

City of Gallatin

Transit Feasibility Study

Technical Memorandum #1: Transit Service Needs

**Prepared for:
City of Gallatin**

**Tennessee Department of
Transportation (TDOT)**

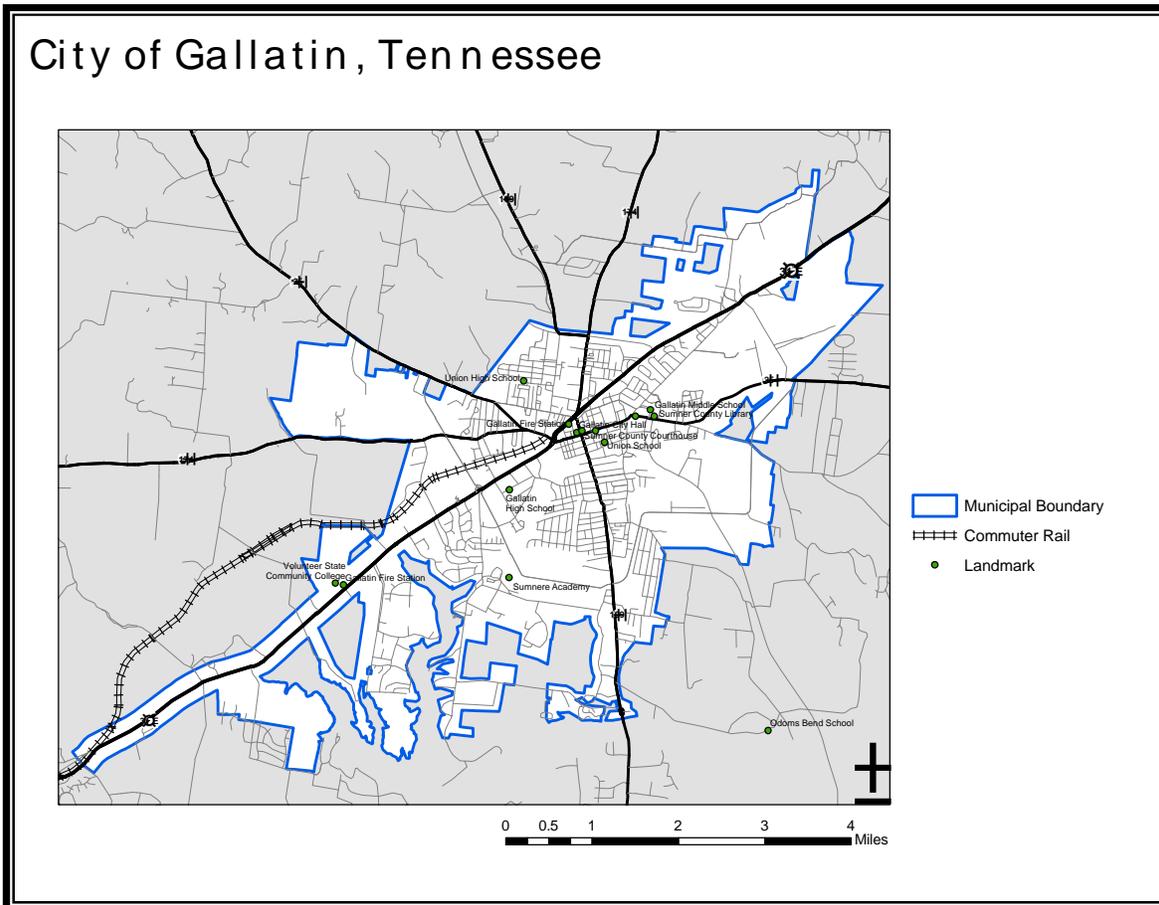
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1 INTRODUCTION

The City of Gallatin, Tennessee serves as the county seat of Sumner County and is located 30 miles northeast of Nashville. According to the 2000 United States Census, the population of Gallatin was 23,230. According to the *Gallatin General Development and Transportation Plan, 1996-2005*, the population of Gallatin could increase to 30,000 by the year 2010. The City has easy access to Interstates 24, 40, 65, and 840 and two major highways (31E and 31W).



In February, 2005 the City approached the Tennessee Department of Transportation (TDOT) for planning assistance to study the feasibility of starting new transit services in Gallatin. While the ultimate goal of the City is to connect with Nashville via commuter rail service, this study will analyze the feasibility of implementing local transit services in the interim.

Approach

The objective of this planning effort is to study the need for transit service in the Gallatin area. If a transit need is identified, a preliminary plan to provide those services will be provided. In order to accomplish that objective, the following five tasks will be undertaken in this study:

Task 1: Document the Need for Transit Services – This task includes the collection and analysis of various types of data. Demographics, socioeconomic indicators, and development patterns will be reviewed to determine if and where transit may be applicable. Field work and interviews with key stakeholders from the City and region are conducted to gain an understanding of specific needs.

Task 2: Formulate Service Concepts – Using the information and analysis conducted in Task 1, transit service concepts will be presented to the City for consideration. These concepts may range from general public dial-a-ride service to traditional fixed route bus service.

Task 3: Identify a Preferred Service Alternative – Task 3 will include a presentation to City officials on the various service concepts and their characteristics. Once a preferred concept is selected, details such as costs, estimated ridership, and potential funding sources will be prepared.

Task 4: Service Implementation and Long Term Strategies – The implementation of transit service will require investigation into many institutional, operational, and administrative issues. This task will summarize the key issues and their associated impacts should transit service be implemented. Long Term strategies for transit services will be presented with a focus on the potential to expand to outlying areas or to connect with potential future services, including commuter rail.

Task 5: Prepare a Final Plan – All of the previous tasks will be summarized into a final plan and presented to the City of Gallatin.

Structure of Technical Memorandum #1

This Technical Memorandum documents the work being done during Task 1 of the study and is comprised of six sections. Section 1 provides background information about the study and its structure. Section 2 provides information on sources of data and previous studies conducted in the region and their applicability to this effort. The third section documents demographic and socioeconomic data analyzed to determine transit markets. Section 4 reviews existing transportation available in Gallatin. Section 5 summarizes the discussions that took place during the Stakeholder Interviews. The final section presents the need for transit service in the City of Gallatin. Some of the observations and analysis discussed in this Technical Memorandum were from the result of two site visits conducted to view the area, establish potential origin and destination patterns, and meet with City officials.

2 BACKGROUND INFORMATION

To support research and data collection efforts, a set of background information was reviewed and analyzed. A list of sources for that information is provided below:

- City of Gallatin General Development and Transportation Plan, 1996-2005
- 2000 U.S. Census Data
- Average Daily Traffic (ADT) Counts for Sumner County
- Mid-Cumberland Human Resource Agency (MCHRA) ridership data

This warehouse of information was used as a basis to begin research and analysis of the City's demographics, future development, employment patterns, and existing transportation services – ultimately leading to the determination of need for transit in Gallatin.

One source of particular use for this project was the *Nashville Area Transit Development Plan*, completed in January 2003.

Nashville Area Transit Development Plan

The *Nashville Area Transit Development Plan* focused on the area covered by the Nashville Area Metropolitan Planning Organization (MPO), specifically Davidson, Rutherford, Sumner, Williamson, and Wilson Counties. The Plan reviewed existing conditions and travel patterns, identified transit opportunity areas, and recommended preliminary service concepts to explore for higher population areas (such as Gallatin).

Both home-based work trips and home-based non-work trips were analyzed for portions of Sumner County. The Plan found that 50% of all work trips originating in Sumner County are destined for Davidson County and 47% remain in Sumner County. For non-work trips, 78% of trips remained in Sumner County, with 19% destined for Davidson County. With the exception of a fairly large amount of trips between Portland and Nashville's Central Business District (CBD), most of the travel into the CBD is from the Hendersonville area (which is currently served by RTA route 35X Rivergate Express).

The *Nashville Area Transit Development Plan* recommended short term and long term transit recommendations for portions of Sumner County. One short term recommendation was the extension of the existing 35X route to Gallatin. The long term recommendations included a local circulator route operating within Gallatin.

Because the Transit Development Plan covered a large region, the recommendations were general in nature. This study will build off of the recommendations of the prior work by focusing on specific local transit demand, possible service configurations, and implementation strategies.

3 DEMOGRAPHIC CHARACTERISTICS OF GALLATIN

Demographic and socioeconomic characteristics of Gallatin were evaluated because they are often good indicators of those likely to use transit. For example, household density, income, age, vehicle ownership, and employment density are all factors that have the potential to affect transit ridership.

According to the 2000 U.S. Census, the City of Gallatin has approximately 23,230 residents in a land area covering 22 square miles. Table 1 below presents additional characteristics:

TABLE 1: CHARACTERISTICS OF GALLATIN, TENNESSEE

Population	23,230
Population 19 years and under	28%
Population 65 years and over	14%
Average Household Size	2.50
Owner-occupied Housing Units	63%
Disability Status (21 to 64 years)	24%
Labor Force (for population 16 and over)	10,962 (61%)
Average Travel Time to Work	26 minutes
Work in county of Residence	71%
Median Household Income	\$34,696

Source: 2000 U.S. Census

Household Density

An important factor in the potential success of transit is the household density of a given area. In general, fixed route services can be supported in areas of moderate to high-density development. In lower density areas, flexible routes and demand-response services generally provide a better match. Table 2, derived from the *Transit Capacity and Quality of Service Manual*, shows basic industry guidelines for type of service by density (expressed as households per acre).

TABLE 2: HOUSEHOLD DENSITY GUIDELINES FOR TYPES OF TRANSIT SERVICE

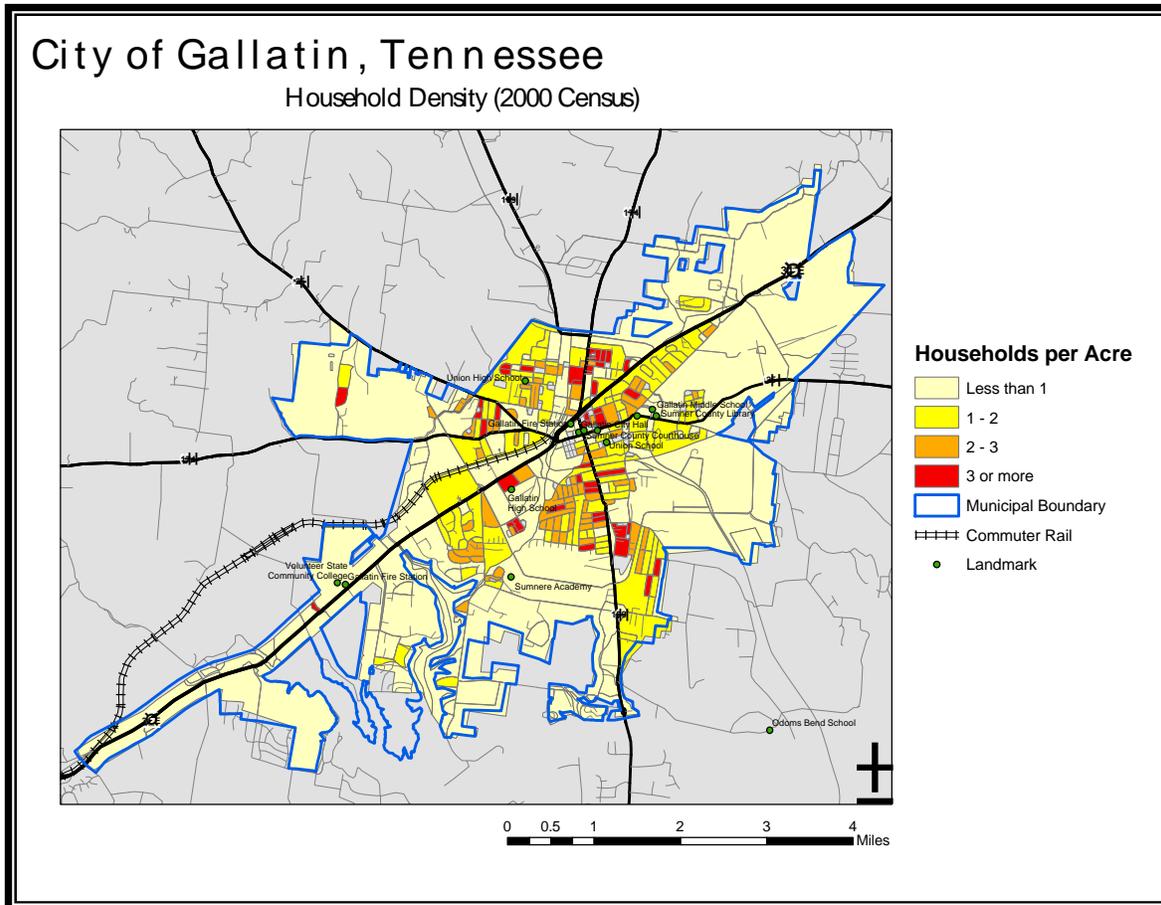
Service Type	Household Density
Fixed Route	3 HH/Acre or more
Fixed and Flexible Service	2-3 HH/Acre
Demand Response / Flexible Service	1-2 HH/Acre
Demand Response	0-1 HH/Acre

Source: Transit Capacity and Quality of Service Manual

Figure 1 on the following page shows the existing (year 2000) household density for the City of Gallatin. The red areas on the map indicate the locations where traditional fixed route bus service is most likely to be supported. These areas are most prevalent north of downtown on both sides of North Water Avenue. There are also pockets of higher

household density south of the downtown along South Water Avenue between the Highway 109 bypass and Coles Ferry Road.

FIGURE 1: CITY OF GALLATIN HOUSEHOLD DENSITY



Transit Dependent Markets

Outside of major urban areas, the most likely users of public transportation in a car-dominated area such as Gallatin, Tennessee are individuals who may not have the option of traveling by car – seniors, teenagers, persons with disabilities, those with low incomes, and those without access to a car. Analyzing these populations can be helpful in understanding the potential for transit use in the area. If the feasibility of transit services is established, the location analysis of these markets provides insight as to where transit service should be provided. A review of 2000 U.S. Census data provided the following findings:

- Seniors for whom age has started to impair their ability to drive are of particular interest for transit service. Gallatin has a relatively average percentage of senior population with 14.0% of age 65 and over, and 5% of the population of age 75 and older.
- Another market for transit is children who are old enough to travel alone, but not yet old enough to drive, particularly if parents are not available to drive them

because of work obligations. In Gallatin, 7% of the population is between 10 and 14, which is not a significant number considering that in these types of communities, most of these children are usually able to drive with their parents. On the other hand, 8% is between 15 and 19 years of age. This relatively high percentage of adolescents may be due to the presence of Volunteer State Community College, located west along Route 31E. The college is also viewed as an employment center, which can potentially attract trips as well as generate them.

- A total of 24.0% of the population between 21 and 64 have a disability in Gallatin, much higher than the national average of 19.2%.
- In Gallatin, 37.1% of households have an income lower than \$25,000 per year and approximately 12% have an income below \$10,000.
- In Gallatin, 9.9% of the occupied housing units, or 895 households, do not own a vehicle, and 35.4% (3,188 households) own only one vehicle.

Employment

Manufacturing and educational, health, and social services are the two industrial sectors that provide the most jobs in Gallatin. The number of jobs provided by each sector, according to the 2000 U.S. Census, is shown in Table 3.

TABLE 3: EMPLOYMENT IN GALLATIN

Industrial Sector	%
Manufacturing	22.5%
Educational, health and social services	17.1%
Retail trade	13.1%
Construction	7.3%
Arts, entertainment, recreation, accommodation and food services	6.9%
Professional, scientific, management, administrative services	5.8%
Finance, insurance, real estate, and rental and leasing	5.7%
Other services (except public administration)	4.8%
Wholesale trade	4.5%
Public administration	4.4%
Transportation and warehousing, and utilities	4.4%
Information	2.0%
Agriculture, forestry, fishing and hunting, mining	1.4%
TOTAL	10,962

Source: 2000 U.S. Census

The number of jobs available in Gallatin, similar to most cities in the region, and the importance of various diverse sectors is indicative of the commercial, educational, medical, and recreational significance of Gallatin within Sumner County and the region.

According to the *Transit Capacity and Quality of Service Manual*, fixed route transit services are typically more successful in areas with employment densities above 4 jobs per acre. Thus, fixed route transit services, targeted to commuters, would be more successful when linking these areas to areas with population density higher than 3 households per acre. Other types of services may be more appropriate to target leisure markets and trips from places with lower residential and employment densities.

4 OVERVIEW OF EXISTING TRANSPORTATION

Mid-Cumberland Human Resource Agency

The only current transit service available in the region of Gallatin is that provided by Mid-Cumberland Human Resource Agency (MCHRA). MCHRA provides demand response (or dial-a-ride) service over 6,000 square miles to the following counties:

- Cheatham
- Dickson
- Houston
- Humphreys
- Montgomery
- Robertson
- Rutherford
- Stewart
- Sumner
- Trousdale
- Williamson
- Wilson

In theory, the service is available to all residents of the area, however, given the limited resources, priority is given to elderly, disabled, and economically disadvantaged with medical needs. MCHRA is funded by the Federal Transit Administration (FTA), Tennessee Department of Transportation (TDOT), local revenues, and fares. The standard fare within the area is \$1.50, \$2.00 if a county line is crossed, and \$0.50 for an additional stop.



MCHRA provides service between 6:00 a.m. and 6:00 p.m. Monday through Friday. Service is provided with vans shown in the picture to the right, with capacity ranging between 7 and 15 passengers.

According to the *TDOT 2004 Annual Status of Public Transportation* report, MCHRA provided a total of 165,602 passenger trips in fiscal year 2004. The average cost of a trip was \$18.34 and there were 0.2 passenger trips per capita for the entire 12-county service area (with a population of 867,000). In Sumner County, a total of 23,953 trips were provided by MCHRA on 8 vehicles in fiscal year 2004. Of those trips, 90% were in Gallatin. The majority of trips made on MCHRA are for accessing work or medical facilities.

Other Means of Transportation

The main mode of transportation in Gallatin is the private automobile. According to 2000 U.S. Census Journey to Work data, 88% of Gallatin workers use a car or van for their trip to work. The main access roads to the City are Route 109 (which also includes a bypass to the south of the City), which runs north-south through the City, and U.S. Route 31E, running east-west. Gallatin has a road network with diverse thoroughfare types which provide adequate circulation to the City.

According to Average Daily Traffic (ADT) counts, the heaviest traffic volume was recorded on U.S. Route 31E at the 109 bypass with over 45,000 vehicles per day. Other heavily traveled road segments include U.S. Route 31E at Locust Avenue (18,920 ADT), Main Street at Trigg Avenue (16,000 ADT), and the intersection of Water Avenue and the 109 bypass (15,740 ADT). Fewer than 3% of all trips in Gallatin are taxis, bicycle, or walking.

General Development and Transportation Plan

The Gallatin *General Development and Transportation Plan* was prepared for the timeframe between 1996 and 2005. According to the Plan, it represents “a coordinated and unified vision for the future development of all areas of the City”. The Plan was reviewed for general background purposes and any references to future transit services. Specific land use categories, such as High Density Residential (HDR), make references to having direct access to major highways or mass transit services. The Plan also stresses the importance of uniform design guidelines and the need for a system of bikeways and sidewalks to supplement existing and future thoroughfares. The Plan “strongly encourages future road right-of-way provide sufficient space for transit shelters and the City continue to work through the Regional Transit Authority (RTA) to update ridership information and expected demand within the City”. This Transit Feasibility Study accomplishes the goal of updating expected demand within the City of Gallatin.

5 STAKEHOLDER INTERVIEWS

In May 2005, a site visit was conducted to interview stakeholders and to collect additional information. A list of potential stakeholders was compiled by the City of Gallatin. Each stakeholder was invited to participate in 45 minute interviews held at City Hall. The following individuals contributed input to the planning process:

- Mary Malone, Gallatin Shalom Zone
- Ann Whiteside, Business Development / Sumner County Career Center
- Donna Belote, Greater Gallatin
- Chad Miller, Gallatin Senior Center
- David Young, Sumner Regional Health Center
- Warren Nichols, Volunteer State University (via phone)

In general, the stakeholders agreed on the importance of the project and were complimentary of the City for investigating the feasibility of transit. Listed below are some of the common themes heard for each of the questions asked during the interview process:

- *What should the priority of public transportation be?* Most stakeholders felt that the priority for public transportation should be to provide service to the transit dependent populations of Gallatin (seniors, those with disabilities, low income families, and those without access to a car). Other responses including getting people to and from Hendersonville.
- *What type of transit service is needed most in Gallatin?* Stakeholders were split on the type of transit service needed, with some mentioning the need for local, community-based transit, and some noting the need to travel to Hendersonville and Nashville.
- *What are the most popular destinations in Gallatin?* Stakeholders mentioned a variety of destinations for potential transit service:
 - Manufacturing north along U.S. Route 31E
 - Sumner County Regional Medical Center
 - Wal-Mart (U.S. Route 31E and Belvidere)
 - Volunteer State Community College
 - Hendersonville
 - Downtown area (“Square”)
 - South Water Avenue
- *Where are most people originating to access these destinations?* The stakeholders seemed to think that many of those accessing the hospital and grocery stores were originating from the north and east sides of the city, which is consistent with the population density patterns analyzed. The square and Volunteer State Community College seem to draw from more of a regional population than specifically Gallatin residents.

- *What are the challenges to implementing transit service?* Stakeholders agreed that two factors will be the keys to overcome if transit service is going to be implemented; 1) money, and 2) educating people. Others indicated that selling the idea of transit to the residents will be important.
- *Is transit needed in Gallatin?* Most stakeholders felt that transit was needed in Gallatin and that residents would use it, particularly in lower-income areas of the City. Several stakeholders suggested integrating new transit service to help spur economic development within the downtown area, perhaps with the type of trolleys now in use in Franklin, Tennessee.

6 CONCLUSIONS: THE NEED FOR TRANSIT IN GALLATIN

Based on the quantitative and qualitative data collected and analyzed as a part of Task 1, it can be concluded that there is a mobility need in Gallatin that could be served by transit service. Future tasks in this study will determine the exact configuration and type of service suitable for the area.

The demographic and socioeconomic figures in Gallatin portray a community with significant transit dependent markets and with sufficient density and economic activity to support the introduction of transit service. Gallatin has clusters of population with limited access to private vehicles, lower incomes, and people with medical needs. There are also several large employers in the area which may attract some trips.

Based on the information collected, likely trip origin areas for transit services are residential zones with low auto ownership and higher densities such as the area to the north of downtown bounded by Blakemore, Water Avenue, and Broadway, and the area to the south bounded by the 109 bypass, South Water Avenue, and Hancock Street. Likely destination areas include the U.S. Route 31E corridor (including Wal-Mart and Volunteer State Community College), the Main Street corridor east to the Sumner County Regional Medical Center, the post office and newer developments along Hancock Street, and the downtown Square.

As evident from the Stakeholder Interviews (see Section 5), it will be vital to develop transit that will serve those populations who need it most. The idea of integrating potential new transit service to help spur economic development (particularly in the downtown area) is a noteworthy idea worth exploring.

Although in its majority Gallatin is a typical auto-dependent mid-size community with low residential densities, it has retained an active downtown square, two important regional destinations (i.e., the U.S. Route 31E corridor and the Sumner County Regional Medical Center), some areas of high residential density, and active commercial and entertainment trips. Thus, the City of Gallatin has the ability to generate and attract a significant number of trips, some of which can be served by transit.

City of Gallatin

Transit Feasibility Study

Technical Memorandum #2: Service Alternatives

Prepared for:

City of Gallatin

**Tennessee Department of
Transportation (TDOT)**



August 2005

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1 INTRODUCTION

In February, 2005 the City approached the Tennessee Department of Transportation (TDOT) for planning assistance to study the feasibility of starting new transit services in Gallatin. While the ultimate goal of the City is to connect with Nashville via commuter rail service, this study will analyze the feasibility of implementing local transit services in the interim.

In April, 2005, the City of Gallatin initiated the Transit Feasibility with the overall objective of analyzing the need for transit service in the Gallatin area. If a need for transit exists, a preliminary plan to provide those services would be provided.

The project included the following five tasks:

Task 1: Document the Need for Transit Services – This task includes the collection and analysis of various types of data. Demographics, socioeconomic indicators, and development patterns will be reviewed to determine if and where transit may be applicable. Field work and interviews with key stakeholders from the City and region are conducted to gain an understanding of specific needs.

Task 2: Formulate Service Concepts – Using the information and analysis conducted in Task 1, transit service concepts will be presented to the City for consideration. These concepts may range from general public dial-a-ride service to traditional fixed route bus service.

Task 3: Identify a Preferred Service Alternative – Task 3 will include a presentation to City officials on the various service concepts and their characteristics. Once a preferred concept is selected, details such as costs, estimated ridership, and potential funding sources will be prepared.

Task 4: Service Implementation and Long Term Strategies – The implementation of transit service will require investigation into many institutional, operational, and administrative issues. This task will summarize the key issues and their associated impacts should transit service be implemented. Long Term strategies for transit services will be presented with a focus on the potential to expand to outlying areas or to connect with potential future services, including commuter rail.

Task 5: Prepare a Final Plan – All of the previous tasks will be summarized into a final plan and presented to the City of Gallatin.

Technical Memorandum #1 Findings

Technical Memorandum #1: Transit Service Needs (June, 2005) found that there is a mobility need in Gallatin that could be served by transit service.

The demographic and socioeconomic figures in Gallatin portray a community with significant transit dependent markets and with sufficient density and economic activity to

support the introduction of transit service. Gallatin has clusters of population with limited access to private vehicles, lower incomes, and people with medical needs. There are also several large employers in the area which may attract some trips.

Although in its majority Gallatin is a typical auto-dependent mid-size community with low residential densities, it has retained an active downtown square, several important regional destinations (i.e., the U.S. Route 31E corridor and the Sumner County Regional Medical Center), some areas of high residential density, and active commercial and entertainment trips. Thus, the City of Gallatin has the ability to generate and attract a significant number of trips, some of which can be served by transit.

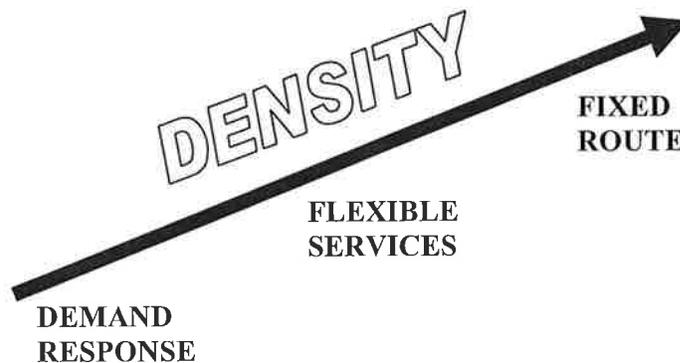
Structure of Technical Memorandum #2

This Technical Memorandum documents the work being done during Task 2 of the study and is comprised of three sections. Section 1 provides background information about the study and its structure, along with a brief review of findings from *Technical Memorandum #1: Transit Service Needs*. Section 2 presents an overview of the different types of transit service in operation throughout the country today and lists three possible options for consideration in the City of Gallatin. Section 3 summarizes the characteristics of the three options, providing an overview of the advantages and concerns with each option.

2 SERVICE ALTERNATIVES

Transit bus service can be provided in many different forms, ranging from fixed route to demand response, or dial-a-ride, service. Fixed route bus service is designed to travel along a designated route at set times and frequencies throughout the day. Demand response service is a door-to-door service operated in response to users' requests. There are also hybrids of bus service, often referred to as flexible, or deviation services. This type of service operates along a fixed route, but users have the option of calling in advance (or indicating to a driver when on the bus) to request a pick-up or drop-off within a defined zone from the fixed route. Some transit providers employ this type of service as a way to meet ADA requirements, which mandate that all fixed routes operate complimentary paratransit service within $\frac{3}{4}$ mile. There are also intercity bus services, or express bus, that link heavily populated areas in a region.

The type and configuration of transit bus service is dependent on the operating environment. As noted in *Technical Memorandum #1: Transit Service Needs*, key factors to consider are the population and employment density of a given area. The more dense population and employment is in a given area, the more applicable fixed route services are (see below).



Additional transit services include heavy and light rail, automated guideway service, and Bus Rapid Transit (BRT). These types of services are more applicable to urbanized areas. The service alternatives presented for the City of Gallatin all use bus as the primary mode. However, with the preliminary planning about to begin to investigate the possibility of commuter rail service through the northeast corridor, efforts should be made to coordinate these different modes of transit service.

Based on the characteristics of the service area analyzed in *Technical Memorandum #1: Transit Service Needs*, previous analysis conducted in the *Nashville Area Transit Development Plan*, and the expertise of the consulting team, the service alternatives were narrowed down to the following three different service types that may address the identified transit need in Gallatin:

- Expanded Demand Response Service within Gallatin
- Fixed Route Bus Service between Gallatin and Hendersonville
- Flexible Route Service within Gallatin

The first alternative is to expand the coverage of the demand response service currently provided by Mid-Cumberland Human Resource Agency (MCHRA) to serve not only disadvantaged communities but the general public with the same type of operation. The second alternative is to provide fixed route bus service between Gallatin and Hendersonville. The third alternative is to create a set of flexible bus routes operating within Gallatin. Although these alternatives are described in some detail below, the final agreed upon alternative may wind up being a combination of them.

Alternative 1: Expanded Demand Response Service within Gallatin

The first alternative is to provide door-to-door, demand responsive service to all Gallatin citizens and visitors. Mid-Cumberland Human Resource Agency (MCHRA) currently provides this type of service in the Gallatin area. In theory, the service is available to all residents of the area; however, given the limited resources, priority is given to elderly, disabled, and economically disadvantaged with medical needs.

One option for this service alternative is to provide MCHRA with more resources to expand their demand-responsive service. Another option is to have a separate agency provide service. Thus, more vehicles, drivers, schedulers, and dispatchers would be needed. The service would operate within a pre-established area, for example the City of Gallatin. Some specific distant destinations could be served, such as trips to Volunteer State Community College, located to the west of the downtown area. The service span would be expanded to provide night and weekend service.

New vehicles would be needed to provide the expanded service. The vehicles may be similar to the passenger vans currently used by MCHRA. However, a new painting and graphics scheme could be used to create a new brand that allows marketing this service as a new one. Trips would still be requested in advance, which hinders the convenience for random travelers such as visitors, but service would be door-to-door within the coverage area.

This type of service may need an investment in a scheduling software, vehicles, drivers, schedulers, and dispatchers. It may also be feasible to contract out some of the trips with the taxi companies that exist in Gallatin.

The advantages presented by this type of service include:

- Door-to-door operation for clients
- Operational know-how already exists within MCHRA
- Operation (supply) matches demand
- Little infrastructure is needed
- Implementation may be faster and less expensive than other alternatives
- Coverage area may be the largest

Concerns for this alternative include:

- It requires advance trip reservation, which is not convenient for unexpected trips
- Expensive operation, the cost per passenger may be highest of all alternatives

- It may not have the permanence required to raise transit visibility in Gallatin
- The impetus for accessing transit is on the user

Alternative 2: Fixed Route Bus Service between Gallatin and Hendersonville

One common theme heard from the recently held Stakeholder meetings was the need for travel to and from Hendersonville. Providing service to Hendersonville serves two purposes; access to the City and its destinations itself, and a connection point for access to Nashville.

Currently, MTA Route 35X Rivergate Express provides peak period service between 3 park and ride lots in Hendersonville and downtown Nashville. The service design would be designed to make connections with this existing route during the peak periods, and operate service between the two downtowns during the midday. Implementation costs may include the purchase of additional vehicles to operate the service. Operational costs will include drivers and dispatchers/coordinators.

The advantages presented by this type of service include:

- Provides service to downtown Nashville during peak periods
- Provides midday service between Gallatin and Hendersonville
- Little infrastructure is needed

Concerns for this alternative include:

- Transit dependent areas with lower densities are not provided with a transit alternative within Gallatin
- Expensive operation, and difficult to maintain ridership
- It may not have the permanence required to raise transit visibility in Gallatin

Alternative 3: Flexible Bus Service within Gallatin

This alternative proposes to create flexible bus routes in Gallatin. Flexible routes offer the reliability of fixed routes with the flexibility of being able to travel off a specific path to pick up and drop off passengers. Possible destinations would include high density and transit dependent markets north of downtown, the Route 31E and Main street corridors, Sumner County Regional Medical Center, the post office and new developments along Hancock Street, and the downtown Square.

The specific routing, span of service, and frequency cannot be determined at this point, but it would be expected to provide service from at least 6:00 a.m. to 6:00 p.m. On-time service should be provided at least every 30 minutes in the peak and every 60 minutes off-peak to generate a sense of reliability among potential users. The service would be flexible enough to travel 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 be designed to travel off route for a certain distance (typically $\frac{3}{4}$ mile) or to a certain boundary. Again, this type of service design addresses ADA requirements while expanding coverage to additional areas.

While there is no fixed route service currently in Gallatin, its implementation should not pose an operational challenge due to the extensive knowledge on fixed route operation in the state and the country. Implementation costs may include the purchase of additional vehicles and shelters for the stops. Operational costs will include additional drivers and dispatchers/coordinators.

Although there is less door-to-door operation of service, the cost per passenger may be the lowest. In addition, a sense of permanence may be gained due to the infrastructure (i.e. shelters, terminals) and fixed nature of the services, which encourages users to rely more in the service and consider the transit system when making decisions (i.e. where to live, where to work, what trips to make).

One of the advantages of a route that operates in the same fashion every day is that people already know how the system in general works, and they are not deterred to use it due to fear of the unknown system. On the other hand, if the system is too conventional, it may not attract significant ridership due to the usual poor image of bus service. This image, and its performance, may be improved with the use of transit priority treatments in congested intersections or segments. Also, the use of an exciting and different vehicle (i.e. historic trolley, futuristic vehicle), graphic scheme, or brand may also help to attract riders to the new system, a theme mentioned by many stakeholders.

The advantages presented by this type of service include:

- Operational cost may be the lowest
- Service is familiar—most people already know how it works and it should not be particularly challenging to operate
- No advance reservation required to travel in the system (other than deviated portions)
- Provides a sense of permanence of the transit service
- Service concept fits best those areas with higher residential and employment densities

Concerns for this alternative include:

- Coverage area may be the smallest due to the fixed nature of the system; however, deviations enlarge the coverage area
- It may not be sufficiently attractive to encourage non-captive riders to use it
- Areas with lower densities are not provided with a transit alternative

3 QUALITATIVE SUMMARY OF SERVICE ALTERNATIVES

Table 1 summarizes the characteristics inherent to the service concepts proposed in each alternative. More details about the service including frequency, span, expected ridership, and number of vehicles, will be addressed when one of the concepts has been selected.

The table serves as a qualitative comparison between the alternatives. All of them would be feasible solutions for Gallatin; however, they target different markets, have different levels of investment, and would require different levels of maintenance and commitment from the City. These characteristics must be considered when selecting a service concept to carry forward into design.

Table 1 Qualitative Summary of Alternatives

	Alternative 1 Expand Demand Response	Alternative 2 Fixed Route Service to Hendersonville	Alternative 3 Flexible Bus Service
Service concept	<ul style="list-style-type: none"> • Door-to-door demand-responsive service 	<ul style="list-style-type: none"> • Fixed route bus service to and from Hendersonville with focus on connection to route serving Nashville 	<ul style="list-style-type: none"> • Fixed route service with on-demand deviations to pick up and drop off riders
Target Markets	<ul style="list-style-type: none"> • Mostly non-commuters in trips that allow a leeway on pick-up time and on-board time • All residents of Gallatin 	<ul style="list-style-type: none"> • Both commuter and non-commuter trips • Gallatin residents working in Nashville • Those accessing jobs in Gallatin 	<ul style="list-style-type: none"> • Both commuter and non-commuter trips • Some residents – those along service corridors • Some visitors
User convenience	<ul style="list-style-type: none"> • Door-to-door service (+) • Fewest stops – almost an individual service (+) • Advance trip reservation required (-) • Allow leeway in pick-up times (-) 	<ul style="list-style-type: none"> • Set schedule patterned around work hours (+) • Approximate waiting time known (+) • Few stops, express service (+) • User must access a stop or park and ride lot (-) • Complimentary service needed (-) 	<ul style="list-style-type: none"> • Known route and schedule (+) • Shortest dwell time (time at stops) (+) • More stops (-) • User must access a stop (-) • Deviations take time (-)
Coverage	<ul style="list-style-type: none"> • Largest coverage – i.e. all residences within City of Gallatin 	<ul style="list-style-type: none"> • Small coverage – point to point service focusing on work coverage, complimentary service needed 	<ul style="list-style-type: none"> • Medium coverage – catchment area around the stops along the route and deviations
Attractiveness / Image	<ul style="list-style-type: none"> • Not very noticeable service by itself, it may need a larger marketing effort 	<ul style="list-style-type: none"> • Somewhat noticeable due to size of buses, could be coordinated with MTA service image 	<ul style="list-style-type: none"> • Somewhat noticeable due to shelters but may not be particularly enticing due to poor image of conventional buses
Capital Investment	<ul style="list-style-type: none"> • Vehicles 	<ul style="list-style-type: none"> • Vehicles • Optional: transit priority treatments 	<ul style="list-style-type: none"> • Vehicles • Shelters • Optional: transit priority treatments
Operational Cost	<ul style="list-style-type: none"> • Drivers • Schedulers/Dispatchers • Cost per passenger is high because trips are almost individual • Close match of service and demand 	<ul style="list-style-type: none"> • Drivers • Schedulers/Controllers • May have moderate/high cost per passenger • Close match of service and demand 	<ul style="list-style-type: none"> • Drivers • Shelters • Probably less hours of operation per passenger due to aggregation of trips • More difficult to match closely service and demand

Notes (+) Positive characteristic (+/-) Neutral characteristic (-) Negative characteristic

Table 1 Qualitative Summary of Alternatives (continued)

Permanence	<ul style="list-style-type: none"> • May not be regarded as a permanent service – people not likely to make decisions based on transit service 	<ul style="list-style-type: none"> • May not be regarded as a more permanent solution 	<ul style="list-style-type: none"> • May be regarded as a more permanent solution due to infrastructure (stops) – people are slightly more likely to make decisions based on transit service
Implementation	<ul style="list-style-type: none"> • May be fastest to implement – similar to current operation 	<ul style="list-style-type: none"> • Implementation can be coordinated existing MTA Route 35X 	<ul style="list-style-type: none"> • May be long to implement – need to procure and set up stops and on-demand procedures

City of Gallatin

Transit Feasibility Study

Technical Memorandum #3: Preferred Service Alternative

Prepared for:

City of Gallatin

**Tennessee Department of
Transportation (TDOT)**



October 2005

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1 INTRODUCTION

In February, 2005 the City approached the Tennessee Department of Transportation (TDOT) for planning assistance to study the feasibility of starting new transit services in Gallatin. While the ultimate goal of the City is to connect with Nashville via commuter rail service, this study will analyze the feasibility of implementing local transit services in the interim.

In April, 2005, the City of Gallatin initiated the Transit Feasibility with the overall objective of analyzing the need for transit service in the Gallatin area. If a need for transit exists, a preliminary plan to provide those services would be provided.

The project includes the following five tasks:

Task 1: Document the Need for Transit Services – This task includes the collection and analysis of various types of demographic data, socioeconomic indicators, and development patterns to determine transit potential supplemented by field work and interviews with key stakeholders from the City and region to gain an understanding of specific needs. (Technical Memorandum #1)

Task 2: Formulate Service Concepts – Using Task 1 input, a range of transit service concepts were developed for consideration. (Technical Memorandum #2)

Task 3: Identify a Preferred Service Alternative – Task 3 builds on Task 2 with input from City officials to select a preferred alternative. Details such as costs, estimated ridership, and potential funding sources were prepared for this alternative. (Technical Memorandum #3)

Task 4: Identify Requirements for Implementation – The future implementation of transit service will require investigation into many institutional, operational, and administrative issues. This task will highlight some key issues that will need to be considered. (Included in Technical Memorandum #3)

Task 5: Prepare a Final Plan – All of the previous tasks will be summarized into a final plan and presented to the City of Gallatin.

Technical Memorandum #1 Findings

Technical Memorandum #1: Transit Service Needs (June, 2005) found that there is a mobility need in Gallatin that could be served by transit service.

The demographic and socioeconomic figures in Gallatin portray a community with significant transit dependent markets and with sufficient density and economic activity to support the introduction of transit service. Gallatin has clusters of population with limited access to private vehicles, lower incomes, and people with medical needs. There are also several large employers in the area which may attract some trips.

Although in its majority Gallatin is a typical auto-dependent mid-size community with low residential densities, it has retained an active downtown square, several important regional destinations (i.e., the U.S. Route 31E corridor and the Sumner County Regional Medical Center), some areas of high residential density, and active commercial and entertainment trips. Thus, the City of Gallatin has the ability to generate and attract a significant number of trips, some of which can be served by transit.

Technical Memorandum #2 Findings

Technical Memorandum #2 presented an overview of the different types of transit service in operation throughout the country today and lists three possible options for consideration in the City of Gallatin (Tasks 2 and 3). The three options included:

- Expanded demand response service within Gallatin;
- Fixed route bus service between Gallatin and Hendersonville; and
- Flexible bus service within Gallatin.

The memorandum summarized the characteristics of the three options, providing an overview of the advantages and concerns with each option.

At a planning workshop on August 19, 2005, the study team presented the three alternatives to those in attendance. The attendees determined that Flexible Bus Service is probably the most appropriate concept for the City of Gallatin.

Overview of Technical Memorandum #3

This memorandum, Technical Memorandum #3, develops operational details for a flexible bus service concept in Gallatin which includes proposed routes, service areas and sample schedules. The memorandum also provides information on estimated operating costs, capital costs, potential funding sources, estimated ridership, vehicle requirements, technology needs and a comparison of direct versus contracted management and operation. A listing of the types of issues that will need to be considered for implementing the service is also provided. This memorandum completes Tasks 3 and 4.

2 FLEXIBLE BUS SERVICE WITHIN GALLATIN

Flexible Route Services

The term “flexible route services” is a scheduled service that allows the bus to deviate from a fixed route to pick up / drop off passengers on a pre-scheduled basis. Typically, a set fare is charged for persons picked up along the regular route, while a fare premium may be charged for individuals requesting that service ‘flex’ from the route. Flex service actually covers a range of services ranging from “pure” demand response services to route and point deviation services.

Flexible routes offer the reliability of fixed routes with the flexibility of being able to travel off a specific path to pick up and drop off passengers. The flex route service design is recommended because it is better able to serve lower density areas, and is more adaptable to the transportation needs of seniors and persons with mobility limitations.

Travel times are likely to be longer on flex routes than on fixed routes. The number of off-route deviations or points served is typically limited on each trip in order to ensure operational reliability. Flex routes have the advantage of being regularly scheduled so the service can be relied on by people wanting to make all trip types, and the ‘flex’ component of the service expands its reach, which is often important in lower density areas such as this study area. Time sensitive commuters may not select this type of service because of the potential variation in travel time.

Typically, this type of service is effective when there are 3-8 passengers per hour using it. At lower levels of productivity, it is potentially too costly to provide, and at higher levels, there are often too many requests for ‘flex’ operation than can be sustained.

There are two basic types of flexible service designs described below:

Route deviation service travels a fixed route, but will go off of the route to pick up or drop off a passenger.

- The departure from the route must be arranged in advance. It is recommended that people call as much in advance as possible, but deviations can be accommodated up to an hour or two before the trip.
- After picking up the passenger, the bus returns to the point on the route where it left. This way, anyone waiting for the bus along the designated route will be met by the bus.
- The number of departures from the route is typically limited to a couple per trip so that the trip does not take too long for the passengers on the vehicle.
- Service on the route is scheduled on a regular basis (e.g. every 30 or 60 minutes).

With **point deviation** service, the bus route is mostly operated in response to requests for service. In other words, the bus does not follow a fixed bus route. Characteristics of point deviation service include the following:

- There will be several bus stops - or points - where a passenger can go to pick up the bus without an advance reservation. All other locations need to be pre-

arranged. The driver may take any route to reach the necessary points on each run.

- Service through the area is scheduled on a regular basis (e.g. every 30 or 60 minutes).
- Flexible routes allow buses to provide closer access to more homes and destinations than a traditional fixed route can.

Flex Route Service Design Options

Flexible bus service is recommended within the City of Gallatin. Two routes could operate with one operating east-west and one operating north-south.

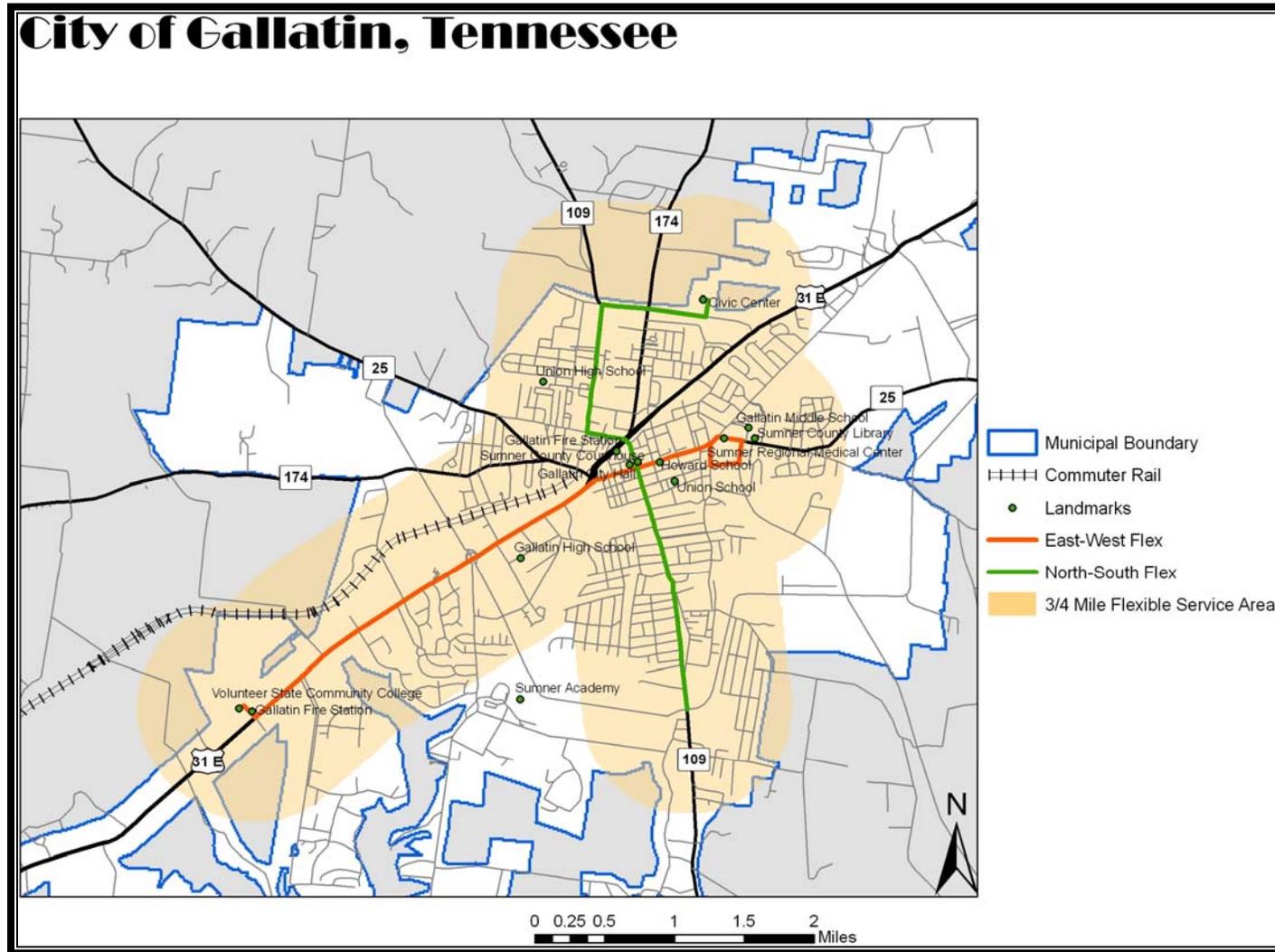
The study recommends route deviation type service because throughout the portion of the community where the proposed routes are located, there are consistent levels of potential origins and destinations making it practical to provide consistent service in those corridors. With the development patterns in Gallatin, a point deviation service would have higher administrative/dispatch requirements and be more difficult to operate.

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. Figure 1 shows the proposed routes and associated flex zones. A sample schedule is shown in Table 1.

Gallatin East-West Flex: The east-west flexible bus service is proposed to operate along Long Hollow Pike and Main Street. Sites served include Volunteer State Community College, Wal-Mart, Kroger, Food Lion, businesses along Long Hollow Pike, City Hall, the downtown square, Sumner County Regional Medical Center. Deviations could also serve Gallatin High School and low-income areas along Westland Avenue at Winchester Street and at Cosco Drive and Yale Avenue, and other homes and businesses within a 3/4 mile buffer of the route.

Gallatin North-South Flex: The north-south flexible bus service is proposed to operate along Albert Gallatin Boulevard, 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 3/4 mile buffer of the route.

FIGURE 1: GALLATIN FLEXIBLE ROUTES SERVICE AREA



Flex Route Service Levels

Service days, span of service and “schedules” would need to be determined. This study recommends a system that operates at least every 60 minutes Monday through Saturday, 10 hours each day. A sample schedule is presented in Table 1. Timed transfers between the two routes could be provided at the downtown Square.

TABLE 1: SAMPLE SCHEDULES FOR GALLATIN FLEXIBLE ROUTES

EAST-WEST FLEX				
Square	Community College	Square	Sumner County Medical Center	Square
7:00 AM	7:18 AM	7:36 AM	7:46 AM	7:55 AM
8:00 AM	8:18 AM	8:36 AM	8:46 AM	8:55 AM
9:00 AM	9:18 AM	9:36 AM	9:46 AM	9:55 AM
10:00 AM	10:18 AM	10:36 AM	10:46 AM	10:55 AM
11:00 AM	11:18 AM	11:36 AM	11:46 AM	11:55 AM
12:00 PM	12:18 PM	12:36 PM	12:46 PM	12:55 PM
1:00 PM	1:18 PM	1:36 PM	1:46 PM	1:55 PM
2:00 PM	2:18 PM	2:36 PM	2:46 PM	2:55 PM
3:00 PM	3:18 PM	3:36 PM	3:46 PM	3:55 PM
4:00 PM	4:18 PM	4:36 PM	4:46 PM	4:55 PM

NORTH-SOUTH FLEX				
Square	Civic Center	Square	Coles Ferry & Water Rd	Square
7:00 AM	7:13 AM	7:26 AM	7:41 AM	7:55 AM
8:00 AM	8:13 AM	8:26 AM	8:41 AM	8:55 AM
9:00 AM	9:13 AM	9:26 AM	9:41 AM	9:55 AM
10:00 AM	10:13 AM	10:26 AM	10:41 AM	10:55 AM
11:00 AM	11:13 AM	11:26 AM	11:41 AM	11:55 AM
12:00 PM	12:13 PM	12:26 PM	12:41 PM	12:55 PM
1:00 PM	1:13 PM	1:26 PM	1:41 PM	1:55 PM
2:00 PM	2:13 PM	2:26 PM	2:41 PM	2:55 PM
3:00 PM	3:13 PM	3:26 PM	3:41 PM	3:55 PM
4:00 PM	4:13 PM	4:26 PM	4:41 PM	4:55 PM

From the Square it takes approximately 11 minutes to travel to Volunteer State Community College, 3 minutes to travel to the Sumner County Regional Medical Center, 6 minutes to travel to Civic Center, and 8 minutes to travel to intersection of Water Avenue and Airport Road. With these travel times in each direction and 6 or 7 minutes of deviation time between the Square and the destination or between the destination and the Square, the vehicle could operate for 55 minutes before returning to the Square for a five minute layover to intercept transferring passengers. If necessary due to traffic or conditions at the square, the buses could intercept and allow passengers to transfer and the five minute layover could be provided at either end of the route.

The sample schedule shows scheduled times at Volunteer State Community College and other destinations and a scheduled intermediate timepoint at the Square. Throughout the

day, the routes would arrive at the Square at 55 minutes past the hour and depart from the Square at the hour.

An example trip on the east-west flex route could begin at the Square and travel to Volunteer State Community College. The driver could pick up a passenger and return towards the Square. The bus could then deviate to Gallatin High School to pick up another passenger then return to the route at the point of departure. The bus would travel through the Square and head east to Sumner County Regional Medical Center. The bus could then deviate to Cosco Drive off of Westland Avenue to pick up a passenger then return to the route at the point of departure. The bus would then return to the Square.

Estimated Ridership

Ridership was estimated for the Gallatin service based on comparisons to peer systems in Tennessee. Ridership in Gallatin is estimated at 26,000 annually.

Operating Costs

The biggest determination of cost is span of service and frequency of service. Operating cost estimates were developed based on service every 60 minutes Monday through Friday and on Saturday for a 10 hour service span. The operating cost estimates assume a rate of \$45 per hour – consistent with regional and national averages. As shown in Table 2, annual operating costs are approximately \$291,000.

TABLE 2: OPERATING COST

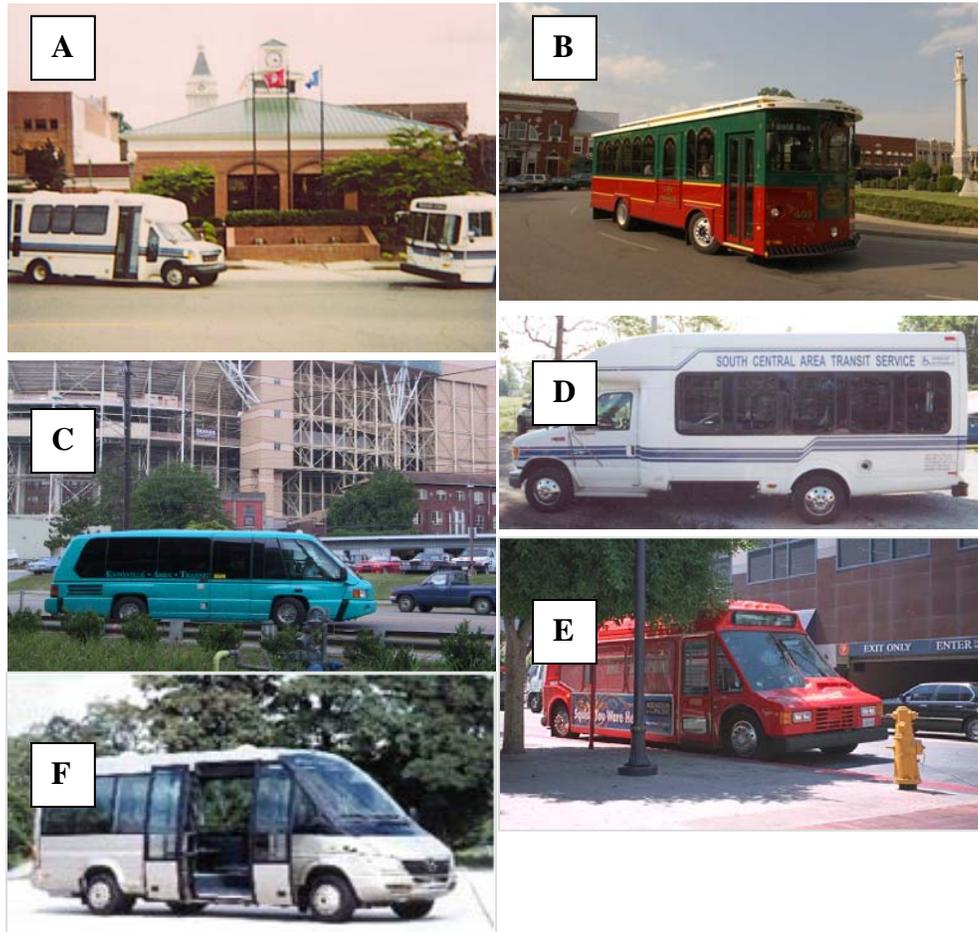
Operating Cost	Every 60 Minutes
	10 Hours
Annual Weekday	\$239,063
Annual Saturday	\$51,563
TOTAL	\$290,625

Capital Costs

Vehicle Requirements

Under a peak 60 minute headway, two vehicles would be needed to operate the flexible bus routes. At least one spare bus would be required as a backup. To operate as flexible routes, the vehicles must be small enough to maneuver on local streets. Examples of buses are shown in Figure 2.

FIGURE 2: VEHICLES IN CLARKSVILLE (PHOTO A), FRANKLIN (PHOTO B), KNOXVILLE (PHOTO C) AND SOUTH CENTRAL TENNESSEE (PHOTO D), AND OTHER VEHICLE TYPES (PHOTOS E AND F)



Technology Needs

The flexible service system requires a reliable communications system between the bus driver and the dispatcher. Also, customers need to be able to reach the dispatcher regarding flexible service reservations and cancellations.

Overall Capital Costs

The capital costs for the services will include the purchase of vehicles and communications equipment – unless a contracting option with vendor provided vehicles is pursued – and the acquisition of passenger amenities such as shelters and benches. The vehicle price will vary depending on the type of vehicle chosen. This study assumed an average cost per vehicle of \$150,000. The capital costs for the acquisition of three small buses (two for operation and one backup) will cost approximately \$450,000.

Typically vehicles amount to 90 to 95 percent of capital cost. Technology needs, as well as passenger amenities, are likely to add \$25,000 - \$50,000 to overall capital costs. In particular, the cost of passenger amenities can vary depending on local preferences and resources. Overall capital costs are likely to be \$500,000.

Peer Comparison

Ridership estimates for the Gallatin service was based on comparisons to peer systems in Tennessee. Table 3 shows peer system statistics. In reviewing these statistics, it is important to keep in mind that ridership grows as a system matures. New systems in this list are Franklin and Gallatin. Others have been in operation for a longer time period and show some benefits of maturity in ridership.

TABLE 3: PEER CITY STATISTICS

Agency	Population in Service Area	Vehicles	Operating Expense	Riders	Days	Trips/Hour	Trips/Capita
Bristol	24,821	10	\$481,700	65,000	M-F	3.6	2.6
Clarksville	121,775	23	\$2,693,300	631,500	M-F/Sat	9.9	5.2
Franklin	42,000	4	\$463,700	28,200	M-F/Sat	2.9	0.7
Jackson	55,000	20	\$1,959,400	459,200	M-F/Sat	9.4	8.3
Johnson City	49,381	28	\$1,618,300	379,700	M-F/Sat	8.0	7.7
Kingsport	10,708	18	\$577,600	106,500	M-F	5.3	9.9
Gallatin	23,230	4	\$291,000	* 26,000	M-F/Sat	4.0	1.1

Source: TDOT Annual Report-2004

*Initial year.

Potential Funding Sources

Fare revenues are projected to be \$19,500. This is based on an assumed fare of \$1 with fare discounts for seniors, youth and people with disabilities. The rest of the operating costs are projected to be funded through state and local sources with each paying fifty percent. State and local funding requirements are shown in Table 4.

TABLE 4: FUNDING

Flex Service Operating Cost	\$291,000
Fares*	\$19,500
Net Subsidy	\$271,500
TDOT Contribution (50%)	\$135,750
Local** Contribution (50%)	\$135,750

* (Estimated ridership) x (avg. fare)

** Municipal, CMAQ, partnerships, advertising

In addition to general fund revenues, local revenues may be obtained from:

- Advertising
- Purchase of service agreements
- Private donations and corporate sponsorships
- Employer-subsidized pass or voucher programs

Capital expenses can be funded through federal, state and local dollars. It is anticipated that federal funds will be available to meet 83% of the capital costs leaving 8.5% for state and 8.5% for a local match. Table 5 shows capital funding requirements.

TABLE 5: CAPITAL FUNDING

Flex Service Capital Cost	\$500,000
Federal Percentage (83%)	\$415,000
TDOT Contribution (8.5%)	\$42,500
Local Contribution (8.5%)	\$42,500

Impacts of Alternative Levels of Service

We have recommended consideration of a base system with flex route service operated every 60 minutes, weekdays and Saturday, 10 hours each day. These decisions determine the number of vehicle hours that are needed to operate the schedule and therefore the costs. All operating and capital costs, ridership, and other system statistics in the report are based on this recommendation.

However, to understand the impacts of alternative levels of service, we have also developed costs based on different operating assumptions. With this information, you can answer various ‘what if?’ scenarios.

Impact of Increasing Peak Period Service Frequency

If service on weekdays is added in the peak periods to provide service every 30 minutes, two additional vehicles would be needed (one additional vehicle for each route). Total annual operating costs would increase by \$88,500. This assumes that service would operate twice as frequently and the higher frequency service would remain in effect for 2 hours in the morning and 1.5 hours in the afternoon/evening. Approximately half of the costs would be funded by the state, the other half through local resources.

Impact of Weekend Service

If service is eliminated on Saturdays (or conversely added on Sundays), the annual operating cost impact would be \$51,600 – again roughly split between the state and local sources.

Impact of Changing Number of Hours (Span) of Service

If a shorter / longer span of service (number of hours in the day that service is operated) is desired, the annual cost impact for a weekend day is \$5,000 per additional hour of coverage. For a weekday, the impact of each additional/reduced hour of coverage is \$23,000. This cost is for one vehicle per route.

Management and Operation Options

The local transit services proposed for the City of Gallatin may be provided under a variety of arrangements, ranging from direct management and operation by the City of Gallatin to contracted management and operations to a private transportation provider.

Each alternative management operation has advantages and disadvantages. While direct management and operation provides the greatest control over the service, it is likely to result in the greatest operating cost and requires investment in facilities and equipment. Contracted management and operation typically results in lower operating costs but

requires close contract monitoring to ensure service quality and reliability. Direct management and contracted operation provides an intermediate alternative – providing direct control over management and administrative issues while avoiding direct involvement in operational issues.

Potential management and operations alternatives for the local services are identified in the following sections. Each alternative includes a brief description along with more detailed advantages and disadvantages. The advantages and disadvantages were developed in part through peer interviews with officials of similar sized cities operating local transit services. Regardless of the approach pursued by the City of Gallatin, the implementation of local transit service will require a staff person dedicated to the start-up and administration of the services.

This study recommends that no matter which alternative is selected for management and operation, that the City of Gallatin purchase their own vehicles due to the local cost savings from the ability to use federal funds to pay for the vehicles. The City would be required to comply with vehicle utilization and useful life requirements associated with the use of federal and state funds for vehicle acquisition.

City of Gallatin Management and Operation

The City of Gallatin could directly manage and operate the service by either incorporating transportation within an existing department or creating a new transportation department. The responsibilities of the transportation division, or department, would include:

- Operation and supervision of the local routes
- Vehicle maintenance for the buses
- Administrative and support activities such as planning, customer service, marketing, grants management and federal and state reporting compliance
- Other administrative activities such as personnel, risk management, procurement, and accounting could be addressed by existing city departments already responsible for such functions.

The responsibility for ensuring that the transit vehicles are properly maintained would rest with transportation, but the actual servicing and maintenance of the vehicles could be performed at City of Gallatin facilities already serving other city vehicles or through contracts with local vendors.

Advantages

- Direct control over services provided, especially during start-up
- Direct control over employees' time and priorities
- Existing City departments could be used to handle administrative functions such as accounting, human resources, and maintenance
- Establishing community partnerships, thereby creating spillover benefits from transit to the community, was seen by peers as easier to accomplish

- During start-up, the increased focus and participation by City Council was perceived as a positive by peers

Disadvantages

- Investment in staff
 - Transportation Manager
 - Supervisors
 - Drivers
 - Support Staff
- Investment in facilities
 - transportation office with communications equipment

City of Gallatin Management with Contracted Operation

The City of Gallatin could retain management and oversight responsibility for the local routes but contract the operation and maintenance of the service. In addition to contract oversight, the responsibilities retained by the City of Gallatin could include administrative and support activities such as:

- Planning
- Customer service
- Marketing
- Grants management
- Federal and state reporting compliance

As in the previous alternative, these responsibilities could be incorporated into an existing department or a new transportation department could be created. Operations contracts would be awarded for the local service.

The local service operator could be either an existing local or regional transportation provider, such as Mid-Cumberland Human Resource Agency and the Metropolitan Transit Authority (MTA), the TMA Group in Franklin, the Regional Transit Authority (RTA) or other groups interested in operating the service. The local service provider could be obtained through a competitive procurement process open to all qualified transportation providers. The service contract would stipulate the service levels and requirements and the price to be paid for the service.

Advantages

- Direct control over management and administrative decisions
- Limits number of staff positions to be added
- Eliminates the need to invest in an operating facility
- Competitive bidding contracts for local transit service operation and maintenance should result in a lower operating cost
 - this is due to the use of existing staff and facilities by local and regional providers

Disadvantages

- Less control over provision of transit service
 - requires clear specification of expectations/actions of contractor
- According to peers, contractors sometimes view provision of service in terms of costs and revenues rather than providing service that is appropriate
- City would need to ensure the operator is properly maintaining the vehicle fleet

City of Gallatin Contracted Management and Operation

The City of Gallatin could also contract out both the management and operation of the local service. Under this alternative, the City of Gallatin would only retain responsibility for the oversight of the management and operation contract. The contractor would have responsibility for the following:

- Vehicle operation and supervision
- Vehicle maintenance
- All administrative and support activities, including planning, customer service, marketing, grant management and state reporting compliance.

The contractor could directly operate the service and maintain the buses or could sub-contract these functions to other providers.

Potential contractors include Mid-Cumberland Human Resource Agency, the MTA, the TMA Group, the Regional Transit Authority (RTA), and private providers.

Advantages

- Smallest investment in staff and fixed facilities of the three alternatives
- Provides the City with the greatest flexibility in making adjustments in service levels and programs
- Competitive bidding contracts for local transit service operation and maintenance should result in a lower operating cost

Disadvantages

- Monitoring of the management contract
- Less control over provision of transit service
- According to peers, contractors sometimes view provision of service in terms of costs and revenues rather than providing service that is appropriate

Regardless of the management alternative selected, coordination with other providers of service will be important going forward. It will be important to coordinate with MCHRA because they are currently providing some services in Gallatin.

The local transit services proposed in this report may be provided under any of these management operation alternatives, each having unique advantages and disadvantages.

The next step in this process should include dialogue with City leaders to understand and determine the best approach for the City of Gallatin. Once an approach is selected, detailed costs can be further developed for the eventual implementation of transit services in Gallatin.

Implementation Considerations

Labor

Decisions on hiring or contracting for labor are important decisions to be made. Labor costs typically represent approximately 80% of the costs of transit service. Desire and ability to hire or contract with the appropriate skills to operate transit needs to be considered.

Service Scheduling and Dispatch

Scheduling and dispatching is an element of the operation that directly impacts service quality and reliability. In a flex route system, this function takes on even greater importance as the system is designed to provide flexibility of routing, without having a negative impact on service for others.

Vehicle Maintenance and Storage

In looking ahead, one of the things to think about with a start-up system is where vehicles will be housed and maintained. Considerations of indoor versus outdoor parking when vehicles are out of service and where vehicle maintenance, vehicle cleaning, preventative maintenance must be made.

Safety Management and Training

Safety is always a prime consideration with any transit service. Continual training and evaluation of safety performance is critical to long term success of a system. Processes and procedures for safety management and training need to be made. Local resources with MCHRA and MTA as well as other systems nearby provide good sources for this.

Customer Service

There are many dimensions to customer service – from providing information on service, to resolving complaints, accepting commendations to providing feedback to those planning the service so issues can be resolved at their source. Providing an effective way for this important aspect of service is an important organizational and hiring decision.

Advertising and Public Relations

Small community transit systems must be fully integrated into the community to be effective. It is important for advertising and public relations activities to be an integral part of the transit management. Involving all groups in the community, understanding their needs and making sure that service is responsively provided to meet those needs will lead to successful service.

ADA Responsibilities

The Americans with Disabilities Act requires that comparable paratransit service be provided for those who cannot, because of their disability, use accessible fixed route

service. The service area for comparable paratransit service is $\frac{3}{4}$ mile either side of a fixed route. Offering flex route service, with $\frac{3}{4}$ miles either side of the route as the flex zone, can accomplish the aims of the ADA service with a single type of service. ADA also has requirements that will need to be followed with a public accommodation such as transit. All vehicles purchased must be accessible to people with disabilities.

Fare Collection

Policies regarding fare collection, maintaining controls over handling revenue and other safeguards also need to be developed to assure integrity of the revenue collection stream.

Financial Management and Reporting

Reporting systems need to be set up to collect financial and operating data for use in management as well as reporting to funding agencies. Having a good understanding of the requirements of reporting as well as the type of information that you will want for management of the system will allow effective systems and forms to be developed early on.

3 CONNECTION TO REGIONAL SERVICES

One of the interests at the outset of this study was to prepare for eventual commuter services connecting the Gallatin area to downtown Nashville. The Northeast Corridor project that is planned by the Nashville MPO will identify ways for this connection to take place. However, the resulting recommendations are still years away. In the mean time, we have identified a way to connect to existing regional services. There is already existing bus service that connects Hendersonville with downtown Nashville. Providing a connecting service from Gallatin to Hendersonville could serve as a short term solution for access to Nashville.

Existing Service between Nashville and Hendersonville

The Regional Transportation Authority (RTA) funds a Relax & Ride express service on weekdays between three park-and-ride lots in Hendersonville and downtown Nashville. The route is 35X Rivergate Express. The service has three inbound trips in the morning, one reverse outbound trip in the morning, three outbound trips in the afternoon and one reverse inbound trip in the afternoon. One of the a.m. inbound trips leaves from the New Shackle Island Park-n-Ride lot while a second trip leaves from the Hendersonville RTA Park-n-Ride lot on Imperial Boulevard off of Route 31E. The other inbound trip leaves from the Rivergate Park-n-Ride lot. The Shackle Island Park-n-Ride lot is closest to Gallatin with the Hendersonville RTA Park-n-Ride lot as second closest. All three outbound p.m. trips serve the Rivergate Park-n-Ride lot. Two of the trips continue to both the Hendersonville RTA Park-n-Ride lot and the New Shackle Island Park-n-Ride lot.

The Hendersonville Relax & Ride schedule is shown in Table 6.

TABLE 6: HENDERSONVILLE RELAX & RIDE SCHEDULE

WEEKDAYS TO DOWNTOWN NASHVILLE			
New Shackle Island Park-n-Ride	Hendersonville RTA Park-n-Ride	Rivergate Park-n-Ride	Deaderick & 5th Shelter A
6:05 AM	6:15 AM	6:25 AM	6:55 AM
---	---	6:50 AM	7:25 AM
---	6:57 AM	7:12 AM	7:45 AM
---	---	5:00 PM	5:35 PM

WEEKDAYS FROM DOWNTOWN NASHVILLE			
Deaderick & 5th Shelter A	Rivergate Park-n-Ride	Hendersonville RTA Park-n-Ride	New Shackle Island Park-n-Ride
6:17 AM	---	6:57 AM	---
4:30 PM	5:00 PM	---	---
4:42 PM	5:07 PM	5:29 PM	5:36 PM
5:25 PM	5:50 PM	6:16 PM	6:23 PM

Service Plan

This study recommends providing two trips in the morning and two trips in the evening to connect to the Relax & Ride service in Hendersonville at the New Shackle Island Park-n-Ride (except one a.m. trip would need to go to the Hendersonville RTA Park-n-Ride lot). The trips could operate as a flexible route with one or two designated stop locations and demand response pickup or drop off within a defined service area. Designated locations would likely include a park-and-ride lot. The schedule is shown in Table 7.

TABLE 7: HENDERSONVILLE CONNECTION SCHEDULE

HENDERSONVILLE CONNECTION		
Square	New Shackle Island Park-n-Ride	Square
5:40 AM	6:05 AM	---
6:32 AM	* 6:57 AM	---
---	5:36 PM	6:01 PM
---	6:23 PM	6:48 PM

*This trip would go to the Hendersonville RTA Park-n-Ride lot.

The second morning trip does create a conflict with the first scheduled east-west flex trip because it would not be able to return to the Square in time for a 7:00 a.m. departure. If service to Hendersonville is implemented, the portion of the trip between the Square and Volunteer State Community College could be eliminated. The bus returning from Hendersonville could arrive in time at Volunteer State Community College to become the inbound east-west route.

Operating Cost

The cost to operate the connection service to the Hendersonville Relax & Ride route would be \$50,000 annually. The cost sharing arrangement between the state and local sources would split this cost between TDOT and local sources in Gallatin. Coordination with the RTA might provide some additional resources for this service.

Capital Cost

Hendersonville Relax & Ride trips are scheduled to depart before 7:00 a.m. or after 5:00 p.m., which is before or after the recommended 10 hour service scheme for flexible route service within Gallatin. Since the vehicles would not be in use for local service within Gallatin, additional vehicles would not be required, resulting in no additional capital cost.

4 SUMMARY

The proposed flexible services aim to meet the transit demand from dependent riders. The initial services meet the most basic transportation needs and should be successful in attracting riders and building support for the provision of transit service. After the initial year, ridership should build and fare revenues should increase. An opportunity also exists to connect in Hendersonville to Relax & Ride service to downtown Nashville.