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Patricia Hu
Director, Bureau of Transportation Statistics
1200 New Jersey Avenue, SE
Washington, DC 20590

Dear Director Hu

My name is Val Noronha. My firm, Digital Geographic, has been deeply engaged in the study of truck movement and productivity at the ports of Los Angeles and Long Beach (LA/LB) for 9 years.

I'm writing in connection with Section 6018 of the FAST Act. I offer some observations and recommendations from my experience, for consideration by the Bureau of Transportation Statistics (BTS) and for the July 15 meeting of the Port Performance Freight Statistics Working Group (PPFSWG). They are designed to enhance the effectiveness of your work, both monitoring port performance and feeding other efforts that could improve performance.

Of the numerous dimensions of port performance, my expertise and remarks pertain primarily to truck turn time, while touching on broader issues in efficient transport.

By way of introduction and background:

- I'm the architect of METRIS, a time-space technology suite to track metropolitan dynamics. METRIS was deployed in the LA/LB ports in 2007 under the sponsorship of USDOT-Research and Innovative Technology Administration (RITA), with a consortium of universities and public and private entities.
- I wrote the 2011 Turn Time Report for LA/LB, for the Truck Turn-time Stakeholders Group (TTSG): the Ports of LA/LB, California Trucking Association, marine terminal operators (MTOs) and beneficial cargo owners (BCOs). This was the first study to have measured time outside and inside the entry gate, from GPS. I have tracked LA/LB turn time monthly since then, and offer real-time (3 minute cycle) and synoptic congestion reports to customers in LA/LB and recently Charleston.
- METRIS findings were extensively cited in the Federal Maritime Commission [report on port congestion](#) of July 2015 (page 54-55), and are frequently covered in the Journal of Commerce.
- My work was motivated by security concerns over the LA/LB ports as a strategic national asset, and streamlining logistics. It is not influenced disproportionately by any industry segment.

Observations

Section 6018 is timely because the recent upheavals in the congestion/performance landscape are bound to be repeated as the expanded Panama Canal and other global trade shifts take effect. There are logistical, political and security imperatives for national awareness of port performance.

Comparing ports and terminals

Nonetheless, and notwithstanding our thirst for hard data, it is potentially misleading to rate port performance comparatively by tables of numbers and charts, without extensive qualifications.

Ports do not operate on an even playing field. For example, a rough METRIS analysis of the past 3 years of data shows that turn time is [longer at high-volume terminals](#) ($r^2=0.7$). By extension, there's a good chance that high-volume *ports* are slower too. This means that long turn time cannot necessarily be interpreted as failure of any

party to perform up to par, and productivity problems cannot be circumvented in the long term by shifting cargo to gateways that currently appear to be more productive.

Volume is not the only differentiator. At the port of Busan, Korea, which is comparable in volume to LA/LB but export-oriented, a visitor video advertises an average turn time of 10 minutes (presumably in-terminal only). In LA/LB, in-terminal averages 60 minutes, and it's generally 20-60 minutes in the U.S. — because imports dominate, and the technology, regulations and labor environments differ.

Culpability

Turn time is widely read as a commentary on MTO performance. The assumption of singular responsibility is so entrenched that in Sydney and Vancouver, financial penalties are levied on MTOs when turn times are long.

Turn time is affected by systemic conditions and policies at the national, state, local and port level: jurisdiction structures, congestion fees, labor law, work ethic, security procedures, metropolitan infrastructure and traffic, construction, mishaps and errors (which sometimes originate in other countries), among numerous other factors. Port cities and authorities can facilitate dialog and data exchange among parties, and sponsor research into process improvements. They can decongest business areas by facilitating off-site street-turn of empty containers.

Aside from systemic factors, there are conscious behaviors and throttles on the part of steamship lines, BCOs, MTOs, longshoremen, motor carriers and drivers, designed to protect individual interests in zero-sum subsystems, increasing cost and delay for others. These are the oft-repeated points of contention: steamship lines deploying larger vessels; BCOs taking maximum advantage of demurrage-free days; slowdowns and stoppages by longshoremen; inadequate labor deployment by MTOs; inadequate driver training and early arrival and lingering of trucks inside terminals.

There is no model that isolates the impacts and propagation of the foundational versus discretionary delay factors. Therefore, apportioning responsibility and prioritizing remedies are uncertain and controversial. For objectivity, it is important to track all — or none — of the discretionary variables associated with delay, and as many of the systemic variables as practically possible, and to emphasize frequently that performance is an attribute of the freight *system*, not any industry segment.

Measurement and statistics

From September 2014 to February 2016, 1% of all truck visits in LA/LB took *six* hours or longer. This, rather than the 1½ hour mean, captures the story of turn time unreliability and cost. The supply chain operates on a series of time-windows of warehouse processes and inter-modal connections; therefore the metrics of dominant interest are those of reliability. This demands high standards of data quality and rigorous methodology.

Computing turn time from GPS data is computationally non-trivial. This was documented by National Cooperative Freight Research Program (NCFRP) Study 14 of 2012 ([Report 11](#)) which states: “The biggest issue with the data was false positives and false negatives ...” (page 22). The reason why measurement is difficult is standard GPS error (that can report a truck inside a terminal when it is in fact outside), compounded by degradation of GPS and communications signals. It requires specialized algorithms supported by careful validation, not off-the-shelf geofencing, to retrace events accurately, to identify errors and to manage them. Calculating reliability requires confidence in the tails of the distribution (the extreme highs and lows) which cannot be delivered by error-prone processes.

There is evidence of inappropriate technique or error in most turn time measurements now in circulation. At a recent demonstration in Los Angeles, an MTO executive simply looked out a window and showed an analyst's real-time queue measurements to be seriously wrong.

Consensus

There is broad concern that disagreement among industry groups on turn time measurement is inevitable and paralyzing. It is not. Matters such as how far back to measure queues, and whether results should be stratified by transaction type, can be resolved with the right technical and management approaches.

In 2011 we achieved [consensus across interest groups](#) in about an hour. All parties accepted my findings as valid and even-handed, and were ready to proceed towards remedial measures. This success in the nation's premier ports can be replicated.

Recommendations to Working Group

The approach that BTS brings to Section 6018 must obviously address the purposes of federal oversight contemplated by the Section. I respectfully suggest that the effort would serve the freight community immeasurably if it could facilitate, by appropriate partnerships as applicable, the production of information resources that would:

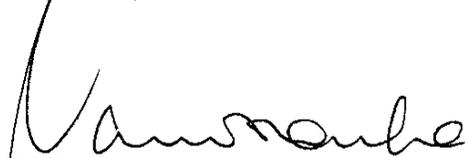
- Document the course of crises (disasters, security incidents, conflicts) that substantially disrupt the national supply chain and may benefit from federal intervention ([example](#));
- Identify urgent infrastructure development needs that may involve federal programs and federal-local partnerships (highway projects, rail grade separations, port dredging);
- Identify opportunities for federal incentives to non-government operators (e.g. terminal management and motor carriers) to achieve strategic priorities such as throughput and sustainability;
- As the national balance of trade undergoes further shifts, feed port customers (retailers and exporters) with accurate, timely and consistent measures of productivity, to facilitate informed strategic decision making;
- Track the positive and negative effects of
 - policies (e.g. congestion-pricing and demurrage, roadability inspections, hours of service),
 - events (e.g. natural disasters and accidents, construction, labor actions),
 - new technologies and procedures;
- Feed research on logistical improvement, e.g. better management of empty containers, infrastructure needs throughout the metropolitan region;
- Quantify the implications of supply chain inefficiency for security and the environment.

In the specific area of truck turn time, the good news is that consensus on measurement approaches, and accurate clocking of turn time at the nation's ports, are eminently achievable, in a short time-frame.

In closing, I hope this input has been useful. It is commendable that BTS has taken a transparent approach to implementing Section 6018. I'd like to continue to follow the progress of PPFSWG, and when the time is right, would be pleased to assist in drawing up a strategic roadmap, defining data quality specifications, and providing comprehensive analytical services.

Please feel free to contact me at noronha@digitalgeographic.com or 805 637 8992 if you have any questions.

Respectfully



Val Noronha

cc: Caesar Singh, Research and Innovative Technology Administration
Mario Cordero, Federal Maritime Commission
Jonathan Gold, National Retail Federation
Kurt Nagle, American Association of Port Authorities
Eric Shen, Maritime Administration, Southern California Gateway