

December 2, 2016

Ms. Patricia Hu
Director
Bureau of Transportation Statistics
U.S. Department of Transportation
Washington, D.C. 20590

Dear Director Hu:

As the Chair of the Port Performance Freight Statistics Working Group, and on behalf of the entire Working Group, I am pleased to offer you our recommendations on port performance measures and on a process for collecting timely and consistent performance data. This submission fulfills the mandate of the Working Group as specified in Section 6018(c) of the *Fixing America's Surface Transportation Act* (FAST Act, P.L. 114-94).

In directing the Bureau of Transportation Statistics (BTS) to establish a Port Performance Freight Statistics Program, Congress recognized the importance of ports to our national economy. Ports serve as gateways to global markets, as well as critical hubs in our domestic freight transportation system. The performance of our nation's ports directly affects the competitiveness of U.S.-made products in the global marketplace as well as the availability and price of imported goods for U.S. consumers. Measuring port performance at the national level in a nationally consistent manner is important because it will provide decision-makers with a better understanding of ports' roles in the national transportation network and their contributions to the national economy.

However, this is a more complex undertaking than it first appeared. Ports vary significantly in the types of freight they handle, how they are governed and operated, their geographic locations, and their physical infrastructure. The majority of this infrastructure, including vessels, terminals, and equipment, is owned and operated by the private sector. These and other factors complicate the task of collecting nationally consistent performance data and doing so in a way that does not unduly burden public agencies and private industry or disclose proprietary information.

The Working Group has grappled with these issues while developing its recommendations. As part of our recommendations, we identified many shorter-term actions to help BTS develop a strong foundation for the Port Performance Freight Statistics Program, focusing on compiling information that is readily accessible and publicly available. We also made longer-term recommendations for BTS to consider as the program matures and as new data sources become available.

I hope that BTS will find these recommendations useful in establishing and managing this new and important program.

Respectfully submitted,



Dr. Thomas H. Wakeman, III
Stevens Institute of Technology
Chair, Port Performance Freight Statistics Working Group

PORT PERFORMANCE FREIGHT STATISTICS WORKING GROUP

RECOMMENDATIONS TO THE BUREAU OF TRANSPORTATION STATISTICS DIRECTOR

December 2, 2016

BACKGROUND

The *Fixing America's Surface Transportation Act* (FAST Act, P.L. 114-94; Dec. 4, 2015), Section 6018 (codified at 49 USC 6314), directed the Bureau of Transportation Statistics (BTS) to implement a Port Performance Freight Statistics Program (PPFSP) on behalf of the U.S. Department of Transportation (U.S. DOT). As part of the PPFSP, Section 6018 requires BTS to develop nationally consistent performance measures for, at minimum, the Nation's top 25 ports by tonnage, 20-foot equivalent unit (TEU), and dry bulk. Section 6018 also directed BTS to establish a Port Performance Freight Statistics Working Group (Working Group) to provide recommendations for specifications and data measurements for port performance measures, and a process to collect them.

INTRODUCTION

Ports are a vital economic engine for the Nation. Our Nation's coastal, inland, and Great Lakes ports form critical links in the U.S. freight transportation system, moving an estimated 55 million tons of cargo with a value of more than \$49 billion each day over almost seven million miles of highways, local roads, railways, navigable waterways, and pipelines.¹ In some form or another, these ports handle almost everything that we as a nation consume or use, from merchandise and food products to petroleum and fuel products.

Maintaining safe, well-functioning, and highly performing ports is essential to the nation's overall economic health. Furthermore, to remain globally competitive our nation's ports need to function reliably, efficiently, and safely. Measuring port performance at the national level is important because it will help decision-makers better understand and support ports' significant roles in the national transportation network and their contributions to the national economy.

While measuring port performance is of national importance, it is a complex issue; it is said that "when you see one port, you have seen one port." There are many different ways to define what a "port" is, such as by legislative enactment of Federal, State, or city government. Even within legislatively enacted port areas, however, there can be anywhere from one to over one hundred terminals that exchange goods. Terminals handling the same kind of cargo may use the same kind of equipment to load and unload cargo. They may be served by similar vessel types and have some common physical components. But even terminals handling similar types of cargo may have different governance or operational models, leading to wide differences in how performance is defined and assessed, and how performance data are collected. As a whole, ports may have very different geographic characteristics, ranging from ocean coasts to river banks and the shores of the Great Lakes. In addition to loading and unloading cargo, a vast array of transportation and other activities can take place at ports, the nuances of which are not easily captured at a highly aggregated, national level.

¹ U.S. Department of Transportation, *National Freight Strategic Plan*, p.4. Available at <https://www.transportation.gov/freight/NFSP> as of November 2016.

PORT PERFORMANCE FREIGHT STATISTICS WORKING GROUP

RECOMMENDATIONS TO THE BUREAU OF TRANSPORTATION STATISTICS DIRECTOR

December 2, 2016

Port performance can have many different dimensions. For example, throughput (the amount of cargo or trade handled by a port's terminals) and capacity (terminals' maximum annual throughput, defined by tonnage, TEU, or other units) are relatively tangible dimensions that can be assessed through quantifiable metrics or at least metric proxies. Thus a measurement of a port's throughput and capacity is the sum of individual terminals' throughput and capacity. But port performance can also include less tangible dimensions, such as the value a port provides to local or regional quality of life.

Port performance involves the confluence of many different factors, forces, and issues, some of which are within the control of a port and its terminals, and some of which are not. Ports are conduits for imports and exports. While they can facilitate trade movements by providing capacity and minimizing cost, they cannot directly influence trade demand or supply. Trade at a port—even within different terminals—can fluctuate significantly from year-to-year, month-to-month, and even hour-to-hour. This may lead to periods of underutilization at some terminals and congestion at others.

The majority of the maritime industry's assets, including vessels, terminals, and equipment, are owned and operated by the private sector. The private sector generates, collects, and analyzes its own data on individual terminal performance and this information may be proprietary or commercially sensitive. So while data are the critical elements needed to develop performance metrics and assess performance as a whole, much information may not be available to the public sector. Furthermore, information currently available to the public sector may not be nationally consistent.

In addressing the requirements of *FAST Act* Section 6018, the PPFSP should focus first on gathering information that is readily accessible and publicly available to identify a baseline. BTS can then build or elaborate on this foundation over time, focusing on what data or metrics will be of most national utility.

To support BTS in meeting these requirements, the Working Group offers the following recommendations for BTS' consideration as part of the PPFSP. The recommendations included below represent the majority opinion of the Working Group. In attending the Working Group's four past meetings (held in July, September, October, and November 2016), BTS has had opportunities to hear all members' perspectives and public comments on these recommendations.

PORT PERFORMANCE FREIGHT STATISTICS WORKING GROUP

RECOMMENDATIONS TO THE BUREAU OF TRANSPORTATION STATISTICS DIRECTOR

December 2, 2016

1. Recommendations: Data Sources for Port Lists (by TEU, tonnage, and dry bulk)

FAST Act Section 6018 requires the BTS director to provide nationally consistent metrics for, at minimum, the Nation's top 25 ports by tonnage, TEU, and dry bulk.

- 1A. **BTS should use the U.S. Army Corps of Engineers (USACE) Waterborne Commerce Statistics Center² (WCSC) data to generate top 25 port lists by TEU, tonnage, and dry bulk.** WCSC data should be used because they are publicly available and provide a nationally consistent source of information for all three lists. The WCSC relies on legislative enactments of Federal, State, county, or city governments to define port limits.
- 1B. **BTS should provide technical notes alongside the top 25 port lists to emphasize that the composition of the lists is subject to change as data are updated.**

2. Recommendations: Nationally Consistent Measures-Capacity

Measuring port capacity at the national level is simple in concept, but complex in practice. In principle, each terminal in a port has a physical limit to throughput or a point at which the marginal cost of additional throughput appears prohibitive or performance will deteriorate. Due to the wide variability in operations within a port, commodities moved, geography, and port infrastructure (i.e., channel depth), the capacity of a terminal is based on a number of conditions that are unique to that specific facility. The capacity of a port is an aggregate of the capacity of all of that port's individual terminals. Therefore, it may be more informative and actionable to understand each terminal's capacity at an individual level rather than at the national level.

Given the complexities inherent in measuring port capacity, there are few if any nationally consistent data sources for capacity metrics currently available for public sector use.

In the absence of nationally consistent port capacity data, port capacity measure proxies can be used because nationally consistent information is more widely available. Capacity proxies are estimates of port infrastructure that are associated with either greater or lesser throughput at a port or terminal. For example, a port with more berths and longer berth lengths will generally have a greater capacity than a port with fewer and shorter berths. Beyond berth and berth length, other examples of infrastructure metrics that can serve as capacity proxies include estimates of numbers of cranes, terminal acreage, loading equipment, truck gates, and channel depth.

² Domestic tonnage data in the WCSC are based on operator reports; foreign tonnage data are based on information compiled from the Port Import Export Reporting Service, the U.S. Census Bureau, and Customs and Border Protection entrances and clearances.

PORT PERFORMANCE FREIGHT STATISTICS WORKING GROUP

RECOMMENDATIONS TO THE BUREAU OF TRANSPORTATION STATISTICS DIRECTOR

December 2, 2016

2A. **BTS should conduct further analysis of the national utility of capacity metrics.** These metrics may be most meaningful as a way for ports to compare their own performance over time. Determining appropriate national-level capacity metrics is challenging, given the wide variance in ports' physical infrastructure, cargo moved, and other characteristics as noted in the introduction to these recommendations. Doing so may require additional resources in the longer-term.

2B. **BTS should clarify in the first PPFSP *Annual Report*, at a minimum, that port capacity (and throughput) are influenced by many factors** (e.g., seasonal fluxes in trade, levels of investment, types of cargo moved, presence of intermodal connectors, physical size of terminals within a port), some of which are within a port's control and many of which are not.

2C. **In the absence of nationally consistent information on capacity metrics for port performance, BTS should identify infrastructure metrics to serve as capacity proxies in the first *Annual Report*.** As part of such effort, the PPFSP should use USACE data to identify maximum authorized channel depth and maximum actual (or current) channel depth at ports, at a minimum. BTS should also develop a nationally consistent definition for what "current" means and factors affecting ports' or terminals' abilities to serve larger vessels.

For future reports, BTS should consider collecting and reporting on bridge height clearance (i.e., air draft) data as a proxy for more direct measures of factors limiting port capacity because of containership oversize. BTS should consider conducting additional analyses of container yard design capacity metrics but these should not be reported in the PPFSP's first *Annual Report* to Congress.

3. Recommendations: Nationally Consistent Measures-Throughput

Port throughput metrics assess the work that terminals within a port do and the productivity of all port assets. Throughput may be reflected in the weight, volume, and value of cargo handled by terminals within a port, the number of vessels that call at each terminal, the size of those vessels, and the amount of cargo handled at each vessel call.

3A. **BTS should use annual TEUs as a core throughput metric for containers.** Annual TEUs should include both loaded and empty containers, since the effort to move a container is expended regardless of whether it is full or empty.

3B. **BTS should use short tons as a core throughput metric for dry bulk and other tonnage.**

3C. **BTS should conduct further analysis to consider including additional throughput metrics in future PPFSP *Annual Reports*.** Examples might include but are not limited to:

- i. Quarterly or seasonal trade data

PORT PERFORMANCE FREIGHT STATISTICS WORKING GROUP

RECOMMENDATIONS TO THE BUREAU OF TRANSPORTATION STATISTICS DIRECTOR

December 2, 2016

- ii. Rail throughput metrics
- iii. Modes used (e.g., rail, truck, barge, etc.) to bring goods to or from a ports (for both volume and tonnage)

4. Recommendation: Collection and Reporting of Nationally Consistent Port Performance Data

4A. For the PPFSP *Annual Reports*, BTS should:

- i. **Include data on the latest year available.** If or when comparing latest year to previous years' data, BTS should add context about historic events that may have influenced the data trends (e.g., economic recession, natural disasters).
- ii. **Conduct further analysis to assess whether moving averages or longer-term trends** could be included along with data from the latest year.
- iii. **For the first *Annual Report*, BTS should limit metrics to performance issues that are within a port's control.** In future years of the PPFSP, BTS should consider including metrics that assess issues beyond ports' control, that have clear impacts on throughput and capacity, and for which nationally consistent data are available (potential examples might include but are not limited to vessel on-time performance and chassis availability).

5. Other Recommendations

5A. **BTS should consider including in the PPFSP *Annual Reports* a series of "spotlight" issues to provide general context for trends that may affect port performance** but for which there is currently no nationally consistent data. Examples of spotlight issues include but are not limited to:

- i. Availability of container chassis and truck parking
- ii. Connectivity of ports to other modes outside the gate (e.g., road, rail, barge, water passenger/transit)
- iii. Pipeline connectivity
- iv. Transport of hazardous materials
- v. Federal/state port funding support
- vi. International Convention for the Safety of Life at Sea (SOLAS) enforcement

5B. **BTS should conduct further analysis to assess the national utility of additional performance-related metrics and potential approaches for developing nationally consistent datasets** that are useful for assessing port performance. Examples of these metrics include but are not limited to:

- i. Truck-turn times
- ii. Road/rail connectivity
- iii. Rail and truck throughput
- iv. Vessel Dwell time

PORT PERFORMANCE FREIGHT STATISTICS WORKING GROUP

RECOMMENDATIONS TO THE BUREAU OF TRANSPORTATION STATISTICS DIRECTOR

December 2, 2016

5C. BTS should identify approaches for developing nationally consistent data definitions and standards that would be useful in assessing port performance, including additional analysis, if needed, to address both containerized and non-containerized cargo movements. This might involve reconvening the Working Group to advise BTS.

=====