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DRAFT ENVIRONMENTAL ASSESSMENT

**GALLATIN FOSSIL PLANT RAIL COAL UNLOADING AND
BLENDING FACILITY**
Sumner County, Tennessee

TENNESSEE VALLEY AUTHORITY

JUNE 2005

Direct Comments to:

David Robinson
Tennessee Valley Authority
1101 Market Street MR 2T
Chattanooga TN, 37402
Phone: (423) 751-2502
Fax: (423) 751-3230
e-mail: dwrobins@tva.gov

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Draft Environmental Assessment

June 2005

Proposed project: Gallatin Fossil Plant Rail Coal Unloading and Blending Facility
Sumner County, Tennessee

Lead agency: Tennessee Valley Authority

**For further information,
contact:**

David Robinson
Senior NEPA Specialist
Tennessee Valley Authority
1101 Market Street, MR 2T
Chattanooga, TN 37402
Phone: (423) 751-2502
Fax: (423) 751-3230
e-mail: dwrobins@tva.gov

**Comments must be
submitted by**

June 27, 2005

Abstract: The Tennessee Valley Authority (TVA) has prepared a Draft Environmental Assessment (DEA) for a proposal to reactivate the rail coal delivery system and install coal-blending capabilities at the Gallatin Fossil Plant (GAF). The proposed project would realize substantial savings to TVA in fuel delivery costs. This DEA considers the impacts of the Action Alternative and the No Action Alternative.

Issues and areas identified in scoping of potential environmental impacts and subsequently analyzed in the DEA were socioeconomic (traffic delays; environmental justice, waterway commercial traffic and visual resources); noise; safety; air resources; water resources; terrestrial ecology; aquatic life; endangered, threatened, and rare (protected) species; wetlands; visual resources; and cultural resources.

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CHAPTER 1

1. PURPOSE OF AND NEED FOR ACTION

1.1. The Decision

As part of continuing efforts to provide low-cost and reliable power, the Tennessee Valley Authority (TVA) is proposing to restart the delivery of coal to the Gallatin Fossil Plant (GAF) by rail instead of the current method of delivery by river barge. Substantial savings in fuel delivery costs can be achieved by switching to rail delivery. This project would help TVA meet its goal of supplying low cost reliable power and assist in accomplishing the strategic objective of reducing TVA's delivered cost of power.

1.2. Background

Prior to 1997, GAF primarily received coal by rail. Starting in 1997, a barge unloading facility was completed, and since that time, the plant has not received coal by rail. The barge facility was constructed as the most economical means of delivery for the new low sulfur coal GAF needed to meet Clean Air Act requirements. Currently, two different low sulfur coals are delivered by rail to a barge terminal located on the Mississippi River where the coals are blended and loaded into barges for delivery to GAF. Since rail delivery of these coals originates in the west, the rail infrastructure could not support the delivery of high volumes of coal east of the Mississippi River to GAF. However, responding to changing market conditions, CSX Railroad has recently approached TVA with an offer to deliver all of GAF's coal by rail. Substantial cost savings could be realized by TVA switching from barge to rail delivery as a result of reduced handling of the coal. Under the proposal, TVA would have to install its own blending capacity at the plant.

1.3. Other Pertinent Environmental Reviews or Documentation

The environmental review performed for the facility modifications that were needed when TVA switched from rail to barge delivery of coal in 1997:

Final Environmental Assessment (File No. 54,331) Proposed Coal Unloading Terminal and Mooring Facilities between Miles 241.1 and 241.7, Right Bank, Cumberland River, Gallatin Fossil Plant, Sumner County, Tennessee: Tennessee Valley Authority, U.S. Army Corps of Engineers, March 1996

1.4. The Scoping Process

TVA's scoping and analyses for this proposed action of the Draft Environmental Assessment (DEA) identified potential socioeconomic and noise impacts in and around the city of Gallatin. The DEA assesses these socioeconomic and noise impacts, as well as other impacts. TVA is inviting comment from the public on the assessment of the impacts of the alternatives. The period for public comments is open until June 27, 2005. A public meeting to receive comments will be held on June 21, 2005, from 5:00 to 8:00 p.m. at the Gallatin City Hall basement, 132 West Main Street, Gallatin, Tennessee 37066. Prior to finalizing the DEA and making a decision, TVA will give careful consideration to the comments received from other agencies and the public.

Gallatin Fossil Plant Rail Coal Unloading and Blending Facility

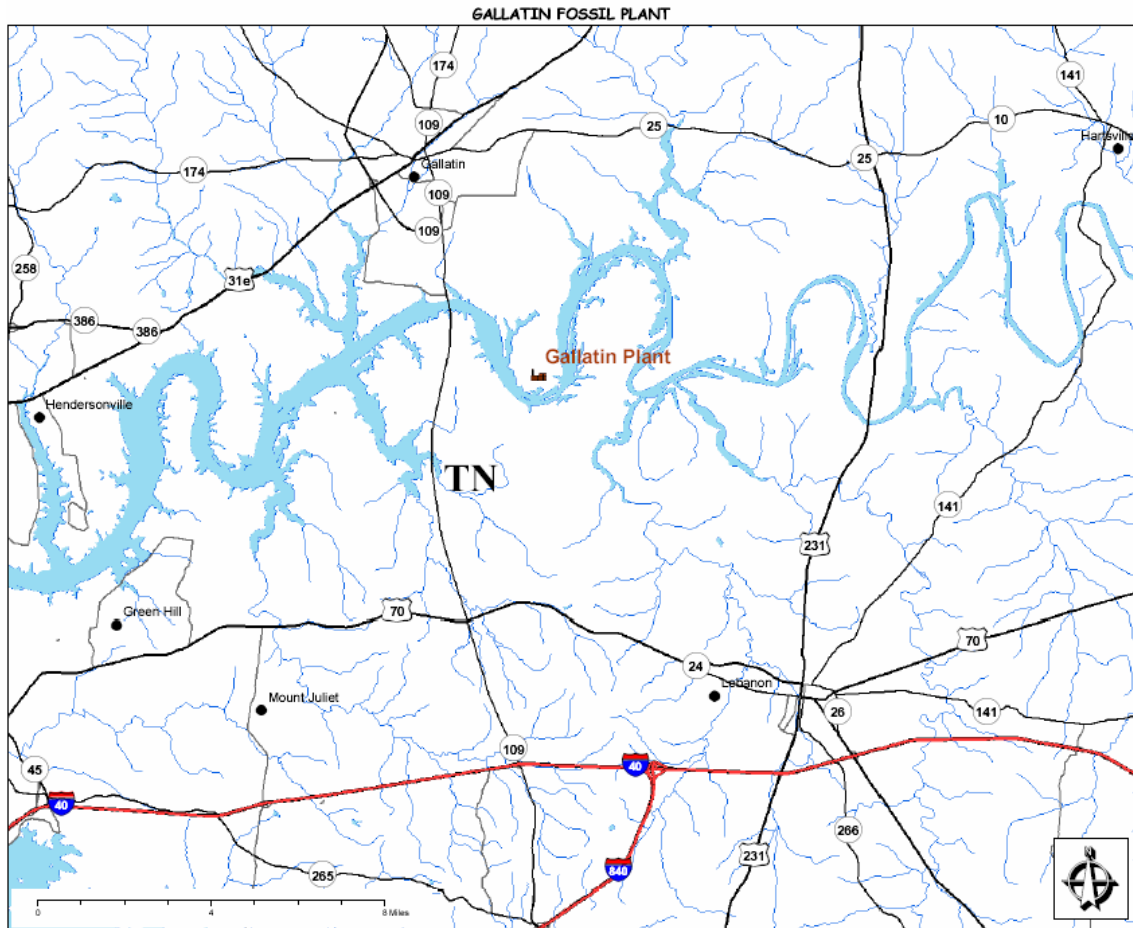


Figure 1-1. Gallatin Fossil Plant Area Map

CHAPTER 2

2. ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.1. Alternatives

TVA is considering two alternatives: the No Action Alternative (Continue Barge Delivery of Coal) and the proposed Action Alternative (Reactivate Rail Coal Delivery and Install Coal-Blending Capabilities).

2.1.1. Alternative A – The No Action Alternative – Continue Barge Delivery of Coal

Under the No Action Alternative, TVA would continue to receive coal by barge at GAF and the existing rail delivery system would not be upgraded, and the coal blending capabilities would not be installed.

2.1.2. Alternative B – Proposed Action - Reactivate the Rail Coal Delivery System and Install Coal-Blending Capabilities

Existing Equipment and Operation

For rail deliveries, the existing coal unloading system includes a single car rotary dumper and an adjacent bottom dump delivery system feeding the same hoppers. Both have been out of service for over 8 years.

In the present configuration, as depicted in Figure 2-1 the coal is transferred from the rotary dumper via two hoppers and vibrating feeders to a belt conveyor. From there, it continues through the breakers that properly size the coal for transfer to another conveyor. The coal is then routed to an existing stocking-out conveyor and deposited in the coal yard. All features have a delivery rate of approximately 1,400 tons per hour (TPH) that eventually feed directly to the four-unit plant.

An existing barge unloader located at Cumberland River Mile 241.5 presently delivers preblended coal in various ratios to the coal stockpile area. This facility would remain in place and could be utilized if necessary.

Proposed New Facility

The physical additions and alterations to GAF for the proposed action include the installation of a new rapid discharge rail coal unloading and blending facility; modifications to approximately 8 miles of the existing rail spur line; rail unloading and conveying structures; new coal conditioning equipment; expansion of the stockout machinery; the additions of new coal blending and reclaim mechanisms; and all associated accessories to ensure the facility would operate as specified. A conceptual sketch in Figure 2-2 depicts what this new facility would encompass.

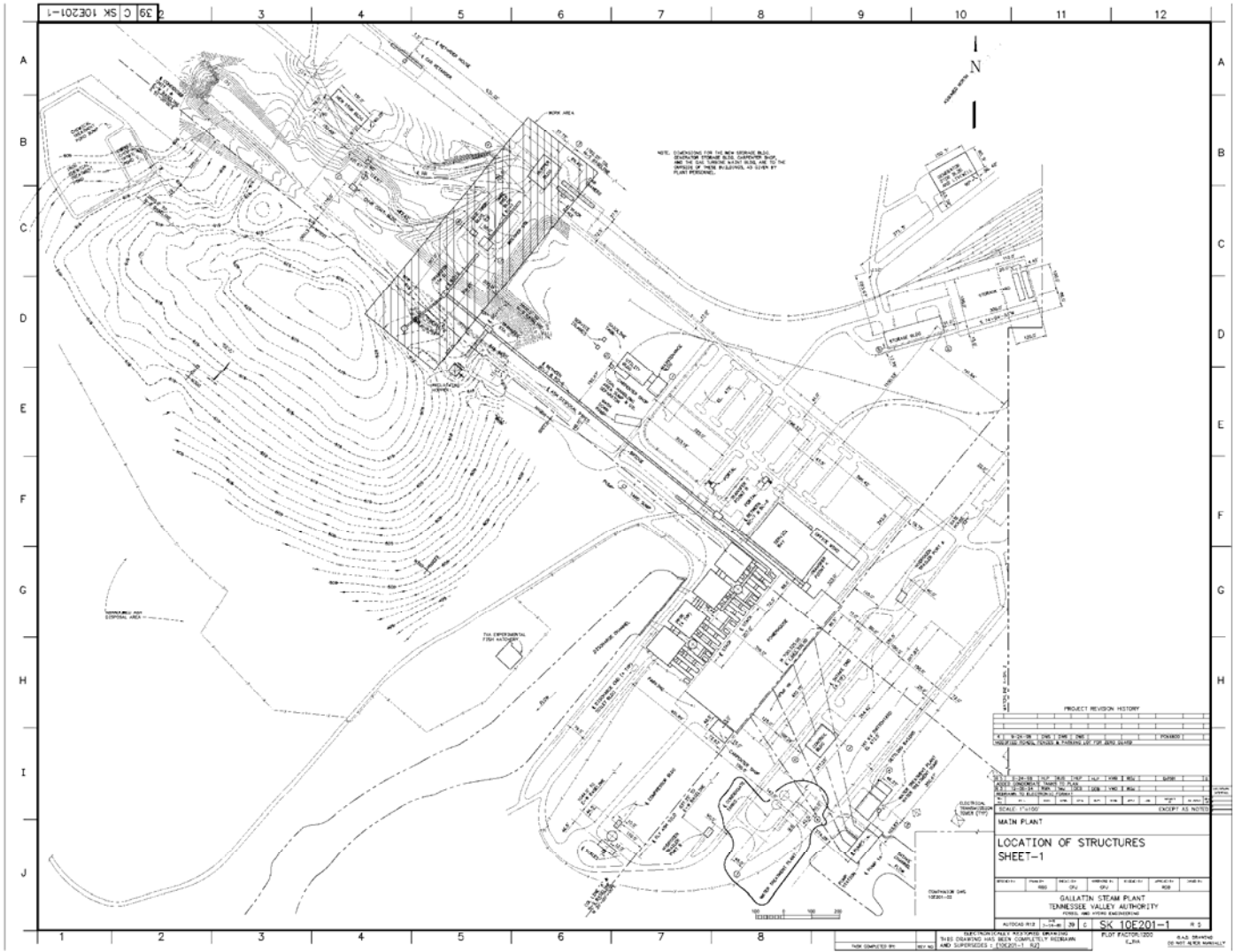


Figure 2-1. Location of Structures

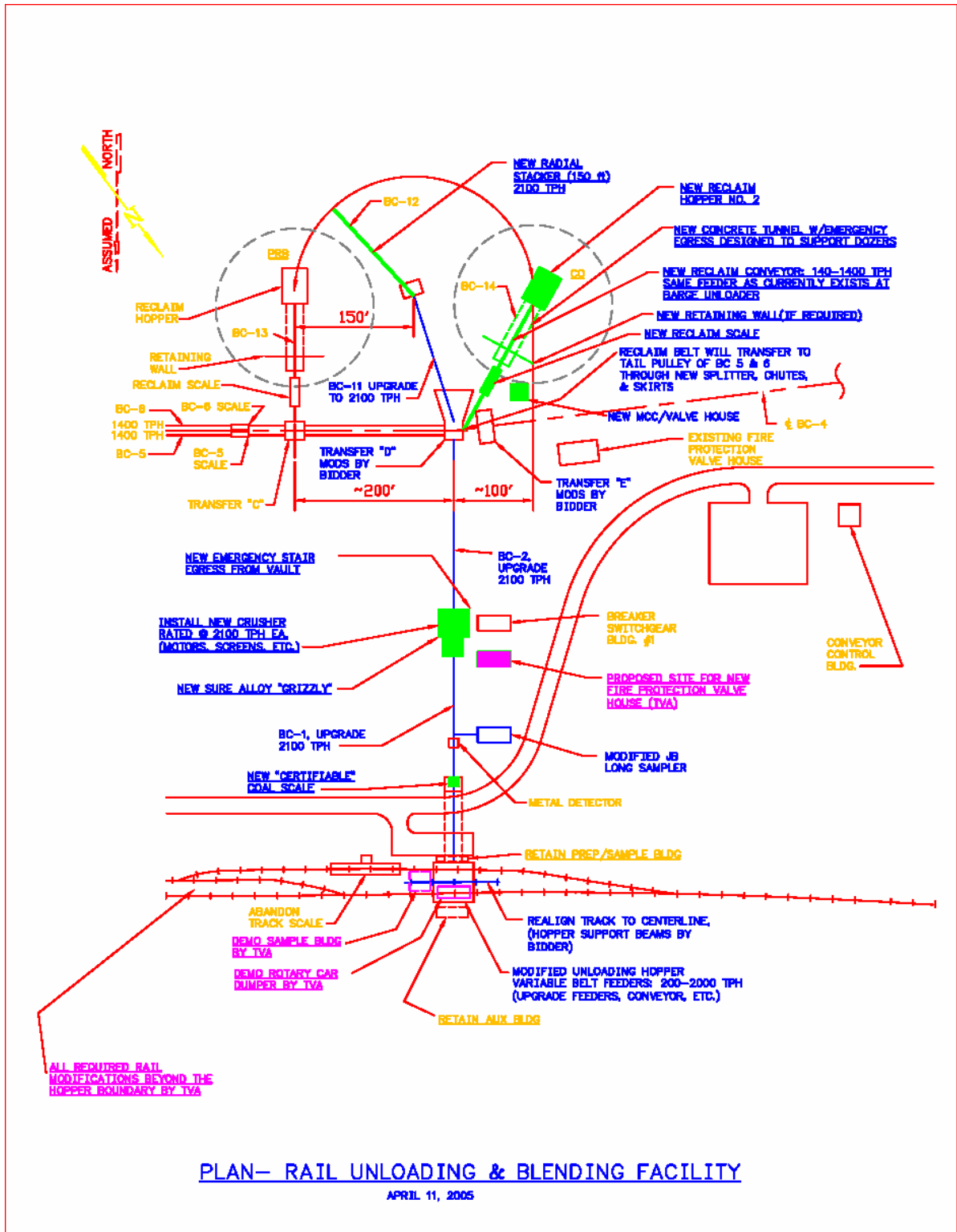


Figure 2-2. Proposed Rail Unloading and Blending Facility

Performance requirements for the systems Include:

- The new systems would be capable of unloading, delivering, and blending an uninterrupted supply of coal.
- The facility would be capable of continuous operation to receive, blend, and reclaim coal from the rail unloading facility 24 hours per day, 7 days per week with an allowance of 14 days per year for scheduled maintenance activities.
- The new system would be capable of unloading a 135-car unit train in 10 hours or less. The system should be designed to achieve a minimum unloading and take away rate of 2,100 TPH.
- The new system would provide blending and reclaim capability for two different coals totaling 1,400 TPH.
- Service Life would be a minimum of 10 years from startup.
- The unloading and reclaim systems would remain fully functional over an ambient outdoor temperature range from –15 degrees Fahrenheit (°F) to 110°F.
- The new system would provide a new crusher for the coal.
- The new system would be capable of providing a blend ratio of 10-100 percent for the two coals.
- Dust control would be provided at the unloading hoppers, all transfer points, and crusher building. The dust control would be designed such that conditions do not exceed 1/8-inch accumulation on surrounding surfaces per 24-hour period.

Rail Line Improvements

GAF has not received coal via rail for the last 8 years. The proposed action includes upgrade and repair of the railroad spur to allow GAF once again to receive coal via railroad. The GAF railroad lead track extends from the turnout at the CSX Transportation line through the interchange yard and runs parallel to the plant access highway to the turnout at the loaded (receiving) yard at the north end of the plant reservation (Figure 2-3).

The lead track extends through the loaded yard and unloaded yard and connects to the west side of the turnout located at north end of the loaded yard, thus forming the GAF railroad loop.

The GAF railroad lead track would be repaired and upgraded from the CSX switch to the GAF North loop switch by repairing a stripped joint on the lead track in the interchange yard, replacing decaying ties as needed for safe train operation, installing ballast, replacing and tightening bolts, and replacing missing or loose spikes. All replaced crossties would be recycled as appropriate or disposed of in an approved landfill.

The asphalt road crossing at California Industrial Products would be replaced. The crossing timbers and asphalt would be removed. The crossties would be inspected and replaced if needed; new crossing timbers and asphalt would be installed. Four 15-foot-wide unpaved road crossings would be paved.

The signals at four existing road crossings would be inspected and repaired. The insulated track gage rods near the Airport Road crossing would be replaced. Four unpaved 15-foot-wide private road crossings would be paved.

The track is presently completely overgrown in several areas. The entire lead track would be sprayed for vegetation control with a nonregulated, registered herbicide. Brush would be cut at road crossing and along the railroad right-of way as indicated in Figure 2-3. Brush would be cut on both sides of the track. The clearing would start at the intersection of the road crossing with the centerline of the track and continue for a distance of 500 feet in both directions from the intersection. The width of brush cutting would be 30 feet on either side of the track center line. Private road crossings are to be cleared a maximum of 30 feet in each direction or to the right-of-way. All brush would be cut to within 10 inches of the ground. The disposal of brush would be by chipper, or by hauling the brush off site. Brush would not be disposed of in any manner that would impair natural drainage.

A new access road would be constructed near the north switch of the loop to allow access to the railroad loop interior when a train blocks the existing crossing. See Figure 2-4 for the new access road location. An electric motor would operate sliding gates and a card reader would be installed at the entrance to the access road.

In the unloader yard, 2,700 track feet of track (subgrade and ties) would be removed so the track bed can be raised 5 feet. Crossties not suited for reuse would be sent to the salvage area. The track would be raised as depicted in Figure 2-4 using rock fill obtained from an existing quarry or soil from previously approved on-site areas.

A new road crossing and access road would be installed to replace the ones removed to raise the track 5 feet as depicted in Figure 2-4. Drainage ditches would be installed to direct storm water from the interior of the loop to a new 60-inch diameter storm drain pipe. Railroad construction would conform to the American Railway Engineering Association's Manual for Railway Engineering and CSX construction specification on track spike pattern requirement for curved track construction.

Delivery of Coal

Coal delivery averages about 135 cars per unit train for Powder River Basin coal and 105 cars per unit train for Colorado coal. Based upon information provided by CSX, the time of the day during which deliveries are made are anticipated to vary randomly. Coal deliveries would be made approximately five times a week, with a unit train going to and leaving the plant. It is expected that the unit trains will be at the GAF site for a 12-hour period before leaving. This includes 10 hours to unload the coal and 2 more hours for inspections. When rail delivery was last used in 1996, an average of just over seven trains per week, with 90 cars per train, came through Gallatin to make coal deliveries. In 1996, the majority of the trains making coal deliveries arrived by 7:00 a.m. and departed in the midafternoon, creating a higher probability of the trains arriving and departing during peak hour periods than under the random delivery schedule of the proposed action. This random nature of train arrivals, together with longer unit trains and fewer weekly deliveries, would mitigate some of the delays experienced by drivers in the Gallatin area.

Logistics of proposed coal deliveries by rail for GAF are as follows: CSX will transport unit trains directly to Gallatin over the Amqui line railroad spur and loop track. The unit train will have distributed power (not all engines at one end of the train). The unit train will proceed north, just past Cobbs Lane, until it can stop without blocking any at-grade road crossings.

The unit train will stop and the crew will go to the rear engine to change directions. This direction change is mandatory due to the track geometry of the C&N line that connects the CSX Amqui line with the GAF track and will take place in 30 to 45 minutes, with no delay to traffic. When coal was last received by rail at GAF, this direction change took approximately 45 to 60 minutes without a traffic delay. This difference in time was due to the train only having locomotives on the front of the unit train. The engines had to be unhooked and relocated to the rear, which took a substantially longer time than just relocating the locomotive crew. The train will proceed through Gallatin both to and from the plant with distributed power. The train will then will proceed north towards Bowling Green, Kentucky. When the loaded trains in 1996 made the switch to the plant rail line, the unit train blocked the intersection at US 31E for an additional 4 to 6 minutes due to the switching process. Present day trains will not present this problem, due to remote switching capabilities. The locomotive configuration and the switch upgrades are methods of mitigating traffic impacts that would enable CSX to maintain train speed straight through the switches on to GAF and help minimize the impact on traffic for the residents of Gallatin.

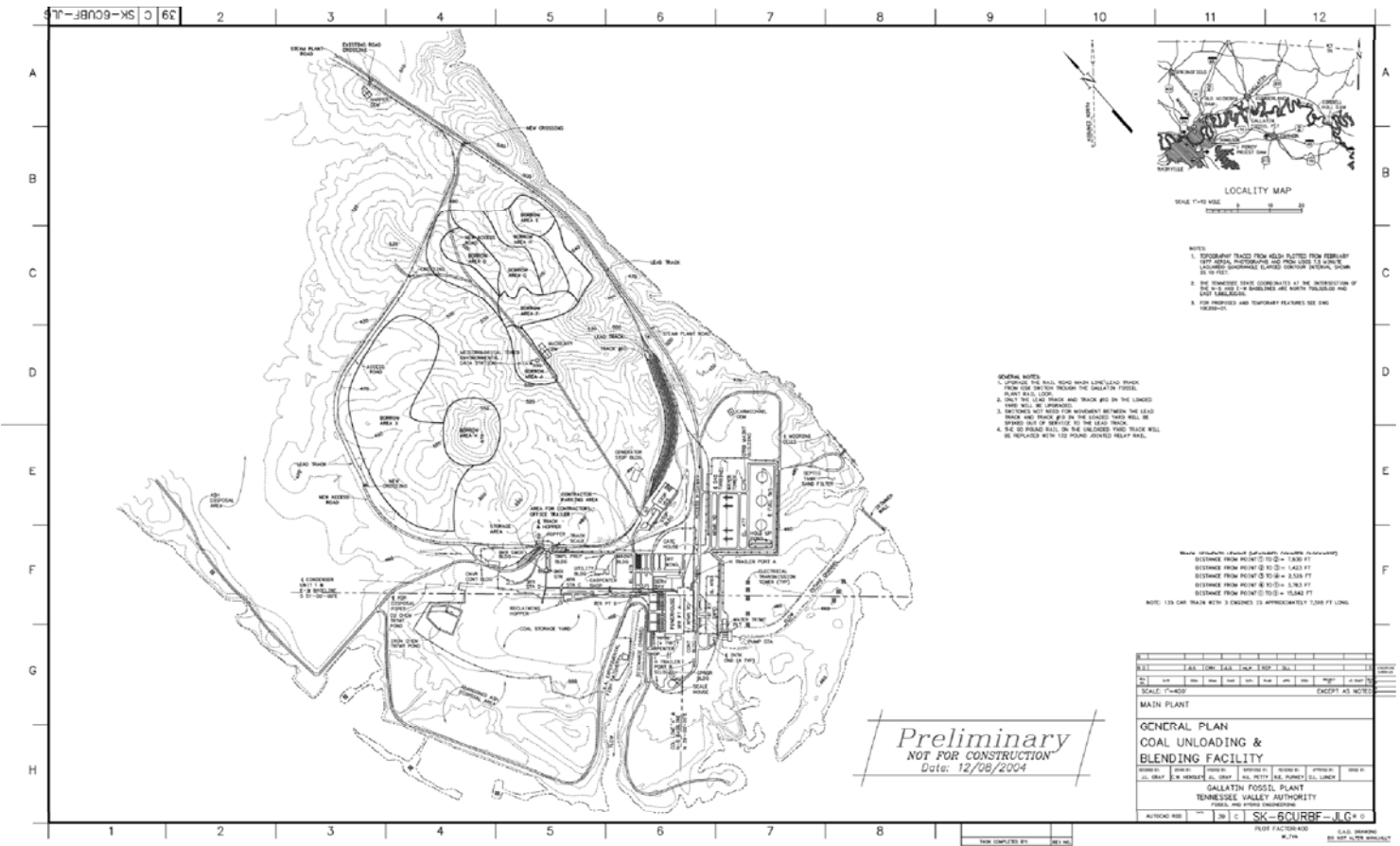


Figure 2-4. Coal Unloading and Blending Facility General Plan

2.2. Comparison of Alternatives

See Table 2-1 for a comparison of alternatives.

Table 2-1. Summary and Comparison of Alternatives by Resource Area

Issue Area	Impacts From No Action Alternative	Impacts From Proposed Action Alternative
Socioeconomics		
Income and Employment	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Small positive benefit to area
Traffic Delays	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Since no rail deliveries of coal have occurred in the last 8 years, compared to current conditions, incrementally greater traffic delays and reduction in LOS would be experienced due to reinstating coal deliveries at GAF. • The predominantly off-peak deliveries (83 percent of the time) would be anticipated to have substantially less impact on traffic delays than those for on-peak deliveries (17 percent of the time) • Proposed reinstatement of coal delivery to GAF would have substantively less severe effects on traffic delays than those experienced for deliveries prior to 1997
Waterway Commercial Traffic	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Decreased lock usage at Old Hickory Dam
Environmental Justice	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Residents around and just north of West Eastland would experience incrementally greatest impacts
Noise	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Insignificant effects from operation of the rail unloader to residences within 1 mile of the unloading facility • Noise from trains delivering coal would be approximately 73 dBA 150 feet from the track, and whistle noise at road crossings would be up to 95 dBA at 150 feet. Without the proposed mitigation, these noise levels could cause sleep disruption for nearby residences along Steam Plant Road during nighttime deliveries between 10:00 p.m. and 7:00 a.m.
Safety	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • The potential risk from reinstating rail delivery of coal is estimated to be one car/train accident every 50 years and one casualty in 124 years

Issue Area	Impacts From No Action Alternative	Impacts From Proposed Action Alternative
		<ul style="list-style-type: none"> • Elimination of barge delivery and unloading activities would reduce or eliminate the risk level for death or injury to employees involved in undertaking those activities
Air Quality	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • A minor increase in automobile emissions from idling vehicles at rail crossings
Surface Water	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Insignificant impacts by complying with an approved Storm Water Construction Permit
Terrestrial Ecology	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None
Aquatic Life	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None
Protected Species	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None
Wetlands	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None
Visual Resources	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None
Cultural Resources	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None

2.3. The Preferred Alternative

TVA's preferred alternative is the proposed action, Alternative B - Reactivate the Rail Coal Delivery System and Install Coal-Blending Capabilities.

2.4. Environmental Permits and Applicable Regulations

- An Air Construction Permit would be required from the Tennessee Department of Environment and Conservation (TDEC).
- Coverage under the Construction Storm Water Permit would be obtained from TDEC to ensure all construction related activities comply with applicable regulatory requirements.
- A Title V air permit application would be submitted to the state within 1 year of operations.

CHAPTER 3

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1. Socioeconomics

3.1.1. *Affected Environment*

3.1.1.1. Income and Employment

GAF is located in the southern part of Sumner County, Tennessee, along the north shore of the Cumberland River. Sumner County, located northeast of Nashville, is a rapidly growing part of the greater Nashville area. The largest city in the county is Hendersonville, with a population of 40,620 in 2000; it is located in the southwest corner of the county near Nashville. Gallatin, located near the plant site, is the second-largest city in Sumner County with a population of 23,230 in 2000. Several smaller places are located around the county. The labor market area for GAF is defined to include all adjacent counties and nearby Smith County; this includes two counties in Kentucky and also includes Davidson County (Nashville) and four other counties in Tennessee, as well as Sumner County.

Population—According to the 2000 Census of Population, the population of Sumner County at that time was 130,449, an increase of 26.3 percent from the 1990 population of 103,281. This growth was much faster than the state (16.7) and the nation (13.2). Estimates by the U. S. Census Bureau for 2004 show an increase since 2000 of 8.6 percent, to a population of 141,611; again this was faster than the state (3.7) and the nation (4.3). The labor market area grew much more slowly than did Sumner County, at 17.0 percent from 1990 to 2000 and 3.3 percent from 2000 to 2004, similar to the state growth rates.

Income and Employment—Per capita personal income in Sumner County in 2003 was \$28,544, just short of the state average of \$28,641 and almost 91 percent of the national average of \$31,472. The level in the labor market area as a whole was much higher, \$33,951, close to 119 percent of the state average and almost 108 percent of the national average. There is considerable variability among the counties in the labor market area, ranging from \$21,146 in Trousdale County, east of the site, to \$38,056 in Davidson County, southwest of the site.

Sumner County has a larger share of its workers, 4.6 percent, employed in farming than the state average of 3.0 percent. This, however, is lower than in any of the other counties in the labor market area except Davidson County. Manufacturing is also more important than the state average, with 15.4 percent of Sumner County workers employed in manufacturing, compared to the state average of 12.2 percent. Three of the counties in the labor market area have smaller shares than the state in manufacturing. Sumner County has a higher share of its workers in government, 13.7 percent, than does any other county in the labor market area or the state as a whole (12.5 percent).

Manufacturing accounted for 25.3 percent of total earnings in Sumner County in 2003, higher than the state (18.1 percent) and the nation (13.4 percent). In the labor market area, due largely to Davidson County, only 12.5 percent of total earnings were from manufacturing. Farming in Sumner County and in the labor market area had small earnings

losses for the year; however, farming normally accounts for only a very small share of earnings, less than one-tenth of 1 percent of total earnings in the county and in the labor market area. Government earnings accounted for 13.7 percent of the total in Sumner County, similar to the state, 13.9 percent. The government share was slightly lower in the labor market area, 11.0 percent.

With a civilian labor force of 73,590 in 2004, Sumner County had an unemployment rate of 4.2 percent, below the rate in the labor market area (4.5), the state (5.4), and the nation (5.5). The rate in Sumner County was the lowest among the counties in the labor market area.

3.1.1.2. Traffic Delays

GAF is currently accessible by highway, railway, and waterway (barge) modes of transportation. The plant is located in Sumner County, Tennessee, near the city of Gallatin, approximately 25 miles northeast of Nashville, Tennessee. The nearest interstates are I-40, I-65, and I-24. GAF is accessible from U.S. Highway (US) 31E, TN State Route (SR) 25, and SR 109. US 31E runs northeast from Nashville to Gallatin, SR 25 runs generally in a west to east direction through Gallatin, and SR 109 runs north to south from I-40 to Gallatin. SR 109 Bypass goes around the city of Gallatin to the west, intersecting US 31E and SR 25. SR 109 Bypass connects with Airport Road at the SR 109 intersection, south of the city of Gallatin. Traffic on Airport Road currently consists of a large number of trucks due to a bulk mail facility that is located directly north of the Gallatin Municipal Airport. The highways are rural roadways with good shoulder width, alignment, and speed limits. Portions of the existing transportation in and around Gallatin are shown in Figure 3-1.

From US 31E, GAF access is either from (a) SR 109 Bypass to Airport Road to Steam Plant Road, (b) SR 109 Bypass to SR 109 to Odoms Bend Road to Steam Plant Road, or (c) SR 25 to Steam Plant Road. From SR 25, access is either (a) directly by Steam Plant Road, (b) from SR 109 Bypass to Airport Road to Steam Plant Road, or (c) from SR 109 Bypass to SR 109 to Odoms Bend Road to Steam Plant Road. Plant access from SR 109 is via Odoms Bend Road, which intersects Steam Plant Road just north of the plant site.

CSX operates a mainline rail, the Amqui line, northwest of the plant. This line runs northeast from Amqui to Trousdale, Tennessee. From Gallatin, a short 1.5-mile C&N line runs east to the TVA plant rail. From this point, the GAF railroad spur runs south, parallel to Steam Plant Road for 4.5 miles to the turnout at the loaded (receiving) yard at the north end of the plant reservation. GAF has a 3-mile loop track at the plant. The following highways and roads have at-grade intersections with the railroad in and around Gallatin: US 31E, SR 25 (two intersections), SR 109, Airport Road, Odoms Bend Road, West Gray Street, West Eastland Street, and Newton Lane. There are two viaducts and one overpass that cross over the rail lines. These are at South Westland Street, at North Water Avenue (Old SR 109), and at the SR 109 Bypass just north of US 31E, respectively. All of these intersections are two-way, two-lane roads with the exception of US 31E, which is a multi-lane highway. The city of Gallatin is home to approximately thirteen schools, one community college, and one regional medical center. The Sumner County Regional Medical Center is located at the intersection of Steam Plant Road and SR 25. There is an emergency medical service (EMS) station that houses ambulances on South Water Avenue (SR 109). The Gallatin City Fire Department has a station located on Main Street (SR 25) near the SR 109 intersection and is constructing a new fire station on West Eastland Street, which should be operational in the summer/fall of 2005.

GALLATIN TRANSPORTATION NETWORK

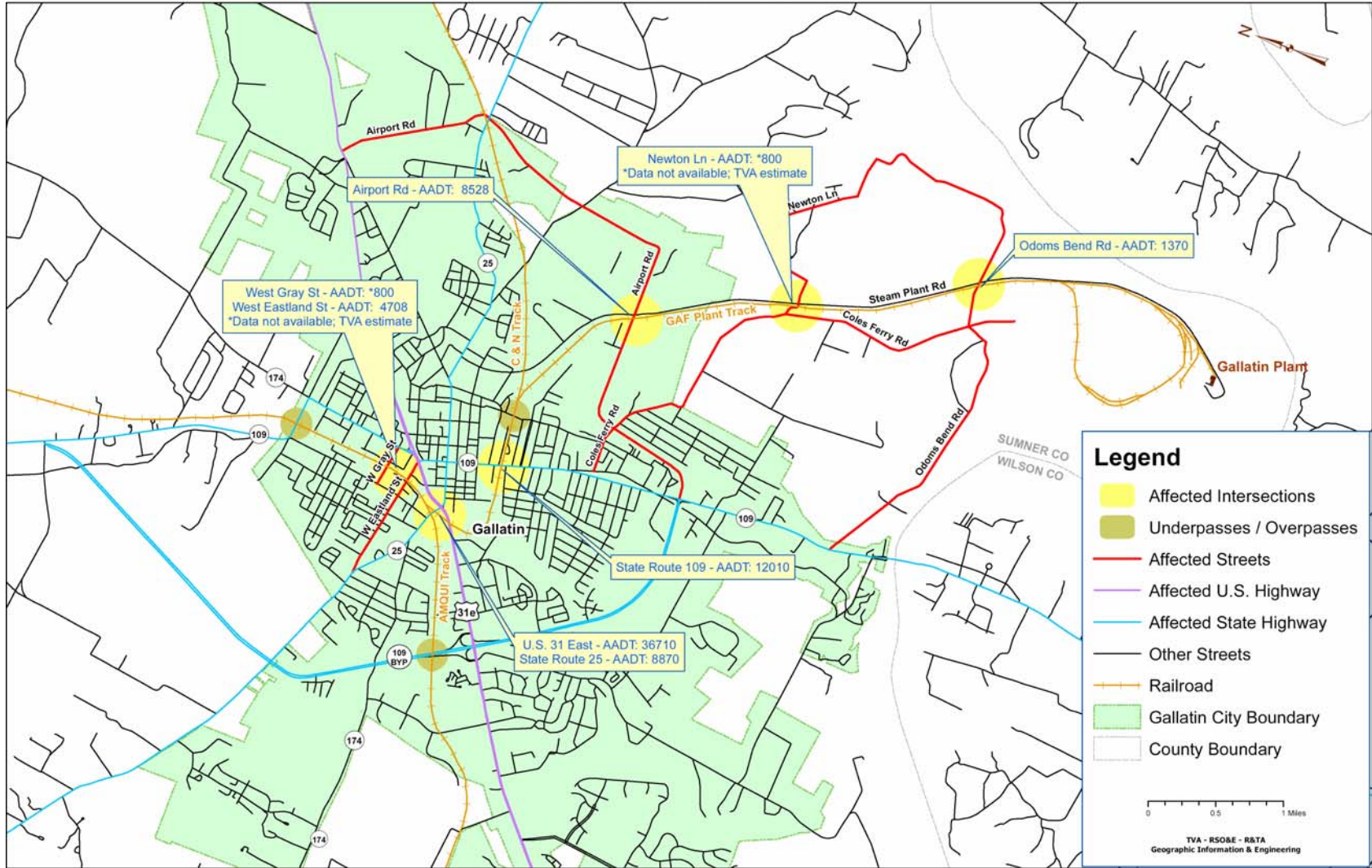


Figure 3-1. Gallatin Transportation Network

Most of these organizations are less than 0.5 mile from at least one of these rail crossings. Volunteer State Community College is the furthest school from one of the at-grade crossings at just less than 1 mile away. There is also a manufacturing facility, California Industrial Products, near the intersection of Airport and Steam Plant Roads, that has its only access, in or out, across the plant spur rail line. The plant employs approximately 120 employees over three 8-hour shifts that could potentially be impacted by rail deliveries to GAF.

The assessment of traffic effects for the project is based on the transportation planning and engineering concept of Level of Service (LOS) found in the *Highway Capacity Manual* (Transportation Research Board, 2000), as well as direct estimates of traffic delays associated specifically with coal deliveries. The LOS concept addresses the quality of service, or operating conditions, provided by the roadway network, as perceived by motorists. LOS is a qualitative measure, expressed as one of six levels (A through F), that is described in terms of travel time, comfort, safety, and maneuvering freedom, and incorporates various measurable factors associated with a particular segment of a roadway into the analysis. Six levels of service (A through F) are defined as differing qualities of service provided by a roadway.

- LOS A is defined as the highest quality of service which a particular class of highway can provide. It is a condition of free flow in which there is little or no restriction on speed or maneuverability caused by the presence of other vehicles.
- LOS B is a zone of stable flow. The restriction on maneuverability is negligible and there is little probability of major reduction in speed or flow.
- LOS C is a zone of stable flow but at this volume and density level most drivers are becoming restricted in their freedom to select speed, change lanes, or pass.
- LOS D approaches unstable flow. Tolerable average operating speeds are maintained, but could be subject to considerable and sudden variation. This condition is tolerable for short periods of time.
- LOS E is unstable with lower operating speeds and some momentary stoppages. There is little independence of speed selection and maneuverability. The upper limit of this level is the capacity of the facility.
- LOS F indicates forced-flow operations at low speeds. The level of density increases to the effect of a traffic "jam."

Table 3-1 shows the 2004 and 1996 Average Annual Daily Traffic (AADT) counts as reported by the Tennessee Department of Transportation (TDOT), and the associated Levels of Service (LOS) for the routes that either would be or have been affected, either directly or indirectly, by rail coal deliveries to GAF. These Levels of Service are based on peak hour flows and do not account for the effects of rail traffic. These values simply reflect a comparison of the current traffic situation to that of the last year of train operation at GAF.

Table 3-1. 2004 and 1996 Average Annual Daily Traffic and Level of Service

Route Name	2004		1996		AADT Percent Change
	AADT	LOS	AADT	LOS	
US 31E	36,710	F	29,580	E	+24.1
SR 25	8,870	D	11,590	D	-23.5
SR 109	12,010	E	13,170	E	-8.8
SR 109 Bypass (South of US 31E)	18,540	B	9,440	A	+96.4
SR 109 Bypass (North of US 31E)	13,670	A	5,840	A	+134.1
Airport Road	8,528	E	6,445	E	+32.3
Odoms Bend Road	1,370	B	1,170	B	+17.1
Coles Ferry Road	4,040	C	2,330	C	+73.4
*Newton Lane	800	A	698	A	**+14.6
West Eastland Street	4,708	C	4,095	C	+15.0
*West Gray Street	800	A	698	A	**+14.6

*Data not available; TVA estimate

**Based on average change for similar type roads in Gallatin between 1996 & 2004

Only two of the above routes have declined in service since 1996 despite overall increases in the average daily traffic in and around Gallatin. US 31E declined from LOS E to LOS F (beyond facility capacity) and the section of SR 109 Bypass from US 31E south to SR 109 changed from an LOS A to LOS B. There are two other routes that were at or beyond capacity in 1996 and still were in 2004, SR 109 and Airport Road. It can be seen that the busiest route in this area is US 31E, carrying roughly double the traffic as the next busiest route, the section of SR 109 Bypass, south of US 31E. Both sections of the SR 109 Bypass have significantly increased the number of vehicles per day they accommodate since the 1996 TDOT Traffic counts were taken. Since 1996, a third section of the bypass has been completed and joins SR 25 with SR 109 north of the city of Gallatin. The two sections of the bypass that were in operation in 1996 have had tremendous increases (96.4 percent and 134.1 percent) in the levels of traffic handled daily. The increases on the SR 109 Bypass help explain the decrease in the AADT values for SR 25 and SR 109 since 1996. More motorists are electing to use the bypass to avoid the traffic associated with the central business district of Gallatin.

3.1.1.3. Waterway Commercial Traffic

The U. S. Army Corps of Engineers operates a lock at Old Hickory Dam. Commercial tonnages transported through the lock are approximately 4 million tons per year. Shipments of TVA coal for the operation of GAF currently constitute approximately 90 percent of that total tonnage.

3.1.1.4. Environmental Justice

The population of Sumner County, according to the 2000 Census of Population, is 9.4 percent minority, lower than the state average of 20.8 percent and the national average of 30.9 percent. In the city of Gallatin, the minority population is 23.0 percent of the total, much higher than the county and slightly higher than the state, but below the national average. The minority share in the labor market area, at 25.0 percent, is higher than the

state average but lower than the national average. All counties in the labor market area except Davidson have minority shares lower than the state average.

The poverty level in 1999 in Sumner County, according to the 2000 Census of Population, was 8.1 percent, well below both the state level (13.5) and the national level (12.4). In the city of Gallatin, the level was 14.4 percent, higher than the county, state, and nation. In the labor market area, the poverty level was 11.5 percent, higher than in Sumner County but still below both the state and national levels.

The additional trains from the proposed action would be an increase in the already fairly heavy use of the Amqui track. The C&N track has lighter use and the steam plant spur track has only light usage to about Airport Road and no usage currently below that point. Impacts would be more noticeable to those areas where there is only light or no usage at the present time.

The area that would be most directly impacted by the proposal includes the areas near the CSX line (Amqui line) northeast of its crossing with Highway 109S north past old Highway 109, as well as the areas along the C&N line 1.5 miles east from the Amqui line to the Gallatin Plan spur, and beside the GAF spur (see Section 3.2, Traffic). For Census of Population purposes, these areas are designated as Census Tracts 207, 208, 209.01, and 209.02. These areas, except for Tract 209.01, are further subdivided into Block Groups. Data on minority populations and on poverty levels are shown below for these areas.

Table 3-2. Minority Population, 2000 and 1990, and Poverty Rates, 1999 and 1989

(Values for 1990 and 1989 are in parentheses)

	Nonwhite Population (%)	White Hispanic or Latino Population (%)	Total Minority Population (%)	Below Poverty Level (%)
<i>CT 207</i>	15.8 (12.1)	1.8 (0.4)	17.6 (12.4)	21.4 (19.7)
Block Group 1	5.4 (1.6)	1.3 (0.1)	6.8 (1.7)	9.7 (8.2)
Block Group 2	19.2 (12.8)	4.2 (0.3)	23.4 (13.1)	30.9 (19.6)
Block Group 3	23.5 (21.6)	1.2 (0.7)	24.6 (22.2)	30.3 (30.8)
<i>CT 208</i>	51.5 (49.1)	1.7 (0.3)	53.3 (49.4)	20.9 (25.8)
Block Group 1	50.5 (52.9)	1.8 (0.2)	52.3 (53.1)	22.9 (25.6)
Block Group 2	54.1 (40.8)	1.5 (0.4)	55.6 (41.3)	16.0 (26.2)
<i>CT 209.01</i>	10.2 (7.4)	1.1 (0.0)	11.2 (7.4)	5.6 (7.4)
<i>CT 209.02</i>	10.1 (3.9)	1.1 (0.3)	11.2 (4.2)	11.1 (10.0)
Block Group 1	7.2 (2.2)	1.4 (0.3)	8.7 (2.5)	12.1 (12.7)
Block Group 2	13.6 (4.7)	1.0 (0.3)	14.6 (5.0)	14.3 (10.1)
Block Group 3	5.3 (4.0)	0.9 (0.3)	6.2 (4.3)	3.9 (7.6)
Gallatin	21.7 (19.6)	1.3 (0.4)	23.0 (20.0)	14.4 (16.3)
Sumner County	8.5 (6.0)	0.9 (0.4)	9.4 (6.4)	8.1 (9.1)
Labor Market	23.5 (18.8)	1.5 (0.5)	25.0 (19.3)	11.5 (12.4)
Tennessee	19.8 (17.0)	1.0 (0.4)	20.8 (17.4)	13.5 (15.7)
United States	24.9 (19.7)	6.0 (4.6)	30.9 (24.4)	12.4 (13.1)

Source: U.S. Census Bureau, Census of Population, 2000 and 1990

3.1.1.5. Visual Resources

The physical, biological, and cultural features of an area combine to make the visual landscape character both identifiable and unique. Scenic integrity indicates the degree of unity or wholeness of the visual character. Scenic attractiveness is the evaluation of outstanding or unique natural features, scenic variety, seasonal change, and strategic location¹. Where and how the landscape is viewed would affect the more subjective perceptions of its aesthetic quality and sense of place. Views of a landscape are described in terms of what is seen in foreground, middleground, and background distances. In the foreground, an area within 0.5 mile of the observer, details of objects are easily distinguished in the landscape. In the middleground, normally between 1-4 miles from the observer, objects may be distinguishable but their details are weak and they tend to merge into larger patterns. Details and colors of objects in the background, the distant part of the landscape, are not normally discernible unless they are especially large and standing alone. The impressions of an area's visual character can have a significant influence on how it is appreciated, protected, and used. The general landscape character of the study area is described in this section with additional details in the section that follows.

GAF is located 5 miles southeast of Gallatin, Tennessee, on a peninsula on the north bank of the Cumberland River. Completed in 1959, GAF is a relatively large fossil site with extensive ash ponds and wooded rolling hills. The east, south, and west sides of the plant site abuts the Cumberland River, which is a wide expanse of open river used for an array of recreational purposes. The interior of the plant site consists mainly of industrial facilities surrounded by open areas of lawn. Elevations across the plant site and in the surrounding areas rise gradually from approximately 445 feet above sea level at the shorelines to about 500 feet just north of the plant. Little traffic is seen along the entrance road except at plant shift changes and during deliveries.

Areas adjacent to construction and modifications are typical of the plant site. These are mostly industrial settings with an array of broadly horizontal and medium to tall structures. These elements are seen mainly in the foreground by plant employees and visitors. Other physical features that would not be affected under the action alternative, such as the smokestacks and laced-steel transmission towers can be seen in the background distances by area residents, motorists along local roads, and recreation users along the Cumberland River. These elements combine to make a homogeneous industrial setting that has minimal scenic attractiveness and very low scenic integrity.

3.1.2. Environmental Consequences

3.1.2.1. Income and Employment

Alternative A – No Action

Under the No Action Alternative, as discussed in Section 2.1.1, there would be no change in the current delivery system for coal to GAF. Operations would continue as they are, and no construction activities related to this decision would occur. Therefore, there would be no socioeconomic impacts.

¹ Tennessee Valley Authority, "Scenic Value Criteria for Scenery Inventory and Management", Revision 2, 2003

Alternative B – Reactivate the Rail Coal Delivery System and Install Coal-Blending Capabilities

Under this alternative, as discussed in Section 2.1.2, coal would be delivered to the GAF site by rail rather than by barge, as it is currently delivered. This would require construction of a rail unloading facility and a blending facility at the site. The coal would be delivered by CSX to the site, using the existing rail facilities coming through Gallatin and to the site. Repair and reconstruction of the rail spur would be required.

Construction Impacts

Construction activity related to the new facilities and to rail bed repair would require a relatively small number of workers for a short time. This would have a small positive, but temporary, impact on income and employment in the local area.

Operations Impacts

An additional 19 workers would be required to handle coal deliveries at the plant site. This would be a very small positive impact to the local economy, an increase of less than one-tenth of 1 percent in employment and earnings in Sumner County.

Delivery of the coal by rail would result in an average of five trains per week with each train entering and leaving through the central area of Gallatin. These trains would not be on fixed schedule, but could arrive at any time. Each train would come into Gallatin using the Amqui line and continue north of the city to change direction, then proceed southward to the C&N line and then to the spur line that goes to the plant. After unloading, the empty train would leave by the spur line, proceed west on the C&N line, and then turn north toward Bowling Green, Kentucky. Since the Amqui line already has relatively heavy traffic, 5 additional trains per week would be less noticeable than in the other areas.

3.1.2.2. Traffic Delays

Alternative A – No Action

Under the No Action Alternative, there would be no change in the current delivery system for coal to GAF. Operations would continue as they are, and no construction activities related to this decision would occur. Therefore, there would be no impacts on traffic.

Alternative B – Reactivate the Rail Coal Delivery System and Install Coal-Blending Capabilities

Traffic Impacts of Rail Deliveries During Peak Periods of Traffic

To quantify the consequences of the proposed coal delivery by rail upon the local traffic network, TVA performed a traffic analysis. This analysis was based upon the train speeds provided by CSX, amount of traffic from AADT counts during peak traffic periods, calculated traffic delays, and LOS. The effect of a train crossing in operation is similar to the red phase of a traffic signal. To evaluate the maximum impact of the rail traffic on the local road traffic, it was assumed a train arrived during the peak hour. This scenario would help characterize the worst-case effect upon the traveling public for this temporary period while the train was present. Table 3-3 outlines the *Highway Capacity Manual* criteria for LOS for signalized intersections.

Table 3-3. Highway Capacity Manual Criteria for Level of Service for Signalized Intersections

LOS	Delay (sec/veh)
A	≤ 10
B	> 10-20
C	>20-35
D	>35-55
E	> 55-80
F	>80

According to the *Highway Capacity Manual*, most design or planning efforts typically use service rates at LOS C or D, to ensure an acceptable operating service for facility users. Therefore, anything worse than an LOS of D is considered adverse based on this premise. In terms of traffic delays, Tables 3-4 and 3-5, summarize the most pertinent impacts that a coal train arriving during the peak hour, as well as off-peak, would have on traffic in and around Gallatin for 2004 AADT counts and the historical impacts occurring in and prior to 1996 when daily rail delivery of coal was last active for GAF.

Per the similar methods used by the Surface of Transportation Board, Section of Environmental Analysis, the variables used in Tables 3-4 and 3-5 for estimating and understanding the degree of impacts to traffic flow are as follows:

- D_V is the estimated average delay experienced by all drivers at the affected highway/rail at-grade crossing in a 24-hour period.
- D_B is the total time per day that a highway/rail at-grade crossing would be blocked for a rail coal delivery.

Currently (since 1997) there have been no deliveries of coal by rail to GAF, and therefore there are no delays (delay times equal zero) or LOS effects associated directly with trains crossing road intersections (Table 3-4). As indicated in Table 3-5, the average delay experienced by motorists during the peak hour, if coal rail delivery occurs during the peak hour, would temporarily put five of the crossings at an LOS E or worse. Based upon the random arrival of trains once per day, 5 days per week, this situation would likely occur about 16.7 percent of the time a train was arriving or departing. In other words, such traffic delays would be anticipated to occur one or two times a week.

In 1996 when coal was last delivered to GAF by rail, seven crossings had an LOS of E or worse. Three of the five crossings noted above as suffering declines in service, already had an LOS of E or worse when coal was last delivered by rail in 1996. Also, compared to those delays experienced due to rail delivery of coal in 1996 (Table 3-4), except for Odoms Bend Road and Newtons Lane, all of the crossing delays if rail delivery of coal is reinstated for GAF are anticipated to be less than those previously experienced.

Traffic Impacts of Rail Deliveries During Off-Peak Periods, Emergency Services, and Alternative Routes

With random arrival as described in Section 2.1.2 Delivery of Coal, there would be an 83.3 percent probability that the trains would arrive or depart in an off-peak hour period, and, therefore, miss the two peak hour traffic windows. Consequently, the above effects predicted for peak hours would be conservative. The more probable off-peak arrival of trains would substantially reduce the level of impacts on traffic from those levels predicted for peak hours. See Table 3-4 for off-peak delivery delays and Table 3-5 for LOS comparison of 2004 off-peak hour deliveries and 1996 peak hour deliveries. Since there have currently been no deliveries of coal by rail to GAF for the previous 8 years, there would obviously be an incremental increase in delays and reduction in LOS from the current situation of “no delays” directly related to delivery of coal. However, during the predominantly off-peak deliveries anticipated, every intersection affected would have better levels of service and lower per-vehicle delay times than were experienced in 1996, when coal was most recently delivered by rail to GAF. With the exception of crossings at Odoms Bend Road and Newton Lane, every other intersection would have an LOS of B, or better. These two crossings are not in the Gallatin city limits, close to any schools or medical facilities, and should not affect the majority of the citizens in the Gallatin area. It would be expected that the bulk of motorists delayed at these crossings would be TVA personnel.

The possibility of further mitigating potential traffic delays by completely avoiding deliveries during peak traffic hours was investigated in conjunction with CSX’s proposal for providing rail service. However, such mitigation was found to be not economically feasible, since CSX does not own any track sidings long enough to store a unit train that would be delivering coal to GAF to avoid the two peak hour periods (7:00 to 9:00 a.m. and 4:00 to 6:00 p.m.). CSX sidings would have to be constructed that would substantially increase the cost of their operations, and furthermore, while trains would be sitting idle on the sidings, CSX would also be losing additional revenue due to crew expenses.

Table 3-4. Comparison of Average Vehicle Delays and Total Daily Blocked Crossing Times Resulting From “No Train” and Rail Delivery of Coal for 2004 and 1996 Peak Hour and Off-Peak Hour Data

Rail Crossing	2004 Average Delay - No Coal Train (sec/veh)	2004 Peak Hour D _v , Average Delay for all Vehicles (sec/veh)	2004 Off-Peak D _v , Average Delay for all Vehicles (sec/veh)	1996 Peak Hour D _v , Average Delay for all Vehicles (sec/veh)	2004 Total Daily Blocked Crossing Time - No Coal Train (min)	2004 Peak Hour D _B , Total Daily Blocked Crossing Time (min)	2004 Off-Peak D _B , Total Daily Blocked Crossing Time (min)	1996 Peak Hour D _B , Total Daily Blocked Crossing Time (min)
US 31E	0	82.4	14.3	187.0	0	13.3	13.3	25.2
SR 25 (Amqui Line)	0	11.8	2.7	114.8	0	6.3	6.3	19.7
SR 25 (C&N Line)	0	52.0	11.8	189.3	0	13.3	13.3	25.2
SR 109	0	123.1	12.1	278.5	0	13.3	13.3	25.2
Airport Rd.	0	96.1	12.0	217.5	0	13.3	13.3	25.2
Odoms Bend Rd.	0	73.4	34.9	53.5	0	23.4	23.4	25.2
Newton Ln.	0	75.6	35.0	55.0	0	23.4	23.4	25.2
W. Eastland St. (Loaded)	0	8.8	3.9	53.3	0	9.5	9.5	29.5
W. Eastland St. (Unloaded)	0	38.8	17.0	87.9	0	19.9	19.9	37.9
W. Gray St. (Loaded)	0	8.8	3.9	52.9	0	9.5	9.5	29.5
W. Gray St. (Unloaded)	0	38.7	17.0	87.3	0	19.9	19.9	37.9

Table 3-5. Comparison of Temporary Level of Service Effects While Intersections are Affected by Trains Crossing for Rail Delivery of Coal for Peak Hour Delivery (1996 and 2004) and Off-Peak Hour (2004)

Rail Crossing	2004 Peak Hour Level of Service	2004 Off-Peak Level of Service)	1996 Peak Hour Level of Service
US 31E	F	B	F
SR 25 (Amqui Line)	B	A	F
SR 25 (C&N Line)	D	B	F
SR 109	F	B	F
Airport Rd.	F	B	F
Odoms Bend Rd.	E	C	D
Newton Ln.	E	C	D
W. Eastland St. (Loaded)	A	A	D
W. Eastland St. (Unloaded)	D	B	F
W. Gray St. (Loaded)	A	A	D
W. Gray St. (Unloaded)	D	B	F

If coal delivery by rail resumes, because of the length of passing trains, several intersections could be blocked at the same time. Those crossings are: (a) Odoms Bend Road and Newton Lane; (b) Newton Lane and Airport Road; (c) Airport Road and SR 109; (d) SR 109, US 31E, SR 25 (C&N Line), West Eastland Street, and West Gray Street; and (e) SR 25 (Amqui Line), West Eastland Street, and West Gray Street. The total daily blocked crossing time ranges from 6.3 to 23.4 minutes (including peak hour deliveries), which is more than that currently experienced, but is still lower than the range of 19.7 to 37.9 minutes experienced by motorists prior to 1997.

Emergency personnel or average motorists experiencing delays by coal rail delivery to GAF have alternate routes that can be taken. The two primary alternate routes are SR 109 Bypass and Coles Ferry Road. SR 109 Bypass is a multilane highway that goes around the city of Gallatin to the west. It currently has an LOS of A for the section from US 31E north to SR 109 and an LOS of B south of US 31E to SR 109. In 1996, both sections had LOS values of A. SR 109 Bypass could easily absorb more vehicles per day and still maintain its current Levels of Service. Coles Ferry Road is a Class II, two-lane road that connects SR 109 with Airport Road, Newton Lane, and ultimately Odoms Bend Road. Coles Ferry Road has a current LOS of C, as it did in 1996. According to LOS calculations, Coles Ferry Road could handle approximately 3,000 more vehicles per day. With this amount of additional vehicular use, Coles Ferry Road would still maintain the current level of service. Additionally, there are three viaducts, or bridges, over the rail lines that can be used if an at-grade crossing is blocked. One is on South Westland Street, approximately 2,000 feet west

of the SR 109 rail intersection. This route is easily accessible from SR 109 and the Sumner County Regional Hospital. Another is the Old SR 109 or North Water Avenue Bridge over the rail lines. This route is located approximately 1 mile north of the West Gray Street rail intersection. The third is on the SR 109 Bypass, just north of US 31E. There are several other minor routes that could be used by emergency services and motorists who are familiar with the area if a primary route were blocked by a train delivering coal to GAF. Conversations with local EMS and Fire Department personnel have shown that there are no standard operating procedures for their personnel to follow if a crossing is blocked by a train while they are en route to an emergency situation. However, the fire department has conducted training simulations in which one or more of the nine at-grade rail crossings would be “blocked” and the EMS traffic would be detoured to another route. TVA would assist the city of Gallatin officials in establishing emergency operating procedures that could be used when crossings are being blocked due to coal deliveries by rail to GAF.

Summary of Effects of Rail Delivery of Coal to GAF on Traffic

- Since there have currently been no deliveries of coal by rail to GAF for the previous 8 years, there would obviously be an incremental increase in delays and reduction in LOS from the current situation of “no delays” directly related to delivery of coal.
- If rail delivery occurs during peak traffic hours, the average delay experienced by motorists would temporarily put five of the crossings at an LOS E or worse. Based upon the random arrival of trains once per day, 5 days per week, this situation would likely occur about 16.7 percent of the time a train was arriving or departing, i.e., approximately one or two times a week.
- Compared to those delays experienced due to rail delivery of coal in 1996 and before, except for Odoms Bend Road and Newtons Lane, all of the crossing delays if rail delivery of coal is reinstated for GAF, are anticipated to be less than those previously experienced.
- With random delivery times anticipated, the probability of off-peak hour deliveries occurring is 83.3 percent, i.e., 4 out of 5 deliveries made to GAF would occur in the off-peak hour periods. The more probable off-peak arrival of trains would substantially reduce the predicted level of impacts on traffic from those levels predicted for peak traffic hours.
- During the predominantly off-peak deliveries anticipated, every intersection affected would have better levels of service and lower per-vehicle delay times than were experienced in 1996, when coal was most recently delivered by rail to GAF.

3.1.2.3. Waterway Commercial Traffic

Use of rail for all of TVA’s coal shipments would result in a loss of about 90 percent of the tonnage now shipped through Old Hickory Lock. Based on data for 2004, this would decrease shipments through the lock to about 400,000 tons per year. Competing priorities at the location, such as flood control and hydropower, might decrease the relative emphasis on navigation. Additionally, the decreased usage of the lock could impact the funds available for operation and maintenance of the lock relative to other navigation facilities throughout the inland waterway system. Such outcomes could have negative impacts on other users of the lock, including recreational as well as industrial users. The level of impact would depend not only on the national budget for navigation projects and facilities,

but also on the evaluation of its relative importance with respect to other navigation projects and facilities. Further, any such impact may be ameliorated to the extent shipment of other commodities make up for the decrease in shipments of coal that currently pass through this lock.

3.1.2.4. Environmental Justice

Alternative A – No Action

Under the No Action Alternative, there would be no change in the current delivery system for coal to GAF. Operations would continue as they are, and no construction activities related to this decision would occur. Therefore, there would be no impacts on environmental justice.

Alternative B – Reactivate the Rail Coal Delivery System and Install Coal-Blending Capabilities

The crossings at West Gray Street and at West Eastland Street are located in areas with large minority populations. The Gray crossing is located in Census Tract 208, Block Group 1, and the Eastland crossing is located at the boundary of Census Tract 208, Block Groups 1 and 2. These areas have minority population of greater than 50 percent. Block Group 1 also has a relatively high poverty level, 22.9 percent, and Block Group 2 a somewhat lower poverty rate of 16.0 percent; these are both high compared to a county level of 8.1 percent, a labor market area level of 11.5 percent, a state level of 13.5 percent, and a national level of 12.4 percent. As shown in Table 3-2, these areas already had large minority populations and high levels of poverty prior to 1997 when these tracks were previously used for coal deliveries.

The crossings at SR 25 also have large minority populations in Tract 208, Block Group 2, which is located just north of these crossings. The minority population is 55.6 percent of the total in this area. However, the poverty level on the south side (Tract 209.02, Block Groups 3 and 2) is low and the minority population is relatively small.

In addition, the crossing at State Highway 109 (S. Water Ave.) has relatively large minority populations to the north, in Tract 207, Block Group 3, which is the area just to the north, northeast, and northwest of the crossing. This Block Group has a minority population of 24.6 percent, largely concentrated in the area north of the C&N track going east toward the Steam Plant Spur. This Block Group also has a relatively high poverty level of 30.3 percent. This area also had high poverty levels and large minority populations prior to 1997. This crossing is also of concern because Highway 109 is a north-south route.

The crossing at Highway 31 (Main Street) is not as close to areas where large numbers of minority or low-income populations live. However, it is a major north-south route through the city.

The other three crossings that would be affected are on Steam Plant Road, at Airport Road, Coles Ferry Road, and Newton Lane/Odoms Bend Road. These are in areas that are not densely populated and that have relatively small minority and low-income populations.

Those living in or needing access to and from the west of the rail line and north of Highway 109 Bypass would generally be most impacted by delays at the West Gray, the West Eastland, and the two State Highway 25 crossings. Alternatives would be to go south to Highway 109 bypass or north to Old Highway 109. In many cases, there would be little

difference in time or distance, especially for those living in the lower or upper portion of this area, near either of these two alternatives. Those living in the middle of the area generally would be most impacted.

Those living east of the rail line (north part of the city) and west of Highway 31E (Broadway) would be most impacted by delays at these same four crossings. They would have an alternative via Old Highway 109 (Albert Gallatin Avenue) or by going south to cross at Westwood Avenue.

For those living south of Highway 31E and north of the track, Westwood Avenue provides an alternative to Old Highway 109 South.

Delays due to trains could be important for some individuals, including some members of disadvantaged populations. In particular, the area north and west of the Amqui line or east of that line on the north side of the city would be noticeably affected. Persons living in these areas would see the crossing at West Gray Street and one of the two crossings on Highway 25 closed three times by each train, twice as it comes in to the plant and once as it leaves. However, this area of track already has relatively heavy use and, therefore, the increase in traffic would be less noticeable than it might be elsewhere. As noted above, these areas have relatively large disadvantaged populations. Impacts to disadvantaged populations in these areas likely would be considerably greater than impacts to the overall population in the affected areas of the city. Residents of the area north and east of the C&N Line, east to the plant spur, would be subject to southbound delays twice for each train, as it goes to the plant and as it leaves; this would be somewhat alleviated because of the viaduct at South Westland Street. However, to the west, access would be hindered by the closing of one or the other of the Highway 25 crossings a total of three times for each train—the west one as the train comes in the city and the east one as the train goes to and as it leaves the plant. Disproportionate impacts to minorities in this area may not be as great as in the area to the west and north.

Another potential source of impacts would be the increase in noise associated with the train traffic. Persons living close to the tracks would be more impacted than those living farther away, both from the noise of the train itself and from the crossing whistles. The majority of the affected population lives near the Amqui line, which already has relatively heavy traffic. Because of the proximity of a very large share of the disadvantaged populations to the track, as discussed above, the difference in impacts to these populations would be considerably greater than impacts to the overall population in affected areas of the city. This would be an incremental change in train noise for many of these residents. However, prior to 1997, these areas also were subject to coal deliveries by train several times per week.

3.1.2.5. Visual Resources

Visual consequences are examined in terms of visual changes between the existing landscape and proposed actions, sensitivity of viewing points available to the general public, their viewing distances, and visibility of proposed changes. Scenic integrity indicates the degree of intactness or wholeness of the landscape character. These measures help identify changes in visual character based on commonly held perceptions of landscape beauty, and the aesthetic sense of place. The foreground, middleground, and background viewing distances were previously described in the affected environment section.

No Action Alternative

Under the No Action Alternative, TVA would continue to receive coal by barge. The rail spur and associated unloading and blending facility would not be constructed. Therefore, there would be no visual impacts under this alternative.

Alternative B – Reactivate the Rail Coal Delivery System and Install Coal-Blending Capabilities

The rapid discharge rail coal unloading and blending facility would include construction of the new facility and associated rail line improvements, including raising a portion of the existing rail line five feet. These improvements would be located within the plant site and would be seen only by plant workers and occasional visitors to the site. Area residents, motorists along local roads, and recreation users along the Cumberland River would not notice a discernible change in the existing landscape. Scenic value class would likely not change.

Minor visual impacts would occur during the construction period. This would include a small increase in traffic along local roads due to the number of deliveries to the plant site. Plant employees and visitors would notice an increase in personnel and equipment on site. This would be temporary until all activities are complete.

Positive visual impacts would occur for recreation users and area residents along the Cumberland River. Barge traffic would be minimal for plant deliveries and unloading facilities would be occupied for less periods of time. This would provide greater scenic tranquility along this section of the river by restoring views that had previously been obscured by barge traffic. However, the scenic class level would likely not increase due to a decrease in water traffic.

The proposed rapid discharge rail coal unloading and blending facility would be visually similar to other features seen in the landscape now. There would be some minor cumulative visual impacts due to the introduction of additional structures and equipment in the landscape. Modifications to the existing rail line would produce temporary visual impacts due to an increase in personnel and equipment on site. The completed rail line would be visually similar to the existing rail line seen in the plant site now.

Operation of the rapid discharge rail coal unloading and blending facility would produce few discernible visual changes in the landscape within or outside GAF. Residents near the rail line route outside the plant site may notice an increase in delivery cars. These minor visual obtrusions would be noticeable for only brief periods of time. Visual impacts would be minor and temporary during the delivery periods.

Construction, operation, and maintenance of the proposed rapid discharge rail coal unloading and blending facility would be visually insignificant. There may be some minor visual discord during the construction period due to an increase in personnel and equipment and the use of laydown and materials storage areas. These minor visual obtrusions would be temporary until construction and laydown areas have been restored using TVA standard BMPs (Muncy, 1999). Therefore, there are no visual impacts anticipated as a result of this project.

3.2. Noise

3.2.1. Affected Environment

The plant site is bordered by the Cumberland River to the east, west, and south. There are homes located across the river to the south, as well as homes north of the plant. The nearest homes are located approximately 1 mile from the proposed rail unloader. There are small hills and dense woods between the proposed unloader and the nearby residences. There is no line of sight between the unloader and any residence.

Ambient noise was measured with a Bruel&Kjaer 2237 Integrating Sound Level Meter on May 11, 2005. Noise measurements were taken in three residential locations surrounding the plant; these locations are shown in Figure 3-1.

Noise levels were measured three times at each location with each measurement lasting for 5 minutes. Leq is the continuous equivalent sound level or the “average” noise level during the measurement period. While Leq is very valuable for describing continuous noises, it is less useful for intermittent noises. Leq smoothes out the discrete high-level events, such as trucks passing, to the point of eliminating the annoyance factor of the events. MaxP is the maximum peak sound level during the measurement, which is an important descriptor for intermittent noises. The average Leq and the maximum MaxP of the measurements are shown in Table 3-6.

Table 3-6. Noise Measurements Surrounding Gallatin

Measurement Location	Average Leq (dBA)	Maximum Peak Sound Level (dBA)
1. At the intersection of Steam Plant Road and Newton Lane	47.4	89.0
2. At intersection of Twin Cove Drive and Cherry Point Road	38.9	77.5
3. At Coles Ferry Boat Ramp	42.9	77.2

Average noise levels in rural areas are typically around 40 dBA during the day, so noise levels at locations 2 and 3 are fairly typical for rural areas. Since no boats were on the river when these measurements were taken, noise levels at these locations are expected to be higher on summer weekends when boats are present. Noise levels are somewhat higher at homes near Steam Plant Road due to traffic. There is also a shooting range in the vicinity which would increase noise levels at nearby residences periodically when guns are being fired.

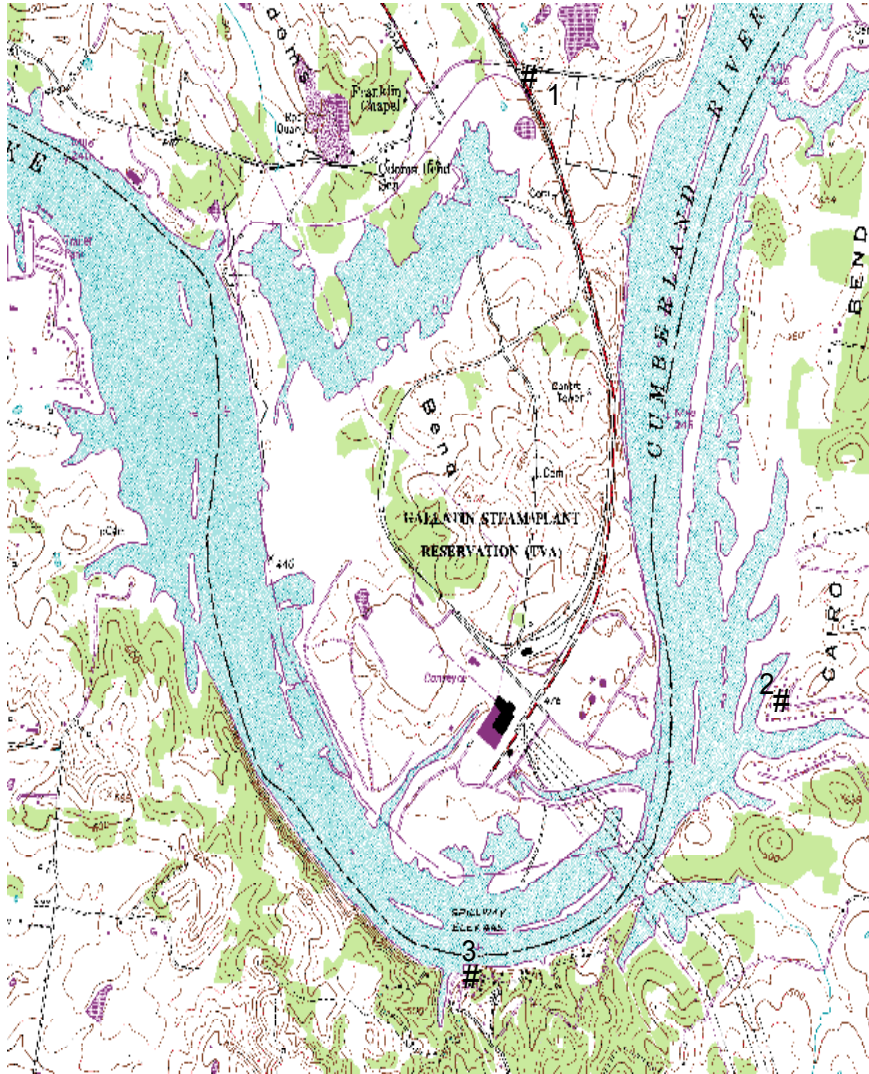


Figure 3-2. Map of Noise Measurement Locations

3.2.2. Environmental Consequences

Alternative A – No Action

Under the No Action Alternative, there would be no change in the current delivery system for coal to GAF. Operations would continue as they are, and no construction activities related to this decision would occur. Therefore, there would be no noise impacts related to this alternative.

Alternative B – Reactivate the Rail Coal Delivery System and Install Coal-Blending Capabilities

Construction

Construction activities would include the use of compactors, front loaders, scrapers, excavators, and graders. This type of equipment is expected to generate noise levels from 79 to 88 dBA at 50 feet (U.S. Environmental Protection Agency [USEPA], 1971). In general, noise from construction activities would be similar to noise from current plant operations.

Construction noise of 88 dBA at 50 feet would be less than 40 dBA at nearby residences approximately 1 mile away. This would not cause a significant increase in noise at nearby residences.

Blasting may be necessary during construction. Noise levels from blasting vary depending on such factors as the weight and type of the explosives, blast design, and the experience and knowledge of the blaster. Rotary drills and supporting logistical vehicles (shot preparation and bulk explosive trucks) are part of all blasting operations.

Blasting for construction is expected to have a temporary, periodic impact at residences in the vicinity of the plant. The federal requirement to limit blasting to daylight hours would help to reduce impacts at residences.

Because of the temporary nature of construction, the similarity of construction noise to plant operating noise, the distance to the nearest residence and the federal requirement to limit blasting to daylight hours, noise impacts from construction are expected to be insignificant.

Table 3-7. Noise Impact Guidelines for Evaluating Noise Levels at a Particular Receptor

Guideline	Average Day-Night Noise Level (Ldn)		
	No Impact	Impact	Severe Impact
EPA Guideline	Less than or equal to 55	Greater than 55	Not Applicable
FRA Criteria based on existing conditions	Less than 53	53 to 59	Greater than 59
FRA Criteria based on pre-1997 conditions	Less than 58	58 to 64	Greater than 64

Coal Unloading

Coal is currently delivered by barge and unloaded using a clamshell bucket. Four barges of coal are currently delivered each week, and it generally takes less than 2 hours to unload each barge. Barges are currently unloaded only during daylight hours. The clamshell bucket generates average noise, Leq, of approximately 83 dBA at 50 feet, which would be about 42 dBA at nearby residences 1 mile away. This is not generally audible over background noise levels at nearby residences.

Prior to 1997, coal was delivered by rail and unloaded using a rotary unloader. Noise levels from the rotary unloader would have been quite loud. This type of unloader required uncoupling and re-coupling railcars which is very loud. Rail unloading typically would have

lasted 8 hours a day, 7 days a week. Peak noise from the rotary unloader and re-coupling railcars would likely have been heard over background levels at the nearest residences.

Table 3-8. Expected Noise Levels From Proposed Rail Unloader

Location	Distance	Average Leq (dBA)	Maximum Peak (dBA)	Ldn (dBA)
At Unloader	50 feet	94	121	Not Applicable
At Nearest Residence	1 mile	38	66	45

The proposed rapid unloader would be similar to the one used at John Sevier Steam Plant. This unloader generates average noise levels of 94 dBA at 50 feet, which is roughly equivalent to 38 dBA 1 mile away, assuming 15 dBA attenuation provided by terrain and dense woods. Noise from the rapid rail unloader would include very loud impulse noises. These periodic peak noises could be up to 121 dBA at 50 feet or 66 dBA 1 mile away which would be audible at the nearest residences, but they are not expected to cause a significant impact.

Ldn is the 24-hour average noise level with a 10-dBA penalty during hours from 10 p.m. to 7 a.m. This penalty is to account for the greater sensitivity people have to noise during typical sleeping hours. USEPA suggests a guideline of Ldn equal to or less than 55 dBA to protect public health and welfare with an adequate margin of safety (USEPA, 1974). The U.S. Department of Housing and Urban Development (HUD) considers an Ldn of 65 dBA or less to be compatible with residential areas (HUD, 1985). There is considerable variation in individual response to noise. Noise that one person would consider mildly annoying, another person may consider highly annoying or not annoying at all. One study showed that approximately 6 percent of people are highly annoyed by an Ldn of 60, 12 percent by an Ldn of 65 and 22 percent by an Ldn of 70 (Fidell, 1991).

If rail unloading occurred randomly at any time of the day or night, the Ldn at the nearest residence would be approximately 45 dBA. This would not exceed USEPA's guideline or HUD's residential land use criteria. Although no significant noise impacts are anticipated, in order to confirm the analyses, TVA will undertake a one-time effort to measure noise levels from the rail unloader once it is operational. In the event that unanticipated levels of noise exceeding applicable guidelines for impacts to affected residences were to be measured, TVA would mitigate those impacts by installing noise barriers, soundproofing systems, or incorporating other measures that achieve equivalent results.

Rail Delivery

Trains that deliver coal to the plant would be another potential noise impact. The railroad tracks follow along Steam Plant Road from the city of Gallatin to the plant. These tracks have not been used for over 8 years. There are roughly 10 homes along this section of Steam Plant Road; several of these homes are as close as 150 feet from the tracks.

The railroad to the plant has not been used since 1997. Prior to 1997, coal was typically delivered with a 90-car train, once per day, 7 days per week. The trains generally arrived at the plant between 6:30 and 7:00 a.m. and left between 3:30 and 4:00 p.m. It is estimated that train noise would have been about 71 dBA at 150 feet and the Ldn would have been about 61 dBA at 150 feet. All of the homes along Steam Plant Road that would be affected by proposed rail deliveries were built prior to 1997 and were affected by noise when coal was previously delivered by train.

Proposed rail deliveries would require five trains per week with 135 cars with three locomotives per train. It would take approximately 18 minutes for the train to pass a residence and a train would be audible for 6 minutes before it arrived and for 6 minutes after it passed. Coal may be delivered at any time of day or night. The empty train would pass again approximately 12 hours later.

Train noise depends on the speed of the train, the length of the train and the distance from the train tracks. If we assume the train is 7600 feet long and traveling at 5 mph, it would generate approximately 73 dBA 150 feet from the tracks. At greater distances from the tracks, noise levels would be less. In addition, train whistles are very loud generating up to 95 dBA at 150 feet. There are two grade crossings in this area. Trains normally blow their whistles three times when approaching a crossing. Each whistle lasts 1 or 2 seconds. If trains deliver coal between 10 p.m. and 7 a.m., train noise could cause sleep disruption for some nearby residents.

Ldn, the 24-hour average noise with a 10 dB penalty from 10 p.m. to 7 a.m., was calculated assuming 60 minutes of train noise each day (30 minutes for the loaded train and 30 minutes for the empty train). The background Ldn is estimated to be around 48 dBA. Since trains are expected to arrive randomly and leave approximately 10-12 hours later, we estimate that on 65 days per year the train will arrive and depart during the day; on 195 days per year there will be one train pass during the day and one between 10 p.m. and 7 a.m., and 105 days per year there will be no trains. Therefore, the yearly Ldn is expected to be about 63 dBA. The yearly Ldn prior to 1997 would have been about 61 dBA.

Table 3-9. Expected Noise Levels From Rail Delivery – 150 Feet From Railroad Tracks

Status	Average Leq (dBA)	Yearly Ldn (dBA)
Existing Conditions (No Trains)	47	48
Previous Rail Delivery	71	61
Proposed Rail Delivery	73	63

The Federal Railroad Administration (FRA) considers an increase in noise level from 48 dBA (current conditions) to 63 dBA (proposed conditions) to be a “severe impact” (Figure 3-2) on a particular receptor subjected to that increase (FRA, 1998). An increase of that magnitude is likely to cause people to be highly annoyed. Comparing the proposed rail deliveries to the deliveries made prior to 1997, there would be a 2 dBA increase in Ldn, which would result in an “impact” based on the FRA criteria. The estimated Ldn of 63 dBA at a residence 150 feet from the tracks would exceed USEPA’s criteria, signifying an impact (i.e., >55 dBA), but would not exceed HUD’s criteria (i.e., <65 dBA) for compatibility with residential land use.

Overall, this project would increase noise levels at residences along Steam Plant Road that are located within 150 feet of the railroad tracks. Since these same residences were impacted by rail deliveries prior to 1997, they are likely to be less sensitive to noise than those who are accustomed to quieter conditions. For those individual residences along Steam Plant Road that may experience impacts in excess of applicable guidelines, TVA would, as individually appropriate, mitigate the noise impacts by installing noise barriers,

soundproofing systems, or other measures that achieve equivalent results. An independent contractor would be hired by TVA to evaluate which of these measures would be selected to mitigate noise impacts.

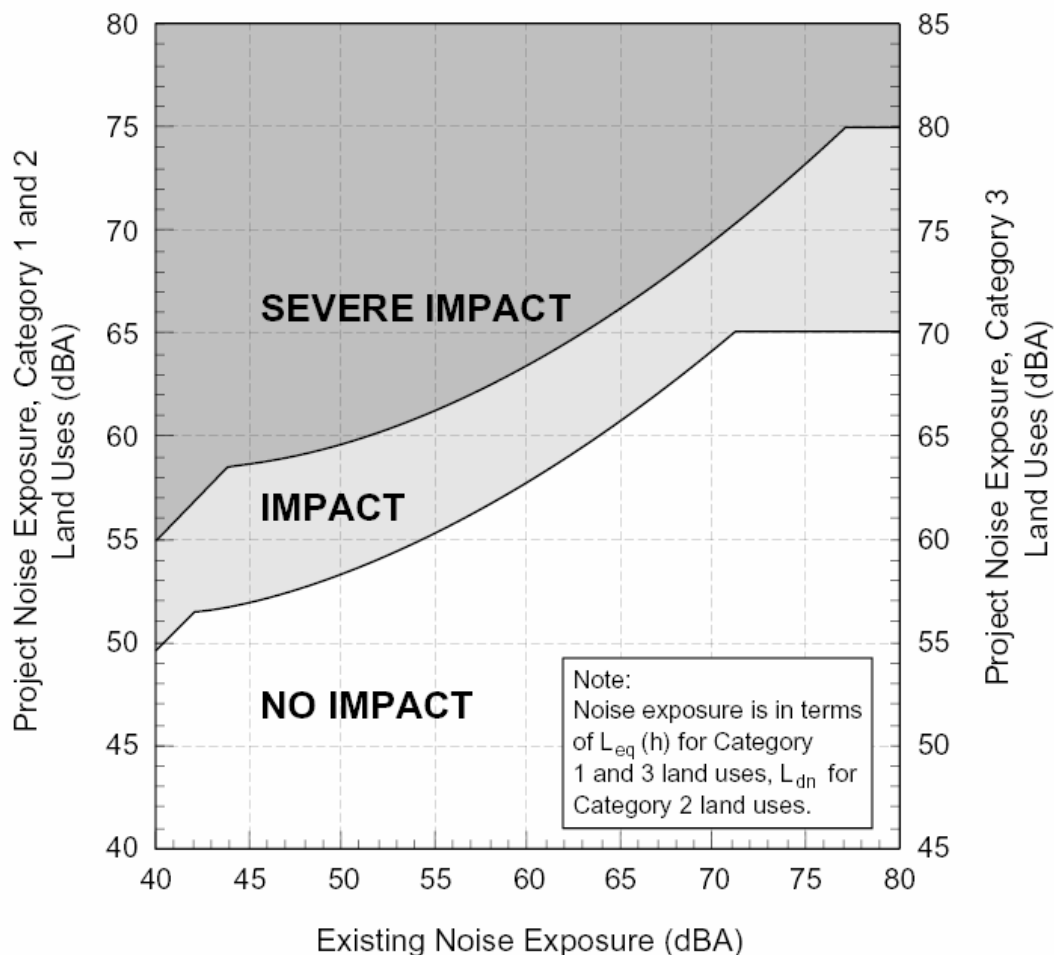


Figure 3-3. Federal Railroad Administration Noise Impact Criteria

3.3. Safety

3.3.1. Affected Environment

See Traffic Section.

3.3.2. Environmental Consequences

Alternative A – No Action

Under the No Action Alternative, there would be no change in the current delivery system for coal to GAF. Operations would continue as they are, and no construction activities related to this decision would occur. Therefore, there would be no impacts on safety from Alternative A.

Alternative B – Reactivate the Rail Coal Delivery System and Install Coal-Blending Capabilities

Coal delivery by rail would increase the train traffic through Gallatin, which would increase the potential for accidents and casualties. According to statistics from the FRA Web site, the accident rate for trains decreased to 3.98 accidents per million train miles in 2004. The FRA data showed that incidents involving trespassers and highway-rail grade crossings accounted for almost 95 percent of all rail-related fatalities during the analysis year. According to the U.S. Department of Transportation, approximately 94 percent of all grade crossing accidents, and 87 percent of fatalities, involve motor vehicle driver as a principal factor. Based on a 22-mile affected area and the accident rate of 3.98 per million train miles, if rail is again used to deliver coal to GAF, the estimated potential risk is for such an additional accident to occur is once in 50 years. Using the FRA reported accident data for the state of Tennessee, an average of 38.6 percent of the accidents that occurred at public and private rail crossings resulted in casualties. With a risk of one additional accident occurring every 50 years, the estimated potential risk (i.e., probability) for an additional casualty to occur is approximately once in 124 years.

Use of rail deliveries would result in conjunction with the cessation of barge deliveries. Elimination of barge delivery and barge unloading activities would reduce or eliminate the risk level for casualty or injury for persons in occupations at TVA or barge companies associated with those activities.

3.4. Air Quality

3.4.1. Affected Environment

The air quality in the vicinity of GAF is generally good, with the area in compliance with all air quality standards. Regionally, air quality is also generally good. All areas in Tennessee had met attainment of the old 1-hour ozone standard. However, for some areas, attainment of the 8-hour ozone standard of 80 parts per billion (ppb) has been more difficult to achieve. Davidson County and four of the six surrounding counties, including Sumner County, have recently been classified as nonattainment deferred regarding the 8-hour ozone standard until December 31, 2007 conditioned upon compliance with the Early Action Compact that Tennessee entered into with USEPA. The latest 2004 ozone data shows that these five counties, including Sumner, will likely meet the 8-hour ozone standard if the requirements of the Early Action Compact are met and will likely be considered in attainment. In addition, some areas of the region—including Sumner County—could experience difficulty in maintaining attainment with the recently adopted annual PM_{2.5} standard (particulate matter with a diameter less than or equal to 2.5 micrometers).

3.4.2. Environmental Consequences

Alternative A – No Action

Under the No Action Alternative, current air quality in the vicinity of GAF is expected to continue.

Alternative B – Reactivate the Rail Coal Delivery System and Install Coal-Blending Capabilities

Construction Impacts

Under the Action Alternative, transient air pollutant emissions would occur during the construction phase of this project. Since the GAF site has already been developed as an

industrial site, construction-related emissions would be relatively less than for a new site. Construction-related air quality impacts are primarily related to land clearing, site preparation, and the operation of internal combustion engines. An Air Construction Permit would be required from TDEC.

Vehicle Emissions and Excavation Dust

Land clearing, site preparation, and vehicular traffic over unpaved roads and construction sites result in the emission of fugitive dust particulate matter (PM) during site preparation and active construction periods. The largest size fraction (greater than 95 percent by weight) of fugitive dust emissions would be deposited within the construction site boundaries. The remaining fraction of PM would be subject to longer-range transport. If necessary, wet suppression would be used on open construction areas and unpaved roads to reduce fugitive dust.

Combustion of gasoline and diesel fuel by internal combustion engines (vehicles, generators, construction equipment, etc.) would generate local emissions of PM, nitrogen oxides (NO_x), carbon monoxide, volatile organic compounds (VOCs), and sulfur dioxide throughout the site preparation and construction period. The total amount of these emissions would be small and would result in minimal off-site impacts.

Air quality impacts from construction activities would be temporary and dependent on both man-made factors (e.g., intensity of activity, control measures, etc.) and natural factors (e.g., wind speed, wind direction, soil moisture, etc.). However, even under unusually adverse conditions, these emissions would have, at most, a minor, transient impact on off-site air quality that would not exceed or violate any applicable ambient air quality standard. Overall, the air quality impact of construction-related activities for the project would not be significant.

Operational Impacts

Operation of the Action Alternative under consideration would not adversely impact local air quality. Air emissions from the new rail coal unloading and blending facility consist of total particulate and emissions of particulate matter with a diameter less than or equal to 10 micrometers (PM₁₀). Emissions from coal handling activities at GAF for the past 4 years have averaged 35 tons of total particulate per year and 11 tons of PM₁₀ per year. Emissions from the new rail coal unloading and blending facility would be less than prevention of significant deterioration (PSD) threshold limits of 25 tons per year increase for total particulate and 15 tons per year increase for PM₁₀. Controls used to minimize air emissions from the new coal handling activities include a water spray for the railcar unloading system, enclosures and appropriate suppression for coal transfer points, and wet suppression on coal haul roads in the coal storage area. The use of these control measures would keep emissions from this project from having an adverse impact on air quality. A permit application demonstrating that PSD limits would not be exceeded would be submitted to TDEC in order to obtain a permit prior to commencement of construction.

Air emissions from vehicles idling at the nine railroad crossings were calculated from the 2004 Average Annual Daily Traffic (AADT) counts, average delay for all vehicles (seconds/vehicle), the idle emission rate (grams/minute) for light duty gasoline powered vehicles, and unit train deliveries of one per day five times a week. The calculated emissions for the vehicle exhaust while idling were 9 tons per year of VOCs, 165 tons per year of carbon monoxide, and 4 tons per year of NO_x. Compared to the total annual highway vehicle emissions for Sumner County, these emissions represent a 0.32 percent

increase of hydrocarbons (VOCs), a 0.49 percent increase of carbon monoxide (CO), and a 0.09 percent increase of nitrogen oxides (NOx). Based on the total annual highway vehicle emissions for Sumner County, the emissions from the idling vehicles stopped during railroad crossings should not have a significant adverse impact on air quality.

3.5. Surface Water

3.5.1. Affected Environment

Only one tributary would be affected by the repairing and upgrading activities for the GAF Rail Coal Unloading and Blending Facility. The existing railway now crosses over an unnamed tributary feeding into an unnamed body of water directly west-northwest of River Mile 246 of the Cumberland River. Only minor siltation and sedimentation would occur at the unnamed tributary, even if Best Management Practices (BMPs) were not utilized, because the existing vegetation over the area is sufficient enough to absorb the energy so that siltation would not reach the stream.

3.5.2. Environmental Consequences

Alternative A – No Action

Under the No Action Alternative, there would be no change in the current delivery system for coal to GAF. Operations would continue as they are with the current minor, insignificant level of effects to surface waters, and no construction activities related to this decision would occur. Therefore, there would be no additional impacts on surface water from the No Action Alternative.

Alternative B – Reactivate the Rail Coal Delivery System and Install Coal-Blending Capabilities

The area to be disturbed by repairing and upgrading activities between the CSX Switch to GAF Loop North Switch is approximately 520 acres. A Construction General Storm Water Permit would be required for this project from the state of Tennessee. No impacts to surface water would be expected from installation/replacement of the railway or related construction, with use of proper construction BMPs. Additional BMPs to prevent erosion and runoff to surface waters would be implemented as needed.

With proper BMPs in place, the replacement of crossties, new railroad construction and raising the track bed at the unloaded yard, and construction of new road crossings would have no significant impacts to the surface water. Discontinuing use of the existing barge unloading operation would eliminate effects to surface waters that occur with barge unloading as a result of proximity of the barge unloading operation to the surface water.

3.6. Terrestrial Ecology

3.6.1. Affected Environment

3.6.1.1. Plants

GAF is located within the Central Basin physiographic region as described by Fenneman (1938). Botanically, the project area lies within the Mississippian Plateau section of the Western Mesophytic Forest, located between the Cumberland Plateau and loess bluffs of the Mississippi River, with climax communities including oak, hickory, tulip tree, and beech

occur in hilly areas. Lower hills and flats support hickory, winged elm, hackberry, and blue ash. Deciduous species within the cedar glades are predominantly hickory, oak and sugar maple with (Braun, 1950).

The area in and around GAF has been heavily impacted and altered as a result of the construction and operation of the existing facilities. Field inspections in May 2005 of the areas associated with the proposed actions reveal that some native vegetation remains. Habitats observed within the project area are all early successional communities due to past and present habitat alterations. The project area can be characterized as having grass/forbs habitats.

Grass/forbs habitats are lands that are predominately managed fields with woody shrubs, vines, and trees scattered throughout and occupy 100 percent of the area. Fields that are managed are comprised mostly of widows cross, pitcher's sandwort, broomsedge, meadow brome, corn salad, oxeye daisy, sericea lespedeza, and white clover. Scattered woody vines, shrubs, and trees found are Japanese honeysuckle, fragrant sumac, multiflora rose, and eastern red cedar.

The plant communities observed along the proposed route are common and representative of the region. No uncommon plant communities of state significance have been identified in the project area

3.6.1.2. Invasive Terrestrial Plant Species

Invasive exotic plant species encountered along the proposed route include sericea lespedeza, Japanese honeysuckle, and multiflora rose. All of these species have the potential to impact the native plant communities adversely because of their potential to spread rapidly and displace native vegetation. Approximately 100 percent of the proposed project is on land in which the native vegetation has been extensively altered as a result of previous land-use history (e.g., clear cuts, grass-dominated areas maintained by mowing and spraying, and roadsides).

3.6.1.3. Animals

The project area consists primarily of grass/forb dominated habitats. Shrubs with scattered small trees and small sections of mixed cedar/hardwood forests exist along the edges of the railroad right-of-way. This habitat provides nesting areas for mourning doves, Carolina chickadees, prairie warblers, indigo buntings, northern cardinals, eastern towhees, song sparrows, orchard orioles, and other common bird species. Treatment ponds adjacent to the railroad right-of-way provide habitat for red-winged blackbirds, beaver, muskrat, and a variety of shorebirds. Rocky outcrops in the shrubby and forested areas provide habitat for reptiles including fence lizards, five-lined skinks, black rat snakes, garter snakes, and others.

3.6.2. Environmental Consequences

3.6.2.1. Plants

No Action Alternative

Adoption of the No Action Alternative would not result in any project-related impacts to the terrestrial ecology of the region.

Alternative B – Reactivate the Rail Coal Delivery System and Install Coal-Blending Capabilities

Vegetation in the project area includes grass/forbs habitats. No rare or uncommon plant communities were identified along the rail spur unloading and blending facility during field surveys. The proposed project would pass through vegetation types that are common and representative of the region. Any project-related impacts to the terrestrial plant ecology of the region as a result of the proposed Action Alternative are expected to be insignificant.

3.6.2.2. Invasive Terrestrial Plant Species**No Action Alternative**

Adoption of the No Action Alternative would not result in any project related impacts due to the introduction or spread of invasive terrestrial plant species.

Alternative B – Reactivate the Rail Coal Delivery System and Install Coal-Blending Capabilities

Due to the previous level of disturbance to the native plant communities along the proposed project area due to clear-cuts, grass-dominated areas maintained by mowing and spraying, and roadsides, no significant impacts to such communities from the introduction and spread of invasive terrestrial plant species are expected as a result of the proposed Action Alternative.

3.6.2.3. Animals**Alternative A – No Action Alternative**

Under the No Action Alternative, the proposed rail delivery system would not be upgraded and no new land would be disturbed. Therefore, terrestrial animals and their habitats would not be affected.

Alternative B – Reactivate the Rail Coal Delivery System and Install Coal-Blending Capabilities

Habitat along the existing railroad has been largely maintained in an early successional state. The proposed project would not appreciably change this marginal habitat. Treatment ponds would not be impacted by the proposed project. Most wildlife in the project site are regionally abundant and no rare habitat exists at the site. Therefore, the proposed project would not result in adverse impacts to local species of wildlife.

3.7. Aquatic Life**3.7.1. Affected Environment**

The proposed project is located on the property of GAF in Sumner County, Tennessee. A field survey of the project area conducted on May 12, 2005, found no streams, wet-weather conveyances, or ponds in the project area that would be disturbed.

3.7.2. Environmental Consequences

Alternative A – No Action

Under the No Action Alternative, there would be no change in the current delivery system for coal to GAF. Operations would continue as they are. Therefore, aquatic life would not be affected.

Alternative B – Reactivate the Rail Coal Delivery System and Install Coal-Blending Capabilities

No direct effects to aquatic resources are associated with this project, due to the absence of aquatic habitats that would be disturbed in the project area. Indirect effects to streams outside the project area from storm water runoff are possible, but would be insignificant with the use of BMPs as outlined in Muncy, 1999.

3.8. Protected Species

3.8.1. Affected Environment

3.8.1.1. Plants

A review of the TVA Natural Heritage database indicates there is one federally listed and nine state-listed plant species known from Sumner County, Tennessee (Table 3-10). Two species, springcreek bladderpod and water stitchwort, are known to occur within 5 miles of the project area and are in an adjacent county.

TVA biologists conducted a field survey of the project area in May of 2005. No federally listed plant or state-listed species were identified during the survey.

Table 3-10. State-Listed Plant Species Known From Sumner County, Tennessee

Common Name	Scientific Name	Federal Status	State Status [†]
American ginseng	<i>Panax quinquefolius</i>		S-CE
Blue cohosh	<i>Caulophyllum giganteum</i>		THR
Blue-eyed Mary	<i>Collinsia verna</i>		END
Butternut	<i>Juglans cinerea</i>		THR
Goldenseal	<i>Hydrastis canadensis</i>		S-CE
Leafy prairie-clover	<i>Dalea foliosa</i>	LE	END
Michigan lily	<i>Lilium michiganese</i>		THR
Ozark least trillium	<i>Panax quinquefolius</i>		END
Sedge	<i>Carex hitchcockiana</i>		THR
Small white leek	<i>Allium tricoccum</i>		S-CE

[†]THR – Threatened, END – Endangered, S-CE – Special Concern Commercially Exploited, LE – Listed Endangered

3.8.1.2. Animals

A review of the TVA Natural Heritage database indicates that 12 protected species have been reported from Sumner and Wilson Counties (Table 3-11). These species are protected by the state of Tennessee and one is federally listed as protected.

Table 3-11. Protected Species of Terrestrial Animals Reported From Sumner and Wilson Counties, Tennessee

Common Name	Scientific Name	Federal Status	State Status
Amphibian			
Eastern Hellbender	<i>Cryptobranchus alleghaniensis alleghaniensis</i>	-	Deemed in Need of Management
Tennessee Cave Salamander	<i>Gyrinophilus palleucus</i>	-	Threatened
Bird			
Great Egret	<i>Casmerodius albus</i>	-	Deemed in Need of Management
Lark Sparrow	<i>Chondestes grammacus</i>	-	Threatened
Appalachian Bewick's Wren	<i>Thryomanes bewickii bewickii</i>	-	Endangered
Barn Owl	<i>Tyto alba</i>	-	Deemed in Need of Management
Mammals			
Gray Bat	<i>Myotis grisescens</i>	Listed Endangered	Endangered
Allegheny Woodrat	<i>Neotoma magister</i>	-	Deemed in Need of Management
Southeastern Shrew	<i>Sorex longirostris</i>	-	Deemed in Need of Management
Meadow Jumping Mouse	<i>Zapus hudsonius</i>	-	Deemed in Need of Management
Reptiles			
Alligator Snapping Turtle	<i>Macrochelys temminckii</i>	-	Deemed in Need of Management
Northern Pine Snake	<i>Pituophis melanoleucus melanoleucus</i>	-	Threatened

Eastern hellbenders are found in large and mid-size, fast-flowing, rocky rivers at elevations below 762 m (Petranka, 1998). They have been collected in the Cumberland River and its tributaries within Sumner County and surrounding counties.

Tennessee cave salamanders occur in caves including those formed in sinkholes. They have been found in only one cave in the two counties encompassing the proposed project site.

Great Egrets typically nest in colonies with other heron species in seasonally or permanently flooded forested wetlands. Great egrets are known to nest on an island in the Cumberland River with black-crowned night-herons and great blue herons.

Lark Sparrows occur in areas with extensive areas of bare ground, patchy herbaceous plant cover, and scattered saplings in a xeric environment. Cedar glades are often used as breeding sites. Numerous records for this species occur in both Sumner and Wilson Counties.

Appalachian Bewick's wrens occur in brushy areas, thickets, and scrub in open areas. A single population is known from Sumner County. This species has most likely been extirpated from the region.

Barn owls nest in cavities including caves, hollow trees, barns, and silos. They forage over open landscape such as abandoned farmland, but also in urban habitat such as vacant lots, cemeteries, and parks (Nicholson, 1997). Barn owls are known to nest approximately 7 miles from GAF.

Gray bats roost in caves during all seasons and typically forage over open water habitats. A population of gray bats occurs in a cave approximately 3 miles from the proposed project site.

Allegheny woodrats can be found in a variety of places including stream or gully banks, wooded bottomlands, swamps, caves, and cliffs (Linzey, 1998). Numerous records for this species occur in the two county area encompassing the proposed study site. These records come from caves, and cedar forests with rock outcrops.

Southeastern shrews are found in mostly moist situations in woods or fields (Linzey, 1998) including disturbed habitat such as abandoned fields with dense ground cover of honeysuckle, grasses, sedges, and herbs (Linzey and Brecht, 2002). Southeastern shrews were collected from one locality in Sumner County. They are likely found throughout the county.

Meadow jumping mice inhabit wet meadows, bogs, grasslands, abandoned grassy fields, and forest glades. They have been found in Sumner County.

Alligator snapping turtles are typically found in the deeper water of large rivers and their major tributaries, but also can be found in lakes, ponds, and swamps (Ernst, Lovich, and Barbour, 1994). They occur in the Cumberland River and its larger tributaries.

Northern pine snakes inhabit well-drained sandy or loamy soils with dense vegetation. They have been found in pine barrens, mixed scrub pine and oak woods, dry rocky mountain ridges, sand hills, and old fields (Ernst and Ernst, 2003).

3.8.1.3. Aquatic Species

Review of the TVA Natural Heritage database indicates that seven state-listed fish species are reported to occur in Sumner County, Tennessee (Table 3-12). None of these species are known to occur in tributary streams in the vicinity of this project.

The Blackfin Sucker is more tolerant of impoundments, and this species has been collected from the GAF intake channel during impingement studies in 1982. None of the other listed species known from Sumner County are tolerant of impoundments. Impoundment of the Cumberland River (Old Hickory Reservoir) has altered habitat conditions in the river and little or no suitable habitat for these species is present in this reach of the Cumberland River.

Table 3-12. Sensitive Aquatic Animal Species Found in Sumner County, Tennessee

Scientific Name	Common Name	State Status	Federal Status
<i>Etheostoma barbouri</i>	Teardrop darter	In Need of Management	--
<i>Etheostoma barrenense</i>	Splendid darter	In Need of Management	--
<i>Etheostoma bellum</i>	Orangefin darter	In Need of Management	--
<i>Notropis rupestris</i>	Bedrock shiner	In Need of Management	--
<i>Percina phoxocephala</i>	Slenderhead darter	In Need of Management	--
<i>Percina stictogaster</i>	Frecklebelly darter	In Need of Management	--
<i>Thoburnia atripinnis</i>	Blackfin sucker	In Need of Management	--

3.8.2. Environmental Consequences

3.8.2.1. Plants

Action Alternative

No project-related impacts to rare plant species would result from adoption of the No Action Alternative.

Alternative B – Reactivate the Rail Coal Delivery System and Install Coal-Blending Capabilities

No federally listed or state-listed plant species were encountered in or adjacent to the proposed project area. Therefore, no impacts to federally listed or state-listed plant species would be anticipated as a result of the proposed action.

3.8.2.2. Animals

Alternative A – No Action

Under the No Action Alternative, the proposed rail delivery system would not be upgraded and no new land would be disturbed. Therefore, no listed terrestrial animals would be affected.

Alternative B – Reactivate the Rail Coal Delivery System and Install Coal-Blending Capabilities

According to the TVA Natural Heritage Project Database, one federally and 12 state-listed species have been reported from Sumner and Wilson Counties in Tennessee. Suitable habitat for eastern hellbenders, Tennessee cave salamanders, great egrets, and alligator snapping turtles does not exist within the project site. No impacts are expected to any of these listed species.

The cedar/hardwood forests containing abundant rock outcroppings may have once been ideal habitat for lark sparrows. Because the forest contains a dense understory, it is highly unlikely that lark sparrows are currently present. No impacts are expected to this species.

Appalachian Bewick's wrens were not located during field investigations. This species is most likely extirpated from Sumner and Wilson Counties. If it does exist in the project area, the proposed project is not expected to eliminate habitat for this species; therefore, no impacts are expected.

No roosting habitat for gray bats exists on the project site. However, the species likely forages over the Cumberland River. The proposed project would not impact foraging sites for this species, therefore no impacts are expected.

Marginal habitat for barn owl, Alleghany woodrat, southeastern shrew, meadow jumping mice, and northern pine snake exists within the proposed project site. Foraging habitat for this species would not be greatly modified if the Action Alternative were selected; therefore, no impacts are expected.

3.8.2.3. Aquatic Species

Alternative A – No Action

Under the No Action Alternative, the existing rail delivery system would not be utilized and no impacts to protected aquatic animal resources would occur.

Alternative B – Reactivate the Rail Coal Delivery System and Install Coal-Blending Capabilities

Construction Impacts

Under Alternative B, potential construction impacts to the Cumberland River would include temporary erosion and siltation resulting from repair and upgrade activities on the existing railway, and construction of a new unloading and coal-blending facility inside the rail loop at GAF. All activities would take place within previously disturbed areas. Any impacts would be minimized by implementation of BMPs to control erosion during construction and stabilize disturbed areas after construction is complete. These measures would substantially reduce the potential impacts in the Cumberland River or its tributaries in the area. Only minor and temporary effects on fish and other aquatic life would occur from construction activities. No impacts to state- or federally-listed aquatic species would occur as a result of this proposed activity.

Operational Impacts

Because all storm water from the plant unloading and blending facilities would be directed to the existing ash pond, no direct impacts to aquatic resources would occur. Herbicides would be periodically applied to the rail line and rail right-of-way for vegetation control. Herbicides would not be applied directly to surface waters, and only nonregulated, registered herbicides approved by the USEPA for water application would be employed at stream crossings. This right-of-way is currently maintained by herbicide application.

3.8.2.4. Exotic or Invasive Aquatic Animal Species

Due to the nature of this activity, there is no potential for effects from exotic or invasive aquatic animals under either alternative.

3.9. Wetlands

3.9.1. Affected Environment

A wetland survey was performed according to U.S. Army Corps of Engineers' standards (Environmental Laboratory, 1987), which require documentation of hydrophytic vegetation (U.S. Fish and Wildlife Service [USFWS], 1996), hydric soil, and wetland hydrology for a wetland determination. Broader definitions of wetlands, such as the definition provided in Executive Order 11990 (Protection of Wetlands), the Tennessee state regulatory definitions

(Tennessee Rule: 1200-04-07 and TCA Section 69-3-103(33), the USFWS definition (Cowardin et al., 1979), and the TVA Environmental Review Procedures definition (TVA, 1983), were also considered in this review.

3.9.2. Environmental Consequences

Alternative A – No Action

The No Action Alternative would not impact any wetlands because there would not be new disturbances.

Alternative B – Reactivate the Rail Coal Delivery System and Install Coal-Blending Capabilities

A combined office and field level review was conducted for the GAF Rail Spur Coal Unloading and Blending Facility EA. The office review utilized National Wetland Inventory (NWI) data, maps, and video supplied by TVA Fossil Power Group, the U.S. Department of Agriculture (USDA) Soil Survey for Sumner County, Tennessee, and the state hydric soils list for Tennessee: (http://soils.usda.gov/soil_use/hydric/main.htm).

A Wetland Biologist from TVA Natural Heritage conducted a ground survey of a segment of the Gallatin rail spur at TVA's GAF on May 11, 2005. The Gallatin rail spur traverses a portion of one of the GAF ash ponds. Although the GAF ash ponds have been colonized by wetland vegetation, they are not regulated as wetlands under Section 404 of the Clean Water Act. Current U.S. Army Corps of Engineers regulatory policy is to exclude regulation of treatment ponds such as the ash ponds as waters of the U.S.: "Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act (other than cooling ponds as defined in 40 CFR 123.11(m) which also meet the criteria of this definition) are not waters of the United States (33 CFR 328.2)." Even so, planned improvements to the Gallatin rail spur system at GAF and the construction of the unloader/blending facility would not adversely affect the wetlands at the site as a result of the BMPs implemented to minimize runoff.

3.10. Cultural Resources

3.10.1. Affected Environment

The northern Highland Rim and Nashville Basin of Middle Tennessee has been an area of human occupation for the last 12,000 years. Human occupation of the area is generally described in five broad cultural periods: Paleo-Indian (11000-8000 B.C.), Archaic (8000-1600 B.C.), Woodland (1600 B.C.-1000 A.D.), Mississippian (1000-1700 A.D.), and Historic (1700 A.D.- to present). Prehistoric land use and settlement patterns vary during each period, but short- and long-term habitation sites are generally located on flood plains and alluvial terraces along rivers and tributaries. Specialized campsites tend to be located on older alluvial terraces and in the uplands. European interactions with Native Americans in Sumner County began in the seventeenth and eighteenth centuries associated with the fur trading industry. In 1799, the city of Cairo was established by two merchants as a trading town. Cairo was an important river port during the Civil War. The first part of the nineteenth century was a time of growth and development. Better transportation through improved roads, a stagecoach line, river trade, and ferry services brought about the establishment of about 30 communities. Sumner County supplied over 3,000 soldiers for the Civil War and the county was primarily under the control of Union troops. The early twentieth century was focused on agriculture production. When the Tennessee Valley

Authority built Old Hickory Dam and a steam electric generating plant at Gallatin new jobs were brought to the county. The largest city in the county is Hendersonville, which became a tourist center for country music fans.

The Area of Potential Effect for the project was determined as all areas in which land disturbing activities would take place, which include the road construction beginning at the toe of the railroad grade, and extending between 4.5 and 6m (15 and 20 feet) to the south and the necessary cutting and grading of the existing terrain. A Phase I survey was conducted on May 6, 2005 and no archaeological resources were identified.

3.10.2. Environmental Consequences

Alternative A – No Action

Under the No Action Alternative, TVA would continue to receive coal by barge. The rail spur and associated unloading and blending facility would not be constructed. Therefore, there would be no impacts to cultural resources under this alternative.

Alternative B – Reactivate the Rail Coal Delivery System and Install Coal-Blending Capabilities

The proposed road construction would have no affect on any archaeological resources. TVA is awaiting comments from the Tennessee State Historic Preservation Officer regarding these findings and recommendations.

3.11. Summary of TVA Commitments and Proposed Mitigation Measures

- A construction permit application to demonstrate that PSD limits would not be exceeded would be submitted and permit obtained from TDEC prior to construction.
- If necessary, wet suppression will be used on open construction areas and unpaved roads would be sprinkled with water to reduce fugitive dust.
- Controls used to minimize air emissions from the new coal handling activities include a water spray for the railcar unloading system, enclosures and appropriate suppression for coal transfer points, and wet suppression on coal haul roads in the coal storage area.
- All replaced crossties would be recycled as appropriate or disposed of in an approved landfill
- The signals at four existing road crossings would be inspected and repaired.
- The entire lead track would be sprayed for vegetation control with a nonregulated, registered herbicide
- The disposal of brush would be by chipper, or by hauling the brush off site. Brush would not be disposed of in any manner that would impair natural drainage.

- The track would be raised as depicted in Figure 2-4 using rock fill obtained from an existing quarry or soil from previously existing, permitted sites.
- Railroad construction would conform to the American Railway Engineering Association's Manual for Railway Engineering and CSX construction specification on track spike pattern requirement for curved track construction.
- CSX would add remote switching capabilities and have engines at both ends of the train. This would enable CSX to maintain train speed straight through the switches and on to GAF. The locomotive configuration and the switch upgrades would help minimize the impact on traffic for the residents of Gallatin.
- TVA would assist the city of Gallatin officials in establishing emergency operating procedures that could be used when crossings are being blocked due to coal deliveries by rail to GAF.
- Any impacts to water resources would be minimized by implementation of BMPs to control erosion during construction and stabilize disturbed areas after construction is complete.
- Herbicides would not be applied directly to surface waters, and only nonregulated, registered herbicides approved by the USEPA for water application would be employed at stream crossings.
- For those individual residences along Steam Plant Road which may experience noise impacts in excess of applicable guidelines, TVA would undertake an assessment of the specific noise levels experienced and, as individually appropriate, mitigate those impacts by installing noise barriers, soundproofing systems, or other measures that achieve equivalent results. An independent contractor would be hired by TVA to evaluate which of these measures would be selected to mitigate noise impacts.
- Although no significant noise impacts are anticipated, in order to confirm the analyses, TVA will undertake a one-time effort to measure noise levels from the rail unloader once it is operational. In the event that unanticipated levels of noise exceeding applicable guidelines for impacts to affected residences were to be measured, TVA would mitigate those impacts by installing noise barriers, soundproofing systems, or incorporating other measures that achieve equivalent results.

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CHAPTER 4

4. LIST OF PREPARERS

4.1. NEPA Project Management

Dave W. Robinson

Position: NEPA Specialist and Project Manager
 Involvement: NEPA Compliance, Document Preparation

Bruce L. Yeager

Position: NEPA Team Leader
 Involvement: NEPA Compliance, Document Review

4.2. Other Contributors

Barry L. Barnard

Position: Specialist, Compliance Projects
 Involvement: Air Resources

John T. Baxter

Position: Aquatic Endangered Species Biologist
 Involvement: Endangered, Threatened, and Rare Species (Aquatic)

V. James Dotson

Position: Civil Engineer
 Involvement: Transportation

James H. Eblen

Position: Contract Economist
 Involvement: Socioeconomics and Environmental Justice

Heather Hart

Position: Contractor
 Involvement: Terrestrial Ecology (Plants) and Endangered, Threatened, and Rare Species (Plants)

T. Hill Henry

Position: Zoologist
 Involvement: Terrestrial Ecology (Animals) and Endangered, Threatened, and Rare Species (Animals)

Marianne Jacobs

Position: Archaeological Technician
 Involvement: TVA Cultural Resources

W. Chett Peebles

Position: Landscape Architect
 Involvement: Visual Resources

Barbara Rosensteel

Position: Contract Biologist
Involvement: Wetlands

Edwin M. Scott

Position: Aquatic Zoologist
Involvement: Aquatic Life

Jan K. Thomas

Position: Contract Biologist
Involvement: Natural Areas

Jonathan Walker

Position: Environmental Engineer
Involvement: Surface Water

Cassandra L. Wylie

Position: Program Manager, Environmental Technology
Involvement: Noise

CHAPTER 5

5. LIST OF AGENCIES AND PERSONS CONSULTED

Federal Agencies

Dr. Lee Barclay
U.S. Fish and Wildlife Service
Cookeville, Tennessee

Mr. Bobby Blackmon
Federal Highway Administration
Nashville, Tennessee

Mr. Ron Gatlin
U.S. Army Corps of Engineers
Nashville, Tennessee

State Agencies

Mr. Doug Delaney
Tennessee Department of Transportation
Nashville, Tennessee

Mr. David Owenby
Tennessee Department of Environment
and Conservation
Nashville, Tennessee

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CHAPTER 6

6. SUPPORTING INFORMATION

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6.2. Glossary of Terms

°F	Degree Fahrenheit
AADT	Average Annual Daily Traffic
A.D.	Latin term, anno Domini, meaning “in the year of our Lord”
a.m.	Latin term, ante meridiem, meaning “before noon”
B.C.	Before Christ
BMP	Best Management Practice
CFR	Code of Federal Regulations
dB	Decibel
dba	Decibel, A-weighted
DEA	Draft Environmental Assessment
e.g.	Latin term, exempli gratia, meaning “for example”
EMS	Emergency Medical Service
et al.	Latin term, et alii (masculine), et aliae (feminine), or et alia (neutral) meaning “and others”
FRA	Federal Railroad Administration
GAF	Gallatin Fossil Plant
HUD	U.S. Department of Housing and Urban Development
Ldn	Day-Night Average Sound Level
Leq	Equivalent Sound Level
LOS	Level of Service
MaxP	Maximum peak sound level during a measurement for noise
mph	Miles per Hour
NEPA	National Environmental Policy Act
NOx	Nitrogen Oxides
p.m.	Latin term, post meridiem, meaning “after noon”
PM	Particulate Matter
PM_{2.5}	Particulate Matter With a Diameter Less Than or Equal to 2.5 Micrometers
PM₁₀	Particulate Matter With a Diameter Less Than or Equal to 10 Micrometers
PSD	Prevention of Significant Deterioration
SR	State Route
TCA	Tennessee Code Annotated
TDEC	Tennessee Department of Environment and Conservation
TDOT	Tennessee Department of Transportation
TPH	Tons per Hour
TVA	Tennessee Valley Authority
US	U.S. Highway
U.S.	United States
USFWS	U.S. Fish and Wildlife Service
VOC	Volatile Organic Carbon