historical regional growth patterns. These projections are used in this report. Locally generated population projections are used in this report because the population projections developed by the University of Tennessee are structurally flawed with regard to Fayette County and the City of Piperton.

Both the Fayette County Office of Planning and Development and the City of Piperton concur in their evaluation that the U.T. projections are so flawed as to preclude their use. Attempts made to work with UT to resolve the flaws in their projections were unsuccessful due to their unwillingness to correct materially erroneous information used during their modeling process.

When efforts to generate population projections in conjunction with the U.T. projections failed due to U.T.'s unwillingness to comply with PC1101, Piperton had no choice but to attempt to develop rational population projections using other resources.

A table (table 2) is included with this report detailing the population changes in nearby cities since 1950. Piperton prepared population projections based on comparative forecasting techniques using trends evidenced in surrounding communities since 1950. The Fayette County OPD developed population projections based on a methodology that included changes in voter registration, housing permits, and other local factors. The Memphis MPO developed its projections for use in its air quality modeling program which is required for compliance with Federal transportation and clean air regulations. The population projections developed by multiple governmental jurisdictions resulted in significantly comparable results.

The table also includes the University of Tennessee population projections for Piperton, Fayette County, and the above mentioned cities. The comparison demonstrates the magnitude of the differences between the population projections developed locally and those developed by U.T. It should be noted that the population projections produced locally by the Fayette County Office of Planning and Development, the City of Piperton, and the Memphis Metropolitan Planning Organization are all in general agreement.

In addition to obtaining population projections from the above sources, Piperton worked with Luchy Burrell with the Regional Economic Development Center of the University of Memphis to develop population projections. The REDC used standard population projection techniques to develop a range of population projections that on the low side approximated the projection of U.T. and on the high side approximated the projection of the City of Piperton. (see Section II)

Ms. Burrell concurred that conventional projection techniques will fail to project the type of growth witnessed in communities located in east Shelby County. The explosive nature of the growth cannot be forecast using techniques that extrapolate historic data until after the growth pattern is obvious. This can lead to dramatic failures to provide necessary infrastructure if planning entities have ignored local conditions and deceived themselves into relying on purely quantitative projections.

As an update to this report, Piperton requested that its City Planner, Steve Steinbach, review the population projections that have been previously provided and to prepare his own population projections based on any reasonable alternative methods that he believed might add value.

His review of the residential population projections prepared by several of the agencies that have prepared such projections conclude that there are numerous reasonable methodologies that can each be assumed to be reliable to various degrees. In fact he presents a new methodology that produces a residential population projection that is in general agreement with those produced by Ms. Burrell. His conclusion is that any population projections in a dynamically growing community are liable to be seriously constrained with regard to the degree of confidence that is attached to them. (see Section III)

It is the consensus of the Piperton Planning Commission and of the Piperton Board of Mayor and Commissioners that local population projections be used for report. The various alternatives, all of which are reasonable, and all of which are based on legitimate methodologies, produce a wide range of projections. It appears that the main difference between them is predicting the rate of the growth.

With the planning methodology adopted by the City of Piperton, the actual rate of growth is less important than the eventual projections of total population at build-out. Piperton contends that using the higher projections is more conservative with regard to its need to make long-range planning and infrastructure decisions. If the growth is slower than projected then there is considerably less harm than if growth outpaces planning and the ability of the city to provide services.

## EXISTING MUNICIPAL INVENTORY AND LAND USE ANALYSIS

This land use inventory identifies and analyzes the various uses by categories and the amounts of land devoted to each within the current corporate limits of Piperton.

Table 1 depicts the various land uses in the City of Piperton as determined by a land use survey completed by the Local Planning Assistance Office. This survey and analysis was prepared in compliance with Section 7 of Public Chapter 1101.

Table 1

<b>Town of Piperton</b>	2000 population: (as per 2000 census)	<b>600</b>
<b>Land Use Designations</b>	<b>Gross land area, Ac</b>	<b>Percent of Total</b>
<b>Total City land area</b>	<b>6,414</b>	100.0%
Physically Constrained land	540	8.4%
Floodplain	0	0.0%
other constraints	0	0.0%
Residential	944	14.9%
single family	937	14.6%
multi-family	7	0.1%
Commercial	100	1.6%
Industrial	122	1.9%
Public/Semi-public/Utilities	28	0.4%
Transportation	213	3.3%
Improved Vacant land	0	(w/ developable)
Total land in designated uses	1,407	22.9%
Net Constrained Land (not in use)	540	8.4%
<b>Total vacant developable land</b>	<b>4,467</b>	69.5%
		<b>100.00%</b>

### Residential

#### Single-family

Single-family comprises 937 acres, or 14.6 percent of the total acreage in the current corporate limits of Piperton. However, single-family comprises approximately 73 percent of the total developed land. Density of developed residential land based on current population, is 1.53 persons per acre.

The majority of single-family use in Piperton is at least 10 years old. There have been several proposals for new residential development and there are currently two new residential developments under construction.

Among the developments in pre-submission stages of the development approval process are:

Project Name	Dwelling Units	Acreage	Developer
Wolf River Club	650-1300	1300	Tayloe/Turley
Russ-Dunn Dev.	400-800	800	Melvin Russell
Piperton Farms	100-200	200	John McRee
Country Ridge	100-200	200	Marshall Gordon
Windbrook Estates	56	134	Wesley Thompson
Cox Estate Dev.	<u>100-200</u>	<u>200</u>	Paul Hust
Total	1406 - 2756	2834	

Mobile Homes

Mobile homes comprise one tenth of a percent (0.10%) or 6.6 acres of the total land within the current Piperton corporate limits. Mobile homes comprise five tenths of a percent (0.5%) of the total developed land. A significant majority of mobile homes in Piperton are in substandard condition. Single mobile homes are dispersed throughout Piperton.

The City of Piperton does not allow single width mobile homes, land costs are not conducive to the placement of other types of mobile residential structures, therefore there is not an anticipated increase in mobile homes and no substantial demand is anticipated.

Multi-family

Multi-family comprises 7 acres or 0.1 percent of the total land in Piperton. Multi-family land use contains 0.5 percent of the total developed land. There are two duplexes or .02 units per acre within the current corporate limits.

Piperton has not traditionally had any significant demand for multi-family development, however, as the population increases, it is anticipated that there will be significantly increased demand for multi-family dwellings.

Commercial

Land uses classified under the commercial category have historically been primarily trade and service oriented. Recently approved rezoning of two significant tracts to B-3 Commercial (pure retail) should begin the transition to having a significant retail sector. Commercial land use occupies 100 acres, or approximately 1.6 percent of total land area. Land dedicated to commercial use is concentrated on State Highway 57 and U.S. Highway 72. However, the additional exits that will be built along the Hwy 385 corridor will ultimately lead to additional commercial zoning in the proposed Urban Growth Area.

Industrial

Total industrial land use in Piperton comprises 122.4 acres, or 1.9 percent of the total land area. Industry accounts for approximately 9.5 percent of developed land within the corporate limits.

Piperton currently has three industrial districts. One planned industrial district is located south of Highway 57 along Commerce Road. A second planned district has been created along Keough Road. The Keough Road area is the future site of the Bodine Corporation which will be located on a campus style tract of approx. 63 acres. There is an additional 50 acres that may be suitable to planned industrial uses in this area.

The primary planned industrial district is Chickasaw Trail Industrial Park, located south of Highway 72. The existing industrial park along Commerce Road has been in operation for roughly twenty years. It is the site of the Alpha Corporation family of companies. They are currently the most significant industrial presence in Piperton.

The Chickasaw Trail Industrial Compact is a two-state area consisting of roughly 6600 acres. Approximately 600 acres of the compact are in Piperton. Zoning has recently been approved for an initial 70 acres of light industrial use in the compact area.

Piperton has recently completed the formation of the Piperton Industrial Development Board. A small tract of land adjacent to the existing industrial zone along Commerce Road has been designated as the Technology Center. The initial phase will only encompass 16 acres, but an additional 24 acres may be included in the Technology Center at a later date.

Chickasaw Trail Industrial Park and the Commerce Road - Highway 57 area are the only areas currently dedicated to industry on the Piperton future land use map. However, the additional exits that will be built along the Hwy 385 corridor will ultimately lead to additional industrial zoning in the proposed Urban Growth Area.

#### Public/Semi-Public

Piperton currently has twenty-seven acres dedicated to public/semi-public use. Public/semi-public comprises 0.4 percent of the total land. Of the developed land, public/semi-public use accounts for two (2) percent.

Public/semi-Public use consists of churches, graveyards and civic uses, such as City Hall. Piperton does not currently have land dedicated for recreational public/semi-public open space. However, there is a 9-acre area reserved for a park on the land use plan. The land use plan designates a significant area for greenbelt-open space along the Wolf River Corridor. Approximately 28 percent of the proposed Urban Growth Area or 8,190 acres is proposed as the Wolf River conservation area.

#### Transportation System

Piperton is served by two east-west highways, they are Hwy 72 and Hwy 57. The City is also served by a north-south highway, it is Hwy 196. City of Piperton right-of-way comprises 44.1 acres, or .7 percent of the total land area and 3.4 percent of the developed land within the current corporate limits. Railroads comprise 27.55 acres, or .4 percent. State and U.S Highways comprise 145 acres, or 2.3 percent. However, transportation Piperton maintains comprises approximately 3.2 percent of the total transportation. The average cost of construction of roads for Piperton is reported to be \$900,000 per mile, the average cost of maintenance is estimated at an annualized rate of approx. \$6,000 per mile.

### Improved Vacant Land

Piperton currently has a system of 12-inch and 6-inch water lines and fire hydrants installed along most roads within the current corporate limits. 4 parcels of land in the northeast portion of the current corporate limits and a section of Hwy 72 remain without water lines. The City has an agreement with MLG&W in place to obtain water service for the northern parcels when demand warrants such service.

Currently proposed infrastructure improvement projects include extension of 16-inch water lines south of Highway 72 to the Chickasaw Trail Industrial Park and a one million gallon elevated storage tank south of the Wolf River.

### Unimproved Vacant Land

Total vacant land within the current corporate limits comprises 5,028 acres, approximately 79.4 percent. The majority of the vacant land is attributed to 4 parcels that contain 3,000 acres along Chulahoma Road. Water service is available to this land.

The remaining approximate 2,028 acres is comprised of vacant land with development potential with the exception of 560 acres which are flood-prone areas that are restricted by City policy as unsuitable for development.

## **EXISTING MUNICIPAL PUBLIC SERVICES ANALYSIS**

### **Public Utilities and Services**

#### **Water**

Piperton has recently received the results of a comprehensive water and sewer master planning study that it commissioned. The Piperton Water and Sewer Master Planning Study provides a clear outline for the development of water facilities within the UGB.

There are currently 259 customers in the City and 48 customers outside the City. There are approximately 32 residents using private wells. Piperton has 64 fire hydrants within the City and 7 fire hydrants outside the city. Average daily water use is 119,345 gallons. Piperton owns its distribution infrastructure and is currently purchasing water from the Town of Collierville. The contract between Collierville and Piperton has been renewed several times since its inception and is in the process of being renewed at this time.

Piperton has an agreement in place with Memphis, Light, Gas and Water to purchase water from them for areas of its City and the proposed urban growth area north of the Wolf River. MLG&W has water service near the county line at both Ral-LaGrange road and at Macon Road. Due to recent interconnection between Collierville and MLG&W, Piperton should be able to purchase water from MLG&W and flow it through Collierville's system should Collierville become unable to supply Piperton during the near future.

Piperton has recently constructed a significant upgrade to its water system. A twelve inch main has been constructed east-west along Keough Road from the County line to Hwy 196 where it ties into the older system. Additional twelve-inch mains were constructed running northward from the Keough Road line to the older system at Commerce Road and southward to the older system at Rebel Road. The addition of this twelve-inch infrastructure has resulted in a significant expansion of the City's ability to provide water anywhere in the City.

The Piperton Water and Sewer Master Planning details the infrastructure needed to provide comprehensive water service throughout the UGB. A critical component of the design criteria is that system design contained in the Master Study is contingent on the future needs of the UGB. Piperton has instituted a water tap fee and will be implementing its adequate public facilities fee this summer. The combination should provide adequate funding for all future expansion needs. The City also requires developers to install water mains to and throughout their developments according to City specifications. The City's policies have been designed to insure that Piperton can provide water service in an economically efficient manner.

#### **Sewer**

The Piperton Water and Sewer Master Planning Study provides a clear outline for the development of sewer facilities within the UGB. Piperton is conducting preliminary discussions with the Town of Collierville about the feasibility of building joint sewage treatment facilities in Piperton to serve areas of both communities. This would provide significant benefits to both communities. Collierville would benefit because it could shut down a capacity constrained plant that has had significant residential growth around it. Piperton would benefit from the cost efficiencies that would result from having a large stream of sewage flowing through a new plant.

The Tennessee Department of Environment and Conservation has approved a site for a wastewater treatment plant south of the Wolf River.

Piperton has instituted a sewage tap fee that should provide adequate funding for all future expansion needs. As with water Piperton also requires developers to install sewer mains to and throughout their developments according to City specifications. This policy has been designed to insure that Piperton can provide services in an economically efficient manner.

#### Electrical

Tennessee Valley Authority is the supplier for Chickasaw Electric Cooperative (CEC) of Somerville, Tennessee. CEC is the distributor of electricity for the City of Piperton. There is not a plan to construct municipal electric services.

#### Gas

Piperton obtains gas service through Hardeman/Fayette Utility District. Piperton is not currently planning to provide municipal gas services.

#### Police

Piperton currently utilizes Fayette County Sheriffs Department for police services. The City of Piperton is in the process of developing a strategy for implementing local law enforcement service.

It is the City's current intention to adopt the Department of Public Safety model that is used in many cities across the country. In Tennessee, Johnson City is currently using this methodology. Piperton has had discussions with both Johnson City's Chief of Public Safety and the Municipal Technical Advisory Service's Fire and Police consultants.

While Piperton is in the process of preparing to make the necessary filings with the State of Tennessee to officially activate a police department, no time table has been established to actually initiate police coverage. The City intends to continue relying upon the Fayette County Sheriff's office for police protection during the near future.

Piperton has initiated planning for additional municipal police services. Piperton has instituted a dedication requirement as part of the subdivision approval process that requires a dedication of two percent (2%) of the acreage in a subdivision or \$140 per lot for public safety purposes. Comparable dedications are required as part of the site plan approval process for non-residential zoning.

#### Fire

Piperton's ISO rating is currently a 6. The recent completion of the Keough Road 12-inch water line project coupled with the recent acquisition of a new pumper-tanker fire truck and other improvements since the City's last ISO review are expected to lead to an ISO rating of 5. The City is in the process of requesting a new ISO review.

There are currently 21 volunteer firefighters, two pumper-tanker fire trucks, and one fire station. Piperton currently provides primary fire protection to a significant portion of its proposed UGB and provides mutual aid response to the remainder of it.

The City has begun a comprehensive analysis of the fire department infrastructure that will be needed to serve the proposed UGB. The City's capital budgeting process will insure that the need to provide infrastructure for additional public safety purposes will be satisfied in a fiscally responsible manner.

A graduate student in the planning program at the University of Memphis is working with the City's Fire Chief to determine the economic costs and benefits of various service options. The study will include the costs and benefits of requiring that most residential structures have automatic fire sprinkler systems versus the conventional alternative of only requiring sprinkler systems in very large houses. Sprinkler systems are already required in all non-residential structures.

Piperton has instituted a dedication requirement as part of the subdivision approval process that requires a dedication of two percent (2%) of the acreage in a subdivision or \$140 per lot for public safety purposes. Comparable dedications are required as part of the site plan approval process for non-residential zoning.

#### Solid Waste

Piperton residents currently contract with private solid waste contractors for garbage service. There are currently three providers for solid waste collection services at this time. Piperton has had several town hall meetings to discuss the provision of services and the provision of municipal solid waste services has been one of the leading services discussed.

#### Roads and Streets

Streets comprise 44.07-acres of the total land use in Piperton. However, U.S Highways comprise 37.2-acres and State Highways comprise 104.68-acres. Railroads use total 27.55-acres of land. Piperton has about 7.5 miles of City streets.

Piperton passed the first property tax in the City's history to fund a citywide resurfacing program. The initial tax rate was set at \$0.58 per 100 dollars of property value, it has now been reduced to \$0.51 per 100 dollars of property value.

Piperton has instituted subdivision regulations that should provide adequate funding for most future road needs. Piperton requires developers to install roads throughout their developments according to City specifications. This policy has been designed to insure that Piperton can provide services in an economically efficient manner. Piperton has also adopted regulations requiring the construction, or a payment in lieu of construction, for all roads that are included on the City's major road plan and which pass through a development.

#### Parks and Recreation

There is currently no land dedicated to parks or recreation within the current corporate limits of Piperton. Piperton does, however, have partially funded reserve account for a municipal park and approximately 9-acres dedicated on the land use plan.

Piperton has also implemented an aggressive program to insure adequate parks and recreational facilities. All residential subdivisions are required to dedicate either 5% of the land in each proposed subdivision or \$350 per lot for public recreation/public open space purposes. The City makes the determination as to whether the dedication will be land, money, or a combination of the two. The purpose is to provide both neighborhood and citywide parks and recreational facilities.

#### Building Inspection

The City of Piperton requires building permits for the construction of virtually all non-agricultural structures erected within the city boundary. Piperton has adopted the Southern Standard Building Code and has employed a certified building inspector to issue permits and conduct inspections.

#### Animal Welfare

Piperton provides for the collection of stray animals through the employment of an on-call animal control officer. The City has constructed and maintains a holding facility where animals can be safely maintained for several days after collection in order to allow owners to reclaim such animals. After several days the animals are transferred to the county facility.

#### **Projected Costs of Infrastructure, Services, and Facilities**

PC1101 requires that “The municipality shall also determine and report the current costs and the projected costs of core infrastructure, urban services and public facilities necessary to facilitate full development of resources within the current boundaries of the municipality and to expand such infrastructure, services and facilities throughout the territory under consideration for inclusion within the urban growth boundaries.”

As a part of the City’s determination to adequately fund and provide critical infrastructure services, Piperton had a private act passed in 2000 by the State Legislature that allows it to charge an adequate public facilities fee for items contained within the City’s capital improvements plan. This authority was adopted by the City.

The City of Piperton is in the process of implementing a capital budgeting plan, and implementing development fees, that are designed to insure the ongoing ability of the City to install the infrastructure necessary to provide urban services in a fiscally responsible manner. Piperton has established tap fees for water and sewer that should cover the full cost of installing the core infrastructure necessary to provide those services.

The attached City of Piperton Water and Sewer Master Planning Study (see Section IV) provides a comprehensive analysis of the infrastructure needed to provide water and sewer service throughout the UGB. A full cost projection for providing the necessary infrastructure is also included, along with proposed fees and expenses.

Piperton has adopted subdivision regulations that should provide adequate funding for most future road needs. Piperton requires developers to install roads throughout their developments and along their frontages according to City specifications. This requirement is based on the City’s major road plan and in the City’s subdivision regulations. The estimated cost of building new roads with a pavement width of 28 feet is \$900,000 per mile.

The City has a study in process that will help determine the economic costs and benefits of various fire protection options. The study will include the costs and benefits of requiring that most residential structures have automatic fire sprinkler systems versus the conventional alternative of only requiring sprinkler systems in very large houses. A component of the study is the cost of providing conventional fire protection services. As part of this study a preliminary master fire protection plan is under development by the Piperton Fire Department.

## **LAND USE PLANNING AND MUNICIPAL CODES**

The current City of Piperton Land Use Planning Map, Zoning Ordinance (see attachment D), Engineering Specifications (see attachment E) and Subdivision Regulations (see attachment F) reflect the municipality's desire to manage growth and insure that development does not exceed the ability of Piperton to provide services. By establishing the proposed urban growth boundary, Piperton is seeking to manage and control growth in areas that it anticipates will experience growth and eventually need city services. Piperton contends that it is better prepared to manage urban sprawl and control growth than the County.

Piperton's existing regulations were adopted in 1997 and updated this year. They demonstrate the City's intent to control growth and manage future development. Through policy and action, Piperton has begun the dynamic process of long-term planning.

Piperton's Board of Mayor and Commissioners has adopted a policy that the City will not subsidize the cost of providing infrastructure for residential development. It is the policy of the City of Piperton that residential developers will pay the full cost of the infrastructure necessary to support development.

A long-term capital budgeting process has been adopted to insure that the long-term costs of providing infrastructure such as sewer service, water service, public recreational facilities, public safety facilities, roads, green-ways, and open spaces is adequately funded. Piperton has implemented requirements that residential developers pay the full estimated average cost of the City providing such infrastructure as is required to meet the needs of their developments.

At the present time, Piperton's Subdivision Regulations require the developer to dedicate 5 percent of total land or \$350 per lot for a parkland/open space dedication. There is a separate 2 percent of total land or \$140 per lot dedication required to meet public safety infrastructure needs.

### **RESIDENTIAL**

The City has adopted two residential zoning districts, Rural Conservation (RC) and Low Density (R-1). It will also have a mixed use planned district designed to promote traditional neighborhood designs (TND) with much higher densities.

The R-1 district is intended for use by families and small landowners that desire to divide their property much in line with what is often called a minor subdivision. This district is not intended to be used for general development and is limited to areas of ten acres or less.

The RC district is specifically intended to preserve the rural appearance and nature of the community. In its basic form it has a minimum acreage requirement of five (5) acres. However, there is a conservation design overlay district (CD-O) that is encouraged in this zoning district that allows densities of up to one (1) house per acre while preserving a minimum of 50% open space in each subdivision. In a CD-O development there are no minimum lot size requirements and the developers have maximum flexibility to design the development to meet market demand. The 50% open space will most often be used to set the development back from existing and planned roads and from neighboring properties. It is

anticipated that the open space will often be used for gardens, small truck farming operations and grazing.

The TND overlay district is in the final stages of review by the Piperton Planning Commission and is expected to be recommended to, and adopted by, the Piperton Board of Mayor and Commissioners within the next couple of months. This district requires a mix of uses and is similar in nature to a conventional Planned Development. It allows residential densities of between three and five houses to the acre and has mandatory requirements for office, commercial, public, and open space areas. It is intended that TND areas will be places for people to gather, work, shop, and recreate.

## **Commercial**

Piperton's current commercial districts are the B-1 District (Neighborhood Commercial), B-2 District (Minor Planned Commercial), B-3 District (Major Planned Commercial) and O District (Planned Office).

Minimum lot area for B-1 (Neighborhood Commercial) is 1 acre, B-2 (Minor Planned Commercial Districts) and O (Planned Office District) have minimum lot sizes of 2 acres. B-3 Districts (Major Planned Commercial Districts) have a minimum lot size of 5 acres.

B-1 Districts (Neighborhood Commercial) and B-2 Districts (Minor Planned Commercial) and O (Planned Office) are required to have minimum lot areas due to environmental factors associated with septic systems. Regulations will accommodate higher densities after construction of a sewer treatment facility.

B-3 Districts (Major Planned Commercial) are expected to retain a high minimum acreage due to the intent of the district. B-3 Districts (Major Planned Commercial Districts) are intended for clustered commercial centers that generate high traffic counts. Areas of major planned commercial districts in Piperton's future land use plan are located south of Highway 72 and west of the proposed Highway 385.

## **Industrial**

Piperton currently has three districts for manufacturing: M-1 (Light Manufacturing) with a minimum of 2 acres, M-2 (Heavy Manufacturing) with a minimum lot size of 5 acres and M-3 (Chickasaw Trail Special Industrial District) with a minimum lot size of 5 acres.

Piperton's land use plan indicates additional proposed industrial areas outside of the existing industrial districts and the proposed Chickasaw Trail Industrial Park around the various exits along Highway 385.

## PROJECTED GROWTH NEEDS FOR LAND AND PUBLIC SERVICES

### Projected 20 Year Population Growth

The results of the 2000 census have been received by the City of Piperton. According to the census data, the City's population is said to have dropped to 589 people. This is in spite of having issued 64 building permits since 1990, most of which were for single family residential construction. The City is reviewing the census data for errors. This information is not considered to invalidate the planning process that has been conducted nor the long-range population projections that are based on a variety of forecasting techniques.

In an effort to determine the reasonableness of the population projections, Piperton tasked their City Planner, Steve Steinbach, with the task of reviewing the various methodologies that were used and to develop his own population projections. The results of his review are contained in Section III.

Population projections in 5-year increments have been determined through a comprehensive review and analysis of historical regional growth patterns. These projections are used in this report. Locally generated population projections are used in this report because the population projections developed by the University of Tennessee are structurally flawed with regard to Fayette County and the City of Piperton.

As mentioned earlier in this report, both the Fayette County Office of Planning and Development and the City of Piperton concur that the U.T. projections are so flawed as to preclude their meaningful use. The following table details the population changes in nearby cities since 1950.

Table 2

City of Piperton  
Population Trends for Shelby County Area and Piperton

	History from local sources and Piperton projection										
	1950	1960	1970	1980	1990	Latest	2000	2005	2010	2015	2020
Bartlett	489	508	1,150	17,170	26,989	35,951					
Collierville	1,153	2,020	3,651	7,839	14,427	29,295					
Germantown	408	1,104	3,474	20,459	32,893	37,130					
Lakeland	-	-	-	612	1,204	5,429					
Memphis	396,000	497,524	623,530	646,346	610,337	626,603					
Shelby County	482,393	627,019	722,014	777,113	826,330	865,970					
Piperton	-	-	366	505	612	694	700	5,000	11,000	18,000	25,000
Fayette Cnty					25,628	37,000					100,000

	History and Projections by UT-CBER										
	1950	1960	1970	1980	1990	Latest	2000	2005	2010	2015	2020
Bartlett					26,989	35,951	36,835	38,982	41,246	43,597	46,045
Collierville					14,501	29,295	30,015	31,765	33,610	35,525	37,521
Germantown					33,016	37,130	37,665	38,879	40,124	41,366	42,613
Lakeland					1,204	5,429	5,532	5,775	6,027	6,284	6,547
Memphis					610,337	626,603	635,634	656,127	677,133	698,096	719,142
Shelby County					826,330	865,970	885,964	914,527	943,806	973,025	1,002,359
Piperton					612	618	644	650	656	661	666
Fayette Cnty					25,628	29,526	30,110	31,162	32,236	33,320	34,410

Piperton developed population projections as part of a major review of the City's Land Use Map, Zoning Ordinance, Engineering Specifications and Subdivision Regulations begun in 1997. The City obtained the population growth history of neighboring communities in Shelby County including Bartlett, Collierville, Germantown, and Lakeland.

Data was obtained for the first three cities going back to at least 1950. The growth patterns for these cities showed that explosive growth has been the consequence of a continuing migration eastward from Memphis. Piperton considered several different scenarios of population projections and evaluated the probability of each. A review of the projections showed only moderate variability, all with respect to the issue of timing.

Piperton prepared population projections based on comparative forecasting techniques using trends evidenced in surrounding communities since 1950. The Fayette County OPD developed population projections based on a methodology that included changes in voter registration, housing permits, and other local factors. The Memphis MPO developed its projections for use in its air quality modeling program which is required for compliance with Federal transportation and clean air regulations.

The table above includes the University of Tennessee population projections for Piperton, Fayette County, and the above mentioned cities. The comparison demonstrates the magnitude of the differences between the population projections developed locally and those developed by U.T. It should be noted that the population projections produced locally by the Fayette County Office of Planning and Development, the City of Piperton, and the Memphis Metropolitan Planning Organization are all in general agreement.

In addition to obtaining population projections from the above sources, Piperton worked with Luchy Burrell with the Regional Economic Development Center at the University of Memphis to develop population projections. The REDC used standard population projection techniques to develop a range of population projections that on the low side approximated the projection of U.T. and on the high side approximated the projection of Piperton.

The University of Tennessee's Center for Economic and Business Research has projected a population growth of 54 persons from the 1990 count of 612 to 666 persons in the year 2020. This projection was created using a base population projection for Fayette County that was seriously flawed due to the use of poor technique and inadequate attention to local conditions. The CBER then compounded their poor workmanship by refusing to correct their projections when the magnitude of their errors was reported to them.

Since these projections were to be used as the basis for planning, capital budgeting and the provision of services, Piperton considered it essential to fully understand the impact of accepting incorrect projections. Each projection was evaluated from the perspective of its impact on the City if it were accepted and then proved to be incorrect.

Piperton also reviewed the problems that had been experienced by the neighboring cities listed above due to their rapid growth. Simply put, most seemed to have not adequately anticipated the rate of growth that actually occurred and thus ended up straining to be able to provide services in an efficient and economical manner. In some cases, growth actually outgrew the City's ability to provide an essential service and the community's health, safety and welfare was jeopardized.

Piperton contends that the lesson to be learned from the experiences of the referenced communities is that underestimating population growth has serious public policy implications. Piperton's conclusion is to prepare for the type of growth that the above listed cities actually experienced but to design the infrastructure needed to provide City services in phased approach. This strategy will allow Piperton to provide services on an incremental basis while providing continuity between phases and reducing the problems normally accompanying the growth of systems that are not designed for expansion.

Should population growth occur at a rate slower than projected, this approach allows infrastructure growth to be slowed to reflect actual population growth without resulting in unanticipated expenses. In short, the City's planning process should be able to proactively respond to fairly dramatic shifts in population growth. This would almost certainly not be the case under other scenarios.

### **Projected Economic and Business Growth**

Piperton is projecting significant economic and business growth over the next twenty years. Industrial growth will be magnified by the completion of Hwy 385, the creation of the Chickasaw Trail Economic Authority and the Piperton Industrial Development Board.

The Chickasaw Trail project is a unique endeavor created through a regional partnership plan between the States of Tennessee and Mississippi. The Authority has the backing of key political leaders in both States and at the Federal level. The Commissioner of the Tennessee Department of Economic and Community Development recently reported that the Shelby County Metropolitan Area is currently receiving 25% of the new development in the State.

The supply of industrial space in Shelby County is estimated to be less than two years inventory. The location and tax advantages of locating in the Chickasaw Trail Area should drive demand for space.

Commercial growth will be fueled by two significant factors. The increase in population currently being witnessed in Fayette County will lead to increased demand for retail and commercial services in this area. The increase in population in eastern Shelby County will also drive demand for such services.

Piperton is ideally located to take advantage of such demand due to its location on the western side of Fayette County. It lays astride of one of the major east-west paths of travel between Fayette County and Shelby County. As such, everyone commuting to and from work in Shelby County from the south side of Fayette County must pass through Piperton.

Additionally, Piperton will be traversed by Hwy 385 with interchanges at Hwy 57, Ral-LaGrange Road, Monterey Road and Macon Road. These four interchanges are natural locations for significant retail, commercial and light industrial sites. According to the most recent design plans for Hwy 385, these three interchanges will be the only points of ingress/egress to Hwy 385 in Fayette County. This should result in a significant volume of traffic at these points due to the use of Hwy 385 for commuting westward into Memphis and Shelby County. Highway 385 is projected to generate over 30,000 trips per day. The Tennessee Department of Transportation has projected a completion date of year 2004.

## Special Land Management Concerns: Wolf River

Piperton has made a major commitment to public open space and recreational areas. The City is fortunate to have a significant waterway in the form of the Wolf River. The current land use plan has already designated the entire floodway to be a green belt area. The proposed area is approximately 7,500 acres of the proposed urban growth boundary.

The State of Tennessee has already acquired some of the land in the proposed greenbelt. Piperton is investigating innovative ways to both acquire additional lands in the greenbelt area and to encourage landowners to commit their lands to the greenbelt through conservation easements and other methods. The land use plan supplements this natural greenbelt with designated greenway corridors throughout the city. Piperton anticipates that these open spaces will form the cornerstone of a citywide recreational system.

## Vacant Land Potential within Piperton

Currently over 70 percent of Piperton's area within the corporate limits has potential for development. This is shown in table 3 below. This acreage is calculated into the total needed to accommodate projected growth in table 4 below.

Table 3

<b>City of Piperton</b>	
<b>Land Use Designations</b>	<b>Gross land area, Ac</b>
<b>Total City land area</b>	<b>6,414</b>
Physically Constrained land	540
Floodplain	0
Other constraints	0
Residential	944
Single family	937
Multi-family	7
Commercial	100
Industrial	122
Public/Semi-public/Utilities	28
Transportation	213
Improved Vacant land	0
Total land in designated uses	1,407
Net Constrained Land (not in use)	540
<b>Total vacant developable land</b>	<b>4,467</b>

## Projected Land Needs Outside of Piperton

Projected population, need, and ability to provide municipal services determine land needs outside the corporate boundary. Due to the slow development, much of the land within the current limits is vacant, this would normally limit the amount of land needed outside the corporate limits. However, the population projections for Piperton dramatically exceed all normal projections. This leads to a need of significant additional acreage in order to accommodate anticipated growth.

Based on projected non-residential growth rates due to Hwy 385 and a projected 22,609 percent increase in population, Piperton will need to annex approximately 21000 additional acres of land during the next 20 years, as illustrated in Table 4 below. This takes into account the existing land that may be developed within the current City boundaries and the realization that a City does not build out at a 100% rate.

The City of Piperton is committed to avoiding urban sprawl. The City has made a commitment not to subsidize residential growth and has designed a structured plan for providing city services in an efficient and economic manner. Using a comprehensive planning approach, and designing facilities to be built in a modular fashion, will allow Piperton to adjust its construction of infrastructure to meet its actual growth. Thus Piperton should be able to avoid either over-building should growth be slower than projected or meet its obligation to the community if growth should meet or exceed the City's projections.

Table 4

<b>City of Piperton</b>	<b>2000 population</b>	<b>589</b>
<b><u>Future Land Area Needs</u></b>	<b>2020 population</b>	<b>13,317</b>
	<b><u>22,609 % increase</u></b>	
<b><u>Land Use Designations</u></b>	Existing. Land	<b>Projected</b>
	Area, Ac	<b>Need, Ac</b>
Physically Constrained land	540	
Floodplain	0	7500 (Wolf River)
Other constraints	0	
Residential	944	7150*
Single family	937	6650
Multi-family	7	500
Commercial	100	600
Industrial	122	700
Public/Semi-public/Utilities	28	1500 (690 Wolf River)
Transportation	213	1000
Remaining Undeveloped Land		9150**
<b>Future land needed:</b>	<b>1,407</b>	<b>27600</b>

\* Based on an average density that assumes effective residential density of one household per 1.5 acres for single family uses.

\*\* This assumes that there is a build-out rate of 55% within the city at the year 2020.

## PROPOSED URBAN GROWTH BOUNDARY

### Summary

The preceding section (including Sections II and III) has attempted to provide a comprehensive overview of the population projection methodologies utilized by the various participants in attempting to determine an appropriate population forecast for the City of Pipeston.

As the foregoing analysis has suggested, all projection techniques have their strengths and weaknesses. And while no particular projection method has been proven to be consistently more accurate than others, generally, however, results are most accurate when the projection period is ten years or less, and where the focus of the projection is a larger scale geographical area.

Population projections for smaller areas, as this analysis has argued, tend to be problematic for two reasons: *difficulty in obtaining accurate, detailed data*; and *uncertainties with regard to the impact of the migration population component on communities adjacent to large metropolitan areas*.

Couple these problematic characteristics with a requirement for a residential population projection extending twenty years into the future, and the result is a forecast and/or set of projections that must be regarded as highly speculative.

Public Chapter 1101 (*Section 7*) required that municipalities develop twenty-year residential population projections, and that the results of these residential projections be used as one of the bases for delineating Urban Growth Boundaries. This has resulted, in many instances, in an over emphasis on the residential population projection component of the growth law's mandate, to the detriment of the law's other planning requirements.

Among the other requirements that have often been slighted, or even ignored, are:

**SECTION 7 (a) (1) (A)** Identify territory that is reasonably compact yet sufficiently large to accommodate residential and nonresidential growth projected to occur during the next twenty (20) years;

**SECTION 7 (a) (1) (C)** Identify territory that a reasonable and prudent person would project as the likely site of high density commercial, industrial and /or residential growth over the next twenty (20) years based on historical experience, economic trends, population growth patterns and topographical characteristics;

**SECTION 7 (a) (1) (D)** Identify territory in which the municipality is better able and prepared than other municipalities to efficiently and effectively provide urban services; and

**SECTION 7 (a) (1) (E)** Reflect the municipalities duty to facilitate full development of resources within the current boundaries of the municipality and to manage and control urban expansion outside of such boundaries, taking into account the impact to agricultural lands, forests, recreational areas and wildlife management areas.

With regard to section 7 (a) (1) (A), the significant nonresidential growth projected to occur around each of the proposed exits along Highway 385 creates the need for the UGB to

encompass the area that has been proposed. The very nature of the anticipated growth along the west side of Fayette County around each interchange precludes a truly compact form if it is to accommodate the growth that is undeniably likely.

With regard to section 7 (a) (1) (C), the City of Piperton contends that the nonresidential growth projected to occur due simply to the impact of Highway 385 is significant rationale to designation of the UGB along the western edge of the county and east of the intersection of Highway 196 and Macon Road. The City of Piperton contends that the expansion of the UGB eastward along the south side of the Wolf River meets the same criteria due to the earlier anticipated completion of the interchange of Highway 385 and Highway 57.

With regard to section 7 (a) (1) (D), the City of Piperton contends that there is no alternative municipality that is conceivably in a position to provide the urban services that will be needed to accommodate the anticipated nonresidential growth in an efficient and effective manner.

With regard to section 7 (a) (1) (E), Piperton contends that the planning policies it has adopted, the commitment it has made to preserving the rural nature of the community and the significant amounts of open space that will be preserved through its innovative Conservation Design Overlay District clearly reflect the municipality's duty to "manage and control urban expansion ..., taking into account the impact to agricultural lands, forests, recreational areas and wildlife management areas".

Piperton respects the law's charge to "reflect the municipalities duty to facilitate full development of resources within the current boundaries of the municipality". The development that occurs within the proposed UGB will show significantly superior results if it is a part of Piperton's UGB and developed under the planning policies of Piperton than it will if it is left out of Piperton UGB and developed under the planning policies of Fayette County.

### **Description of Proposed Urban Growth Boundary**

The proposed urban growth area extends southward along the Fayette/Shelby boundary line from the current City limits at the intersection of where Fletcher Road crosses the Fayette/Shelby Boundary line to the Tennessee/Mississippi boundary line. The line then continues roughly eastward along the state boundary line to an imaginary line running generally northward along a line paralleling the private drive known as Wolfport way. The line continues generally northward following the eastern boundary line of the parcel known as the Wolf River Airport, continuing generally northward across the Wolf River to Shaws Creek. The line then continues roughly northward along Shaws Creek to the point where Alexander Creek enters Shaws Creek. The line then continues roughly northward along the path of Alexander Creek to the point at which it crosses Macon Road. The line then continues generally westward along Macon Road to the point where the Fayette/Shelby boundary line crosses Macon Road. The line then continues roughly southward along the Fayette/Shelby boundary line across the Wolf River to the point at which it meets the current boundary line of the City of Piperton at roughly where Fletcher Road crosses the Fayette/Shelby Boundary line. **(MAP 1)**

## Existing Conditions

The entirety of the area included within the UGB is approximately **27,600** acres (*43 +/- square miles*). Of this total, 6,400 acres (*23 percent of the total UGB*) consists of the city's existing corporate limits.

Comprising a significant portion of the UGB are the expansive Wolf River floodplain/floodway, which traverses the UGB near its geographical center, and the Alexander and Shaw's Creek floodplain/floodway, which are major laterals of the Wolf River (**MAP 2**). Together, these areas contain approximately 7,500 acres (*27 percent of total UGB*).

Generally, the UGB's landscape is consistent with the flat to gently rolling topography that characterizes the low plain area of West Tennessee. However, within the northwest area (*i.e. Herb Parsons Lake*) of the UGB the landscape provides for more topographical relief, as the natural lay of the land begins its descent to the Wolf River basin from a ridge that runs east to west along Macon Road. Conversely, south of the Wolf River, the landscape is predominately agricultural flatland that continues southward into Mississippi.

Soil types within the UGB are consistent with those found throughout Fayette County, and include *Calloway; Falaya; Grenada; Henry; Lexington; Loring; and Memphis* types. Many of the soil types that pervade the UGB, however, are not conducive to sub-surface wastewater disposal (*Grenada; Falaya etc.*). Accordingly, the availability of a centralized wastewater treatment facility to service the UGB is critical to its long-term welfare.

Existing land use within the UGB (*outside the city's existing corporate limits*) consists primarily of agriculture; estate residential (*2 – 5 acre parcels*); and rural residential (*parcels over 5 acres*). An analysis of the parcel lines delineated on (**MAP 1**) illustrates pockets of contiguous estate residential development around Herb Parsons Lake; along Macon Road; and along Raleigh LaGrange Road, east of Highway 196. A 1992 Annexation Study guide, prepared by the Municipal Technical Advisory Service, indicated that "*areas with one family per 10 acres to one family per acre are probably in transition from rural to suburban, and may need to be considered for annexation.*" The densities in these areas easily meet that threshold, and clearly indicate an area in the initial stages of urbanization.

## Development Catalysts: Transportation

That land use and transportation are related is undeniable; however, attempting to quantify that relationship into a meaningful predictor of either future land use patterns and/or transportation infrastructure requirements has been challenging practitioners since the initiation of the Interstate Highway System in 1956. The basic problem is that the relationship between the two variables is reciprocal – a "chicken or the egg" phenomenon: land use patterns affect transportation decisions and vice versa.

For the City of Piperton, however, the construction of a major limited access thoroughfare – State Route 385 (*S.R. 385*) (**MAP 3**) - is imminent, irrespective of land use patterns that have yet to materialize. Accordingly, City of Piperton officials will have the unique opportunity, and responsibility, to develop a strategic response to the anticipated land use/transportation impacts S.R. 385 will have on the UGB before they materialize.

Right-of-way acquisition for the first leg of S.R. 385 through Piperton (*Highway 72 in Collierville to Highway 57 in Piperton*), according to state transportation officials, is scheduled

to begin within six months of this report, with construction to immediately follow. The balance of S.R. 385 through the UGB (**MAP 3**) will be constructed within the planning period.

The City of Piperton will be the only municipality in Fayette County to be physically affected by S.R. 385. As (**MAP 3**) illustrates, S.R. 385 will enter the city south of Highway 57, and exit the UGB where Macon Road intersects the Fayette/Shelby County line. Additionally, with four interchanges proposed within the UGB, by either the state and/or Memphis Metropolitan Planning Organization, the city is unique among the Fayette County municipalities in the challenges, and opportunities, it will face over the next twenty years.

The impact of S.R. 385, as a regional, and perhaps national (*a possible route for Interstate 69*) transportation thoroughfare, to Piperton and Fayette County, in general, will be significant. History has shown that where these “outer-ring parkways” and rural communities meet can, and has, resulted in the creation of so called “edge cities.” Edge cities are descriptive of communities on the metropolitan fringes that have been besieged with large-scale office parks and corporate headquarters, etc, to the extent that, as quoted from Joel Garreau’s *Edge City: Life on the New Frontier*, there are more “jobs than beds.” Consequently, It will be imperative that the city takes pro-active measures now to ensure that the impacts brought about by S.R. 385, which are sure to materialize during the planning period, are effectively managed.

### **Sewer and Water Infrastructure**

In anticipation of the substantial future growth expected within the Piperton UGB over the next twenty years, City officials wisely commissioned a water and sewer master planning study to determine: **1) the feasibility of extending water and sewer infrastructure throughout the UGB;** and **2) the estimated capital expenditures for the construction, operation, and maintenance of these facilities.**

The water and sewer master planning study, prepared by Consolidated Technologies Inc., provides a comprehensive overview of the various alternatives available to the city for providing water and sewer infrastructure throughout the UGB; and the feasibility and costs associated with each alternative.

With regard to water service, the study concludes that the City has several alternatives available to it for the incremental extension of water infrastructure throughout the UGB, ranging from the wholesale purchase of water from a third party provider, to the development of its own water system. The availability of these alternatives provides the City with a “service delivery flexibility” that results in it being the most appropriate entity to provide centralized water service to the areas within the UGB.

One of the major considerations in assessing the viability of providing sanitary sewer to an area is the topography, or natural lay of the land. Ideally, effluent generated by development is collected and transported via large (*10 inches in diameter or larger*) interceptor lines that follow the natural lay of the land. In this manner, the effluent is carried by gravity, without the need for mechanized pumps. Where the natural topography cannot be followed, it is necessary to utilize pumping stations, which collect the effluent and pump it under pressure through force mains. The introduction of pumping stations to the system dramatically increases capital and maintenance costs, and should be avoided where possible.

Upon analyzing the topography within the UGB, Consolidated Technologies Inc. generated a drainage basin map (**MAP 4**) that delineates the natural drainage areas within the UGB. The Drainage Basin map delineates the drainage areas in red, while the green arrows indicate the direction of flow.

As (**MAP 4**) clearly illustrates, the great majority of the area within the UGB is drained back towards its geographical center (*the Wolf River*). Accordingly, it can be appropriately argued that the City of Piperton ... “is better able and prepared than other municipalities to efficiently and effectively provide urban services [sanitary sewer]” in an area that has the propensity to experience urban level of growth due to the introduction of S.R. 385 and four accompanying interchanges.

### **Proposed Land Use Plan**

In recognition of the City of Piperton’s adoption of an “*Alternative System of Land Use Controls*,” (see attachment G) a Conceptual Land Use Plan is offered as a part of this report (**MAP 5**) that recognizes existing land use and land use trends within the UGB, as well as areas that would be logical recipients of the city’s two proposed design types for residential and mixed-use development: **Conservation Design** and **Traditional Neighborhood Design**.

The designated land use types and a description of each is as follows:

**Estate Residential** – As noted earlier in this report, estate residential represents the predominant land use throughout the city and the UGB, and consists of residential parcels of 2 – 10 acres in size. It is the city’s current policy to limit this type of residential development pattern in the future in favor of conservation and/or traditional neighborhood design.

**Conservation Design** – The encouraged residential development pattern throughout the UGB. Conservation design represents the city’s attempt to preserve its rural character, while offering development flexibility in terms of lot size and traditional bulk regulations.

**Traditional Neighborhood Design** – The second design type of the city’s “*Alternative System of Land Use Controls*,” Areas designated for traditional neighborhood design are appropriate for mixed use development including residential densities of up to 5 dwelling units per acre; neighborhood commercial; office; and public/Institutional.

**Employment Centers** – Employment center designations are areas appropriate for light industrial, office campus and general office use that may serve as a regional employment base.

**Commercial** – Areas on the Conceptual Land Use Plan identified as commercial represent areas appropriate for conventional commercial development (*i.e. big box retail, convenience and strip commercial*) due to their locational attributes.

**Industrial** – Industrial area designations are areas appropriate for a variety of industrial uses – depending upon the specific nature of the industrial activity and its location relative to residential uses. The city encourages industrial uses to be approved under its planned development overlay regulatory system.

## **Other Services**

Fire service is provided over the entire City limits and to a significant portion of the proposed UGB. Along with basic fire protection, the Piperton Fire Department provides “first responder” emergency medical services to an area of its proposed UGB even larger than that for which it provides fire protection.

Piperton has an active program of building inspection throughout its City limits. It is prepared to extend that service throughout its proposed UGB. Piperton also has aggressive land use planning, zoning and subdivision regulations that it is prepared to offer throughout its UGB.

Piperton also has an animal control officer and a confinement facility for the keeping of stray animals for the mandatory holding period. The City is prepared to offer this service to its UGB.

Also as mentioned earlier in this document, Piperton has begun the process of initiating a police force and will constitute such a force when the need is appropriate. This service can be provided to the proposed UGB when it is warranted. Until that time, the Fayette County Sheriff's Department will continue to provide law enforcement services to both the City and the proposed UGB.

Electrical service is provided by the Chickasaw Electric Cooperative, the City anticipates that they will continue to serve both the City and the proposed UGB. Natural gas is currently provided by the Hardeman/Fayette Utility District and the City also anticipates that they will continue to serve both the City and the UGB.

Solid waste disposal is currently handled by private contractors. Piperton has had several town hall meetings to discuss the provision of services and the provision of municipal solid waste services has been one of the leading services discussed. This service will be provided if, and when, a need becomes apparent. If provided, this service could serve both the city and the proposed UGB.

## **CONCLUSION**

There are many indications that Piperton's population will grow at a rate that dramatically exceeds University of Tennessee's approximations. The rate of Shelby County growth alone demonstrates regional potential for all of western Fayette County. Piperton has shown the ability to provide the services necessary to support growth. Piperton has demonstrated a commitment to planning geared toward preventing urban sprawl and allowing the City to economically provide a wide range of city services including sewer service. There is every indication that the City will be able to provide services to the proposed urban growth boundary in a manner superior to any other governmental entity. The Urban Growth Boundary proposed by the City of Piperton meets the statutory criteria described in PC1101.