

# 2022 I-NUF Conference

## Conference Summary

### Overview

The 9<sup>th</sup> METRANS International Urban Freight (I-NUF) conference took place at the Hotel Hyatt Regency in Long Beach, California on May 25-27, 2022. The I-NUF Conference is the premier biennial conference that addresses all aspects of city logistics and goods movement in global metropolitan areas. The conference brings together researchers and practitioners in urban freight, supply chains, and logistics from around the world. It is an opportunity for researchers, policy makers, and practitioners to share research and to reimagine the future of the industry.

Breakout sessions and presentations were organized into six “tracks”:

1. Local/last mile pickup and delivery
2. Modes and nodes
3. Urban modeling and planning
4. Technology and automation
5. Changing consumption, production, and spatial organization
6. Best practices

In addition to the daily breakout sessions, each morning opened with a plenary session. Wednesday’s opening plenary session was hosted by Genevieve Giuliano, Director of METRANS. The conference attendees were welcomed by Jeet Joshee, Associate Vice President and Dean, Office of International Education and Global Engagement, CSULB; Marlon Boarnet, Professor and Chair, Department of Urban Planning and Spatial Analysis, USC. The opening session keynote speaker was Melinda McLaughlin, Senior Vice President, Global Head of Research, Prologis. Her topic was “Looking Ahead: The Value of Place in Supply Chain.”

The opening day luncheon featured a panel discussion, “From Invisible to Essential: Covering Freight Media Panel,” moderated by Tyler Reeb, Director of Research and Workforce Development, CITT, CSULB. The panelists were Samantha Masunaga, Staff Writer, Los Angeles Times; Sarah McGregor, L.A. Bureau Chief and Editor, Bloomberg News; and Dan Ronan, Associate News Editor Print and Media, Transport Topics.

Thursday’s plenary session was a panel discussion on California’s leadership in maintaining the core value of sustainability management in economic and transportation development. The panel was led by Congressman Alan Lowenthal, 47th Congressional District of California and moderated by Tom O’Brien, Executive Director, CITT, CSULB. The panelists were Fran Inman, Senior Vice President, Majestic Realty Co.; Matt Petersen, President & CEO, Los Angeles Cleantech Incubator (LACI); and Matt Schrap, CEO, Harbor Trucking Association. Thursday’s keynote luncheon featured a presentation by Tricia Zulic, State Director, California Society for Human Resource Management. Her presentation was titled “A Mile in their Shoes: Talent Retention and Acquisition in Supply Chain.”

The final day began with a panel on the implementation of modern technologies, which was moderated by Genevieve Giuliano, Director, METRANS Transportation Consortium. Panelists were Biju Kewalram, Guest Lecturer at CSULB / CITT and Chief Digital Officer at Transformation Core, and Jack Symington, Senior Program Manager of Transportation, LACI.

The conference and the final day wrapped up with a site tour for registered attendees at Santa

Monica Zero Emissions Delivery Zone Pilot Program and TTSI's Clean Energy Facility. The first half of the tour featured special demonstrations of a voluntary Zero-Emissions Delivery Zone Program in Santa Monica, which is the first of its kind in the U.S. This program offers an opportunity to observe how different types of light-duty zero emission transportation technologies are tested for deployment and implementation in a designated zero-emission zone. The second half of the tour concluded with a stop at Total Transportation Services (TTSI), a trucking and logistics company at the forefront of sustainable drayage and over-the-road trucking.

## **Detailed Agenda**

### **Wednesday, May 25, 2022**

#### ***8:30 AM - 10:00 AM, Opening Plenary Session***

- Host: **Genevieve Giuliano**, Director, METRANS
- Welcome Speakers:  
**Jeet Joshee**, Associate Vice President and Dean, Office of International Education and Global Engagement, CSULB  
**Marlon Boarnet**, Professor and Chair, Department of Urban Planning and Spatial Analysis, USC
- Introduction: **Genevieve Giuliano**, Director, METRANS Transportation Consortium
- Keynote title: **Looking Ahead: The Value of Place in Supply Chain**
- Keynote Speaker: **Melinda McLaughlin**, Senior Vice President, Global Head of Research, Prologis

METRANS Director Genevieve Giuliano began the conference by introducing CPaCE Associate Vice President and Dean Jeet Joshee and USC Chair of Department of Urban Planning and Spatial Analysis Marlon Boarnet as the welcome speakers on the opening day of I-NUF 2022. This year's I-NUF was the first on-site event, reuniting key personnel across the industry since 2019. Major funders, including Federal Highway Administration and Caltrans, and their partnerships with CITT and METRANS were recognized as critical partners who have been providing research education opportunities, empowering the workforce, and tackling Southern California's supply chain's issues over the years.

Prologis Senior Vice President of Global Head of Research Melinda McLaughlin began her remarks by sharing that her career in property management has always intersected with data and physical space, namely labor development, energy, and electrification. Those intersections in her career have eventually evolved from being a focus in the real estate field to an interest in transportation and freight. As the leader of Prologis' geospatial analytics team, McLaughlin recognized the importance of representing and promoting the work between the private and public sectors as the focus of her research and strategy. She emphasized the development of sustainable transportation as an important part of satisfying customers' demand and aiding the overall resiliency of our global supply chain for future long-term growth. McLaughlin discussed the surge in retail and e-commerce demands, labor and space shortage, and flaws in spatial

shipping systems, as well as geopolitics. Her discussion also touched on how these pressing issues have exacerbated our supply chain even before the COVID-19 pandemic.

### **10:30 AM-Noon, Concurrent Sessions**

Beacon A: Special Session: Curbside freight deliveries: National approaches and typologies of curbside analysis and curb management  
*Moderator: DJ Mason, US Department of Transportation, Volpe Center*

- Panelists:  
**Ken Husting**, City of Los Angeles  
**Evan Iacobucci**, University of North Carolina at Chapel Hill  
**Ariana Vito**, City of Santa Monica

Regency D: Track 5-3 Spatial Organization  
*Session Moderator: Carla Tejada, City College of New York*

- **“Proximity logistics”: Characterizing the development of logistics facilities in dense mixed-use urban areas around the world**  
**Presenter: Heleen Buldeo Rai, Univ Gustave Eiffel, Logistics City Chair**  
*Co-author: Laetitia Dablanc, Univ Gustave Eiffel; Sanggyun Kang, Chung-Ang University; Takanori Sakai, Tokyo University of Marine Science and Technology; Carla Tejada, City College of New York; Quan Yuan, Tongji University; Alison Conway, City College of New York*
- **An analysis of the evolution of warehouses location from 2012 to 2019 in major U.S. Consolidated Statistical Areas (CSA): New insights of warehousing spatial patterns**  
**Presenter: Matthieu Schorung, Gustave Eiffel University**  
*Co-authors: Laetitia Dablanc, Univ Gustave Eiffel; Thibault Lecourt, Avignon Universite*

Regency E: Track 4-2 Alternative Fuels  
*Session Moderator: Gina Yeonkyeong Park, Cornell University*

- **Life cycle analysis of heavy-duty trucks: An environmental impact study comparing alternative fuels/drivetrains**  
**Presenter: Sue Dexter, University of Southern California**
- **Economic impacts of electrification of cargo handling equipment at POLA/POLB**  
**Presenter: Dan Wei, University of Southern California**  
*Co-author: Genevieve Giuliano, University of Southern California*
- **Modeling a biofuel supply chain between urban centers**  
**Presenter: Seckin Ozkul, University of South Florida**  
*Co-author: Rob Hooker, University of South Florida*

- **Charging infrastructure considerations of electric trucks**  
**Presenter: Jeffrey Short, American Transportation Research Institute**

Regency F: Track 1-1 Curb Management

*Session Moderator: Carlos Otero, University of California, Davis*

- Exploring the potential of urban delivery microhubs and cargo bike deliveries  
**Presenter: Anne Goodchild, University of Washington**  
*Co-author: Seyma Gunes, University of Washington*
- **Investigation of private loading bay operations in Seattle's Central Business District**  
**Presenter: Griffin Donnelly, University of Washington**  
*Co-author: Anne Goodchild, University of Washington*
- **Roadblocks to Sustainable Urban Freight**  
**Presenter: Thomas Maxner, University of Washington**  
*Co-authors: Giacomo Dalla Chiara and Anne Goodchild, University of Washington*
- **Can real-time parking occupancy information improve urban delivery efficiency?**  
**Presenter: Giacomo Dalla Chiara, University of Washington**  
*Co-authors: Klaas Fiete Krutein and Anne Goodchild, University of Washington*

### **Noon - 1:30 PM, Lunch**

- Keynote Title: **From Invisible to Essential: Covering Freight Media Panel**  
Moderator: Tyler Reeb, Director of Research and Workforce Development, CITT, CSULB
- Panelists:  
**Samantha Masunaga**, Staff Writer, Los Angeles Times  
**Sarah McGregor**, L.A. Bureau Chief and Editor, Bloomberg News  
**Dan Ronan**, Associate News Editor Print and Media, Transport Topics

CITT Director of Research and Workforce Development Tyler Reeb welcomed the panelists and began the discussion by asking them how readers and their feedback reflected certain perceptions of the challenges and priorities between consumers and stakeholders during the pandemic. Sarah McGregor, L.A. Bureau Chief and Editor at Bloomberg News, began the discussion by commenting that readers took much more of an interest in learning about how the supply chain works because of the ways in which the pandemic affected them as consumers. Consumers were more mindful of their products' origins and paid close attention to the way companies managed and reacted to the supply chain crisis. This interest caused news outlets to investigate more on urban freight and the supply chain so that readers could have accurate and accessible information on these topics.

Samantha Masunaga, Staff Writer at Los Angeles Times, noticed that people are more likely to read articles that feature illustrations and visual infographics. Masunaga added that a complex topic such as the supply chain could be more clearly explained by breaking it down into its steps. For example, illustrations of how the shipping containers went from China to the port, to the distribution centers, and finally to the consumers engage readers in learning more about the

complexities and disruptions in the global supply chain caused by the pandemic. Dan Ronan, Associate News Editor Print and Media at Transport Topics, remarked that this rising interest in the readership helps news outlets explore public interest topics in more depth. He added that this growing discussion of the supply chain would become more nuanced as readers invested in different sectors offer their input and raise their areas of concern. Regardless of how news outlets cover a growing and large topic, he emphasized that the breakdowns of complex issues in the media and news should always be accessible and easily understandable.

### **1:30 – 3:00 PM, Concurrent Sessions**

Beacon A: Track 1-2 Curb Management 2  
*Session Moderator: Giacomo Dalla Chiara, University of Washington*

- **On the understanding of the real-life performance of autonomous food delivery robots**  
**Presenter: Carlos Otero, University of California Davis**  
*Co-authors: Miguel Jaller, University of California Davis*
- **Planning for local delivery using sidewalk robots: Comparing optimized mothership vans methods”**  
**Presenter: Jacob Lamb, University of Calgary**  
*Co-authors: S. C. Wirasinghe and Nigel Waters, University of Calgary*
- **Gamification of Urban Freight**  
**Presenters: Tom O’Brien, Biju Kewalram, Anh Vu and Jared Paz, California State University, Long Beach**
- **Improving delivery efficiency and understanding user behavior through common carrier lockers**  
**Presenter: Andisheh Ranjbari, University of Washington**  
*Co-authors: Caleb Diehl, Giacomo Dalla Chiara, and Anne Goodchild, University of Washington*

Regency D: Track 3-2 US Based Case Studies  
*Session Moderator: Johanna Amaya, Pennsylvania State University*

- **Testing the association between development patterns and truck crashes: A case study in Dallas-Fort Worth, TX**  
**Presenter: Sanggyun Kang, Chung-Ang University**
- **Characterization of the geographic patterns of fuel consumption and emissions of freight vehicles in the Albany-New York City Corridor**  
**Presenter: Sofia Perez-Guzman, Rensselaer Polytechnic Institute**  
*Co-authors: José Holguín-Veras, Julia Amaral, and Carlos Rivera-Gonzalez, Rensselaer Polytechnic Institute*
- **Analysis and identification of urban commercial traffic patterns: A clustering approach for the Seattle’s urban area**  
**Presenter: Anne Goodchild, University of Washington**

*Co-author: Gabriela Giron, University of Washington*

- **Off-hours delivery: Simulated systemwide results for the Chicago region**  
**Presenter: Olcay Sahin, Argonne National Laboratory**  
*Co-author: Monique Stinson, Argonne National Laboratory*

Regency E: Track 2-1 Trucking and Technology  
*Session Moderator: Alison Conway, City College of New York*

- **Dynamic last-mile delivery with crowd-shipping**  
**Presenter: Matthew Roorda, University of Toronto**  
*Co-authors: Kianoush Mousavi and Merve Bodur, University of Toronto; Mucahit Cevik, Ryerson University*
- **Applying machine learning to model freight vehicle type choice**  
**Presenter: Usman Ahmed, University of Toronto**  
*Co-author: Matthew Roorda, University of Toronto*
- **Rewards program to electrify short-haul drayage trucks**  
**Presenter: Miguel Jaller, University of California Davis**  
*Co-author: Emil Youssefzadeh, WattEV, Inc.*

Regency F: Track 1-3 Routing and Optimization  
*Session Moderator: Dingtong Yang, University of California, Irvine*

- **Improving commercial vehicle routing with parking information**  
**Presenter: Klaas Fiete Krutein, University of Washington**  
*Co-authors: Giacomo Dalla Chiara and Anne Goodchild, University of Washington*
- **Time-dependent pickup and delivery problems with stochastic travel times and hard time windows via branch-price-and-cut**  
**Presenter: Petros Ioannou, University of Southern California**  
*Co-authors: Zheyu Wang and Maged Dessouky, University of Southern California*
- **Shared logistics assets for new mobility-assist two-echelon e-grocery delivery network**  
**Presenter: Evangelos Kaisar, Florida Atlantic University**  
*Co-author: Dan Liu, Freight Mobility Research Institute (FMRI) and Florida Atlantic University*
- **Co-simulation based optimization for container pickup and delivery**  
**Presenter: Maged Dessouky, University of Southern California**  
*Co-author: Siyuan Yao, University of Southern California*

### **3:30 – 5:00 PM, Concurrent Sessions**

Beacon A: Track 3-1 Issues in Trucking  
*Session Moderator: Matthew Roorda, University of Toronto*

- **Distributed load balancing freight routing with a co-simulation optimization method**  
**Presenter: Pengfei Chen, University of Southern California**  
*Co-authors: Petros Ioannou and Maged Dessouky, University of Southern California*
- **Modelling freight vehicle type and shipment size choice**  
**Presenter: Usman Ahmed, University of Toronto**  
*Co-author: Matthew Roorda, University of Toronto*
- **Truck routing optimization for large-scale transportation networks**  
**Presenter: Hyun Seop Uhm, Argonne National Laboratory**  
*Co-authors: Taner Cokyasar, Monique Stinson, Jeffrey Larson, Olcay Sahin, Omer Verbas, and Vincent Freyermuth, Argonne National Laboratory*
- **Inter-regional truck route choice modeling with revealed and state preference approaches**  
**Presenter: Kevin Gingerich, York University**  
*Co-authors: Yashar Zarrin Zadeh and Ubaid Ali, York University*

Regency F: Track 3-3 International and Case Studies  
*Session Moderator: Elyakim BenHakoun*

- **Modelling impacts of off-peak-hour delivery in the greater Toronto and Hamilton area**  
**Presenter: Tufayel Chowdhury, University of Toronto**  
*Co-authors: James Vaughan, Marc Saleh, Kianoush Mousavi, Marianne Hatzopoulou, and Matthew Roorda, University of Toronto*
- **The role of logistics performance index for developing port's hinterland: A case study for Bangladesh**  
**Presenter: Razon Chandra Saha, Head of Research and Innovation, Saif Powertec Limited, Bangladesh**

**5:00 – 7:00 PM, Reception by the Poolside**

**Thursday, May 26, 2022**

**8:30 – 10:00 AM, Plenary Session**

- Keynote title: **California Leading the Way**
- Welcome Speaker: **Congressmember Alan Lowenthal**, 47th Congressional District of California
- Moderator: **Tom O'Brien**, Executive Director, CITT, CSULB
- Panelists:  
**Fran Inman**, Senior Vice President, Majestic Realty Co.  
**Matt Petersen**, President & CEO, Los Angeles Cleantech Incubator (LACI)

**Matt Schrap, CEO, Harbor Trucking Association**

CITT Executive Director Tom O'Brien moderated the breakfast plenary session. The session started with Congressman Alan Lowenthal, 47th Congressional District of California who shared that sustainability has always been an integral topic when addressing policy issues within the community that he has been serving. He pointed out that families and children who neighbor the ports have health issues, like respiratory problems, which is a result of not addressing issues related to sustainability. He added that transportation, one of the few bipartisan issues within Congress, remains one of the biggest areas of discussion on causes of climate change. He noted that attention to climate change and sustainability have not been adequately addressed because of a greater importance on economic development at all costs. Congressman Lowenthal recognized California as a leader in working toward implementing changes to combat climate change, while recognizing that there remains a lack of commitments and funding to invest in infrastructure nationwide. California's regulations reflect a greater understanding of impacted communities and provide a timeframe for action.

Matt Schrap, CEO of Harbor Trucking Association, added that California has developed its own in-use standards, laying out ways to incentivize alternative fuels such as electric and hydrogen. Schrap acknowledged the efforts of the California Air Resources Board (CARB) in mandating the turnover of diesel equipment as early as January 2024 while regulating the emissions from the diesel-fueled, heavy-duty vehicles that are still moving on the roads. Schrap also commented that, even though trucking is the epitome of small business since it allows upward mobility, trucks are only one dimension of the supply chain. He added that the support in goods movement, in policies and regulations, should be holistic and include all other modes such as ships.

LACI President and CEO Matt Peterson added that the economic advantages, the attention to cultivating a talented workforce, and implementation of new technologies have enabled California to act early on these sustainability matters. Driven by the high level of innovation in Silicon Valley, California could incorporate advanced technology to leverage old models in new ways such as EV carshare for communities or other services developed by startups. Peterson shared that LACI, established by former Los Angeles Mayor Eric Garcetti, also carried the mission of becoming a pioneer for clean technology innovation. However, LACI President and CEO Peterson flagged that being among the pioneers in this space exposes LACI to unprecedented risks. These risks could be a lack of attention and funding from Congress or other states on infrastructure, and a lack of dialogue or recognition, which could affect the company's future growth and job stability. These unforeseen challenges of LACI can easily apply to many startups, preventing job creation, further innovation, and entrepreneurial prospects in the region.

Fran Inman, Senior Vice President at Majestic Realty Co., emphasized that California is a key player in the trade and transportation sector. Inman mentioned that California, as an early adopter of electric passenger vehicles, may provide a model for leasing opportunities in the trucking industry where leases offer an opportunity to avoid upfront costs and minimize the risk of a new purchase, a lot of resources, investment, and risks to a new vehicle. Adding to the discussion, Schrap commented that leasing is a new topic to the trucking and that bad policies could get in the way of advancing leasing as a viable opportunity. The upfront costs of a truck may cost up to \$500,000 with leasing costs as

much as \$6,000 per month. On the other hand, people may not understand the difference between vehicles and could be hesitant about higher insurance, gas, maintenance costs, and battery capacity. These uncertainties, on top of the hefty investments for a new vehicle, can prevent businesses from engaging, making the industry less appealing and diminishing its competition. Thus, it is important that governments offer incentives, predictable duty cycles, and effective measures to offset costs.

To conclude the discussion, the panelists all agreed that collaboration between the International Longshore and Warehouse Union, ports, and government offices, and a unified front, could secure more funding, particularly federal funding for California as a national leader in goods movement.

### ***10:30 AM – Noon, Concurrent Sessions***

Beacon A: **Special Session: Optimizing Truck Movements in the Southern California Port Region**

*Moderator: Mark Jensen, Transpo Group*

- Panelists:  
**Ed Alegre**, LA Metro  
**Sal Manzo**, InfoMagnus  
**Krista Jeannotte**, Cambridge Systematics  
**Christopher Chase**, Port of Los Angeles  
**Theresa Dau-Ngo**, Port of Long Beach

Regency E: Track 3-4 Assessing Impact

*Session Moderator: DJ Mason, US Department of Transportation*

- **Time-dependent patterns in freight trip generation**  
**Presenter: Sofia Perez-Guzman, Rensselaer Polytechnic Institute**  
*Co-authors: José Holguín-Veras and Diana Ramirez-Rios, VREF Center of Excellence for Sustainable Urban Freight Systems Rensselaer Polytechnic Institute*
- **Data-driven time-dependent freight volume estimation at a granular spatial and temporal resolution**  
**Presenter: Chrysovalantis Anastasiou, University of Southern California**  
*Co-authors: Luciano Nocera and Cyrus Shahabi, University of Southern California*
- **Freight eco-routing – carrier’s trade-offs and system-wide impacts**  
**Presenter: Anmol Pahwa, University of California Davis**  
*Co-author: Miguel Jaller, University of California Davis*
- **Reducing impacts of heavy-duty trucks on communities of color**  
**Presenter: Genevieve Giuliano, University of Southern California**

Regency F: Track 1-4 Improving the Last Mile

*Session Moderator: Klaas Fiete Krutein, University of Washington*

- **Lessons learned from urban freight pilot tests**  
**Presenter: Andisheh Ranjbari, University of Washington**  
*Co-author: Anne Goodchild, University of Washington*
- **A shift towards "retro" last-mile & urban logistics. How the pandemic has accelerated this trend**  
**Presenter: Wouter Dewulf, University of Antwerp**  
*Co-author: Roel Gevaers, University of Antwerp*
- **Set partition-based formulation and decomposition solution approach for the crowdsourced package delivery problem**  
**Presenter: Dingtong Yang, University of California Irvine**  
*Co-author: Michael Hyland, University of California Irvine*
- Curbside management in the physical internet  
**Presenter: Paola Cossu, FIT Consulting SRL**  
*Co-authors: Fabio Cartolano, FIT Consulting; Giuliano Mingardo, Erasmus University Rotterdam; Giacomo Lozzi and Ivo Cré, POLIS; Fernando Liesa, ALICE*

#### **Noon – 1:30 PM, Keynote Luncheon**

- Keynote title: **A Mile in their Shoes: Talent Retention and Acquisition in Supply Chain**
- Keynote Speaker: **Tricia Zulic**, State Director, California Society for Human Resource Management

State Director Zulic stated that biases, such as clothing, homelessness, misdemeanors/felonies, and mobility, could impact the employability of potential candidates. On top of such biases, the pay and appreciation gaps take the career potentials away from certain jobs such as drivers and warehouse workers. Job candidates are unable to see how they can climb up the organizational ladder and may be considered “less than” when they work as drivers or warehouse workers. Circling back to the supply chain backlog, Zulic emphasized that the importance of truck drivers and warehouse workers has never been so visible before the pandemic. The contributions and hard work of drivers and workers are not adequately recognized because of biases that exist about career aspirations and norms. The talent shortage could eventually stem from drivers and workers leaving the workforce and those who leave because they are not incentivized to participate.

These problems not only exacerbate the supply chain crisis but cause challenges to core business functions, such as human resources (HR). She also added that the role of human resources is changing as it now fundamentally focuses more on the ability of such personnel to continuously communicate and manage people effectively.

#### **1:30 – 3:00 PM, Concurrent Sessions**

Beacon A: Track 4-1 Technology & Automation  
*Session Moderator: Sue Dexter, University of Southern California*

- **Using artificial intelligence to improve traffic flows with consideration of data privacy principles**  
**Presenters: Tyler Reeb, California State University Long Beach**  
*Co-authors: Gwen Shaffer, Hossein Jula, and Anastasios Chassiakos, California State University, Long Beach*
- **Freight Automation: Dangers, threats, and opportunities for health and equity**  
**Presenter: Jessica Tovar, Moving Forward Network**  
*Co-authors: Joel Ervice, Regional Asthma Management and Prevention; Martha OckenfelsMartinez, Human Impact Partners*
- **Suitability of human monitored autonomous lockers for urban deliveries: a comparison with the current scenario through field observations**  
**Presenter: Kartik Varma, Universite Gustav Eiffel**  
*Co-authors: François Combes, and Pierre Eykerman, Universite Gustav Eiffel*
- **A Global Truck Parking Problem That Today's Technology Can't Fix**  
**Presenter: Richard Easley, E-Squared Engineering**

Regency E: Track 5-1 E-commerce Consumption Flows  
*Session Moderator: Heleen Buldeo Rai, Univ Gustave Eiffel, Logistics City Chair*

- **Reconciling retail and logistics demand in the on-demand economy**  
**Presenter: Joris Beckers, University of Antwerp**
- **Tracking parcels: Understanding delivery paths and their impacts on a city**  
**Presenter: Carla Tejada, City College of New York**  
*Co-authors: Yaxin Zhang and Alison Conway, The City College of New York; Jean-Paul Rodrigue, Hofstra University*
- **Changes in grocery shopping and related travel during Covid-19**  
**Presenter: Sarah Dennis, University of California Davis**  
*Co-authors: Miguel Jaller and Sebastian Amador, University of California Davis; Teddy Forscher, University of California Berkeley*

Regency F: Track 3-5 Metropolitan and Network Level Planning  
*Session Moderator: Tufayel Chowdhury, University of Toronto*

- **Supply-chain-focused measures of centrality and spread in metropolitan areas**

**Presenter: Oriana Calderon, Rensselaer Polytechnic Institute**  
*Co-authors: José Holguín-Veras, Carlos Rivera-Gonzalez, Joshua Schmid, Benjamin Caron, and Woojung Kim, Rensselaer Polytechnic Institute*

- **Facilitating synchromodality: A conceptual framework for arbitrating stakeholders' conflicting interests**

**Presenter: Emma Ceulemans, University of Antwerp**  
*Co-authors: Ivan Cardenas-Barbosa, Thierry Vanelslander and Edwin van Hassel, University of Antwerp*

- **Econometric characterization of spatial distribution of urban freight generation**

**Presenter: Oriana Calderon, Rensselaer Polytechnic Institute**  
*Co-authors: José Holguín-Veras, Carlos Rivera-Gonzalez, and Benjamin Caron, Rensselaer Polytechnic Institute*

- **Urban freight logistics: What do citizens perceive?**

**Presenter: Johanna Amaya, Penn State University**  
*Co-authors: Maira Delgado Lindeman, Julian Arellana Ochoa, Universidad del Norte; Jaime Allen, National Laboratory of Materials and Structural Models (LanammeUCR), Universidad de Costa Rica*

### **3:30 – 5:00 PM, Concurrent Sessions**

Beacon A: Track 5-2 Impacts of E-commerce  
*Session Moderator: Joris Beckers, University of Antwerp*

- **The community impacts of e-commerce growth: A case study of Berks County, Pennsylvania**  
**Presenter: Alison Conway, City College of New York**  
*Co-author: Moira Conway, Kutztown University*
- **Mobility interventions to protect supply chain workers during pandemics**  
**Presenter: Kevin Gingerich, York University**  
*Co-authors: Elanakayon Annalingam, Peter Park, York University; Erik Nevland, Region of Peel Transportation Planner*
- **Aggregate and income distribution impacts of resilience to seaport and highway transportation network disruption**  
**Presenter: Dan Wei, University of Southern California**  
*Co-authors: Adam Rose, Eyuphan Koc, Zhenhua Chen, and Lucio Soibelman, University of Southern California*
- **Container Terminal Fluidity – Adjusting to the New Normal**  
**Presenters: Philip Davies, Davies Transportation Consulting Inc. and Hanh Le-Griffin, University of Southern California**

Regency E: Track 6-1 Best Practices  
*Session Moderator: Si Liu, McMaster University*

- **Gender inequality in the transport sector of Bangladesh**  
**Presenter: Razon Chandra Saha, Head of Research and Innovation, Saif Powertec Limited, Bangladesh**
- **Best practices in at-grade crossing of public roads with railroads**  
**Presenter: Guang Tian, UNO Transportation Institute, University of New Orleans**  
*Co-authors: Maryam Izadi and Brittany Waggener, UNO Transportation Institute, University of New Orleans*
- **A critique on best practices for city logistics**  
**Presenter: Konstantina Katsela, University of Gothenburg**  
*Co-author: Michael Browne, University of Gothenburg*
- **The next normal in urban logistics: The ALICE forward-looking actions on the physical internet to achieve inclusive, shared and interconnected logistics networks**  
**Presenter: Paola Cossu, FIT Consulting SRL**  
*Co-authors: Charlotte Migne, FM Logistics; Hans Schurmans, PROXIMUS; Magnus Blinge, SCANIA; Yanying Li and Fernando Liesa, ALICE*

Regency F: Track 1-5 Modeling Freight Activity  
*Session Moderator: Anne Goodchild, University of Washington*

- **The little ship that got away: Small vessel – Big impact**  
**Presenter: Elyakim Ben-Hakoun, The Technion - Israel Institute of Technology**  
*Co-authors: Eddy Van De Voorde, University of Antwerp; Yoram Shifan, The Technion-Israel Institute of Technology*
- **Cargo bikes and UCCs as a solution to last mile delivery**  
**Presenter: Mehrab Khan, German Aerospace Center (DLR) and Technische Universität Berlin, Institute of Land and Maritime Transport (ILS)**  
*Co-authors: Carina Thaller, German Aerospace Center (DLR), Institute of Transport Research; Gernot Liedtke, German Aerospace Center (DLR) and Technische Universität Berlin, Institute of Land and Maritime Transport (ILS)*
- **The daily port & shoreline emission inventory model**  
**Presenter: Elyakim Ben-Hakoun, The Technion - Israel Institute of Technology**  
*Co-authors: Eddy Van De Voorde, The University of Antwerp; Yoram Shifan, The Technion - Israel Institute of Technology*
- **Redesigning "Clean Trucks" Programs for the Emerging Energy**

## **Transition**

**Presenter: Nathan Hutson, University of North Texas**

*Co-author: Gina Park, University of North Texas*

### **5:00 – 7:00 PM, TRB – Intermodal Freight Transport Committee Meeting (ATo45)**

Beacon A: Non-Members Welcome

### **Friday, May 27, 2022**

### **8:00 – 9:30 AM, Plenary Session**

- Keynote topic: **Perspectives on Technology Implementation**  
Moderator: **Genevieve Giuliano**, Director, METRANS Transportation Consortium
- Panelists:  
**Biju Kewalram**, Guest Lecturer CSULB / CITT, Chief Digital Officer, Transformation Core  
**Jack Symington**, Sr. Program Manager of Transportation, LACI

The final plenary session started with Genevieve Giuliano who introduced the topic of various perspectives on technology implementation. Biju Kewalram, Chief Digital Officer at Transformation Core, started the discussion by naming the four elements—data science, people, tech stack, and business alignment—that should be working in tandem in any implementation. He added that C-level involvement is essential for engaging the CEO and Board level management to identify and remove constraints in the growth of each of the four elements. He also emphasized that having everyone on board helps the company to better align its goals across the organization, thus making compliance with regulations more straightforward.

Jack Symington, Senior Program Manager of Transportation at LACI, noted that the advancement in technology alone is not the ultimate answer to adjusting emissions. Speaking about data constraints, Symington added that data sharing remains a drawback to developing zero-emission zones. He noted that getting food delivery companies to share their propriety data, to more clearly understand the number of deliveries, is challenging because companies' benefits in these projects are not significant. Thus, first-time founders and engineers are left needing help with building business models and having data to work with. Symington added that having different levels of risk tolerance with small-scale pilots and demos are good ways to encourage governments to join hands with companies in these projects.

### **9:45 – 11:15 AM, Concurrent Sessions**

Beacon A: **Special Session: Transportation Planning Considerations for Cities with Growing Warehousing Operation**

*Moderator: Fatemeh Ranaiefar, Fehr & Peers*

- Panelists:  
**Gena Guisar**, CSG Consultants  
**Jason Welday**, City of Rancho Cucamonga  
**Jolene Hayes**, Fehr & Peers  
**Blair Dahl**, Goodman

Regency E: Track 1-6 Consumer Behavior and Equity  
*Session Moderator: Usman Ahmed, University of Toronto*

- **Spatial accessibility and equity analysis of Amazon parcel lockers facilities**  
**Presenter: Miguel Figliozzi, Portland State University**  
*Co-author: Jaclyn Schaefer, Portland State University*
- **Effect of COVID-19 on equity of fresh food distribution in New York City**  
**Presenter: Alison Conway, City College of New York**  
*Co-authors: Camille Kamga, Sandeep Mudigonda, Patricio Vicuna, Charles Ukegbu, Susan McSherry, Diniece Mendes, Justin Romeo, and Denise Ramirez, University Transportation Research Center*
- **Explore the Potential of Applying Smart Mobile Lockers with City Buses for the Last-Mile Deliveries in the City of Mississauga, Canada**  
**Presenter: Si Liu, McMaster University**  
*Co-author: Elkafi Hassini, McMaster University and Zhen Qiao, Waseda University*

Regency F: Track 6-2 Data and Methods  
*Session Moderator: Konstantina Katsela, University of Gothenburg*

- **Analysis on the clean truck program and the local air quality: Case of the Port of New York and New Jersey**  
**Presenter: Gina Yeonkyeong Park, Cornell University**
- **Residential freight trip generation: A review of current methods and datasets**  
**Presenter: Panagiota Goulianou, University of Washington**  
*Co-authors: Giacomo Dalla Chiara and Anne Goodchild, University of Washington*
- **A guidebook for implementing freight fluidity for Texas and its regions**  
**Presenter: Bill Eisele, Texas A&M Transportation Institute**  
*Co-authors: Nicole Katsikides, Mario Monsreal, Jason Wallis, William Hwang, and Casey Wells, Texas A&M Transportation Institute*
- **Operational analysis of emergency truck parking in Florida state under emergency situations**  
**Presenter: Vasileia Antonoglou, Florida Atlantic University**  
*Co-authors: Katerina Koliou and Evangelos Kaisar, Florida Atlantic University*

**11:30 AM – 5:00 PM, SITE TOUR**

- **Tour at Santa Monica Zero Emissions Delivery Zone Pilot Program and TTSI's Clean Energy Facility**

This year's I-NUF concluded with an interactive tour at the Santa Monica Zero Emissions Delivery

Zone Pilot Program, hosted by the Los Angeles Cleantech Incubator (LACI). The group also toured Total Transportation Services (TTSI).

Participants first explored the Santa Monica Zero Emissions Zone. After an introduction by the non-profit's representatives, the tour offered an in-depth look at some of the Zone's features, including the small Coco robots delivering thousands of food orders in the area every day. The goal of using these bots, which can successfully navigate busy pedestrian streets, is to divert traffic from the area and save gas for bigger delivery vehicles. Remotely piloted by a trained operator, Coco is equipped with cameras, temperature-controlled storage to ensure food quality, and material, such as headlights, taillights, reflective material, and LED lights to make them visible to drivers. Participants were able to enjoy donuts and coffee delivered by Coco in a nearby park. Project partner IKEA also demonstrated one of the trucks in their electric vehicle fleet.

These features are a crucial part of the Santa Monica Zero-Emissions Zone, which will continue through the end of 2022. The one-square mile zone is located within a busy commercial area that includes portions of both Downtown Santa Monica and Main Street and employs almost 29,000 workers. In addition to micro-mobile and electric vehicle delivery, the pilot introduces commercial electric vehicle car-sharing, priority zero emission loading zones and curb management, and mobile charging applications for delivery. Several major contributors, such as the City of Santa Monica, FoodCycle LA, AxleHire, Alsco Uniforms, Guayaki, Shopify, REEF Technologies, Automotus, FluidTruck, Maxwell Vehicles, and Nissan are joining LACI, Coco, and IKEA in taking part in the pilot.

The group made an additional stop at Total Transportation Services (TTSI), a trucking and logistics company driving sustainable operations, to observe a CNG fueling demonstration and to learn more about the company's fleet of alternative fuel vehicles. TTSI representative Tony Williamson guided the group through the facility. Visit [ttsi.com](http://ttsi.com) to learn more about the company's plan for near-zero or zero-emission fleets, featuring three phases of natural gas, battery electric, and hydrogen fuel cell vehicles.