SUPPORTING STATEMENT

Freight Logistics Optimization Works (FLOW) Project: Pilot Phase

Part B. Collections of Information Employing Statistical Methods.

1. Describe (including a numerical estimate) the potential respondent universe and any sampling or other respondent selection method to be used. Data on the number of entities (e.g., establishments, State and local government units, households, or persons) in the universe covered by the collection and in the corresponding sample are to be provided in tabular form for the universe as a whole and for each of the strata in the proposed sample. Indicate expected response rates for the collection as a whole. If the collection had been conducted previously, include the actual response rate achieved during the last collection.

The FLOW pilot phase will focus on the flow of goods to and from a limited number of terminals (i.e., ports) and involve approximately 20 participating companies who have volunteered to provide data. These companies cover the following industry sectors: beneficial cargo owners (BCOs), ocean carriers, non-vessel operating common carriers (NVOs), ports and terminals, motor carriers, railroads, intermodal equipment providers (IEPs), and warehousers. No sampling will be used.

2. Describe the procedures for the collection of information including
*** Statistical methodology for stratification and sample selection,**
*** Estimation procedure,**
*** Degree of accuracy needed for the purpose described in the justification,**
*** Unusual problems requiring specialized sampling procedures, and**
*** Any use of periodic (less frequent than annual) data collection cycles to reduce burden.**

FLOW is a joint U.S. Department of Transportation and freight industry endeavor aimed at improving cargo flow through increased data and information exchange among supply chain stakeholders in the logistics and supply chain community. Data submitted will include purchase order forecasts, cargo bookings, vessels in-transit, marine terminal space availability, drayage truck dispatch capacity, over-the-road truck dispatch capacity, chassis availability, and warehouse capacity. These data will be used to create an index of demand over capacity that is expected to act as a leading indicator of freight congestion and supply chain performance. The index, which will help communicate the degree of oversupply or undersupply of logistics assets, is intended to support a data driven approach to balance U.S. cargo traffic demand with system capacity.

$$FLOW\ Index = \frac{Aggregate\ demand\ at\ node}{Aggregate\ capacity\ at\ node}$$

The FLOW index provides two key forms of supply chain intelligence: 1) it is a measure of health in the supply chain as it communicates the degree of oversupply or undersupply of logistics assets and thus helps to communicate the health of the economy as a whole, and 2) it provides a preview window into supply chain performance across shipment lifecycles (e.g. a preview of what dwell time *will* be, not what it *is* or *was*).

Right now, supply chain data aggregation and health are largely assessed with lagging performance indicators. FLOW improves upon classical approaches by modeling incoming demand over capacity, giving participants a preview window and an estimate as to what and where bottlenecks will occur so that proactive action may be taken to address the issue. FLOW enables participants to identify constraining factors and over time better understand the estimated effect on reduced container throughput.

Demand Data Elements

Currently, cargo forecasted information is siloed among individual verticals of the supply chain. Because everyone only has visibility into their own portion of the overall demand data, it is difficult to accurately extrapolate national supply chain flows, make optimal network decisions, and monitor system health. For FLOW to be effective, stakeholders do not need to see *what* is moving, only *how much* and to *where*. This will produce dashboards that indicate flow at key nodes and, the FLOW index will give a preview of performance. The demand data elements are described in Table 1.

Table 1. Demand data elements to be collected

Data Element	**Unit**	**Frequency**	**Node**	**Owner/Provider**
Purchase Order Forecasts	Estimated number of containers	Weekly	Country of origin, port of destination, rail yard, end destination	Beneficial cargo owner
Cargo Booking	Number of containers	Weekly	Port of origin, port of destination, rail yard, end destination	Ocean carrier
Vessel In-Transit	Number of containers	Daily	Port of origin, destination marine terminal, rail yard, end destination	Ocean carrier

Capacity Data Elements

Currently, capacity is estimated by aggregate measures of historical performance, and not the aggregation of available asset data. By calculating demand over capacity at the asset level, the FLOW index will provide an indicator of performance efficiency of the supply chain nationally (as performance calculations can be derived from asset data) while providing additional insight into the drivers of that performance.

The maximum efficiency a node can have is one asset unit of capacity supporting one unit of demand at a single slice of time; for example, for every container that moves over land there is one chassis, truck, and/or railcar to move it, and the exact square footage required in a warehouse to store it—a FLOW index of 1.0. Details about the capacity data elements are provided in Table 2.

Table 2. Capacity data elements to be collected

Data Element	**Unit**	**Frequency**	**Node**	**Owner/Provider**
Marine Terminal Space Availability	Container spaces	Daily	Marine terminal	Marine terminal operator
Drayage Truck Dispatch Capacity	Number of trucks	Daily	Marine terminal, rail yard	Motor Carrier/Trucking Company
Over-the-road Truck Dispatch Capacity	Number of trucks	Daily	Region as defined by ZIP code	Motor Carrier/Trucking Company
Chassis Availability	Number of chassis	Daily	Marine terminal, rail yard	Intermodal Equipment Provider
Warehouse Capacity	Cubic feet	Daily	Individual warehouse	Warehouse

3. Describe methods to maximize response rates and to deal with issues of non-response. The accuracy and reliability of information collected must be shown to be adequate for intended uses. For collections based on sampling, a special justification must be provided for any collection that will not yield "reliable" data that can be generalized to the universe studied.

Participation in this program is voluntary and does not involve a sampling design. An agreement is signed to join the FLOW program that outlines requirements regarding the data to be provided and the frequency of submission. FLOW is a joint USDOT/industry initiative that is expected to benefit both parties by supporting industry collaborative demand management (CDM) decision making associated with the daily management of cargo and assets. Due to the joint nature and benefits to both parties, high levels of engagement are expected from FLOW participants during the pilot phase.

4. Describe any tests of procedures or methods to be undertaken. Testing is encouraged as an effective means of refining collections of information to minimize burden and improve utility. Tests must be approved if they call for answers to identical questions from 10 or more respondents. A proposed test or set of test may be submitted for approval separately or in combination with the main collection of information.

In general, the FLOW pilot phase itself is expected to be a test of the availability of pertinent data elements and their suitability in carrying out the calculations described above. Several objectives of the FLOW pilot phase include: (a) determine the minimum viable information necessary to support calculation of the index, (b) determine a standard reporting structure for this information, and (c) demonstrate that this data can be operationalized through the development of a FLOW index as proof of concept. It is anticipated that adjustments, as mutually agreed by USDOT and the FLOW participants, may be made during the pilot phase as needed to support the development of a more accurate or robust index measure.

5. Provide the name and telephone number of individuals consulted on statistical aspects of the design and the name of the agency unit, contractor(s), grantee(s), or other person(s) who will actually collect and/or analyze the information for the agency.

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Various BTS staff will participate in the collection and analysis of FLOW data.