J.3.1 TRANSPORTATION MODES, ROUTES, AND NUMBER OF SHIPMENTS

J.3.1.1 Routes in Nevada for Legal-Weight Trucks

The analysis of impacts that would occur in Nevada used the characteristics of highways in Nevada that would be used for shipments of spent nuclear fuel and high-level radioactive waste by legal-weight trucks. Specifically, the base case for the analysis used routing for the Las Vegas Northern and Western Beltway to transport spent nuclear fuel and high-level radioactive waste. The distance and population density by county was obtained from Geographical Information System data for the State of Nevada using 1990 Census data. The population density data was escalated to 2035.

Figure J-10 shows the routes in Nevada that legal-weight trucks would use unless the State designated alternative or additional preferred routes. The figure shows estimates for the number of legal-weight truck shipments that would travel on each route segment for the mostly legal-weight truck and mostly rail transportation scenarios. The inset on Figure J-10 shows the Las Vegas Beltway and the routes DOE anticipates legal-weight trucks traveling to the repository would use.

J.3.1.2 Highway and Rail Routes in Nevada for Transporting Rail Casks

The rail and heavy-haul truck implementing alternatives for transportation in Nevada include five possible rail corridors and five possible routes for heavy-haul trucks; the corridors and routes for these implementing alternatives are shown in Figures J-11 and J-12. These figures also show the estimated number of rail shipments that would enter the State on mainline railroads. These numbers indicate shipments that would arrive from the direction of the bordering state for each of the implementing alternatives for the mostly rail transportation scenario.

Table J-33 lists the total length and cumulative distance in rural, suburban, and urban population zones and the population density in each population zone in the State of Nevada used to analyze impacts of the implementing alternatives. Table J-34 lists the cumulative distance in rural, suburban, and urban population zones and the population density in each population zone for existing commercial rail lines in Nevada. DOE based the estimated population that would live along each branch rail line on population densities in census blocks along the candidate rail corridors in Nevada. The populations are based on 1990 Census data escalated to 2035. For this analysis, the ending rail nodes in Nevada for commercial rail lines would be origins for the rail and heavy-haul truck alternatives listed in Table J-33. Table J-35 lists the total population that lives within 800 meters (0.5 mile) of rail lines in Nevada.

Nevada Heavy-Haul Truck Scenario

Tables J-36 through J-40 summarize the road upgrades for each of the five possible routes for heavy-haul trucks that DOE estimates would be needed before routine use of a route to ship casks containing spent nuclear fuel and high-level radioactive waste.

Nevada Rail Corridors

Under the mostly rail scenario, DOE could construct and operate a branch rail line in Nevada. Based on the studies listed below, DOE has narrowed its consideration for a new branch rail line to five potential rail corridors—Carlin, Caliente, Caliente-Chalk Mountain, Jean, and Valley Modified. DOE identified the five rail corridors through a process of screening potential rail alignments that it had studied in past years. Several studies evaluated rail transportation.

- The *Feasibility Study for Transportation Facilities to Nevada Test Site* study (DIRS 104777-Holmes & Narver 1962, all) determined the technical and economic feasibility of constructing and operating a railroad from Las Vegas to Mercury.