3.4 Truck-to-Rail Diversions

This section describes the approach, affected environment, and potential environmental consequences for truck-to-rail diversion. The Proposed Acquisition could result in impacts on traffic and roadway systems by diverting freight from truck transportation to rail transportation, which would decrease the number of trucks along certain trucking routes. While this section focuses on the impact of truck-to-rail diversions on vehicular traffic, those diversions would also affect the movement of energy commodities and energy efficiency, as discussed in *Section 3.8, Energy*. *Section 3.7, Air Quality and Climate Change*, discusses the implications of truck-to-rail diversion on air quality and climate change.

3.4.1 Approach

The Applicants predict that the Proposed Acquisition would reduce truck transportation on certain U.S. highways because some freight that currently moves by truck would move by rail instead. The Applicants project that the Proposed Acquisition would reduce truck traffic by approximately 64,018 trucks per year along various highway routes. The total distance that trucks would travel would be reduced by approximately 80,371,708 truck-miles under the Proposed Acquisition compared to the No-Action Alternative. The approach that the Applicants used to make these projections is detailed in the Applicants' application, and additional information is also provided in **Appendix I** of this Draft EIS.

The truck-to-rail diversion study area includes highways on which truck traffic would decline as a result of the Proposed Acquisition. OEA expects that truck traffic would decrease along the major north-south trucking routes across the Midwest, including between the Detroit/U.S.-Canada border ports and Dallas/San Antonio/U.S.-Mexico border ports (approximately 1,490 miles on average); between Chicago and Dallas/San Antonio/U.S.-Mexico border ports (approximately 1,185 miles on average); and between Minneapolis and Dallas/San Antonio/U.S.-Mexico border ports (approximately 1,208 miles on average).

As described in detail in **Appendix I**, OEA assessed the potential impacts of truck-to-rail diversions using industry standard capacity evaluation procedures and highway network data derived from the Freight Analysis Framework (FAF) and the Highway Performance Monitoring System (HPMS). The FAF is a transportation modeling tool produced through a partnership between the Bureau of Transportation Statistics (BTS) and FHWA that integrates data from a variety of sources to create a comprehensive picture of freight movement among states and major metropolitan areas by all modes of transportation (BTS 2018). The HPMS is a national highway information system that includes data on the extent, condition, performance, use, and operating characteristics of the nation's highways. Critical information in the HPMS includes highway class, speed limit, number of travel lanes, terrain, current year AADT, single unit and combination truck volumes, directional split factors (D-factor), design hourly volume factors (K-factor), future year (2039/2040) AADT, and other geometric and control information that have impacts on the potential capacities of the highway facilities.

OEA identified highways on which truck traffic could decrease as a result of the Proposed Acquisition, based on the origins and destinations (O/D) for truck traffic described in the Applicants' application. Each O/D pair represents a trade flow between two geographical areas with distinct economic markets, corresponding to "Business Economic Areas" based around cities in the U.S., "Canadian Metropolitan Areas" in Canada, and "federal entities" or states in Mexico. The Applicants identified approximately 115 O/D pairs including, for example, Dallas, Texas to Detroit, Michigan; Chicago, Illinois to Nuevo Leon, Mexico; and Toronto, Canada to Kansas City, Missouri (see **Table I.1-1, Appendix I**). OEA simplified this list of O/D pairs by replacing locations in Mexico and Canada with the most logical border crossing into the U.S. OEA then used the FAF to model the likely route that trucks would take between each O/D pair, taking into account highway, roadway, and traffic data included from the HPMS (see **Figure I.1-1**, **Appendix I**).

OEA conducted a capacity evaluation and performance assessment following the *Highway Capacity Manual 6th Edition* (HCM) (Transportation Research Board 2016) approach, while adopting the simplified capacity evaluation methods in HPMS. OEA grouped and evaluated highways based on similarities in geometrics and traffic control methods. OEA then conducted capacity evaluations for each FAF/HPMS-designated highway segment based on its facility type, including freeway facilities, multilane highways, two-lane highways, and signalized corridors. OEA quantified the effect of reduced truck traffic in terms of the volume to capacity (v/c) ratio averaged across highway routes, states, and the country as a whole. The v/c ratio is a commonly used measure of how sufficient an intersection is for handling the traffic that passes through it. A v/c ratio less than 0.85 is generally adequate capacity, and vehicles are not expected to experience significant queues and delays. As the v/c ratio approaches 1.0, traffic flow may become unstable, and delay and queuing conditions may occur. A v/c ratio greater than 1.0 results in the demand exceeding capacity and traffic flow is unstable and excessive delay and queuing is expected (FHWA 2016).

3.4.2 Affected Environment

Based on the latest available data (2018) published by BTS, truck transports account for 38.7 percent of the 5.25-million-ton annual volume of freight throughout the U.S., in comparison with 32.9 percent that moves by rail. The major truck movement corridors that the Proposed Acquisition could affect are as follows:

- Approximately 113,245 annual highway loads travel an average distance of 1,490 miles between the Detroit/U.S.-Canada border ports to Dallas/San Antonio/U.S.-Mexico border ports.
- Approximately 78,125 annual highway loads travel an average distance of 1,185 miles between Chicago to Dallas/San Antonio/U.S.-Mexico border ports.
- Approximately 52,321 annual highway loads travel an average distance of 1,208 miles between Minneapolis to Dallas/San Antonio/U.S.-Mexico border ports.

3.4.3 Environmental Consequences

3.4.3.1 Proposed Acquisition

OEA determined that the Proposed Acquisition would have some beneficial impacts to the highway system by diverting freight from trucks to rail (**Figure 3.4-1**). The projected reduction in truck traffic on the U.S. highway network of approximately 64,018 trucks annually (**Table I.1-1**, **Appendix I**) could potentially result in marginal benefits in terms of highway performance compared to the No-Action Alternative. OEA estimates that 9,765 miles of highways would, on average, experience a traffic decrease of 0.071 percent, while the v/c ratio would decrease by 0.033 percent, on average. Midwestern states, including Texas, Oklahoma, Illinois, and Missouri, among others, would see the most benefit to roadways from trucks being removed from the roadway network under the Proposed Acquisition. These highways support more than 113 trillion vehicle miles traveled (VMT), including 26.9 trillion truck-miles traveled. Among roadways that would be beneficially affected by the diversion of truck transportation to rail, 82.5 percent are classified as freeways with full control of access, 10.3 percent are multilane highways, 6.6 percent are two-lane highways, and 0.6 percent are signalized corridors. Most roadways are within rural areas (78 percent), and about 58 percent of roadway segments have reported truck percentages of 25 percent or greater. The Proposed Acquisition would not change the percentage of the highway network operating near, at, or over capacity compared to the No-Action Alternative.

3.4.3.2 No-Action Alternative

Under the No-Action Alternative, the Proposed Acquisition would not cause the diversion of freight from truck transportation to rail transportation. Based on existing traffic on roadways in the study area and projected growth rates, OEA estimates that 16 percent of the highway network would operate near capacity, 4 percent would operate at capacity, and 7 percent would operate over capacity in 2027 under the No-Action Alternative.

3.4.4 Conclusion

As evidenced in the analysis, the Proposed Acquisition would result in the diversion of trucks from the highway network system, which could provide some benefits to the highway system (**Figure I.1-3** in **Appendix I**). The capacity evaluation shows that the roadway network could have a 0.071 percent reduction of VMT, and a 0.00033 reduction, from 0.40450 to 0.40417, in v/c ratio. Because the Proposed Acquisition would not result in any adverse impacts to traffic and roadway systems as a result of truck-to-rail diversions, OEA is not recommending any mitigation related to traffic and roadway systems.

Figure 3.4-1 Primary Roadway Network Truck Diversions