Innovations in Freight Data Workshop

April 9-10, 2019

Arnold and Mabel Beckman Conference Center
Irvine, CA

Organized by
Transportation Research Board

www.trb.org/conferences/Freight2019.aspx
WELCOME

Building on the success of its predecessor 2017 workshop, the 2019 Innovations in Freight Data Workshop aims to bring together the community of freight data users to share, discuss, and learn about:

- The latest applications of emerging data sources and data fusion methods;
- Freight data tools that are adaptable, flexible, user-friendly, and preserve proprietary data, or that are developed with open source technology; and
- Transferable methods of data collection, analysis, and visualization to meet local, federal, or international freight planning and performance measurement requirements.

Presenters and attendees are invited to share experience and best practices for addressing persistent gaps in freight data collection and evaluation, and for responding to the new challenges associated with the use of recent and emerging data sources.

—Alison Conway, City College of New York
Innovations in Freight Workshop Planning Team Chair

Planning Committee
Alison Conway, City College of New York, Chair
Avital Barnea, AASHTO
Chandra Bondzie, FHWA
Chester Ford, Bureau of Transportation Statistics
Sam Hiscocks, Iowa Department of Transportation
Sherif Ishak, University of Alabama Huntsville
Nikola Ivanov, University of Maryland CATT Laboratory
Yatman Kwan, California Department of Transportation
Catherine Lawson, University at Albany, SUNY
Donald Ludlow, CPCS
Joel Worrell, Florida Department of Transportation

Staff
Tom Palmerlee, TRB
Scott Brotemarkle, TRB
Mai Quynh Le, TRB

The Transportation Research Board is one of seven major programs of the National Academies of Sciences, Engineering, and Medicine. The mission of the Transportation Research Board is to increase the benefits that transportation contributes to society by providing leadership in transportation innovation and progress through research and information exchange, conducted within a setting that is objective, interdisciplinary, and multimodal. The Board’s varied committees, task forces, and panels annually engage about 7,000 engineers, scientists, and other transportation researchers and practitioners from the public and private sectors and academia, all of whom contribute their expertise in the public interest. The program is supported by state transportation departments, federal agencies including the component administrations of the U.S. Department of Transportation, and other organizations and individuals interested in the development of transportation.

www.TRB.org
## Schedule at a Glance

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<th>Wednesday, April 10</th>
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<td>7:00 AM</td>
<td>Breakfast</td>
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<tr>
<td>8:00 AM</td>
<td>Opening Session</td>
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<td>9:00 AM</td>
<td>TRB Freight Systems Committee Mid-year Meetings</td>
<td>Panel</td>
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<td>Noon</td>
<td>3:00 PM</td>
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<tr>
<td>1:00 PM</td>
<td>AASHTO Freight Meeting (Open to Public from 1:30pm to 3:30pm)</td>
<td>Panels</td>
<td>Closing Session</td>
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<tr>
<td>2:00 PM</td>
<td>TRB Freight Systems Committee Mid-year Meetings</td>
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<tr>
<td>3:00 PM</td>
<td>4:00 PM</td>
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<td>Planning Team Debrief</td>
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<tr>
<td>5:00 PM</td>
<td>Interactive Poster Session/Reception</td>
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<td>6:00 PM</td>
<td>Planning Team Meeting</td>
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<tr>
<td>7:00 PM</td>
<td>Breakfast</td>
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TRB COMMITTEE MEETINGS

Monday, April 8, 2019

All Committee Meetings and the AASHTO Freight Meeting Part 1
Open to the Public

7:00 a.m.– 8:00 a.m.
Breakfast

8:00 a.m.– 10:00 a.m.
Freight Transportation Planning and Logistics (AT015) Committee Meeting
Matthew Roorda, University of Toronto, presiding

Agriculture and Food Transportation (AT030) Committee Meeting
Mark Berndt, Quetica, presiding

10:00 a.m.– 10:30 a.m.
Break

10:30 a.m.– 12:30 p.m.
Urban Freight Transportation (AT025) Committee Meeting
Bill Eisele, Texas A&M Transportation Institute, presiding

Intermodal Freight Terminal Design and Operations (AT050) Committee Meeting
Nathan Hutson, University of Southern California, presiding

12:30 p.m.– 1:30 p.m.
Lunch

1:30 p.m.– 3:15 p.m.
AASHTO Special Committee on Freight Meeting Part 1
Roger Millar, Washington State Department of Transportation, presiding

3:15 p.m.– 3:30 p.m.
Break

3:30 p.m.– 5:30 p.m.
AASHTO Special Committee on Freight Meeting Part 2 (Members Only)
Roger Millar, Washington State Department of Transportation, presiding

Freight Transportation Data (ABJ90) Committee Meeting
Alison Conway, City College of New York, Chair, presiding

Intermodal Freight Transport (AT045) Committee Meeting
Jolene Hayes, Fehr and Peers, presiding

5:30 p.m.– 6:30 p.m.
Innovations in Freight Data Workshop Planning Meeting (Members Only)
Alison Conway, City College of New York, Chair, presiding
WORKSHOP SESSIONS

Tuesday, April 9, 2019

7:30 a.m.– 4:30 p.m.
Registration

7:30 a.m.– 8:30 a.m.
Breakfast

8:30 a.m.– 10:00 a.m.
Opening Session
Alison Conway, City College of New York, Chair, presiding

Welcome and Charge to Participants
Roger Millar, Washington State Department of Transportation
Coco Briseno, CalTrans

10:00 a.m.– 10:30 a.m.
Break

10:30 a.m.– Noon
Novel Methods of Data Collection (I)
Innovative data collection methods are being developed to address persistent freight data challenges, including invisibility of local movements and data time lags. This panel will discuss innovative applications to collect location-specific freight parking, routing, and behavior data.

A Self-Sustaining, Self-Perpetuating Web-Scraping Application for Crude Oil Railroad Route Information
Chieh (Ross) Wang, Shih-Miao Chin, Ho-Ling Hwang, Hyeonsup Lim, Oak Ridge National Laboratory

Next-Generation Smartphone or Tablet-Based Commercial Vehicle Survey
Lynette Cheah, Singapore University of Technology and Design; Kyungsoo Jeong, Massachusetts Institute of Technology

Leveraging the Crowd: The Application of Crowdsourced Data to Generate Truck Parking Insights
Alex Marach, CPCS

Noon– 1:00 p.m.
Lunch

1:00 p.m.– 2:30 p.m.
Developing Freight Data into Decision-Making Information
State and local agencies are now using common data sources such as vehicle probes, traffic sensors, and weigh-in-motion systems in innovative ways for freight planning and performance measurement. This panel will discuss new freight planning and performance measurement applications for public agencies.

Truck Empty Backhaul - A Florida Freight Story
Joel Worrell, Florida Department of Transportation

Using Freight Data to Inform the 2018 Texas 100 Most Congested Road Sections
David Schrank, Bill Eisele, Texas A&M Transportation Institute

Trucks and the Port of Virginia: Understanding Freight Patterns with Big Data
Robert Case, Hampton Roads Transportation Planning Organization; Catherine Manzo, StreetLight Data

2:30 p.m.– 3:00 p.m.
Break
3:00 p.m.– 4:30 p.m.

**Developing Data Systems to Manage Commercial Vehicle Behaviors**

Understanding truck activity patterns and supply chain behaviors is critical for planning for and managing goods movements and prioritizing infrastructure investments. This panel will discuss new methods for identifying, measuring, and visualizing freight activities.

- **Implementation of a National Freight Fluidity Monitoring Program**
  Marygrace Parker, I-95 Corridor Coalition; Joseph Bryan, WSP USA, Inc.

- **Truck Activity Pattern Classification Using Anonymous Mobile Sensor Data**
  Taslima Akter, Sarah Hernandez, University of Arkansas

- **Advanced Uses Of Truck GPS Data: Truck Tour Typologies, Connecting Long-Haul And Short-Haul Trucks, and Longitudinal Analysis to Understand Change in Business Practices Over Time**
  Colin Smith, Vincent Bernardin, RSG

4:30 p.m.– 6:00 p.m.

**Interactive Posters and Reception**

Presenters will utilize large flat-screens to interactively demonstrate innovative freight data applications, many of which combine multiple data sources / technologies (e.g. GPS, Bluetooth) to improve data collection, analysis, and decision making.

- **An Evolution in Open Source Interactive Freight Data Visualization**
  Ben Stabler, Colin Smith, RSG

  Derek Cutler, EDR Group

- **Design and Pilot of a Shipment Tracking Method to Supplement a Commodity Flow Survey**
  Peiyu Jing, Massachusetts Institute of Technology; Lynette Cheah, Singapore University of Technology and Design

- **Enhancing Truck Activity Monitoring System by using Advanced Traffic Sensors**
  Yiqiao Li, Andre Tok, Institute of Transportation Studies, University of California, Irvine

- **Firms in the Future: Applying Today’s Data to Forecast the Evolution of Firms for Freight Modeling**
  Brent Selby, Krishnan Viswanathan, Cambridge Systematics, Inc.

- **Implementing Freight Fluidity in Texas**
  Bill Eisele, Nicole Katsikides, Texas A&M University Transportation Institute

- **International Truck Travel in the SoCal Region: Understanding Freight Patterns with Big Data**
  Keri Robinson, SANDAG; Jess Stetson, StreetLight Data

- **NCFRP 49 - Web Guide for Understanding and Using New Data Sources to Address Urban and Metropolitan Freight Challenges**
  Vivek Sakhrani, Donald Ludlow (CPCS Transcom)

- **Spatiotemporal Analysis of the Freight Analysis Framework Data**
  Monique Stinson, Argonne National Laboratory; Birat Pandey, Federal Highway Administration

- **The Future of Urban Goods Movement: An Evaluation and Implementation of Data Driven Methods**
  Ethan Yue Sun, Fatemeh Ranaiefar, Fehr & Peers
Wednesday, April 10, 2019

7:30 a.m.– 1:30 p.m.
Registration

7:30 a.m.– 8:30 a.m.
Breakfast

8:30 a.m.– 10:00 a.m.
Emerging Data Streams and Future Freight Application

Transformational technology advances, such as artificial intelligence and the internet of things, and increasingly vast datasets, such as transaction records are expected to enable new advances for freight data collection, behavior analysis, and decision-making. This future-looking panel will discuss the new opportunities that these innovations may offer for freight planning and management.

The Electronic Logging Device (ELD) Mandate and Trucking: How We Got Here and Opportunities for Freight Data, Planning and Management
Jeffrey Short, American Transportation Research Institute (ATRI)

10:00 a.m.– 11:15 a.m.
Poster Session

Using traditional posters, presenters will discuss a variety of unique approaches for freight data collection, performance measurement, planning, and visualization.

A Freight Forecasting Tool for Northern New Jersey
Daniel Beagan, Christopher Lamm, Cambridge Systematics, Inc.

Advanced Geospatial Analytics to Identify Freight Activity Areas for Polk County in Florida
Makarand Gawade, Jerry Scott, HDR

California Vehicle Inventory and Use Survey - Large-scale Data Collection and Fusion with Trucking Databases
Anurag Komanduri, Mobashwir Khan, Cambridge Systematics

Characterization and Estimation of Traffic Volume: A Truck and Passenger Cordon Study of the Seattle's Urban Core
Gabriela del Carmen Giron Valderrama, Anne Goodchild, University of Washington

Conceptual Routing for Potential Hyperloop Freight Network Using the Freight Analysis Framework Database
Chieh (Ross) Wang, Shih-Miao Chin, Ho-Ling Hwang, Hyeonsup Lim, Oak Ridge National Laboratory

Data Assessment Methods for Truck-Sea Vessel Flow Analysis
Mario M Monsreal Monsreal, Don Kang, Texas A&M Transportation Institute

Emerging Datasets Used in Advanced Freight Models
Kaveh Shabani, Maren Outwater, RSG

Mind the Curb: Findings from Commercial Vehicle Curb Usage in California
Mohammadreza Kamali, Anurag Komanduri, Cambridge Systematics

Practices for the Geographic Disaggregation on CFS Data in Southern California
Stephen Yoon, SCAG

Spatial Disaggregation of Waterborne Commodity Flow by Fusing Truck GPS and Lock Performance Data
Magdalena Asborno, Sarah Hernandez, University of Arkansas

The Questions Big Data Can Answer: Commercial Travel Analysis
Joan Lim, StreetLight Data; Stasa Zivojnovic, Fatemeh Ranaiefar, Fehr and Peers

Noon– 1:00 p.m.
Lunch
1:00 p.m.– 2:30 p.m.  
**Machine Learning and Computer Vision to Collect and Improve Freight Data**

Computer vision and machine learning offer new opportunities for improving the quality of freight data and for addressing persistent freight data gaps. This panel will discuss recent applications of these approaches.

*Truck Taxonomy–Classification and Commodity via Machine Learning*
Ed Hutchinson, Makarand Gawade, Florida Department of Transportation

*Computer Vision and Data Fusion for Asset Management Data Collection*
Josh Symonds, ARUP

2:30 p.m.– 3:00 p.m.  
**Break**

3:00 p.m.– 4:00 p.m.  
**Closing Session**
Alison Conway, City College of New York, Chair, *presiding*

During the closing session, workshop organizers and panel moderators will summarize workshop findings and engage attendees to identify key takeaways from the workshop, including:

- promising new data sources and processing, analysis, or visualization methods;
- transferable advances in practice for freight planning and performance measurement; and
- immediate and long-term research needs to further advance the capabilities of freight data users and to address persistent freight data gaps and challenges.

4:00 p.m.– 5:00 p.m.  
**Innovations in Freight Data Workshop Planning Debrief (Members Only)**
Alison Conway, City College of New York, Chair, *presiding*

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**Registration Fees**

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<tr>
<td>General</td>
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**Hotel Information**

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17900 Jamboree Road  
Newport Beach, California 92814  
Phone: 877-614-2137

**Contacts**

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