

## **BARSTOW INTERNATIONAL GATEWAY THROUGHPUT ESTIMATE**

More than 40% of all inbound freight containers in the United States go through the Ports of Los Angeles and Long Beach (collectively, Ports), the largest port complex in the Western Hemisphere. Currently, there is a large volume of heavy trucks that take cargo from the Ports to all over the country. The millions of containers coming into the Ports create storage problems due to container dwell times at the Ports and significant truck congestion in and out of the Ports. Because the Ports are surrounded by major population centers, many of which are environmental justice/disadvantaged communities, heavy truck-based goods movement causes traffic congestion, accidents, and pollution, resulting in public health and other impacts to these communities. As noted in the “Market Benefits of BIG” that BNSF has separately submitted to the City, BIG would present substantial benefits to customers and enable a modal shift from trucks to trains while improving the above environmental conditions.

There has been ongoing recognition of the need to change the paradigm of goods movement in California by effectuating a mode shift from over-the-road trucking to rail transport, providing economic and environmental benefits for the state. The Pacific Harbor Line commissioned a *Feasibility and Benefits of Intermodal Service in Short-Haul Markets* assessment (Feasibility Assessment), which found that a facility in the High Desert would offer an attractive alternative to the current long-distance transloading occurring in the Inland Empire.

BIG is proposed to address this documented need for a facility to handle on-dock rail containers, east of the Inland Empire. BNSF determined that BIG, in order to be attractive to customers by providing efficiency in their supply chain, would need to facilitate a unique “cross-dock intermodal” mode of container transport that would permit direct rail transport of containers from the Ports to a self-contained rail yard and warehouse facility, thus permitting on-site cargo sorting prior to continued rail transport to final destinations. BNSF further decided that the facility should also include a block swap yard component, where blocks of cargo from different origins bound for similar destinations could be put together into single trains, for more cost-effective, quicker and efficient rail transport. The State of California has acknowledged BIG’s ability to process containers from the Ports without resulting in an increase in truck trips by identifying it as a key project in the *California State Rail Plan* (CalTrans, 2024).

BNSF determined which site location and layout would best permit BIG to facilitate accomplishment of the needed paradigm shift in container movement discussed above. After an extensive site selection process, BNSF acquired property in Barstow that was located along BNSF’s existing mainline and near where the Cajon, Mojave, and Needles Subdivision mainlines converge (i.e., the “Subdivision Wye”), and developed a design that would enable the intermodal facility to process containers. The design considered the physical and topographical constraints of the site. Based on the design, an estimate of the yard equipment was prepared (number of cranes, hostlers, yard tractors, etc.), in consultation with BNSF Operations, Capacity Planning, and Engineering team experts.

BNSF then engaged in a multi-step process to reasonably estimate BIG's throughput – the volume of containers that BIG would be expected handle in future years. First, it obtained the volume of containers that were currently being transported from Southern California by truck to destinations eastward outside of the state. BNSF then estimated the portion of this market share that could be captured and converted to rail utilizing BIG's intermodal facility and its unique cross-dock intermodal operation. See Appendix C of Appendix 5.17 BIG-2 for the containers BNSF examined as the market segment opportunity, as well as what proportion of these containers were estimated to be captured at BIG. This estimated capture number was based on market data from BNSF and customers, services destinations, projected growth rates, assessment of peak market and operating conditions.

Based on the conceptual design and estimated yard equipment, BNSF then estimated the facility throughput based upon factors including:

- Length and number of tracks
- 10 rubber-tired gantry cranes (RTG)
  - RTG productivity of 1 full turn per day
- 14 rail-mounted gantry cranes (RMG)
  - RMG productivity of 0.5 turn per day

This calculation results in an estimated annual throughput under ideal conditions. BNSF then estimates an 85 percent efficiency across the facility, based on actual lift capacity at facilities typically being 10-15 percent lower than ideal conditions due to seasonal variables, labor imbalance, equipment breakdowns and maintenance windows, human error, weather, etc. Factoring this efficiency calculation, BIG's intermodal facility was estimated to process approximately 1.1 million lifts annually.

**Authors**

Jacob Sass, Director Consumer Products Marketing, BNSF

Travis Thowe, Director Network Strategy, BNSF