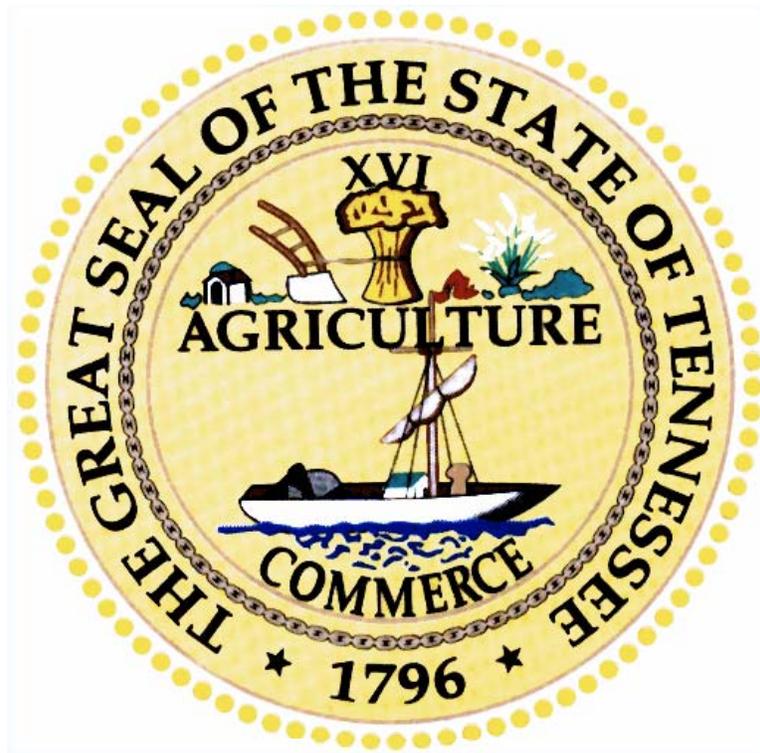


# ***FEASIBILITY STUDY***

***SR 386 (Vietnam Veterans Blvd.)/US 31 E Connector  
From State Route 386 to State Route 109 (Phase 2)  
PIN#114617.00***



***PREPARED BY  
Gresham Smith and Partners***

***For the  
Nashville MPO and City of Gallatin  
in cooperation with  
Tennessee Department of Transportation  
Project Planning Division***

**October 3, 2011**



## TABLE OF CONTENTS

<b>1.0 PURPOSE OF THE FEASIBILITY STUDY .....</b>	<b>1</b>
<b>2.0 STUDY HISTORY AND BACKGROUND.....</b>	<b>3</b>
<b>3.0 STUDY AREA PROFILE .....</b>	<b>3</b>
3.1 Community Characteristics .....	3
3.2 Existing and Future Land Use.....	8
3.3 Transportation Plans .....	15
3.4 Bicycle and Pedestrian Plans.....	15
3.5 Other Multi-modal Facilities.....	18
3.6 Potential Future Coordination .....	18
<b>4.0 PRELIMINARY PROJECT NEED .....</b>	<b>19</b>
4.1 Safety.....	19
4.2 System Linkage.....	20
4.3 Level of Service Analysis .....	21
4.4 Capacity .....	23
4.5 Economic Development .....	24
<b>5.0 OPTIONS FOR IMPROVEMENT.....</b>	<b>25</b>
5.1 No-Build Option.....	25
5.2 Build Options.....	26
5.3 Possible Modifications to the State Route System.....	28
5.4 Control of Access.....	31
5.5 Environmental Constraints .....	31
<b>6.0 ASSESSMENT OF CORRIDOR OPTIONS.....</b>	<b>34</b>
<b>7.0 SUMMARY.....</b>	<b>37</b>

## LIST OF TABLES

TABLE 1. POPULATION GROWTH .....	3
TABLE 2. LIST OF MAJOR EMPLOYERS .....	5
TABLE 3. CITY OF GALLATIN COMMUNITY CHARACTER (FUTURE LAND USE) MAP CATEGORIES.....	11
TABLE 4. CRASH SUMMARY .....	19
TABLE 5. DEFINITION OF LEVEL OF SERVICE.....	24
TABLE 6. LOS FOR BASE YEAR AND DESIGN YEAR CONDITIONS .....	22
TABLE 7. AADT FOR BASE YEAR AND DESIGN YEAR CONDITIONS .....	22
TABLE 8. PLANNING LEVEL COSTS FOR BUILD OPTIONS.....	28
TABLE 9. PLANNING LEVEL COSTS FOR BUILD OPTIONS.....	37

## LIST OF FIGURES

FIGURE 1. STUDY AREA WITHIN ITS REGIONAL CONTEXT .....	2
FIGURE 2. LOCATION MAP.....	1
FIGURE 3. PLANNING AND POLITICAL BOUNDARIES.....	4
FIGURE 4. MAJOR EMPLOYERS AND TRAFFIC GENERATORS .....	7
FIGURE 5. CITY OF GALLATIN EXISTING LAND USE MAP .....	9
FIGURE 6. CITY OF GALLATIN COMMUNITY CHARACTER MAP (FUTURE LAND USE MAP) .....	10
FIGURE 7. SUMNER COUNTY GENERAL FRAMEWORK MAP (FUTURE LAND USE MAP) .....	14
FIGURE 8. PROPOSED BIKE AND PEDESTRIAN PROJECTS .....	17
FIGURE 9. BUILD OPTIONS .....	27
FIGURE 10. PROPOSED CHANGES TO STATE ROUTING SYSTEM .....	30

## APPENDICES

- A Stakeholder Meeting and Field Review Summary**
- B Transportation Improvement Projects**
- C Traffic Data**
- D Typical Sections and Corridor Layout Sheets**
- E Environmental Screening Maps**
- F TDOT Early Environmental Screening**

## 1.0 PURPOSE OF THE FEASIBILITY STUDY

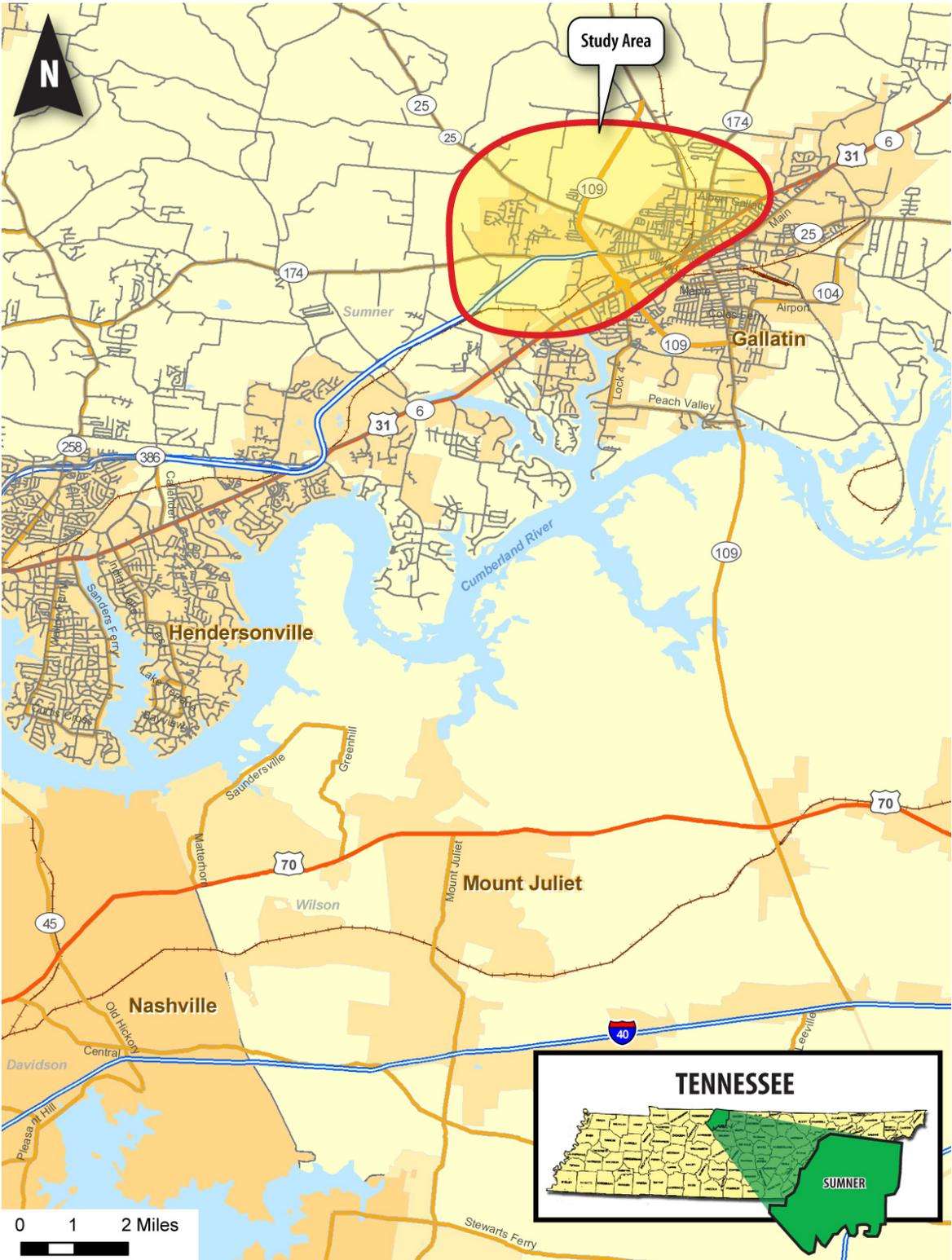
The purpose of this study is to investigate options for development of a new or improved connector roadway between State Route (SR) 386 in the southwest part of Gallatin, Sumner County and US 31E (Broadway) north of downtown Gallatin. Figure 1 depicts the study area in its regional context.

In early 2010, the City of Gallatin requested that the Tennessee Department of Transportation (TDOT) prepare a Transportation Planning Report (TPR) for Phase 2 of a connector roadway north, west and southwest of downtown Gallatin. In February of 2010, TDOT agreed to undertake the study and to cooperate with the City and the Nashville Area Metropolitan Planning Organization (MPO). TDOT, the City, the MPO and the City's engineering Consultant, Gresham Smith and Partners, make up the Study Team. In the early planning phases of the study, TDOT recommended that the more appropriate type of document for this is a Feasibility Study, including Phase 1. TPRs are generally for projects that are more advanced in planning and included in Long Range Transportation Plans.

This project is intended to address anticipated future transportation needs, which have been identified through coordination with local officials and agencies. The project area has been targeted as a prime area for future development, and its success is dependent on a connected local and regional roadway system. The following items indicate the need for the project:

- **Safety** – Both the SR 174 intersection with Belvedere Drive and with SR 109 have crash rates of approximately 1.5 to 1.7 times greater than the statewide rate for an intersection of its type, thus indicating that safety is a concern along this segment of SR 174.
- **System Linkage** – An alternate route is desired between the southwest and northeast sides of town. The SR 386/US 31E Connector will provide the desired connectivity by linking SR 386 with SR 174 and US 31E north of downtown.
- **Capacity** – By allowing travelers to use the SR 386/US 31E Connector to access points northeast of downtown, this project may reduce future congestion on US 31E through downtown Gallatin, which will improve the traffic operations and safety along this segment of roadway. It should also be noted that it is not cost beneficial to widen US 31E through downtown Gallatin.
- **Social Demands for Economic Development** – The *Gallatin on the Move 2020* plan specifies more intensive land uses than those currently present in the study area.

Figure 1. Study Area within its Regional Context



## 2.0 STUDY HISTORY AND BACKGROUND

This Study focuses on Phase 2 of a proposed connector roadway. However, a brief history of Phase 1 is also presented below. The study area for Phase 2 is illustrated in Figure 2.

### **Phase 1—Albert Gallatin Avenue/Hatten Track Road Extension**

An Advance Planning Report (APR) was approved in March of 2000, which recommended extending Hatten Track Road from its current western terminus to SR 109 and then making improvements to existing Hatten Track Road and North Water Avenue and the intersection of SR 174/Albert Gallatin Avenue, North Water Avenue and SR 174/Dobbins Pike. This extension would provide an alternate travel route for those desiring to bypass the core of the city.

The Phase 1 improvement, for which a TPR was approved by TDOT in June of 2010, is in the Long Range Transportation Plan (*LRTP*) as project #5004 in the year 2016. The *LRTP* describes the project as follows: “Upgrade Gallatin, Water (Dobbins to Blythe), and Hatten Track; extend Hatten Track to connect to SR-109 bypass via new interchange.” It is also in the FY 2008-2011 Transportation Improvement Program (TIP) as project #2008-51-032, which is described as “East-West Corridor (Albert Gallatin Avenue (SR-174) / Hatten Track Road Extension. . . Extend SR 174/Albert Gallatin Avenue from SR-174/North Water Avenue intersection to new interchange onto SR-109. Roadway will address congestion occurring on SR-6 and provide alternative route to access SR-109 and SR-386.”

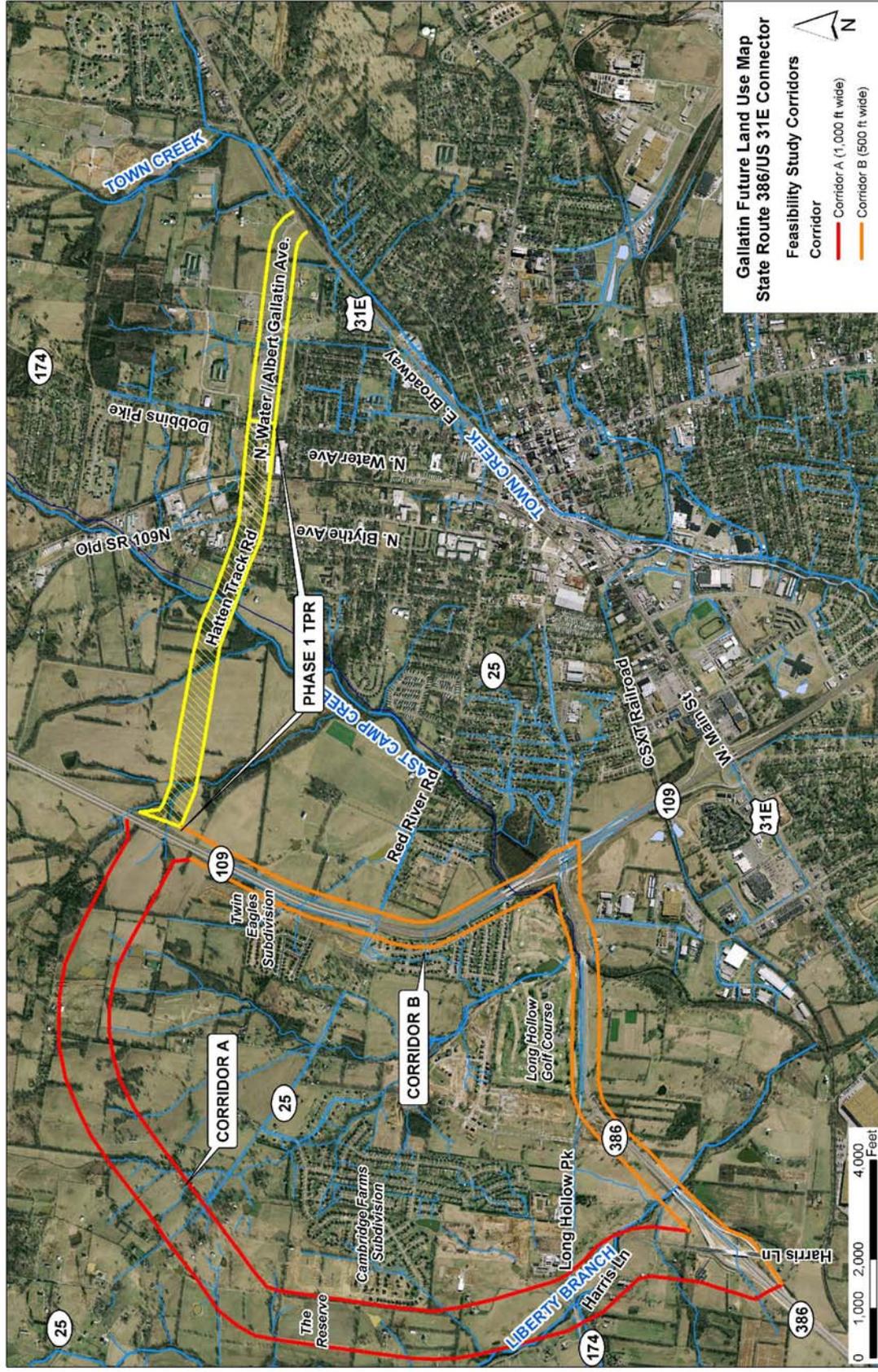
### **Phase 2—SR 386/US 31 E Connector**

At their January 12, 2010 work session in which Phase 1 was discussed, Gallatin City Council members in attendance discussed the desirability of extending the Albert Gallatin Avenue/Hatten Track Road Extension in the future across SR 109 from the existing planned extension and around (north and west of) existing development to terminate on the south at the SR 386/Greenlea Boulevard interchange. (The study area is depicted in Figure 2.) The Council unanimously voted to pursue the Phase 2 Extension by requesting that the project be added to the MPO’s LRTP. In February of 2010, TDOT agreed to lead the development of a TPR for Phase 2. (Since that time, TDOT has determined that this study should be a Feasibility Study project rather than a TPR and include the Phase 1 project.)

### **Long Range Transportation Plan 2010 Update**

On January 25, 2010 the City of Gallatin submitted to the MPO a list of new high priority projects for the 2035 LRTP and the FY 2011-2014 *TIP*. The proposed project listed as priority number 1 for the City of Gallatin is the SR 174/Albert Gallatin Avenue and Hatten Track Road Extension Phase 1. Phase 1 is the project studied in the 2010 TPR and as described in the 2030 LRTP (project #5004) and in the FY 2008-2011 TIP. The draft LRTP includes Phase 1 in the project list for projects with identified funding. Phase 2, however, is in the plan only as an unfunded illustrative project at this point in time, as the planning work has not been completed to a point where it can be funded. Phase 2 involves the SR 174/Albert Gallatin Avenue and Hatten Track Road Extension from SR 109 to SR 174 (Long Hollow Pike) and SR 386, with a completion timeframe being after 2015. These two projects both have independent utility.

Figure 2. Location Map



### **2010 Stakeholder Meeting for the Feasibility Study**

The purpose of this November 16, 2010 meeting was to inform stakeholders that TDOT and their subconsultant, Gresham, Smith and Partners (GS&P), in cooperation with the City of Gallatin and the MPO, have begun work on a Transportation Planning Report (TPR) (now a Feasibility Study) and, to obtain stakeholder input on transportation problems and other issues in the study area. GS&P invited approximately thirty (30) stakeholders (e.g., primarily local government representatives and elected local officials). As a result of a November 11, 2010 local newspaper article, which followed an announcement of the meeting at the City Council's November 9, 2010 working session, a number of members of the public also attended. A comprehensive summary of the meeting as well as copies of the sign in sheets are included as Appendix A.

A brief summary of the meeting is provided below:

- Attendees were informed that this is the first meeting held for the Phase 2 Feasibility Study.
- The Study Team explained that the Phase 2 study is intended to examine transportation improvements in the area between SR 386 and US 31E. The Feasibility Study will develop:
  - Present traffic and projected traffic for the area
  - Cross section options for the roadway
  - Access control options
  - Cost estimate
- Concerns voiced from meeting attendees included the following:
  - A member of the public stated that drawing traffic away from the downtown business district could be an issue for business owners.
  - A member of the public stated that the City owns property near the intersection of Long Hollow Pike and Red River Road that could accommodate roadway improvements. Traffic desiring to travel north to the Civic Center area or schools, for example, could then use Blythe. The individual questioned whether that would be a less expensive way to accommodate traffic.
  - County Executive Anthony Holt stated that it is vitally important to improve SR 386 and SR 109 because Sumner County is a county without an interstate. He said that he supports Mayor Graves on the Hatten Track project and this project. He understands the comment made that the integrity of downtown needs to be protected; however, there is a need for greater access to SR 109 and SR 386.

### 3.0 STUDY AREA PROFILE

#### 3.1 Community Characteristics

The study area for this Feasibility Study includes land within the incorporated city limits of the City of Gallatin, land within the unincorporated area of the Gallatin Municipal Planning Region, as well as land within the Gallatin Urban Growth Boundary Area. Figure 3 depicts these planning and political boundaries in relation to the study area limits. As shown, the Gallatin Municipal Planning Region covers the eastern portion of the study area. The planning region limits expand north of the study area toward Old Douglas Road, but in the western portion of the study area the planning region limits do not extend west beyond the Twin Eagles subdivision (just west of SR 109) or the Cambridge Farms subdivision. The extreme northwestern portion of the study area includes unincorporated land outside of the Gallatin Municipal Planning Region, but within the Urban Growth Boundary Area, which is under the jurisdiction of Sumner County.

##### **Population and Growth**

In 2008, Gallatin had a population of 29,343 people. For comparison purposes, the populations for both Sumner County and the State of Tennessee are shown in Table 1. Between 1990 and 2008, Gallatin experienced a 56.1 percent increase in population, as compared to 50.5 percent for Sumner County and 27.4 percent in Tennessee as a whole. Between 2000 and 2008, Gallatin grew by 26.3 percent.

**Table 1. Population Growth**

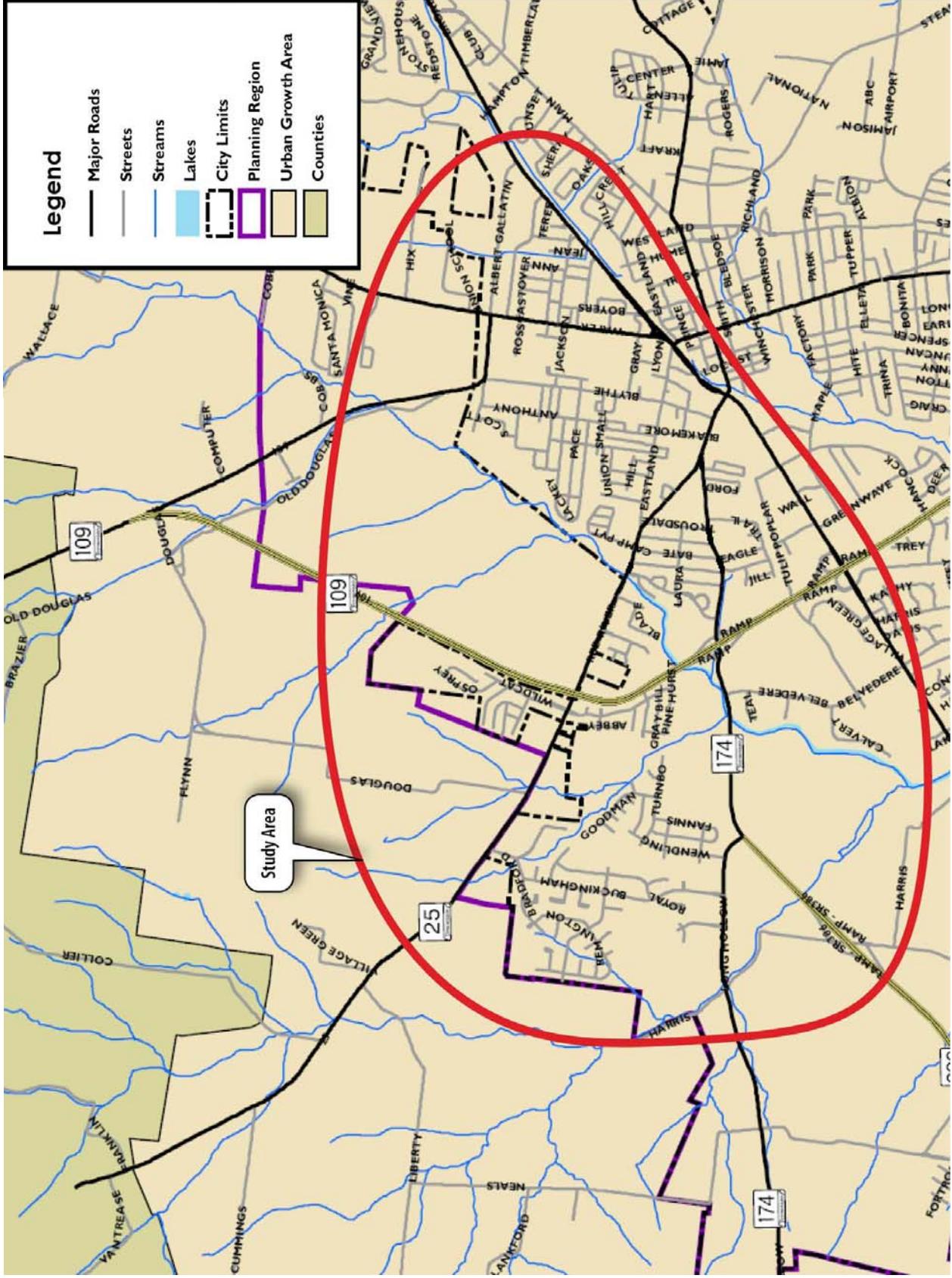
Location	Population			Percent Change 1990-2008
	1990	2000	2008 (2009*)	
Tennessee	4,877,185	5,689,283	6,214,888 (6,296,254)	27.4%
Sumner County	103,281	130,449	155,474 (158,759)	50.5%
City of Gallatin	18,794	23,230	29,343	56.1%

Source: US Census 1990 and 2000 and 2008 US Census Population Estimates

\* Estimates as available

As reflected in the above statistics, the City of Gallatin and Sumner County as a whole have faced a tremendous amount of growth pressure in recent years due to population growth as compared to the State of Tennessee. The growth rate accelerated in the mid-1990s when the City of Gallatin adopted a major update to the *General Development and Transportation Plan* and a new Zoning Ordinance in 1998 that helped implement the plan. According to the Gallatin Economic Development Agency, the population of Gallatin is forecasted to grow by six (6) percent to 31,073 by 2013, and is projected to continue to have a steady growth rate over the next twenty (20) years. The SR 386 and SR 109 corridors have been identified by the City as emerging areas of future growth.

Figure 3. Planning and Political Boundaries



**Major Employers and Traffic Generators**

The largest employment sectors in Gallatin include management, professional and related occupations, sales and office occupations, production, transportation and material moving occupations. Combined, these occupation categories represent roughly 75 percent of the labor force.

The largest employment sector in the Gallatin area is industrial and manufacturing, which provides an estimated 7,500 jobs. Twenty-two major industrial manufacturers and distributors are located in existing industrial parks or commercial centers. Gallatin has planned for several new industrial centers, which is an objective in *Gallatin On the Move 2020*, the City’s long-range growth, land use and major thoroughfare/transportation plan.

The major private employers and traffic generators in the general study area are listed in Table 2 and shown in Figure 4. Note that the list does not include the Sumner County Government, which employs approximately 3,900 workers that mostly work within the Sumner County School System.

Sumner Regional Health Systems operates Sumner Regional Medical Center, a 155-bed, full-service hospital located east of Gallatin on SR 25/Hartsville Pike. Located on Gap Boulevard and fronting on US 31E northeast of the Volunteer State Community College (VSCC), is Gap, Inc., the City’s largest employer with approximately 1,250 jobs.

Volunteer State Community College is the City’s third largest employer and is located at 1480 Nashville Pike (US 31E). It is a two-year community college that offers associate degrees and technical certificates for over 70 programs to approximately 7,500 students. VSCC also offers classes for the community and area businesses through the Division of Continuing Education and Economic Development.

**Table 2. List of Major Employers**

Company	Industry	Employees
Sumner Regional Health Center	Medical center/hospital admin/ corporate office	1,326
Gap, Inc.	Clothing distribution	1,250
Volunteer State Community College	Education/Two-year public college	800
RR Donnelley & Sons	Binding	320
ABC Group Fuel Systems	Automotive fuel systems	305
SERVPRO Industries, Inc.	Cleaning and restoration/corporate headquarters	254
Hoeganaes Corporation	Powdered metal products	197
Natural Industrial Concepts	Industrial manufacturing	168
Charles C. Parks	Food distribution	150
ABC Technologies	Plastic automotive parts	150

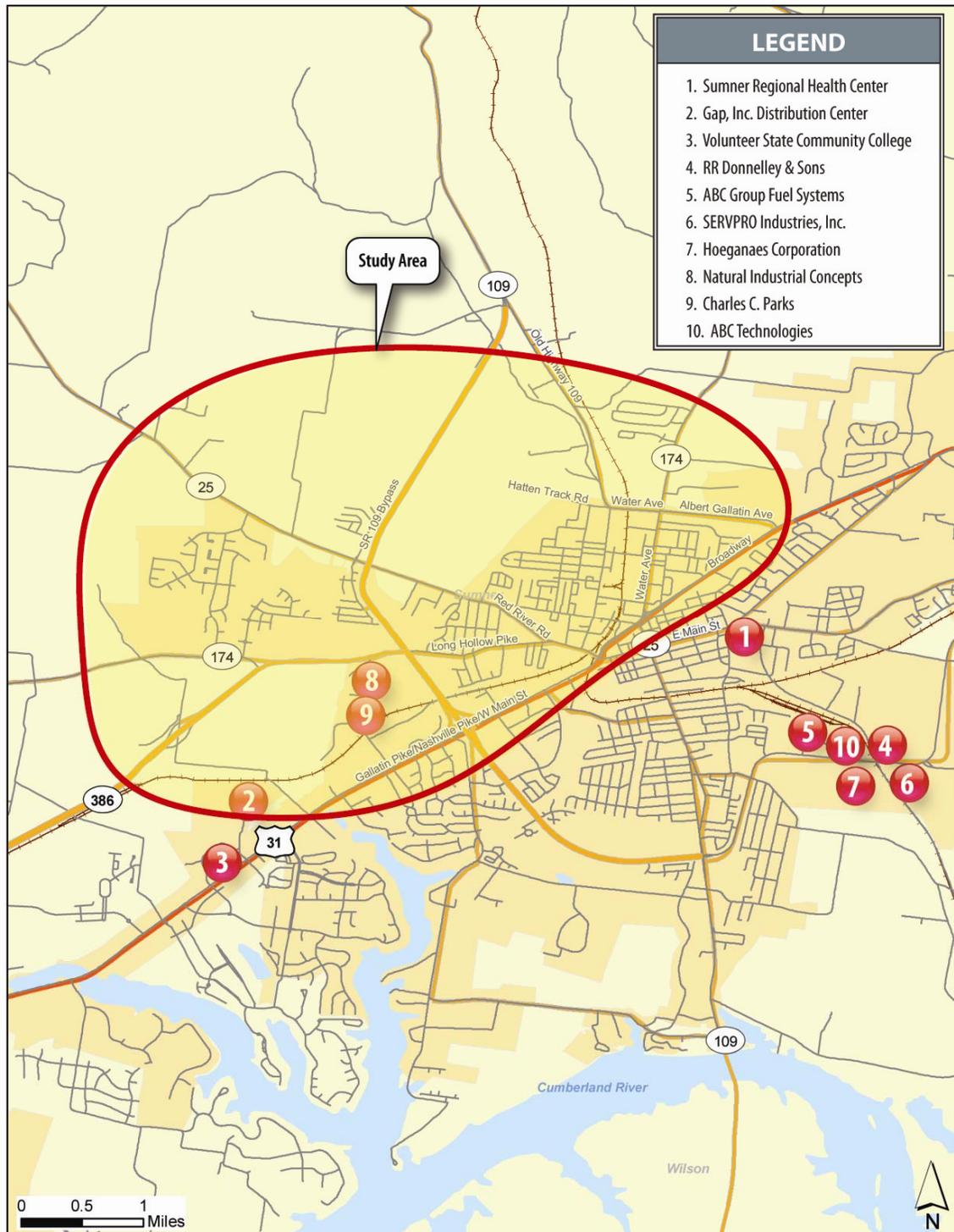
Source: Forward Sumner Economic Council and Gallatin Economic Development Agency, 2009

According to the *2035 Comprehensive Plan: Sumner County’s Blueprint to the Future*, the retail, industrial and office sectors are forecasted to increase at an annual rate of 1.60 to 1.80 percent in Sumner County through 2035. This is projected, in part, by the announcement by the Gallatin Economic Development Agency of a 207-acre expansion

of the Gallatin Industrial Center, as well as plans for future office space development in the area near VSCC and the Sumner County Administration Building. This industrial growth is enhanced by the CSXT railroad that has a line that runs north-south through Gallatin, on the east side of the study area between North Blythe Avenue and North Water Avenue, and then runs parallel to US 31E, connecting to Nashville.

In addition, in June 2009, the Silver Eagle Bus Manufacturing company announced its relocation from Brownsville, Texas, to Gallatin. Once fully operational, the company's business plan anticipates hiring more than 500 people in its new 150,000 square-foot facility, which will be located well southeast of the study area and on the opposite side of US 31E from the study area.

Figure 4. Major Employers and Traffic Generators



### 3.2 Existing and Future Land Use

Existing land uses in the study area as shown in *Gallatin on the Move 2020* are depicted in Figure 5. Within Corridors A and B, the existing land use is rural/agricultural.

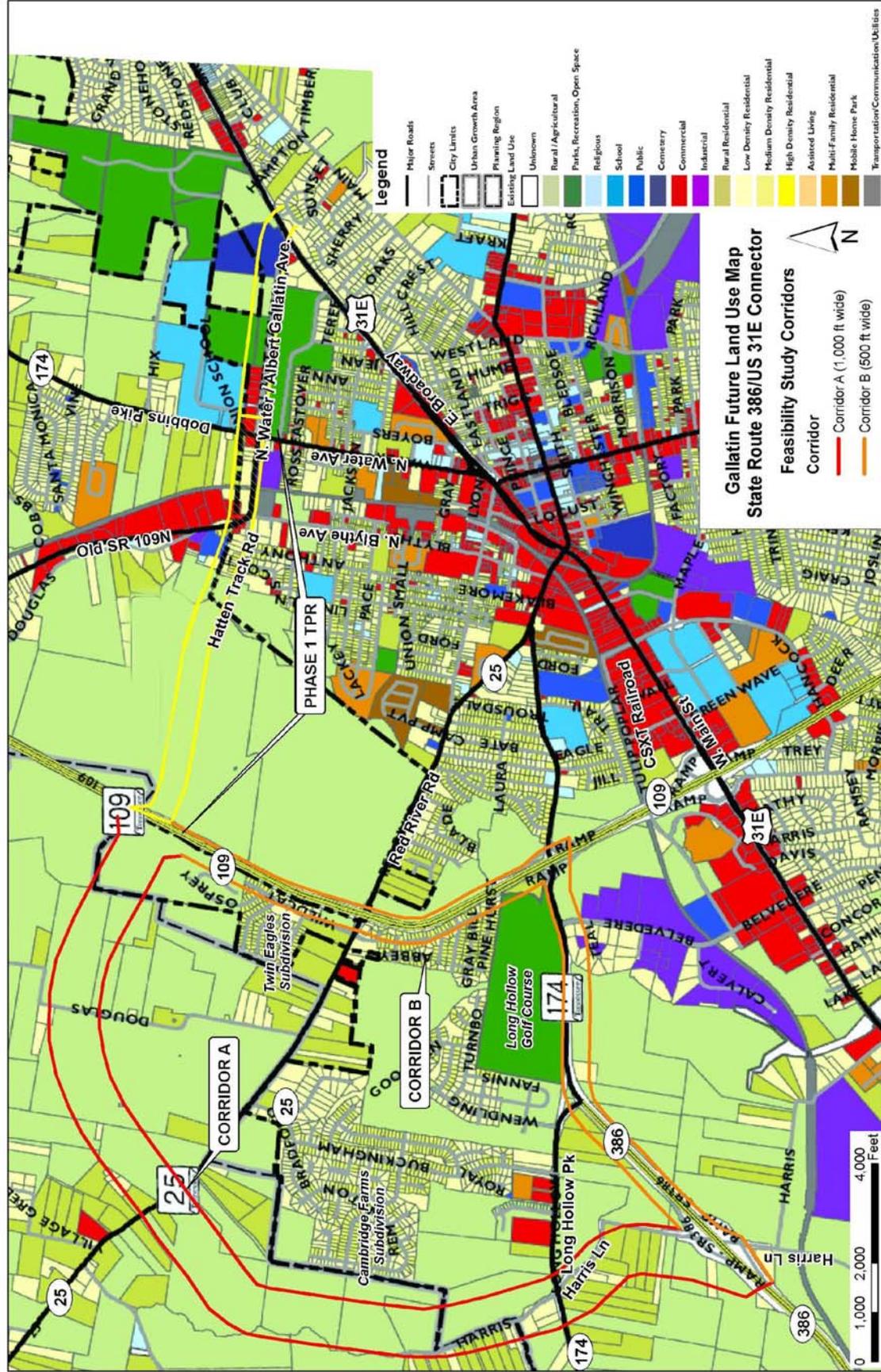
Within Corridor A, from the west side of SR 109 and southward toward Greenlea Boulevard, development becomes sparse and the land is mostly utilized for rural/agricultural uses. Scattered rural residential homes, horse farms and barns are located within the corridor, just south of its intersection with SR 25 and on the southern end near Greenlea Boulevard. Existing low density residential subdivisions are scattered along the boundary of the corridor, located near the corridor's intersection with SR 109 on the north (Twin Eagles Subdivision) and to the southwest of the corridor's intersection with SR 25 and along Greenlea Boulevard at the south end of the corridor (Cambridge Farms Subdivision).

The primary nature of the land use within Corridor B is rural/agricultural. The large and expanding rural residential/low density residential subdivision, the Twin Eagles Subdivision, is located on the northwest side of Corridor B, near the intersection of SR 109 with Corridor A and B (proposed Hatten Track Road Extension). The Eagle Creek Development is a residential subdivision that lies to the northwest of the SR 109 intersection with SR 174/Long Hollow Pike. The Long Hollow Golf Course is the primary land use along Corridor B. The golf course is located on the north side of SR 174/Long Hollow Pike between its intersection with SR 386 and SR 109. On the southern side of Corridor B, along SR 174/Long Hollow Pike, there is industrial development clustered along Belvedere Drive. At the intersection of SR 174 and Belvedere Drive lies Thornton's Gas Station and a carpet outlet.

Along SR 174/Long Hollow Pike, between Corridor A and B, lies a John Deere retailer, the entrance to the Stratford Park Subdivision, the Cambridge Shopping Center and a Phillips 66 gas station.

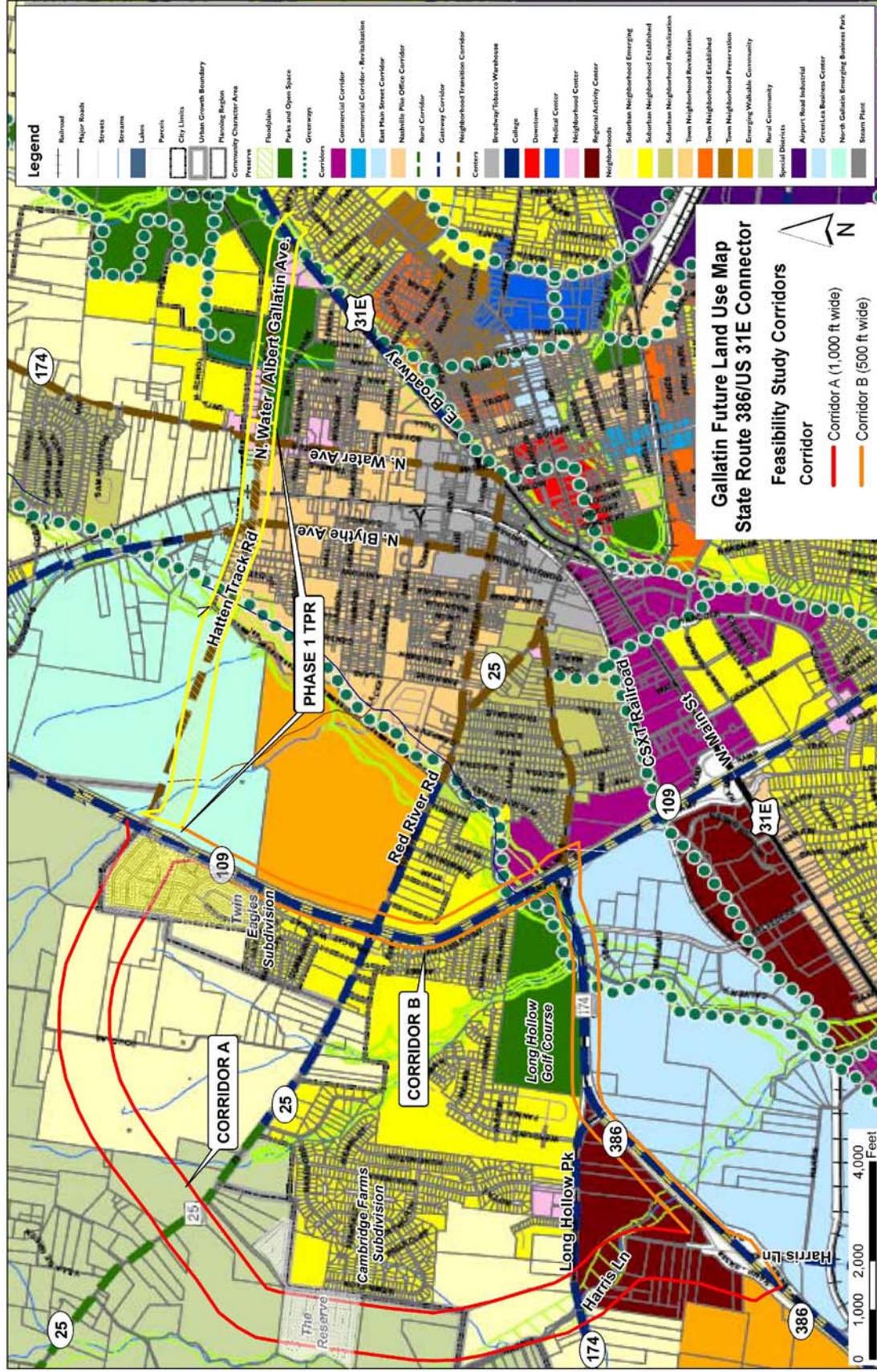
The Community Character Map from *Gallatin on the Move 2020* incorporates categories that describe in detail the City's vision for growth and development for the next 20 years. The Community Character Map serves as a future land use map for the City. A close-up of the Community Character Map that shows the study corridors is shown in Figure 6. Eleven major development areas are shown within the study corridors: Neighborhood Center, Regional Activity Center, Suburban Neighborhood Emerging, Suburban Neighborhood Established, Town Neighborhood Revitalization, Emerging Walkable Community, Rural Community, North Gallatin Emerging Business Park, GreenLea Business Center, Commercial Corridor and Parks and Open Space. A brief summary of these categories are shown in Table 3.

Figure 5. City of Gallatin Existing Land Use Map



Source: Adapted from Gallatin on the Move 2020

Figure 6. City of Gallatin Community Character Map (Future Land Use Map)



Source: Adapted from Gallatin on the Move 2020

**Table 3. City of Gallatin Community Character (Future Land Use) Map Categories**

Community Character Category	Community Character Map Areas	General Description	Primary Land Uses	Appropriate Density / Intensity
Centers	Neighborhood Center	Neighborhood scale mixed-use centers that serve the surrounding neighborhood	Small and large scale apartments and townhomes, vertical mixed-use, neighborhood commercial	0.35 Floor Area Ratio
	Regional Activity Center	Regional-scale mixed-use centers that include retail, office and residential uses	Large-scale apartments and townhomes, horizontal and vertical mixed-use, commercial/office/retail/big box retail, hospitality, public/institutional, entertainment and cultural facilities	0.75 Floor Area Ratio
Neighborhoods	Suburban Neighborhood Emerging	Developable areas where conventional suburban neighborhood development is appropriate	Single family residential, small and large-scale apartments and townhomes, public/ Institutional	1-3 units per acre
	Suburban Neighborhood Established	Stable neighborhoods developed with narrow, smaller lots generally prior to 1950	Single family residential, small and large scale apartments and townhomes	2-5 units per acre
	Town Neighborhood Revitalization	Neighborhoods developed with narrow, smaller lots generally prior to 1950 with a need for new investment and revitalization	Single family residential, small-scale apartments and townhomes	5-8 units per acre
	Emerging Walkable Community	Developable areas where walkable neighborhoods, Traditional Neighborhood Development (TND), is appropriate and a variety of housing types	Single and multiple family residential, office, retail, civic	Varies
	Rural Community	Sparsely developed areas where agricultural use and character is common and expansion of urban services is not anticipated	Agricultural, large lot and conservation subdivision single family residential, passive recreation, civic uses (rural scale)	1 unit per 2+ acres
Special Districts	North Gallatin Emerging Business Park	A predominantly undeveloped area bound by SR 109 Bypass and Old Hwy 109, north of the City limits	Light industry, business parks, warehouse, commercial, hospitality, transportation/ communication/utilities	0.50 Floor Area Ratio

Community Character Category	Community Character Map Areas	General Description	Primary Land Uses	Appropriate Density / Intensity
	GreenLea Business Center	Emerging special area that includes a mix of industrial and commercial/office uses to diversify the City's economic base	Light industry, business parks, warehouse, commercial, hospitality, transportation/communication/utilities, single and multi-family residential (when part of an approved master plan)	0.50 Floor Area Ratio
Corridors	Commercial Corridor	Stable commercial corridors where development is encouraged	Small and large-scale apartments and townhomes, office, vertical mixed use, commercial/retail	0.75 Floor Area Ratio
Preserve	Parks and Open Space	Primarily public or privately-owned land intended to remain as open space for preservation and recreation needs and not suitable for development	Passive and active recreation, undeveloped areas in natural state	Not applicable

Source: *Gallatin on the Move 2020*

One of the objectives in *Gallatin on the Move 2020* is to “Promote desired development patterns with incentives and preparation of master plans for large undeveloped areas where growth is expected over the next 20 years.” The plan specifically refers to the Bowles property in the western portion of Corridor A and B. It states, “Along with the completion of new infrastructure, such as the extension of the Hatten Track Road through the Bowles property, the City should coordinate with property owners to establish a detailed vision” (i.e., master plan) that is consistent with the overall City vision, thus allowing the City to promote specific goals and objectives.”

In 2007, the City of Gallatin approved a Preliminary Master Development Plan for Phases 6 through 12 of the Twin Eagles Subdivision. If built, this development expansion would be located to the north of the current subdivision, west of SR 109 and within the Gallatin Municipal Planning Region. In addition, a Preliminary Master Development Plan for Phases 1 through 4 of The Reserve was approved by the City of Gallatin in 2010. The Reserve is designed as a 68 acre single-family residential development of 158 buildable lots to the southwest of SR 25, adjacent to Wentworth Drive on the west side of the Cambridge Farms subdivision. Corridor A of the proposed project overlaps with these two proposed subdivision expansions. It is recommended that the City of Gallatin Planning Commission preserve the right-of-way needed for the SR 386/US 31E connector project.

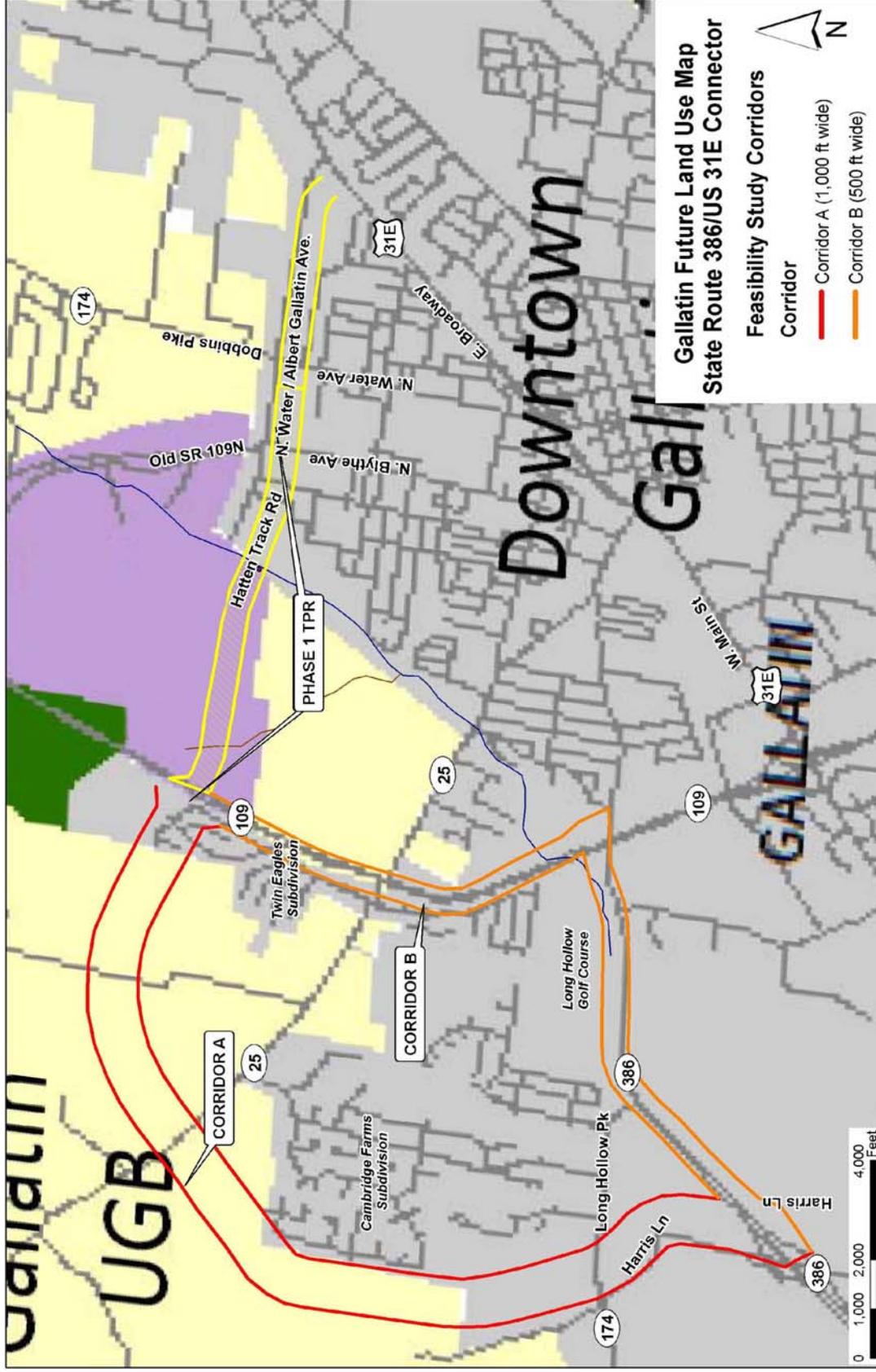
The GreenLea Business Center is described in *Gallatin on the Move 2020* as “an emerging employment and residential special area that includes a mix of industrial, office, residential and commercial uses that take advantage of the areas’ location adjacent to SR 386 and the CSXT Railroad. Much of this area is currently undeveloped and presents an opportunity for commercial, industrial and office growth adjacent to existing and emerging residential and commercial areas.” In addition, the intent of the North Gallatin Emerging Business Park development pattern is to accommodate less-

intensive uses such as corporate/regional headquarters, call and data centers, light manufacturing and “green” companies with a relatively high-density mix of industrial and commercial uses in a campus-like setting.

Another objective in *Gallatin on the Move 2020* is to “Coordinate with the Sumner County Planning Commission and Sumner County Commission to establish a process for adoption and implementation of the recommendations of the plan for areas within the Gallatin Urban Growth Boundary area outside of the Planning Region.” This objective is applicable to the north and western portions of the study area that are located within unincorporated Sumner County, but inside the Gallatin Urban Growth Boundary limits. Figure 7 shows a close-up of the General Framework Map from the *2035 Comprehensive Plan: Sumner County’s Blueprint to the Future* that is intended to serve as a future land use plan for unincorporated Sumner County. As illustrated, the preferred land use patterns within the study corridors include a Regional Employment Center and Suburban development.

The Regional Employment Center is shown in the same area as North Gallatin Emerging Business Park (between SR 109 and Old SR 109) in *Gallatin on the Move 2020*. The purpose of the Regional Employment Center designation is to locate office parks, manufacturing centers, corporate campuses, or major universities near major transportation corridors that can provide basic jobs and keep people in the county during normal work hours. The Suburban development pattern is consistent with the Suburban Neighborhood Emerging and Rural Community character categories shown in the *Gallatin on the Move 2020* Community Character map, and it is designated for low density residential land uses of one dwelling unit per acre or less. The Conservation designations shown to the north of Corridors A and B are associated with conservation easements held by the Land Trust of Tennessee.

Figure 7. Sumner County General Framework Map (Future Land Use Map)



Source: Adapted from 2035 Comprehensive Plan: Sumner County's Blueprint to the Future

### 3.3 Transportation Plans

There are multiple transportation studies that cover the City of Gallatin and Sumner County. The numerous recommended transportation improvements planned within the vicinity of the study area are listed in Appendix B. The extensive list of projects in Appendix B are categorized under the following plans:

- *Gallatin on the Move 2020: City of Gallatin General Development and Transportation Plan 2008-2020*
- *2035 Comprehensive Plan: Sumner County's Blueprint to the Future*
- *Nashville Metropolitan Planning Organization's 2030 Long Range Transportation Plan*
- *Nashville Metropolitan Planning Organization's Transportation Improvement Program Fiscal Years 2011-2015 (Draft – scheduled for adoption December 2010)*

### 3.4 Bicycle and Pedestrian Plans

Greenway multi-use paths, branch greenway trails, bicycle lanes and bicycle routes have been planned in Gallatin as part of the overall transportation system to serve as multi-modal community connectors and natural resources conservation areas. For the Phase 1 Albert Gallatin Avenue/Hatten Track Road Extension, bike lanes were designated between SR 109 and SR 174 (Dobbins Pike). Bike lanes are also being proposed as part of the Phase 2 SR 386/US 31E Connector.

Based on the projects shown in *Gallatin on the Move 2020*, the proposed bicycle and pedestrian projects within the study area are illustrated in Figure 8. Below is a detailed description from the plan of the projects that cross into or are within the study corridors.

The City of Gallatin *2006 Greenways Master Plan* organized the greenway multi-use paths into eight corridors prioritized according to their feasibility, availability and level of connectivity. The following two greenway projects are within the study corridors:

- **Project 4** – Town Creek Trail. A multi-use path 3.57 miles long that is expected to start at Triple Creek Park and generally follow Town Creek southwesterly and then end at a trail head near the SR 109 Bypass (near Ryan Avenue). This trail was ranked first (1) out of eight (8) on the priority list in the *2006 Greenways Master Plan*.
- **Project 9** - East Camp Creek Trail. A trail 4.72 miles long that would start just south of US 31E and run in a northeasterly direction along the Camp Creek. This trail was ranked six (6) out of eight (8) on the priority list in the *2006 Greenways Master Plan*.

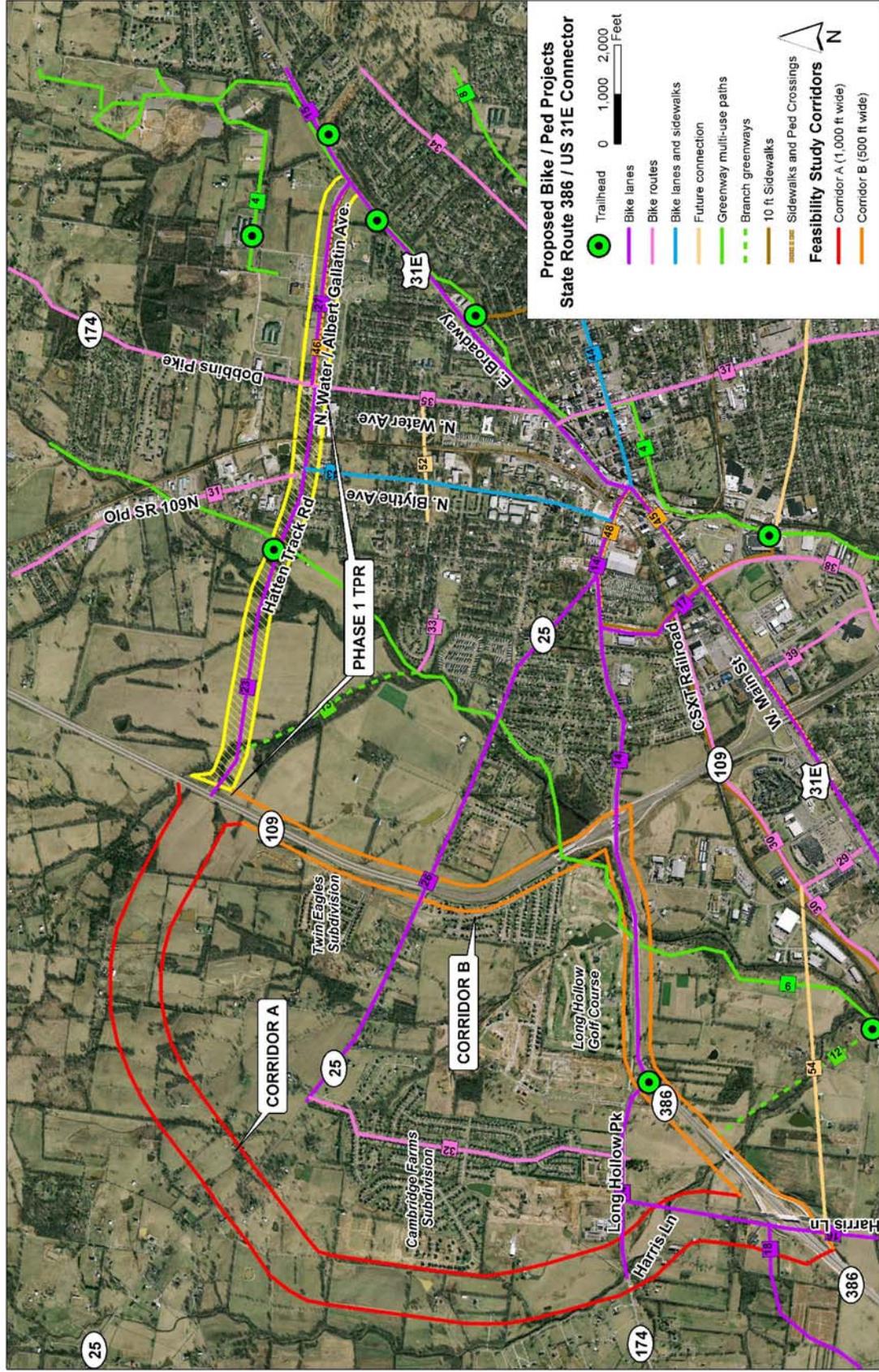
The Plan also shows two greenway spurs to promote further connectivity between the greenways and bicycle and pedestrian facilities.

- **Project 12** – East Camp Creek Spur – “A trail spur extending up Camp Creek towards SR 386 to provide bicycle and pedestrian access into this future development area.”
- **Project 13** - Hatten Track Trail Spur. “A trail spur extending into the Hatten Track from the East Camp Creek Trail to provide bicycle and pedestrian access into the development area.”

Bike lanes are on-road facilities designated by striping, signing and pavement markings that are for the preferential or exclusive use of bicycles, whereas, bike routes are on-road facilities indicated by directional and informational markers, such as “Bike Route” and/or “Share the Road” signs, that utilize little or no striping. The proposed bike lanes and bike routes in Figure 9 were originally proposed as part of the *City of Gallatin Bicycle and Pedestrian Master Plan of 2000* (denoted by “B”), the *2000 Major Thoroughfare Plan* (denoted by “T”) and the *2005 State Route 386 Area Study* (denoted by “AS”). The following bicycle lane and route projects are located within the study corridors:

- **Project 14** – Long Hollow Pike. Provide bike lanes “from the western boundary of the study area to Red River Road. It is recommended that pedestrian and bike facilities are included when roadway improvements are planned including connections at a possible interchange with SR 386.” (B, T, AS)
- **Project 15** – US 31E (Nashville Pike). Currently, there are no bike lanes along US 31E to accommodate bicyclists. Project 15 is intended to provide bike lanes “from the western boundary of the study area through downtown to the eastern boundary of the study planning area. US 31E west of SR 109 is marked as a bicycle route. Further, it is TDOT’s vision to have a continuous bike route from Nashville to Gallatin via US 31E (Nashville Pike). It is recommended that any development or redevelopment along Nashville Pike should include provisions to provide bike lanes.” (B, AS)
- **Project 16** – GreenLea Boulevard. Provide bike lanes from Long Hollow Pike to US 31 E. (AS)
- **Project 18** – Bison Trail Extension. Provide bike lanes “from GreenLea Boulevard to connect up with Saundersville Road in Hendersonville west of Lower Station Camp Creek Road.” (AS)
- **Project 23** - Hatten Track Road Extension. Provide bike lanes “between SR 109 Bypass to Dobbins Pike/SR 174/North Water Avenue. These bike lanes would connect the SR 109 Bypass to other facilities. Bike lanes are recommended east of North Water Avenue, thus completing a bike system (Project 27).” (B, T)
- **Project 26** – Red River Road. Provide bike lanes “from Bradford Drive to US 31E/Main Street. Bike lanes are recommended to connect to the Bradford Drive route to complete a multi-modal loop around the golf course and into downtown.” (B)
- **Project 27** – SR 174/Albert Gallatin Avenue. Provide bike lanes “from North Water Avenue to East Broadway Avenue/US 31E. This bike route runs along the north side of Gallatin Municipal Park and would connect with multiple bike facilities. Bike lanes are recommended west of North Water Avenue, thus completing a bike system (Project 23).” (B)
- **Project 31** – Old Highway 109. Provide bike routes “from Hatten Track Road to the northern planning boundary. This planned bike route would provide multiple connections to other bike lanes and/or routes connecting the northwest area to downtown Gallatin.” (B)

Figure 8. Proposed Bike and Pedestrian Projects



Source: Adapted from City of Gallatin 2006 Greenways Master Plan

**Project 35** – Dobbins Pike. Provide bike routes “between the northern planning boundary to Albert Gallatin Avenue. This is an integral part of a bike route corridor through the heart of the City of Gallatin. This section connects the northern portion to the Civic Center. Bike Routes are recommended north of Broadway Avenue, thus completing a bike system (Project 36, 37).” (B)

- **Project 43** (Blythe Avenue) is categorized as a “bike lanes and sidewalks project” that is recommended within the study corridors. It is intended “to provide an alternate to North Water and US 31E for access to the recreational areas on the north side of the City. It is recommended to incorporate bike lanes and sidewalks with any future roadway widening.”
- **Project 46** (Albert Gallatin Avenue) is categorized as a “sidewalks and pedestrian crossing project” that is recommended within the study corridors. It is intended “between North Water Avenue and US 31E to serve the recreational users of the Gallatin Civic Center.”

### 3.5 Other Multi-modal Facilities

The Gallatin on the Move 2020 Plan recommends flexible bus service within the City of Gallatin. The service would travel along a designated route but would be flexible enough to deviate off route to pick up or drop off passengers. For instance, if a route traveled from downtown to Volunteer State Community College, the service could deviate off route for a certain distance (typically 3/4 mile) or to a certain boundary. This type of service design addresses ADA requirements while expanding coverage to additional areas.

**Gallatin North-South Flex:** The north-south flexible bus service using one vehicle is proposed to operate along Albert Gallatin Avenue, Blythe Avenue, Eastland Street, and Water Avenue. Sites served include the Civic Center, low-income housing along Blythe Avenue at Small Street, the downtown square, and homes and businesses along Water Avenue. Deviations could also serve low-income housing along Lackey Circle, low-income housing along Boyers Avenue at Hull Circle, and other homes and businesses within a ¼ mile buffer of the route.

### 3.6 Potential Future Coordination

This study has involved local stakeholders, including City Council representatives and business owners, in early planning and development of the proposed project.

A CSX Railroad line runs north-south through the study area of the Phase 1 Albert Gallatin Avenue/Hatten Track Road Extension, which has been incorporated into this study. The bridge on North Water Avenue crossing over the depressed railroad line will need to be replaced, requiring coordination with the CSX Railroad. A representative of CSX was invited to the stakeholder meeting for both the Phase 1 study and this study, but did not attend.

Coordination with the US Army Corps of Engineers will be required for the blue line stream crossings and possibly for wetland impacts. The Tennessee Department of Environment and Conservation will also need to be coordinated with in regard to potential permitting and possibly for hazardous materials.

In addition, the City must coordinate with local developers proposing developments within or adjacent to the corridors under study to ensure that future implementation, should the study become a project, remains viable.

## 4.0 PRELIMINARY PROJECT NEED

This project is intended to address anticipated future transportation needs, which have been identified through coordination with local officials and agencies. The project area has been targeted as a prime area for future development, and its success is dependent on a connected local and regional roadway system.

### 4.1 Safety

The following is a summary of the crash history on SR 109 and SR 174 for the latest three-year period for which data is available (2007 – 2009). Table 4 summarizes two segments of roadway and two major intersections in the project area, showing the number of crashes and the comparison of the actual crash rate with the statewide average crash rate for the same functional classification. The actual rate is derived from a formula that takes into account factors such as total number of crashes, length of roadway and the time period over which the crashes occurred.

The SR 174 intersection with Belvedere Drive and the SR 174 intersection with SR 109 have crash rates of approximately 1.5 to 1.7 times greater than the statewide rate for an intersection of its type, thus, indicating that safety is a concern along this segment of SR 174. The number of crashes suggests a need for an alternate route or intersection configuration to help separate through and local traffic.

**Table 4. Crash Summary**

Section/Intersection Description	Log Mile(s)	# Crashes	Actual Crash Rate	State Average Crash Rate*
SR 109 from SR 174 (Long Hollow Pike) to Old Highway 109	4.21-7.60	28	0.35	2.01
SR 174 (Long Hollow Pike) from SR 386 to SR 109	13.54-14.59	13	0.16	2.75
SR 174 (Long Hollow Pike) intersection with Belvedere Drive	14.28	22	1.56	0.99
SR 174 (Long Hollow Pike) intersection with ramps for southbound SR 109	14.45-14.51	24	1.70	0.99
SR 174 (Long Hollow Pike) intersection with ramps for northbound SR 109	14.52-14.49	15	1.07	0.99

\*for this type of roadway

A summary of the 2006-2008 crash data findings for each segment and intersection is as follows:

- SR 109 from SR 174 (Long Hollow Pike) to Old Highway 109  
The statewide average crash rate for a roadway of the same functional classification (urban arterial four lane divided) is 2.01, while the actual rate is 0.35 for this segment of SR 109. The actual crash rate for this segment of roadway is well below the statewide average and therefore does not indicate a safety issue. There were twenty-eight (28) documented crashes resulting in no fatalities, no incapacitating injuries and nine (9) other injuries.
- SR 174 (Long Hollow Pike) from SR 386 to SR 109  
The statewide average crash rate for a roadway of the same functional classification (urban minor arterial four lane with turn lane) is 2.75, while the actual rate is 0.16 for this segment of SR 174. The actual crash rate for this segment of roadway is well below the statewide average and therefore does not indicate a safety issue. There were thirteen (13) documented crashes resulting in no fatalities, no incapacitating injuries and four (4) non-incapacitating injuries.
- SR 174 (Long Hollow Pike) intersection with Belvedere Drive  
The statewide average crash rate for an intersection of this type is 0.99. The actual rate for the intersection is 1.56, which is slightly higher than the statewide average. This intersection is the location of an existing industrial area that is slated for use in the future as the “Greenlea Business Center.” Of the twenty-two (22) crashes at the signalized intersection with Belvedere Drive, ten (10) involved personal injury and thirteen (13) were rear end collisions.
- SR 174 (Long Hollow Pike) intersection with ramps for southbound SR 109 from Log Miles 14.45 -14.51;  
The statewide average crash rate for an intersection of this type is 0.99, while the actual rate for the intersection is 1.70, which is slightly higher than the statewide average. There were twenty-four (24) documented crashes at this intersection, resulting in no fatalities or incapacitating injuries, but ten (10) non-incapacitating injuries. Twelve (12) of the crashes occurred at log mile 14.49, which is the signalized intersection for the right-turn ramp onto SB SR-109 and the left-turn ramp from SB SR-109.
- SR 174 (Long Hollow Pike) intersection with ramps for northbound SR 109 from Log Miles 14.52 -14.59;  
The statewide average crash rate for an intersection of this type is 0.99, while the actual rate for the intersection is 1.07, which is slightly higher than the statewide average. There were fifteen (15) documented crashes at this intersection, resulting in no fatalities or incapacitating injuries, but four (4) non-incapacitating injuries. Seven (7) of the crashes occurred at log mile 14.58, which is the signalized intersection for the right-turn ramp from NB SR 109 lanes and the left-turn ramp to NB SR 109 lanes.

## 4.2 System Linkage

An alternate route between the southwest and northeast sides of Gallatin is desired. The SR 386/US 31E Connector will link SR 386 with SR 174 and US 31E north of downtown and provide “through” traffic the ability to avoid the congested segment of US 31 E through downtown Gallatin.

Furthermore, construction of the SR 386/US 31E Connector will create a more accessible and resilient transportation system, by improving route options, dispersing traffic over more roads, and therefore reducing delays when a particular roadway segment is closed due to an incident, construction, or for other reasons.

### **4.3 Level of Service Analysis**

To determine how well traffic operates under the No-Build and Build Conditions, a level of service analysis was conducted. A “Level of Service” (LOS) index was used to gauge the operational performance for each roadway segment. The LOS is a qualitative measure that describes traffic conditions related to speed and travel time, freedom to maneuver, traffic interruptions, etc. There are six levels ranging from “A” to “F” with “F” being the worst. Each level represents a range of operating conditions. Table 6 defines the traffic flow conditions and approximate driver comfort level at each level of service.

LOS analysis was performed using the Highway Capacity Software (HCS+) for the No-Build and Build conditions for the base year of 2016 and the design year of 2036. Each roadway segment for Corridors A and B was analyzed using the multi-lane highways module in the HCS+ software. The roadway characteristics that affect the LOS and were included in the analysis include, free-flow speed, lane width and lateral clearance, median type, access point density, general terrain characteristics, number of heavy vehicles in the traffic flow, and the directional distribution of traffic. The HCS+ results are included in Appendix C.

It should be noted that the segments of US 31E and the segments where Corridors A and B are combined (Phase 1) were not analyzed using the HCS+ software because the speed limit on the roadway is lower than can be accommodated in the multi-lane highways module. Furthermore, the traffic signals along these segments will impact the LOS on the roadway segments and an arterial-level analysis is needed to properly determine the LOS. In the absence of turning movement counts at the intersections, the AADT volumes on these segments were equated to generally accepted volume thresholds to determine the arterial LOS.

The results of the LOS analysis are summarized in Table 7.

The LOS analysis indicates that under the 2036 No-Build and Build Conditions, the segment of SR 386 from Greenlea Boulevard to SR 174 and then SR 174 to N. Belvedere Drive operates at LOS E during peak periods. Due to projected 2036 AADT volumes in the range of 54,950 to 56,250 vehicles per day, these segments need to be widened by one (1) travel lane in each direction in order to accommodate the projected traffic. A more detailed discussion of the improvements needed for these segments is included in Section 5.2.

**Table 5. Definition of Level of Service**

Level of Service	Definition
A	Free flow operations. Vehicles are almost completely unimpeded in their ability to maneuver with the traffic stream. The general level of physical and psychological comfort provided to the driver is high.
B	Reasonable free flow operations. The ability to maneuver within the traffic stream is only slightly restricted and the general level of physical and psychological comfort provided to the driver is still high.
C	Flow with speeds at or near free flow speeds. Freedom to maneuver within the traffic stream is noticeably restricted and lane changes require more vigilance on the part of the driver. The driver notices an increase in tension.
D	Speeds decline with increasing traffic. Freedom to maneuver within the traffic stream is more noticeably limited. The driver experiences reduced physical and psychological comfort levels.
E	At lower boundary, the facility is at capacity. Operations are volatile because there are virtually no gaps in the traffic stream. There is little room to maneuver. The driver experiences poor levels of physical and psychological comfort.
F	Breakdowns in traffic flow. The number of vehicles entering the highway section exceed the capacity or ability of the highway to accommodate that number of vehicles. There is little room to maneuver. The driver experiences poor levels of physical and psychological comfort.

Source: TDOT TPR Manual (2010)

**Table 6. LOS for Base Year and Design Year Conditions**

Roadway Segment	Level of Service*		
	2016	2036	
	No-Build	No-Build	Build
Corridor A – SR 109 Bypass to SR 25	-	-	A / A
Corridor A – SR 25 to SR 174	-	-	A / A
Corridor A – SR 174 to SR 386	-	-	A / A
Corridor B – SR 386 – Harris Ln. to SR 174	C / B	E / C	E / C
Corridor B – SR 174 – SR 386 to N. Belvedere Dr.	C / B	E / C	E / C
Corridor B – SR 174 – N. Belvedere Dr. to SR 109 Bypass	C / B	D / C	D / C
Corridor B – SR 109 Bypass – SR 174 to SR 25	A / A	B / A	B / A
Corridor B – SR 109 Bypass – SR 25 to Hatten Track Extension (phase 1)	A / A	B / A	B / A
Corridor A/B (Phase 1) Hatten Track – SR 109 Bypass to Blythe Ave.	-	-	C

Roadway Segment	Level of Service*		
	2016	2036	
	No-Build	No-Build	Build
Corridor A/B (Phase 1) Old State Highway 109 – Blythe Ave. to N. Water Ave.	B	B	B
Corridor A/B (Phase 1) Albert Gallatin Ave. – N. Water Ave. to US 31E	A	B	B
US 31E – SR 109 to River Rd.	E	F	F
US 31E – River Rd. to Eastland St.	D	E	D
US 31E – Eastland St. to N. Water Ave.	E	F	E
US 31E – N. Water Ave. to SR 174	B	D	C

\* Direction 1/Direction 2

#### 4.4 Capacity

As stated in the Transportation Improvement Plan (TIP) for Albert Gallatin Avenue/Hatten Track Road Extension (Phase 1), the construction of the Extension is anticipated to “address congestion occurring on SR 6 [US 31E] and provide an alternative route to access SR 109 and SR 386.” The existing traffic on US 31E (SR 6/West Main Street/East Broadway) in downtown Gallatin has a projected 2016 Average Annual Daily Traffic (AADT) volume of approximately 31,600 vehicles/day, which exceeds the capacity of a five (5) lane urban arterial resulting in LOS E.

The construction of both the Phase 1 Extension of SR 174/Albert Gallatin Avenue and Hatten Track Road and the Phase 2 SR 386/US 31E Connector is anticipated to divert approximately twenty-five (25) percent of the traffic away from US 31E in the downtown area. This traffic reduction is anticipated to reduce the AADT on US 31E to a level that can be better accommodated by the existing roadway resulting in LOS C.

By reducing the AADT on the most heavily congested segments of US 31E, the levels of service at the signalized intersections and associated vehicular delay is anticipated to improve. Generally speaking, the arterial levels of service improve on US 31E between River Road (SR 25) and SR 174 in the Build Condition. More detailed information on the capacity analysis is provided later in this section.

#### Traffic Projections

Traffic volumes for the No-Build and Build Conditions were projected in support of this Feasibility Study. TDOT provided AADT volumes on roadways within the study area for a base year of 2016 and design year 2036, which were determined using the Nashville MPO travel demand model, as well as TDOT 24-hour counts. The AADT volumes for the No-Build and Build Conditions for the base and design years are presented in Table 5. The traffic diagrams provided by TDOT is provided in Appendix C.

In order to accommodate the projected 2036 Build Condition AADT volumes ranging from 14,710 to 17,120 vehicles per day, a four-lane typical section is needed for Corridor A. A more detailed discussion of the proposed typical section for Corridor A is included in Section 5.2.

**Table 7. AADT for Base Year and Design Year Conditions**

Roadway Segment	AADT		
	2016	2036	
	No-Build	No-Build	Build
Corridor A – SR 109 Bypass to SR 25	-	-	14,710
Corridor A – SR 25 to SR 174	-	-	16,020
Corridor A – SR 174 to SR 386	-	-	17,120
Corridor B – SR 386 – Harris Ln. to SR 174	32,300	51,680	54,950
Corridor B – SR 174 – SR 386 to N. Belvedere Dr.	36,250	52,900	56,250
Corridor B – SR 174 – N. Belvedere Dr. to SR 109 Bypass	35,000	45,500	48,380
Corridor B – SR 109 Bypass – SR 174 to SR 25	16,500	27,400	23,290
Corridor B – SR 109 Bypass – SR 25 to Hatten Track Extension (Phase 1)	13,100	22,250	21,100
Corridor A/B (Phase 1) Hatten Track – SR 109 Bypass to Blythe Ave.	-	-	10,700
Corridor A/B (Phase 1) Old Highway 109 – Blythe Ave. to N. Water Ave.	7,050	8,950	15,370
Corridor A/B (Phase 1) Albert Gallatin Ave. – N. Water Ave. to US 31E	5,800	8,550	11,450
US 31E – SR 109 to River Rd.	31,600	41,100	39,030
US 31E – River Rd. to Eastland St.	20,600	28,020	22,330
US 31E – Eastland St. to N. Water Ave.	25,000	33,250	26,500
US 31E – N. Water Ave. to SR 174	14,450	19,050	15,180

Source: Tennessee Department of Transportation (2011)

## 4.5 Economic Development

As discussed in Section 3.2 and depicted in Figure 6, the *Gallatin on the Move 2020* plan specifies more intensive land uses than those currently present in the study area. Along Phase 1 of the proposed Albert Gallatin Avenue/Hatten Track Road, the land on the west side of the project adjacent to SR 109 is slated as the North Gallatin Emerging Business Park.

In the current study area, which includes the above segment, but also includes land in and adjacent to the northwest quadrant of the SR 386 and SR 109 intersection, the future land use plan specifies land along SR 174 (Long Hollow Pike) and SR 386 for future development as: 1) a Regional Activity Center; and 2) Greenlea Business Center (includes some existing industrial uses).

Adequate roadway connectivity to and from these areas is essential for the City to realize their future plans for economic development.

## 5.0 OPTIONS FOR IMPROVEMENT

### 5.1 No-Build Option

The No-Build Option provides a baseline for evaluating the benefits and costs created by the Build Options, and is defined as the roadway conditions as they currently exist. The No-Build Option examines the impacts to the transportation system if the transportation improvements identified as the Build Options are not constructed.

Together, SR 386 and SR 174 currently serve as the roadway link between Greenlea Boulevard and the SR 109 Bypass. Within the study area, SR 386 is classified as a freeway with a four (4)-lane divided typical section. Between SR 386 and the SR 109 Bypass, SR 174 is classified as an urban minor arterial and consists of a five (5)-lane section with a center left turn lane. SR 109 Bypass between SR 174 and the proposed Hatten Track extension is classified as an urban principal arterial and consists of four (4)-lane divided typical section. US 31E is classified as an urban principal arterial and consists of a five (5)-lane section through downtown Gallatin, transitions to a four (4)-lane divided typical section north of River Road, then to a two (2)-lane divided section north of N. Boyers Avenue and then to a three (3)-lane typical section south of JoAnn Street, which continues to the intersection with Albert Gallatin Avenue.

As indicated in the LOS analysis in Section 4.3, the segment of SR 386 from Greenlea Boulevard to SR 174 and then on to N. Belvedere Drive operates at LOS E under the No-Build Option. Additionally, the segments of US 31E from SR 109 Bypass to N. Water Avenue operate at either LOS E or F, which does not meet minimum operational requirements.

## 5.2 Build Options

As stated previously and illustrated in Figure 9, there are two corridor options under the Build Condition, Corridor A and Corridor B. Phase 1 consists of the Albert Gallatin Avenue/SR 174 Extension, which is proposed to end at an interchange with SR 109. Phase 2 consists of either Corridor A or Corridor B, which both utilize the Phase 1 extension from SR 109 to US 31E. A description of each Build Option follows.

Appendix D contains the typical sections and layout sheets for Phase 2. A description of the roadway segment for each feature follows.

### Corridor A

- Corridor A is on new alignment from the SR 386/Green Lea interchange and travels north along the east side of Liberty Branch Creek, intersecting with SR 25, continues northeast and intersects with Douglas Lane, and then continues east to SR 109 at which point it intersects the Phase 1 Albert Gallatin Avenue/Hatten Track Road extension east to US 31E. Corridor A is approximately 3.9 miles in length.
- The typical section includes four twelve (12)-foot lanes (two (2) in each direction), a 48-foot depressed median, six (6)-foot inside shoulders, and twelve (12)-foot shared use outside shoulders (to accommodate bike lanes) within 200 feet of proposed right-of-way.
- The widening of SR 386 and SR 174, as described under the Corridor B option, must be completed in addition to the building of Corridor A in order to ensure adequate traffic flow and operations on the surrounding roadway network.

### Corridor B

- Corridor B follows SR 386 from the interchange with Greenlea Boulevard east to the intersection with Long Hollow Pike at which point the state routing designation changes to SR 174. Corridor B then follows SR 174 to the interchange with SR 109, it then travels north on SR 109 until it intersects with the Phase 1 Albert Gallatin Avenue/Hatten Track Road extension. Corridor B is approximately 3.4 miles in length.
- Under the Corridor B option, SR 386 and SR 174 between Greenlea Boulevard and the SR 109 Bypass will be widened for approximately 1.4 miles to account for future projected traffic growth.
  - SR 386 will be widened from four (4) to six (6) lanes (three (3) in each direction), each having a width of twelve (12) feet, with twelve (12)-foot shoulders and a 64-foot wide depressed median. The present right-of-way width for this section is 260 feet with additional right-of-way and easements to be obtained as needed for construction.
  - The typical section for the improved segment of SR 174 will be widened from five (5) to seven (7) twelve (12)-foot travel lanes (three (3) in each direction and a twelve (12)-foot center turn lane) with twelve (12)-foot shared use outside shoulders (to accommodate bike lanes). This widened section would require a minimum right-of-way of 180 feet.



- In addition to widening the identified segments of SR 386 and SR 174, several signalized intersections and two bridges will need to be improved so that the additional lanes can be accommodated. The intersections that will require improvements include the following:
  - SR 386 at SR 174
  - SR 174 at Belvedere Drive
  - SR 174 interchange with SR 109 Bypass
- While all three of these intersections will require upgrades associated with the roadway widening improvements, the SR 174 interchange with the SR 109 Bypass will also require geometric alterations so that traffic can smoothly transition from one route to the other. The southbound off-ramp from SR 109 Bypass will need to be extended to form the third westbound lane of SR 174. The third eastbound lane of SR 174 will become a right-turn-only lane onto SR 109 Bypass.
- In addition to the intersection improvements, the bridge over East Camp Creek as well as the westbound bridge over Liberty Branch Creek will both need to be widened to accommodate the future widening and meet traffic demands.
- If Corridor B is selected without Corridor A, an eastbound to northbound SR 109 clover leaf loop will be needed to accommodate future left turn volumes. This would require re-alignment of the ramps on the east side of SR 109 and widening of the bridge on SR 109 at East Camp Creek.

**Costs**

TDOT planning level base per mile costs were used to develop estimates for the corridor options and are summarized in Table 8. It should be noted that even if Corridor A is constructed, Corridor B will need to be widened along SR 386 and SR 174 to accommodate the future traffic volumes. The interchange improvements at SR 109 however would not be needed as motorists travelling north to SR 109 would utilize Corridor A. The widening cost for SR 386 and SR 174 is approximately \$10,000,000.

Also, a two (2) lane depressed median section could be constructed as an interim phase for Corridor A, allowing future build out to four (4) lanes which would reduce the interim phase construction cost approximately \$11,000,000.

**Table 8. Planning Level Costs for Build Options**

Item	Corridor A (3.9 Miles)	Corridor B (3.4 Miles)
Right-of-Way	\$3,608,400	\$2,229,675
Total Construction	\$30,490,980	\$17,252,905
Preliminary Engineering	\$3,049,098	\$1,725,291
Total Cost	\$37,148,478	\$21,207,871

**5.3 Possible Modifications to the State Route System**

During the NEPA phase when the preferred alignment is selected, TDOT may review the current state route system for possible modification. For example, possible changes to the state routing system could include designating SR 174 to follow Long Hollow Pike to

Greenlea Boulevard and then follow Corridor A to SR 109, continue across SR 109 along Albert Gallatin Avenue/Hatten Track Road Extension (Phase 1) and reconnect with the existing SR 174 at Dobbins Pike (see Figure 10). Accordingly, the SR 174 designation would be removed from Greenlea Boulevard through downtown to Dobbins Pike. Based on these possible changes, approximately 2.6 miles would be removed and 5.4 miles would be added, resulting in a net gain of 2.94 miles to the state route system.

Figure 10. Proposed Changes to State Routing System



## 5.4 Control of Access

The City of Gallatin Zoning Ordinance (amended October 20, 2009) establishes access management standards in Section 13.06 for driveways providing vehicular access from arterial, collector and local streets (roads in the study area are classified as arterials and collector streets). In addition, *Gallatin on the Move 2020* outlines additional access management policies that should be applied to the City's arterial road system (including long range planning, project planning and design, right-of-way acquisition, redesign of existing arterial corridors and driveway permitting).

Within the study area SR 174 between SR 386 and SR 109 is currently not access controlled and is subject to future development. SR 109 is access controlled between SR 25 and Old Highway 109. The proposed extension will ultimately not require a break in the access control on SR 109 because an interchange is planned to allow access between SR 109 and the Albert Gallatin Avenue/Hatten Track Road Extension (Phase 1) and the SR 386/US 31E Connector.

In addition, the project will be designed to provide limited access along the proposed Build Option – Corridor A as well as along the Hatten Track extension (Phase 1) from SR 109 to the east. For an at-grade intersection, the access control distance will be a minimum of 100 feet from any intersection. For an interchange, the access control will be 300 feet from the ramp terminals, treating each side of the cross road independently.

## 5.5 Environmental Constraints

The environmental screening presented in this Feasibility Study has been provided by the TDOT Early Environmental Screening (EES) reports. A detailed environmental study of the corridors identified in this Feasibility Study would occur during future project phases in compliance with *National Environmental Policy Act* provisions. Environmental screening maps produced in support of the analysis in this report are found in Appendix E. A full copy of the TDOT EES reports can be found in Appendix F. The TDOT EES reports revealed the following :

### Impacts Evaluated within 1,000 feet of the Project Area:

- Community Resource/Institution  
The project area is home to one public school. Joe Shafer Middle School is located at 240 Albert Gallatin Avenue, which is to the north of Corridors A and B.
- Minority Population of over 24 Percent  
Appendix E, Map 1 illustrates the minority population in the project area by Census Block for the 2000 US Census. The average percentage of minority populations for the City of Gallatin in 2000 was 21.7 percent. The county-wide minority population for Sumner County was 8.5 percent. The City of Gallatin average is comparable to the statewide average of 19.8 percent, but the Sumner County average is considerably lower than the statewide average. Among the census blocks encompassing the project area, one has a minority population higher than the City of Gallatin as a whole. This Census Block is identified as Census Tract 205, Block Group 1, Block 1014 and is contained within Corridor B.

The percentage of the population that identified themselves as a minority in this Census Block is 33 percent (or 7 out of 21 persons).

- **Sensitive Community Population: Linguistically Isolated Populations**  
Linguistically isolated populations are located within 1,000 feet of the project area.
- **Population living Below Poverty above the State Average of 13.5 Percent**  
Appendix E, Map 2, shows the percentage of the population living below poverty in the project area by Census Block Group. The project area is encompassed by four Census Block Groups. The percent of the population living below poverty in 2000 (based on 1999 income) within the City of Gallatin averaged 14.4 percent. This is higher than the County and statewide averages of 8.1 and 13.5 percent respectively. One Census Block Group within the project area has a percent of the population below poverty that is higher than the City, County and statewide averages. This Block Group is Census Tract 208, Block Group 2 and has 15.9 percent of the population in the Block Group living below poverty (or 289 out of 1807 persons). This Block Group is crossed by Corridor B (as highlighted in Appendix E, Map 2).
- **Possible Substantial Impact on the Endangered Bat Species**  
There is a known occurrence of Indiana or grey bats within four (4) miles of the project area. It is anticipated that: a) avoidance/minimization of potential impacts to species will be needed, b) surveys for the species for the project may be required, c) coordination with USFWS will be needed to establish Section 7 biological conclusions for the project, and d) seasonal construction limitations will likely be necessary.
- **Impact on Railroads**  
A railroad exists within the project study area. It is anticipated that impacts to the railroad can be avoided since the proposed project will be greater than 200 feet from the railroad. There is the remote possibility of minor involvement on railroad property to accommodate drainage, but there will be no grade crossing.
- **Cemetery Sites and Properties**  
There are no known cemetery sites within or abutting the project area.

#### **Impacts Evaluated within 2,000 feet of the Project Area:**

- **TWRA Lakes and Other Public Lands**  
No TWRA lake property is found within the project area, but it is anticipated that a medium impact on the project is anticipated as a public park (city owned, little league park) lies within the project area. It is possible to locate the proposed project in such a way that it avoids any impacts or taking of the park property. A moderate level of effort and time will be required to resolve the project's environmental impact on the park and to move forward with project development. Indirect impacts (audible and visual) to the park may occur and need to be studied. If there is indirect impact, additional design would be needed to design the appropriate mitigation measures.

- **National Register Sites**  
No impacts are anticipated to any National Register of Historic Place (NRHP) listed properties as there are no properties abutting or within the project area.

According to the State Historic Preservation Office (SHPO) records, approximately ten (10) properties in Sumner County have been surveyed within the project area, although none of which were deemed eligible for the NRHP by the surveyor. Additional survey work is needed in future project phases to determine NRHP eligibility for the resources that are within the project's Area of Potential Effect (APE).

- **Superfund Sites**  
No impacts are anticipated as there are no known contaminated land tracts abutting or within the project area.
- **Pyritic Rock**  
Pyritic rock is not known to occur in the project area and thus, the project does not involve exaction. Limestone and dolomite are present.

#### **Impacts Evaluated within 4,000 feet of the Project Area:**

- **Terrestrial Species**  
A minimal impact on the project is predicated as there is a known rare or state protected terrestrial species (the *Thryomanes bewickii*) located within the project area. A survey for the species may be required.
- **Wetland and Floodplain Impacts**  
Substantial impacts to wetlands within the project area are probable. A total of 33 acres of wetlands exists within 4,000 feet of the project area. Compensatory mitigation will be required. Design effort will be needed to avoid and minimize impacts to wetlands to the maximum extent practicable.

According to Federal Emergency Management Association (FEMA) Flood Insurance Rate Maps (FIRM), the project area is bisected by the 100-year floodplain. Areas along East Camp Creek and Liberty Branch fall within this flood zone. FIRMs depicting the 100-year floodplains within the project area were digitized and are included in Appendix E, Map 3. Both Corridor A and Corridor B cross the 100-year floodplain.

- **TDEC Conservation Sites and TDEC Scenic Waterways**  
No TDEC Conservation Sites or scenic waterways are within the project area.
- **Tennessee Natural Areas Program**  
The project area does not include a Natural Area.
- **Wildlife Management Area**  
No impacts are anticipated to any Wildlife Management Areas as there are none that abut or are located within the project area.

### **Impacts Evaluated within 10,000 feet of the Project Area:**

- **Caves**  
The Lackey Cave is present within 10,000 feet of the project area, and thus, a medium project impact is anticipated. It is possible to avoid impacts to the cave in future design phases of the project. With the presence of a cave, there are likely concerns involving the federally and state protected Indiana grey bat. Additional design will be needed to avoid impacts to cave passages or entrances, to develop access to the cave (if required), to conduct stability analysis of the project, to determine right of way acquisition, development and coordination of corrective actions for environmental effects (i.e., mitigation, etc.) associated with project construction in this terrain, and to design water quality treatment measures. Construction time will likely be affected either by requiring an extended contract period or strategic placement of the project in the let schedule to maximize the contractor's time to construct the project.
- **Aquatic Species**  
There is no known occurrence of a rare, state, or federally-protected aquatic species within the project area.

## **6.0 ASSESSMENT OF CORRIDOR OPTIONS**

TDOT has developed a set of seven guiding principles by which all transportation projects are to be evaluated. These guiding principles address concerns for system management, mobility, economic growth, safety, community, environmental stewardship, and fiscal responsibility. This section includes a discussion of each guiding principle as it pertains to the options evaluated in this Feasibility Study.

### **Guiding Principle 1:**

#### **Preserve and Manage the Existing Transportation System**

When the construction of SR 386 (Vietnam Veterans Boulevard) was completed, SR 386 became a major asset to the City of Gallatin, acting as a corridor to accommodate both local and through traffic and providing access to Gallatin's downtown commercial core, via SR 174/Long Hollow Pike and US 31E. Over time, the section of US 31E through downtown has become congested. The function of the SR 386/US 31E Connector will be to provide the second phase of an east-west connector between SR 386 and US 31E/SR 6/East Broadway on the north side of the City, thereby diverting some of the traffic away from US 31E from the most congested segments through downtown. The proposed improvements as part of the Phase 2 project will provide a new connection between SR 386 and SR 109, which will result in preservation of the existing transportation system in the City of Gallatin.

SR 109, SR 174 and US 31E are critical travel corridors for the City of Gallatin. US 31E is not only a key commercial corridor for area residents and truck traffic, but it also connects Gallatin to the towns of Bethpage and Westmoreland in Tennessee and Scottsville in Kentucky to the north and Nashville to the south. SR 174 connects Gallatin to Oak Grove, Tennessee and Scottsville, Kentucky to the north, and SR 109 connects Gallatin to Portland to the north. The Build Option presented as Corridor A, involves construction of a roadway on new location, which can help extend the life of these

important existing routes by diverting some regional traffic and/or lessening the future growth of traffic on these roads as indicated under the Build Scenario.

**Guiding Principle 2:**

**Move a Growing, Diverse, and Active Population**

As discussed in Section 3.1 of this Feasibility Study, the population of the City of Gallatin grew by 56.1 percent between 1990 and 2008 and Sumner County grew by 50.5 percent, figures higher than the State of Tennessee as a whole (27.4 percent). The options presented in this study are intended to provide improved traffic conditions to support the area's growing population and increasing amounts of externally generated traffic, as well as support recommended future land use for the area, which is outlined in *Gallatin on the Move 2020*.

The SR 386/US 31E Connector is anticipated to divert some traffic away from US 31E through downtown, potentially reducing congestion and creating a safer and more hospitable environment for local traffic, pedestrians and bicyclists.

**Guiding Principle 3:**

**Support the State's Economy**

Both SR 109 and US 31E are regional roadways that facilitate the movement of goods and services. The SR 386/US 31E Connector will provide better access to and support development in the area to the west of East Camp Creek, which supports the vision of the City of Gallatin to promote the area as an emerging business park.

**Guiding Principle 4:**

**Maximize Safety and Security**

The proposed project will create opportunities for the separation of through and local traffic, alleviating traffic congestion in the downtown area, especially on US 31E. The proposed project will also eliminate the need for some tractor trailers and other large trucks to travel through the City, which will potentially reduce crashes with local traffic, which typically turns and stops frequently.

**Guiding Principle 5:**

**Build Partnerships for Livable Communities**

A stakeholder meeting was held in support of this Feasibility Study in order to obtain input on transportation problems and other issues in the study area. During the TPR development process, additional coordination will be undertaken. Additionally, in keeping with TDOT's Public Involvement Process, the provisions of NEPA and Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU) and the provisions of the Tennessee Environmental Streamlining Agreement (TESA), if warranted, this project will be coordinated with the public and additional governmental agencies, beginning in the NEPA project phase.

**Guiding Principle 6:**

**Promote Stewardship of the Environment**

Potential adverse environmental impacts were identified in the TDOT Environmental Screening and were considered in the development of the corridors included in this study. Detailed technical environmental studies are needed to fully address the impacts.

Should federal funding be obtained for the project, a NEPA document will be prepared in future phases of the project. The NEPA document will assess the project's impacts on the natural, social and built environment, and all efforts will be made to avoid adverse impacts during design development. If impacts cannot be avoided, they will be minimized and mitigated. Early and continuous coordination will continue to take place with the appropriate federal, state and local agencies and the public. This coordination will assist with the identification of important resources early in the planning process and will help ensure the proposed project promotes stewardship of the environment.

**Guiding Principle 7:**

**Emphasize Financial Responsibility**

The cost estimates presented in this study are offered for planning comparison purposes only and will fluctuate with inflation and any unexpected conditions. It is TDOT's goal to follow a comprehensive transportation planning process, promote coordination among public and private operators of transportation systems and support efforts to provide stable funding for the public component of the transportation system. This entails exercising financial responsibility in the development and implementation of roadway projects and minimizing cost to taxpayers.

## 7.0 SUMMARY

In summary, this project is needed to address anticipated future transportation needs, which have been identified through coordination with local officials and agencies. The project area has been targeted as a prime area for future development, and its success is dependent on a connected local and regional roadway system. The project is needed based on the following:

- **Improve Safety** – Both the SR 174 intersection with Belvedere Drive and with SR 109 have crash rates of approximately 1.5 to 1.7 times greater than the statewide rate for an intersection of its type, thus indicating that safety is a concern along this segment of SR 174.
- **Promote System Linkage** – An alternate route is desired between the southwest and northeast sides of town. The SR 386/US 31E Connector will provide the desired connectivity by linking SR 386 with SR 174 and US 31E north of downtown.
- **Address Capacity Issues** – By allowing travelers to use the SR 386/US 31E Connector to access points northeast of downtown, this project may reduce future congestion on US 31E through downtown Gallatin, which will improve the traffic operations and safety along this segment of roadway. It should also be noted that it is not cost beneficial to widen US 31E through downtown Gallatin.
- **Meet Economic Development Demands** – The *Gallatin on the Move 2020* plan specifies more intensive land uses than those currently present in the study area.

As stated previously, there are two corridor options under the Build Condition for the SR 386/US 31E Connector (Phase 2), Corridor A and Corridor B. Planning level cost estimates for the corridor options were developed and are summarized in Table 9. It should be noted that even if Corridor A is constructed, Corridor B will need to be widened along SR 386 and SR 174 to accommodate the future traffic volumes. The interchange improvements at SR 109, however, would not be needed as motorists travelling north to SR 109 would utilize Corridor A. The widening cost for SR 386 and SR 174 is approximately \$10,000,000.

Also, a two (2) lane depressed median section could be constructed as an interim phase for Corridor A, allowing future build out to four (4) lanes which reduce the interim phase construction cost approximately \$11,000,000.

**Table 9. Planning Level Costs for Build Options**

Item	Corridor A (3.9 Miles)	Corridor B (3.4 Miles)
Right-of-Way	\$3,608,400	\$2,229,675
Total Construction	\$30,490,980	\$17,252,905
Preliminary Engineering	\$3,049,098	\$1,725,291
Total Cost	\$37,148,478	\$21,207,871

If federal funding is utilized for this proposed project, a TPR and NEPA document will be undertaken.