3.11 Transportation

The key issues regarding transportation are traffic safety and potential effects to the LOS on major roads and intersections related to changes in project-related traffic patterns, plus the potential for changes to property access and travel times due to road closures within the proposed Rusk Permit Area.

The study area for transportation encompasses the railroad and road network within the proposed permit boundary, including FM 1797, SH 43, and SH 149 from their joint intersections in Tatum to their individual intersections with county roads outside the permit boundary to the west, northeast, and northwest, respectively. The cumulative effects study area includes the direct/indirect effects study area, and for the major traffic arteries identified above, extends to their intersections with the first state or federal highway beyond the permit area. This area was selected to encompass major intersections up to the point where potential project-related traffic would no longer be discernible from higher volumes of existing traffic. Transportation effects may or may not be identifiable at the outer limits of the study area.

3.11.1 Affected Environment

The proposed Rusk Permit Area is served by a network of SHs, CRs, and FM roads under the jurisdiction of Rusk County, Panola County, and the TXDOT. A BNSF rail line bisects the area from northwest to southeast between Longview and Tatum, although there is no access to direct rail service within the proposed permit boundary.

The Rusk Permit Area lies near the center of a loop formed by U.S. Highway 59 on the east, U.S. Highway 79 on the south, U.S. Highway 259 on the west, and I-20 on the north (**Figure 1-1**); distances from these highways range from approximately 7 miles on the north and east, to 11 miles on the south and 16 miles on the west, as the crow flies.

The Rusk Permit Area is bounded by SH 43 on east, FM 1797 on the south, FM 782 on the west, and the Sabine River to the north (**Figure 2-3**). SH 43 continues north to I-20 approximately 8 road miles northeast of the permit boundary and connects to SH 149 just south of the southern end of the permit boundary near the center of Tatum. FM 1797 runs east-west from FM 1716 to the City of Tatum. FM 782 connects SH 149 on the north to FM 1716 on the south and continues southerly from FM 1716. The Rusk Permit Area is bisected by SH 149, which runs northwest to southeast. SH 149 connects I-20 to the northwest and SH 43 to the southeast. FM 1716 is located in the southwestern corner within the permit boundary, connecting FM 782 on the northwest to FM 1797 to the southeast; it generally runs parallel to SH 149 south of Lake Cherokee (**Figure 2-3**).

TXDOT classifies SH 43 and SH 149 in the eastern half of the proposed Rusk Permit Area as “Rural Minor Arterials.” FM 782 and FM 1716 are classified as “Rural Major Collector” roads, and FM 1797 is a “Rural Minor Collector” (TXDOT 2009).

LOS is a standardized method of qualitatively measuring the operational conditions of traffic flows on roadways and the perception of those conditions by motorists and passengers (TRB 2000). A road’s LOS is determined based on the ratio of traffic flow volumes to estimated capacity (V/C ratio). LOS is rated “A” through “F,” “A” generally represents free-flowing conditions with few restrictions, and “F” represents a “forced or break-down” flow condition with queues forming and traffic volume exceeding the theoretical capacity of the roadway (Transportation Research Board [TRB] 2000). Generally, LOS “E” represents a traffic volume condition at the theoretical capacity of the roadway. The performance of each relevant roadway section in the study area was determined using the procedures in the Highway Capacity Manual (TRB 2000) to estimate its existing LOS.

SH 43 is a two-lane, undivided highway with wide shoulders running along the eastern edge of the Rusk Permit Area. Traffic volumes on SH 43, just east of SH 149, averaged 5,400 vehicles per day (vpd) in 2008 (TXDOT 2009). Based on available traffic volume information, existing traffic conditions are estimated at LOS A.

SH 149, which runs diagonally through the Rusk Permit Area, is a four-lane, undivided highway. Traffic volumes on SH 149, south of FM 782, averaged 9,300 vpd in 2008 (TXDOT 2009). Existing traffic conditions are estimated at LOS B.

FM 1797 runs along the southern edge of the Rusk Permit Area; it is a paved two-lane, undivided roadway. Traffic volumes on FM 1797, west of SH 149, averaged 1,900 vpd in 2008 (TXDOT 2009). Existing traffic conditions are estimated at LOS A.

FM 782, which runs along the western edge of the Rusk Permit Area, is a paved two-lane, undivided roadway. Traffic volumes on FM 782, south of SH 149, averaged 2,300 vpd in 2008 (TXDOT 2009). Existing traffic conditions are estimated at LOS A.

FM 1716, located in the southwestern corner of the Rusk Permit Area, is a paved two-lane, undivided roadway. Traffic volumes on FM 1716 averaged 2,000 vpd west of FM 1797 in 2008 (TXDOT 2009). Based on existing traffic volume information, traffic conditions are estimated at LOS A.

In addition to the major roadways described above, there is a network of local county roads within the permit boundary. These county roads typically are narrow, paved, two-lane, undivided roadways in fair condition, although a few are gravel surfaced. While current traffic volumes are not available for these roadways, based on a field review, the existing traffic volumes generally are very low. No existing traffic capacity or operational problems for these roads were observed during field visits.

3.11.2 Environmental Consequences

Transportation impacts are commonly evaluated based on two criteria: maintaining an acceptable LOS on major roadway segments, and maintaining safe travel conditions for the public. For the proposed project, there is also a potential issue of effects on travel times through the study area because of the number of road segments that would be closed at various times throughout the project life (see **Table 2-6**).

The relevant LOS standard for evaluating traffic conditions near the Rusk Permit Area is the commonly used criterion for rural highways of LOS C during peak hour periods. At LOS C, traffic flows are in the stable range; however, most drivers are becoming restricted in their freedom to select speed, change lanes, or pass other vehicles. Travel times are closely related to LOS, as they essentially are a function of distance and speed, the latter of which is largely a function of traffic flow conditions.

Safety is another important criterion when evaluating a roadway. Many factors contribute to roadway safety including surface conditions, sight distances, roadway geometry, and weather conditions. Possible effects of a mining project include changes to roadway geometry, changes to highway access points, increases in traffic, and increases in oversized vehicles on public roadways. These factors have been evaluated in this analysis.

3.11.2.1 Proposed Action

The Proposed Action would generate an increase in trips to and from the proposed Rusk Permit Area on area roads during construction and a smaller increase during operation of the mine. Similar to existing operations at the South Marshall Permit Area of the South Hallsville No. 1 Mine, essentially all trips to and from the mine would be via FM 2625 to the current site headquarters. Any additional traffic to the Rusk Permit Area via other external routes would be minimal and would occur only on an occasional basis, as needed. The major roadways in the vicinity of the Rusk Permit Area, as listed above, would not experience regular increases in traffic, with the possible exception of some construction traffic during setup of a new mining area. Therefore, the additional light vehicle and truck trips would have short-term, minimal effects on permit area roadways.

The existing South Hallsville No. 1 Mine employs approximately 300 workers. This number would not change under the Proposed Action for the 30-year life of the mine and for an additional 5 years during

closure and final reclamation. However, an additional 150 contract workers would be hired for 1 to 1.5 years during construction. Based on experience at similar mines, it is assumed that proposed project-related worker traffic during the morning peak hour would be approximately half the total number of workers, or 50 trips (in and out combined flow) during construction, and 30 trips for the remainder of the project life.

The amount of heavy truck traffic required for deliveries at the mine is uncertain; however, it would be expected to be similar to existing delivery traffic, perhaps with a minor increase for the construction period. Deliveries also would increase gradually throughout the mine life as larger amounts of fuel would be needed to transport the lignite from the active mining areas that would be at increasing distances from the truck dump/lignite stockpile area. In addition, the proposed project would extend the period over which materials would be transported to the South Hallsville No. 1 Mine area by approximately 15 years. The deliveries would be expected to occur throughout the day, so the effect on peak traffic would be minor, likely fewer than three deliveries for six trips (in-and-out combined flow) in the morning peak hour.

Based on these assumptions, Rusk Permit Area traffic would add a total of approximately 61 combined in and out trips during the morning shift change peak hour during the 1 to 1.5 years of construction, and 36 combined trips during the peak hour for the remainder of the mine life. This project-related traffic would enter and exit the project site from FM 2625. FM 2625 currently carries approximately 1,500 to 1,600 vehicle trips per day, or an estimated 250 to 300 peak hour trips, including existing South Hallsville No. 1 Mine traffic (TXDOT 2009). FM 2625 currently is operating at LOS A. With the estimated project-related increase in peak hour traffic, FM 2625 would continue to operate well within the limits of LOS A both during the 1-year construction period and throughout the mine life.

During construction and operation, 25 county roads within the permit boundary, including all roads in proposed mine areas, would be closed incrementally (by the jurisdictional agencies) as the mining operation progresses through the three proposed mine areas (see **Figure 2-3** and **Table 2-6**). The county roads subject to closure are all local access roads and do not provide effective shortcuts in most cases. There would be no mining within 100 feet of any public road ROW until the road has been closed by the appropriate jurisdictional authority. Since the mine would have right-of-entry to operate on lands within the permit boundary, properties currently dependent on the affected county roads for access would be vacated prior to closure. Alternate access routes would be provided prior to road closure if needed for access to occupied properties. Therefore, the closure of the county roads would not be anticipated to adversely affect the traveling public. Most roads that would be closed for the proposed project would be reopened within approximately 7 to 10 years following completion of mining in the affected areas.

Of the two SHs and three FM roads within or adjacent to the Rusk Permit Area, only FM 782 would be closed and removed during the proposed mining operation. The other four would remain open and unaltered. The closure of FM 782 near the southwestern boundary of the proposed Rusk Permit Area would be the only road closure likely to affect public travel. FM 782 is classified as a Rural Major Collector. It is the most direct route between Easton and Henderson and provides access to the east side of Cherokee Lake. FM 782 is proposed for closure beginning in mine year 16 from FM 1716 on the south to CR 2186. From mine year 21 through mine year 30, the closure would extend northerly in stages from CR 2186 to SH 149. Closure of the road would require the 2,300 vpd that currently use the route to detour around the mining area. The road segment from FM 1716 to SH 149 is slightly less than 3 miles long and takes a motorist approximately 3 minutes to travel. During mine years 16 through 30, the detour would have to go east to Tatum to connect with SH 149 back to the northwest. This detour would add approximately 7.5 miles and over 8 minutes to the trip.

The detours for FM 782 would increase traffic on SH 149, FM 1716, and FM 1797, although it is uncertain how many of the existing 2,300 vpd would need to make a full detour because there are no major traffic generators on either end of the proposed closure. Regardless, the added traffic would increase congestion somewhat, but the LOS would remain at or above LOS C. SH 149 would remain open throughout the mine life, except for a 24- to 48-hour closure to permit “walking” a dragline across the highway.

There are no proposed changes to public roadway geometry in or near the proposed Rusk Permit Area. The number of existing access points where county roads intersect with state highways would be reduced during construction and operation of the Proposed Action. This would improve roadway safety in the vicinity of the Rusk Permit Area due to the decrease in conflict points along the remaining roadways. A minor increase in accident risk would be expected to occur because of the expected increase in traffic on FM 2625, SH 149, and other roads used by detouring traffic from FM 782; however, this expected increase would be offset elsewhere by a reduction in the number of intersections on SH 149 and FM 1797.

Fire and emergency service access to individual homes and businesses would not be affected by any of the roadway closures due to the distribution of existing volunteer fire departments and stations. The area south of the Rusk Permit Area is served by three volunteer fire departments: Beckville Volunteer Fire Department, Church Hill Volunteer Fire Department, and Crims Chapel Volunteer Fire Department. Additionally, the area directly around Lake Cherokee on the north, south, and west sides is served by the Elderville Lakeport Volunteer Fire Department. Emergency response times for these existing fire departments are not expected to be adversely affected by the Proposed Action.

Medical access to hospitals and routine doctor visits could be marginally affected by the additional travel distance necessitated by closure of FM 782. The nearest hospital is located in Longview, Texas. Most residents' travel distance would not be affected as they currently would not use FM 782 to gain access to medical facilities. For some, there would be a minor increase in travel distance. For example, the travel distance from some residences near Cherokee Lake to Longview would increase from a current 19-mile trip to a 22-mile trip after the closure of FM 782. Residents on the portion of FM 782 south of FM 1716 could experience a similar increase in travel distance,

Effects of the Proposed Action on the BNSF railroad across the Rusk Permit Area would be minimal. There would be a 24- to 48-hour closure of the railroad to safely "walk" the dragline(s) across the railroad. Terms of the closure would be negotiated in advance with the BNSF.

Major utilities, including electric transmission lines and natural gas or oil pipelines crossing the proposed Rusk Permit Area, would be removed from proposed mine blocks and rerouted in advance of mining activities. Rerouting may be permanent, at the discretion of the owner.

3.11.2.2 No Action Alternative

Under the No Action Alternative, the Rusk Permit Area would not be developed, and the associated effects to transportation would not occur. Currently authorized operations at the South Marshall Permit Area of the South Hallsville No. 1 Mine, and existing mine-related effects (e.g., traffic volumes) to transportation, would continue until the lignite reserves are depleted (in approximately 2027). After closure and final reclamation of the South Marshall Permit Area in approximately 2035, there would be a reduction or elimination of the jobs and material deliveries associated with that operation. This would reduce traffic to a small degree, which would be most noticeable on FM 2625.

3.11.3 Cumulative Impacts

The past and present actions and RFFAs are identified in Section 2.7 and shown in **Figure 2-12**. The transportation effects of the past and present actions in the transportation cumulative effects study area are reflected in Section 3.11.1, Affected Environment. Consequently, the cumulative effects of these past and present activities and the proposed Rusk Permit Area would be the same as described for the Proposed Action.

RFFAs include the proposed Marshall Lignite Mine and a possible conveyor for the Rusk Permit Area. The Marshall Lignite Mine would have little or no cumulative interaction with the Rusk Permit Area traffic and transportation. The location of the Marshall Lignite Mine would be east of U.S. Highway 59, suggesting that most traffic headed to or from that mine would disperse via the major highways rather than via smaller roads such as those near the Rusk Permit Area and potentially affected by project-related traffic.

Construction of a conveyor system in the Rusk Permit Area would increase traffic modestly during conveyor construction, but would result in a reduction in the need for truck haulage. Less trucking likely would reduce the work force modestly and would reduce the amount of fuel needed at the mine, which would reduce mine commuter and truck delivery traffic on public roads by a small amount.

3.11.4 Monitoring and Mitigation Measures

The principal transportation-related effect of the Proposed Action would result from closure of FM 782. It is anticipated that TXDOT would provide appropriate detour guidance during the closure, and the road connection would be replaced as soon as possible after completion of mining and reclamation. No monitoring or mitigation is being considered for transportation.

3.11.5 Residual Adverse Effects

No residual adverse effects to transportation are anticipated, as the network of county roads and FM 782, which incrementally would be closed for the proposed project, would be restored approximately 7 to 10 years after completion of mining and reclamation in each mine area.