North Carolina International Terminal Conceptual Rail Plan

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General

Rail access to the North Carolina International Terminal site would be via a rail spur along the western border of the property owned by as many as four separate entities:

1. The northern-most rail line is the CSX industrial track that connects the CSX main line with the south-leading rail spur at the CSX Davis Yard and Leland Exchange.
2. The U.S. Department of Defense (Army) delivers railcars over its 17 miles of track between Davis Yard and Sunny Point Junction to the U.S. Military Ocean Terminal, Sunny Point (MOTSU).
3. The Army also interchanges railcars for private entities south of its facility—Progress Energy, Primary Energy, and Archer Daniels Midland Company (ADM).
4. Rail access to the North Carolina International Terminal site would most likely be via CSX, MOTSU, Primary Energy, and ADM rights-of-way (ROWs). The rail distance between the CSX Davis Yard and the North Carolina International Terminal site is approximately 23 miles.

It is assumed rail components would have to be created and/or upgraded to provide rail access to the North Carolina International Terminal. A description of each component assumed to be in need of upgrading is included in Table 1.

TABLE 1
Summary of Rail Components and Associated Costs

Rail Component	Description
IY located within boundary of terminal.	Conceptual IY features are assumed to include: • 10 IY working tracks. • Average working track length – 3,660 ft. • Total working track length – 36,600 ft. • Railcar capacity – 120 (305-ft double stack cars). • Inside crane width (ICW) is 70 ft. • Five groups of two tracks. Track pairs on 15-ft centers. • Track spacing for operating area between track groups on 118-ft centers. • Three lift zones adjacent to each two track group. Meets required rail throughput projections of 882,352 annual rail containers.
Intermodal support yard located at the terminal entrance and extending along the external rail line approximately 13,000 ft.	Conceptual support yard features are assumed to include: • Four arrival /departure tracks. • End-to-end connection between IY and support yard. • Average track length 13,000 ft. • Total support track length 52,000 ft. Tracks on 15-ft and 25-ft centers allowing service vehicle access within rail yard.
The US Army Line.	Assumed rail upgrade features include: • Seven 2-lane grade separations. • 250 linear ft of new track. • 4 new turnouts. • 250 linear ft of control siding.
Davis Yard connection including the Leland Exchange.	Assumed rail upgrade features include: • Three 2-lane grade crossings. • 250 linear ft of new track. • 2 new turnouts. • New precast concrete grade crossings. • Grade crossing protection and fencing.

Intermodal Rail Planning

The following assumptions were used in considering the on-terminal intermodal rail component of the terminal. These assumptions define conceptual terminal operating practices and infrastructure requirements to support the intermodal movement of containers through the terminal.

The current goal is to make assumptions for developing concepts in support of movement of containers into and out of the marine terminal by means of an on-terminal IY or rail facility. This rail planning phase is based on the following cargo projections:

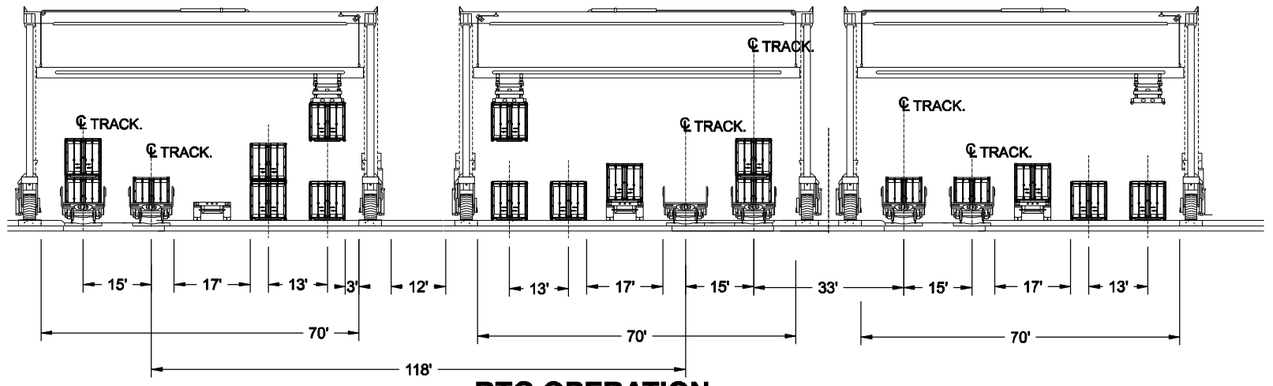
- Annual Marine Terminal Throughput: 3 million TEU.
- Intermodal Rail Volume: 50% (1. 5 million TEU or 882,353 annual rail lifts).

Considering the annual throughput of 882,353 containers and the rail line operating 364 days per year, the expected daily rail throughput is 2,424 containers. A 10,000-ft train contains 262 containers, which equates to 9.4 trains per day. Given that not all trains would be 10,000 ft long, for this phase it was assumed the train traffic would be 10 to 15 trains per day.

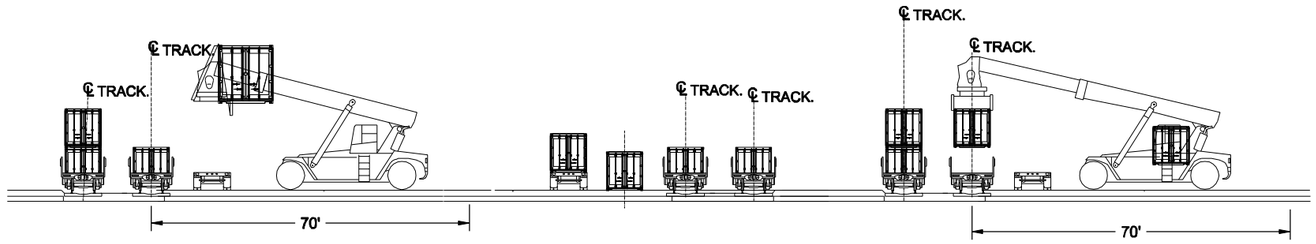
Development Considerations

As the development of terminal operations moves forward, refinement of the modal interchange between the IY and the marine terminal would consider the following:

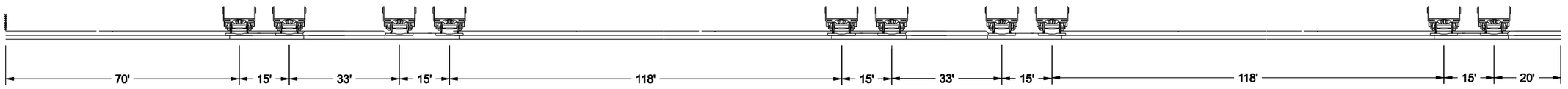
- Planning for rail loading and unloading and berth and CY operations should avoid operational dependency between modes. Methods which support the modal interchange of containers between IY and CY operations should be examined or modeled to expose reliance issues and production rate limits.
- Track-side staging and IY ground space for container management has been included to provide operational separation between rail lift operations and track-side delivery and take-away operations. Reducing this track-side staging area may directly impact the rail production rate.
- A back-to-back rubber-tired gantry (RTG) operation between pairs of tracks has been proposed to increase IY yard density. Terminal traffic patterns may need to be established to control movements within the IY.
- This IY layout supports the loading of multiple rail destinations or blocks within each pair of tracks without compromising the order of loading or the order of container delivery to the IY. Alternative rail lift configurations may compromise this operational flexibility and should be modeled to determine rail production limitations and dependencies.



RTG OPERATION



REACH STACKER OPERATION



NCIT RAIL CROSS SECTION

NO.	DATE	REVISION	BY	APVD

NORTH CAROLINA
INTERNATIONAL TERMINAL
NORTH CAROLINA STATE PORTS AUTHORITY
WILMINGTON, NORTH CAROLINA

CH2MHILL

RAIL YARD SECTION

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	JANUARY 2008
PROJ	346191
DWG	12
SHEET	

ISSUED

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