

2.0 INTRODUCTION

Tupelo is a community with a population of approximately 35,000 located in the northeast region of Mississippi, shown in **Figure 2-1**, and is the region's major employment center. During the daytime, the population of the city multiplies between two to three times. Assets of the community include a regional hospital, which employs approximately 4,600 people, and an active furniture manufacturing community. The City's employment base is presently expanding at a rate of approximately 1,000 jobs per year and mobility is an important issue in sustaining the local economy. Tupelo is also a thriving community that is important to the state's economy.

There are presently two rail lines that run through Tupelo. The first line is a Burlington Northern Santa Fe Railway (BNSF) main line that runs through the city in a northwest-southeast direction from Memphis, Tennessee to Birmingham, Alabama. BNSF operates approximately 20 to 25 trains per day through the city. The second line is a Kansas City Southern Railway (KCS) branch line that runs through in a north-south direction. KCS operates approximately 2 to 3 trains per day through the city. BNSF and KCS have an at-grade interchange near downtown Tupelo. There are approximately 16 at-grade highway/rail crossings in downtown Tupelo. These at-grade crossings create major congestion and highway traffic delays in the city.

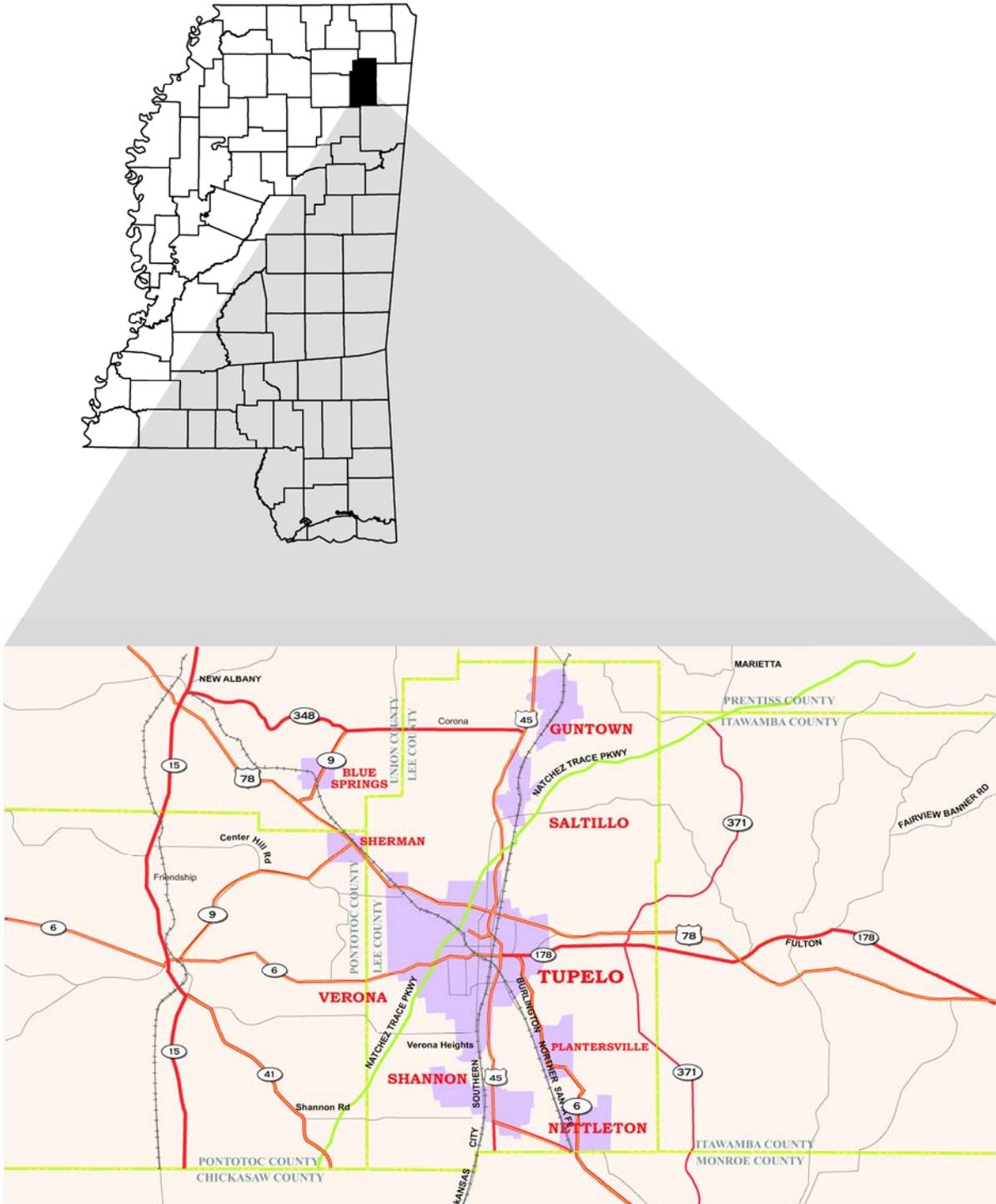


Traffic Congestion at Main Street and Gloster Street Caused by Rail Traffic

To determine the feasibility of relocating the existing rail lines through the City of Tupelo, a reconnaissance study, "Urban Rail Relocations Study," was completed in March 2002 by Wilbur Smith and Associates. The study concluded that rerouting the rail traffic was potentially viable. The intent of the Tupelo Railroad Relocation Planning and Environmental Study is to re-verify the feasibility of relocating the rail lines, develop other alternatives, determine a preferred alternative, advance the planning of the preferred alternative, and obtain an approved environmental document. The objective of the project will be an approved Environmental Impact Statement, which allows the project to proceed to the design

phase and ultimately to the construction phase. This feasibility study is the first phase of the process to obtain an approved environmental document.

**Figure 2-1
 Location Map**



2.1 PURPOSE

This feasibility analysis is the first step in determining the alternative which would aid in increasing the transportation mobility and enhance economic development opportunities for the Tupelo area. The alternatives could include operational improvements to the existing rail lines, the addition of grade separations along the existing rail lines, the construction of a new railroad corridor, and/or a combination of these alternatives.

This study will identify existing and proposed conditions of the study area, shown in **Figure 2-2** and evaluate alternatives that are sensitive to the area's natural and human environment while providing positive benefits to the City of Tupelo and the railroads.

2.1.1 Data Collection

To adequately support the feasibility study, extensive data were collected. Relevant studies and newspaper articles were also collected and are further described in **Section 3**. The data collection activities are described in **Section 4** of this report. The following are brief summaries of the key items that were collected.

Aerial Mapping

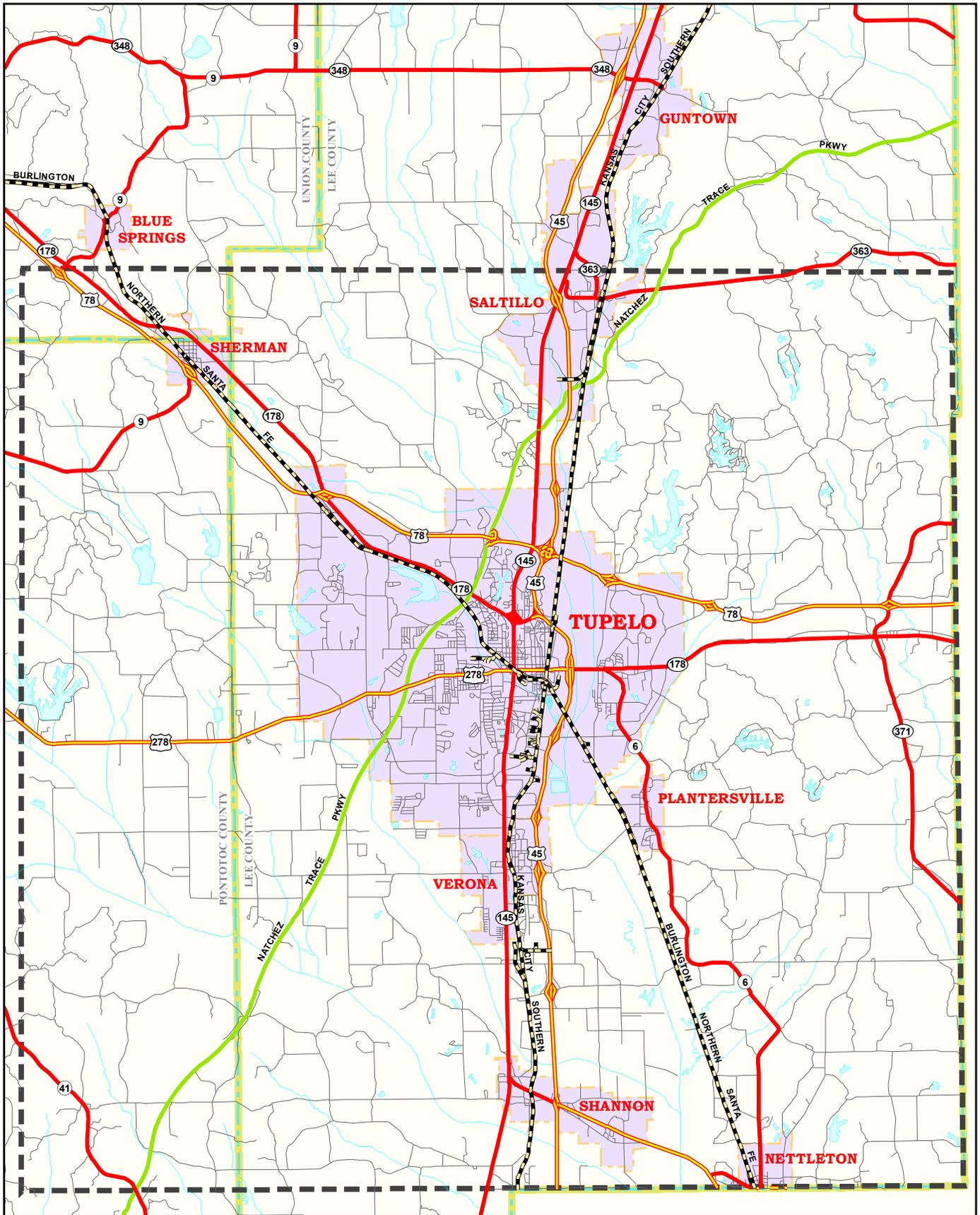
To determine the potential relocation alignments around the City of Tupelo, aerial mapping circa 2004 was obtained from the Mississippi Department of Transportation (MDOT) for the study area including Lee, Pontotoc, and Union Counties. The aerial images were used as base maps for the alternatives development.

Geographic Information System (GIS) Data

Available Geographic Information System (GIS) data were obtained from the Mississippi Automated Resource Information System (MARIS) Technical Center. All data from the MARIS Technical Center is in metric units. Additional data was incorporated within the GIS database based upon limited field verification. The GIS data were used to identify probable impacts on the community for the various alternatives developed. Information regarding natural features, biological features, cultural features, and community services were included in the GIS database.

The natural and biological features datasets include:

- Federal Emergency Management Agency (FEMA) Floodplain;
- Environmentally sensitive areas;
- Topography (Digital Elevations Model);
- Environmental Resources (Endangered Species & Habitat);
- Soil Conditions; and
- National Wetlands Inventory (NWI).



Map Legend	
	Prim. Road
	Sec. Road
	Road
	Study Area
	Cities
	Lakes
	Rivers
	Co. Boundary
	Railroad
	US Highway
	State Highway
	N'tnl Parkway

Tupelo Railroad Relocation Planning and Environmental Study

Study Area

Figure 2-2

Miles

0 1 2 3

The cultural and community services datasets include:

- Archaeological / Historic Sites;
- Hazardous Material Locations;
- State parks and recreation lands;
- Population density;
- Land Use;
- Utility Line Corridors (ULC); and
- Public Structures including schools, recreational facilities, public water supply, and hospitals, etc.

The City of Tupelo provided individual parcel information in GIS format within the city limits of Tupelo and portions of Lee County. All of this information was combined to provide the base mapping for the alternative alignments and to facilitate evaluation of each alignment. Data were collected containing parcel values, which was used to determine land value costs in the study area.

Development Research

Development research was completed during field reviews of the potential rail alignments. This research ensured that the corridors deemed feasible would avoid significant impacts to new developments and adequately assess the impacts to natural and cultural constraints where the alignment could not be modified.

Accident Data

Accident data were collected from the Federal Railroad Administration (FRA) databases for train accidents within the railroad right-of-way, as well as for at-grade crossing accidents. Fatality and casualty information was collected for both types of accidents.

Train Movements

With data provided from BNSF and KCS, train movements were collected for the respective corridors. These include train volumes, times of operation, and customer usage data.

Existing Track Conditions

The existing track conditions have been documented and the physical plant has been identified for BNSF and KCS rail lines. The collected information includes yard locations, number of tracks, siding locations, rail type, rail age, track geometry (horizontal and vertical), right-of-way width and operating speeds. All at-grade crossings and grade-separations for each rail line have been collected and documented.

Previous Study

The previous study by Wilbur Smith and Associates titled “Urban Rail Relocations” dated March 2002 was obtained and reviewed. The assumptions, potential corridors and conclusions were reviewed for the study.

2.1.2 Rail Traffic Analysis

The existing and future rail traffic volumes were analyzed to determine the impacts to automobile traffic and potential delay at crossings. BNSF and KCS rail lines were evaluated for both the existing and future traffic volumes within the study area. This analysis is described in detail in **Section 6**.

2.1.3 Traffic Delay Analysis

The traffic delay analysis focuses on the potential traffic and transportation concerns related to the relocation of BNSF and KCS rail lines. The traffic delay study is limited to the at-grade crossings within the immediate area in Tupelo along BNSF and KCS rail lines. A total of sixteen (16) at-grade crossings were analyzed within the study area along both rail lines. BNSF line crossings at Lumpkin Ave., W. Jackson St., Blair St., W. Jefferson St., N. Park St., N. Gloster St., W. Main St., S. Church St., S. Green St., S. Spring St., E. Elizabeth St., and E. Eason Blvd; and the KCS line crossings at E. Jefferson St., E. Main St., W. Elizabeth St., and W. Eason Blvd were the locations which were studied.. The study requires quantification of the delay both in time and costs incurred due to the at-grade crossings. The analysis is described in detail in **Section 7**.

2.1.4 Operational Improvements

The railroad operations were examined for potential improvements to reduce the auto traffic delay at the various at-grade crossings with a particular focus on the Main Street and Gloster crossing known as “Crosstown.” One proposed operational improvement analyzed was to move the interchange of BNSF and KCS to the southeast of its present location. Additional siding improvements and modifications to the roadway network through downtown Tupelo were examined.

2.1.5 In Town Alternative

Improvements along the existing BNSF line in Tupelo were analyzed for upgrades and/or improvements to both the railroad and roadway. The purpose of this alternative is to improve the operating speed of rail traffic and reduce auto traffic delay along its existing route through Tupelo. The Crosstown intersection was identified as a primary location for the opportunity to improve safety and mobility by eliminating the conflicts between trains and vehicular traffic by grade separating the intersection. Several alternative concepts were developed for the intersection and are described in **Section 8**.

2.1.6 Alternative Alignments

Five (5) new rail corridors were developed for consideration as rail bypass alternatives. These corridors were created using GIS data, corridor widths, and alignment constraints, etc. This analysis is described in detail in **Section 8**. The section describes the results of this analysis, and drawings for the rail alignments for the corridors have also been completed.

A preliminary operating analysis was completed for each of the alternative alignments to identify additional costs associated with the increased/decreased operating units which BNSF and KCS will experience.

A construction cost estimate was prepared for the alternative alignments. These costs included generalized construction, operating, design, right-of-way, and grade-separations at major roadways. Construction costs were developed using historical cost data from railroads and MDOT. Right-of-way acquisition costs were estimated using average cost per acre for rural and suburban land areas determined using the GIS data, plus an adjustment for acquisition costs.

2.2 ADDITIONAL CONSIDERATIONS

The Feasibility Study of the Tupelo Railroad Relocation Planning and Environmental Study examined several alternatives to alleviate roadway congestion caused by rail traffic around the Tupelo area. The following efforts were not included in the feasibility study.

1. Analyze the composition of BNSF and KCS existing traffic to determine the exact volume and type of trains which could potentially affect roadway traffic delays.
2. Examine shifting all freight trains from the existing railroad line to an alternative alignment. Existing railroad customers would have to relocate to a new location or find other means for the delivery and distribution of goods.
3. Make a recommendation of a specific rerouting alternative that should move forward. The rerouting decision should be made jointly by the railroads, MDOT, Federal Railroad Administration (FRA), and local communities and will require negotiations with BNSF and KCS. This feasibility study determined the logistics and estimated costs for each alternative.