



DRAFT MEETING NOTES
August 18, 2021, 9:00 AM
Virtual - Zoom Meeting

Attendees

Julia Amaral	Rensselaer Polytechnic Institute
Pete Bardunias	Capital Region Chamber
Peter Comenzo	Town of Rotterdam
Valerie Deane	NYSDOT Region 1
Bob Doyle	Price Chopper/Market 32
Jeffrey Gritsavage	NYS Canal Corporation
Kendra Hems	Trucking Association of New York
José Holguín-Veras	Rensselaer Polytechnic Institute
Steve Iachetta	Albany International Airport
Mike Izdebski	Plug Power
Brian Kirch	NYSDOT Region 1
Andrew Kreshik	City of Troy
Catherine Lawson	University at Albany
Gautam Mani	FHWA
Kate Maynard	Capital District Regional Planning Commission
Susan Olsen	NYSDOT Region 1
David Rosenberg	NYSDOT
John Scavo	Town of Clifton Park
Josh Tocci	Capital District Regional Planning Commission
Chris Wallin	City of Schenectady
Jeffrey Wojtowicz	Rensselaer Polytechnic Institute
Adam Yagelski	Town of East Greenbush
Chris Bauer	Capital District Transportation Committee
Sandy Misiewicz	Capital District Transportation Committee
Glenn Posca	Capital District Transportation Committee
Andrew Tracy	Capital District Transportation Committee



1. Welcome and Introductions

Chris Bauer began the meeting at 9:00 AM with a review of the meeting agenda. Chris also introduced Sandy Misiewicz, CDTC's new Executive Director.

2. Energy Efficient Logistics Project: Update and Pilot Initiatives (Dr. José Holguín-Veras, Rensselaer Polytechnic Institute)

Dr. José Holguín-Veras gave a briefing on the "Collaborative Approaches to Foster Energy-Efficient Logistics (EEL) in the Albany-New York City Corridor" project and the upcoming Pilot Tests. The project seeks to gain insight into the best ways to induce stakeholders to adopt energy-efficient technologies and operations. The project has also produced several analytical tools for decision-makers, including a Guidebook to Foster Energy-Efficient Logistics.

Several decision-support tools have been developed as part of the project including the Energy Efficiency Framework, the Initiative Selector, Computational Systems to Compute Generalized Costs and Emissions Using Archival GPS data, the Freight and Service Trips Generation Software (FASTGS), and Behavioral Micro-simulation the assess impact of policies.

José led a discussion about the potential Pilot Tests, the next phase of the project. The project team will be conducting small Pilot Tests of novel operational concepts. The Pilot Tests should be of interest to the stakeholders involved, with the potential to benefit all involved if fully implemented, and should not require large investments in time or money. Some potential ideas for Pilot Tests are the effects of changes in time-of-delivery, consolidation of orders (and deliveries) to reduce truck traffic, and the effects of restrictions on tandems, the installation of shared use delivery lockers, and the segregation of service and freight vehicles to better manage the curbside.

Pilot Tests will be mostly funded by the project, and most of the work will be completed by the project team. Anyone with an idea for the Pilot Test is encouraged to contact José Holguín-Veras at jhv@rpi.edu or Jeffrey Wojtowicz at wojtoj@rpi.edu.

Adam Yagelski inquired about the offset of trips and deliveries as a result of more utilization of e-commerce. José said the products are being shipped in more, smaller shipments compared to the past. Peter Bardunias noted that the trend of increased e-commerce deliveries is not good for local brick-and-mortar retail businesses and smaller vehicles are less efficient than larger vehicles for delivering freight. José said RPI could give a presentation on the impacts of e-commerce at a future meeting.

Chris Wallin noted the increasing efficiency of all vehicles and inquired about the impacts of emissions and congestion from freight. Chris suggested that we should consider which priorities will have a greater impact in the future. Sandy noted it will likely take some time to completely turn over the vehicle fleet to electric; however, it is also important to manage demand for deliveries. Steve Iachetta noted there have been advancements in cleaner fuels and the electrification of aviation equipment.

Please see attached presentation for more details.

3. Data Collection Services (Andrew Tracy, CDTC)

Andrew Tracy gave an update on the data collection services project. CDTC recently awarded a contract to a consultant to collect traffic volume, speed, and classification data. CDTC is collecting counts in



locations where previous data may be outdated, including COVID impacts, and to support planning studies. There will also be counts in locations where there has been new development and on the Freight Priority Network. Data collection will be in the Fall. Andrew said members can submit suggested count locations via email to him or Chris.

José noted that a large portion of freight moves in smaller vehicles, and large trucks are often a smaller than expected portion of all freight movement. The committee discussed ways to include counts on roadways to/from Amsterdam, to account for traffic from the new distribution centers in that area. There is a potential to add new counts at the terminus of I-890 and on NY 5.

4. Regional Truck Parking Study (Chris Bauer, CDTC)

Chris Bauer ran through the timeline for the project selection. At the February 17 meeting, the Freight Advisory Committee recommended the Regional Truck Parking Study or the Local Delivery Optimization projects to the Planning Committee. The Planning Committee Selected the Regional Truck Parking Study at their April 7 meeting.

CDTC staff developed a Request for Expressions of Interest (REI) with a Scope-of-Work, which was released May 19, and due on June 23. CDTC received 3 letters of interest and convened a consultant selection committee consisting of NYSDOT R1, NYSTA, CDRPC, and CDTC. The project is currently in the consultant selection process. The next steps, after contracting, will be to convene a Study Advisory Committee. The consultant will provide regular updates at Freight Advisory Committee meetings.

Kendra Hems (TANY) suggested considering the needs for future alternative fueling locations, including electrification, as part of the project. Mike Izdebski noted that hydrogen fuel cell technology is also advancing.

5. TIP Project Solicitation (Chris Bauer, CDTC)

Chris gave an overview of the potential upcoming Transportation Improvement Program (TIP) solicitation, pending Policy Board approval, later this year. The TIP is a fiscally constrained list of the next 5 years of transportation projects.

Chris gave an overview of the solicitation process. Eligible project sponsors submit candidate projects. CDTC staff evaluates and scores projects, including a Benefit/Cost ratio and Merit Score. The Planning Committee reviews the project scores and makes project recommendations to the Policy Board. The Policy Board officially approves the TIP.

The Freight Advisory Committee's roles include reviewing candidate projects and providing input as it relates to Freight and Goods Movement. The FAC can also be allowed to review draft Freight merit scores. Chris displayed the rubric for calculating the scores. Chris said the FAC can also suggest ways to participate.

CDTC may change the November FAC meeting date to December/January to accommodate the process.

6. Discussion – Member Updates

- Airport – Steve Iachetta (Albany County International Airport) said air freight tonnage has been steadily increasing since 2019. Steve noted passenger travel growth is flat, and the passenger companies continue to carry belly freight, which does not get accounted for in the air cargo data.



- Trucking – Kendra Hems (TANY) gave a briefing on the recent “The Future is Now” Clean Transportation Initiatives Workshop, hosted by TANY. The workshop had sessions on clean fuels and technologies. There were also OEMs on hand with heavy-duty electric vehicles on site.
- Other Private Industry (manufacturing, distribution, warehousing, etc.) – Bob Doyle (Price Chopper/Market 32) said some facilities are not able to provide staffing during off-hours, and have had to eliminate second and/or third shifts. The labor shortage has affected the entire supply chain and the manufacturing sector. There continue to be driver shortages, too.
- Institutional/Government/Non-profit – Pete Bardunias (Capital Region Chamber) said he is interested in the increased utilization of waterways using solar technology. Pete also inquired about some confusing signage along/near state routes.

7. Next Meeting

Remaining 2021 Freight Advisory Committee Meeting Date: November 17th

All meetings will begin at 9:00 AM unless otherwise specified.

8. Adjourn

The meeting was adjourned at approximately 10:25 AM.



CDTC FREIGHT ADVISORY COMMITTEE



August 18, 2021

Today's Agenda

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Welcome 2. Energy Efficient Logistics Project: Update and Pilot Initiatives (Dr. José Holguín-Veras, Rensselaer Polytechnic Institute) 3. Data Collection Services (Andrew Tracy, CDTC) 4. Regional Truck Parking Study (Chris Bauer, CDTC) 5. Clean Cities TIP Solicitation Update | <ol style="list-style-type: none"> 6. Member Updates <ol style="list-style-type: none"> i. Airport ii. Marine iii. Rail iv. Trucking v. Other Private Industry (manufacturing, distribution, warehousing, etc.) vi. Institutional/Government/Non-profit |
|--|---|



Briefing on “Collaborative Approaches to Foster Energy-Efficient Logistics (EEL) in the Albany-New York City Corridor” and Pilot Tests

José Holguín-Veras

William H. Hart Professor

**Director of the VREF Center of Excellence for Sustainable Urban
Freight Systems, Rensselaer Polytechnic Institute**

August 18th, 2021



Outline of Presentation

- Project Overview
 - Objectives
 - Project Products
 - Energy Efficiency Framework
 - Computational Systems to Estimate Generalized Costs and Emissions
 - Freight and Service Trips Generation Software (FASTGS)
 - Behavioral Micro-Simulation for EEL (BMS-EEL)
 - Catalog of Energy Efficient Initiatives and Initiative Selector
 - Behavioral Research: How to Mitigate Ecommerce Traffic
- Discussion about Pilot Tests



Objectives, Approach, and Barriers Addressed

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Objectives:

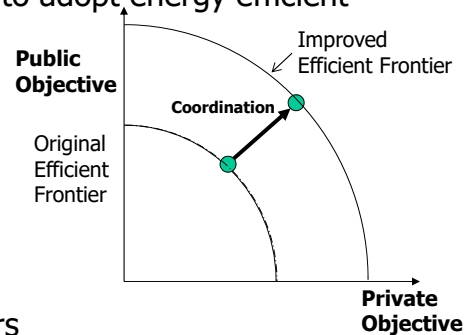
- Foster adoption of Energy Efficiency Logistics (EEL)
- Gain insight into best ways to induce stakeholders to adopt energy efficient Technologies and Operations
- Provide decision-makers with analytical tools

Approach:

- Changes in behavior increase efficiency allowing to achieve better solutions

Barriers addressed:

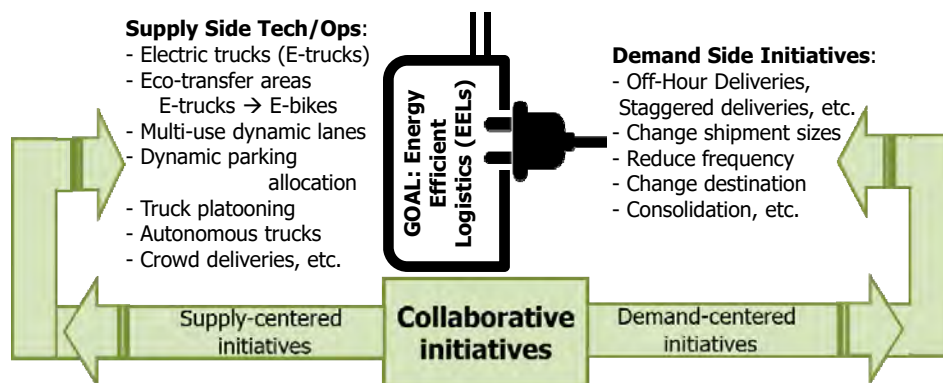
- Lack of tradition of cooperation among stakeholders
- Lack of analytical models to predict how changes in supply chain's behavior impact energy consumption



Overall Concept

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- Identify combination of strategies, both supply and demand side, that complement and reinforce each other; and use them in combination to foster adoption of EELs



Example of Sinergy Between Initiatives

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- Off-hour deliveries (OHD) and electric vehicles



OHD allows carriers to use vehicles in double duty (day and night) and avoid congestion, making them more financially viable

OHD fosters use of electric vehicles



Electric vehicles facilitate implementation of OHD

Electric vehicles reduce energy consumption and minimize externalities (noise, pollution)



Tests on Living Lab

- Living Lab: Albany-NYC corridor**
- The Albany-NYC corridor is a **unique corridor** with water transport, rail, highways, toll facilities, anchored by the Port Authority of NY and NJ's complex and the Port of Albany.
- The corridor will be used to:
 - Assess baseline conditions
 - Measure energy consumption
 - Test energy efficient initiatives
 - Gain insight to foster implementation in other corridors



Project Products

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- A Guidebook To Foster Energy Efficient Logistic
- Decision-Support Tools
 - Energy Efficiency Framework
 - Initiative Selector
 - Computational Systems to Compute Generalized Costs and Emissions Using Archival GPS data
 - Freight and Service Trips Generation Software (FASTGS)
 - Behavioral Micro-simulation the assess impact of policies



Project Accomplishments To Date



Energy Efficiency Framework



Energy Efficiency Framework

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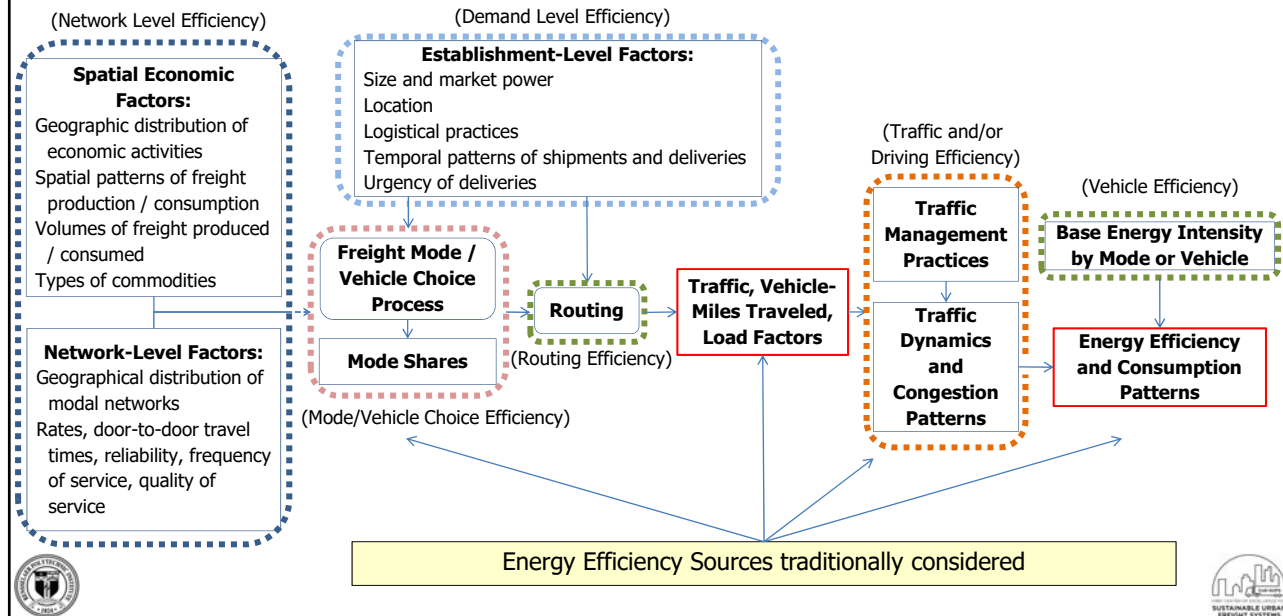
- Traditionally three factors have been acknowledged as the determinants of energy efficiency
 - Total travel activity: total VMT
 - Modal share
 - Modal energy intensity: average consumption of energy by type of vehicle
- However, the traditional framework misses key factors that ought to be considered in logistics
 - The role of the agents—customers, public sector agencies, real estate sector, shippers, carriers, and receivers—that make decisions that impact supply chains must be considered

The team designed a new energy efficiency framework that considers the unique aspects of logistics

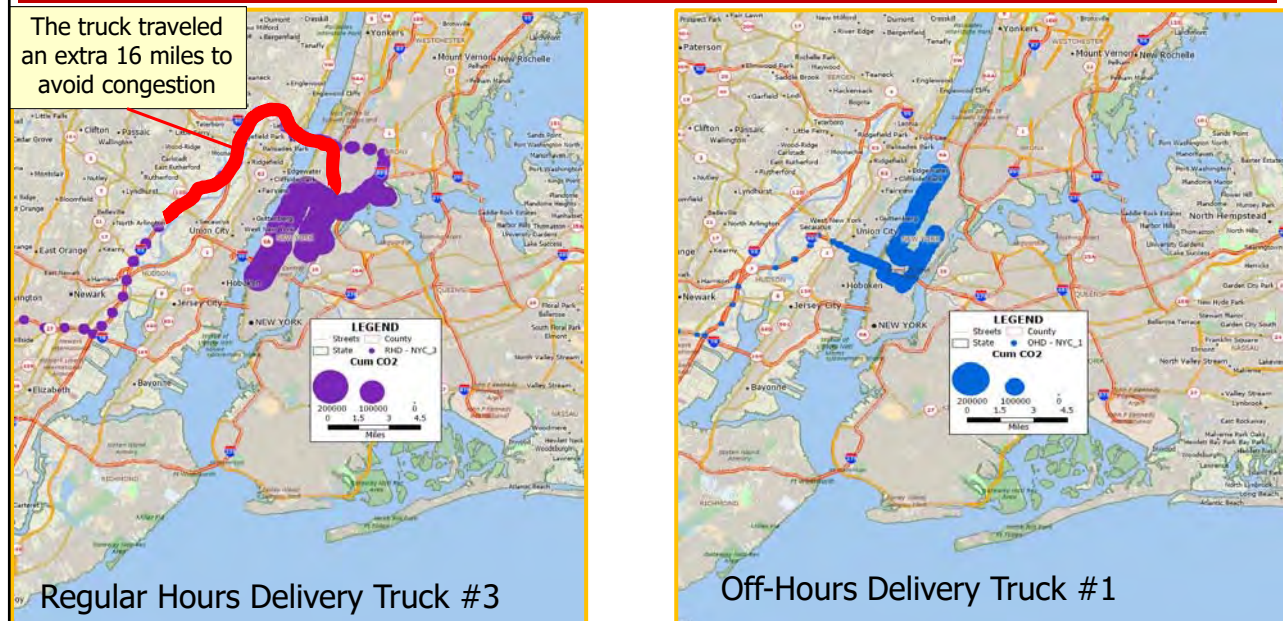


Sources of Energy Efficiency

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Example of Demand Efficiency CO₂ : Regular Hours vs. Off-Hours¹²



Emission and Cost Reductions

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Partial OHD (6PM to 10PM)

City\ Pollutant	ROG	TOG	CO	CO2	NOX	PM10	PM25
Bogotá	13.49%	13.49%	13.50%	13.12%	12.70%	13.41%	13.41%
New York City	67.17%	67.17%	67.00%	55.14%	59.47%	65.53%	65.53%
Sao Paulo	49.98%	49.98%	51.43%	42.52%	44.64%	45.90%	45.90%

Full OHD (7PM to 6AM)

In addition, cost reductions in the range of 30-55%



Computational Systems to Estimate Generalized Costs and Emissions



Overview of Archival GPS Data

- GPS data from ATRI
 - 105 million points, 116,042 vehicles
 - Three different time periods:
 - July 16-27 (2018)
 - October 22-Nov 2 (2018)
 - June 3-14 (2019)
- Challenges:
 - Polling interval ranges 1-5 minutes (one second or lower is desired)
 - The team developed imputation techniques to obtain second-by-second speeds using the 1Hz GPS data collected by the team



Aggregate Metrics of Emissions and Fuel Consumption



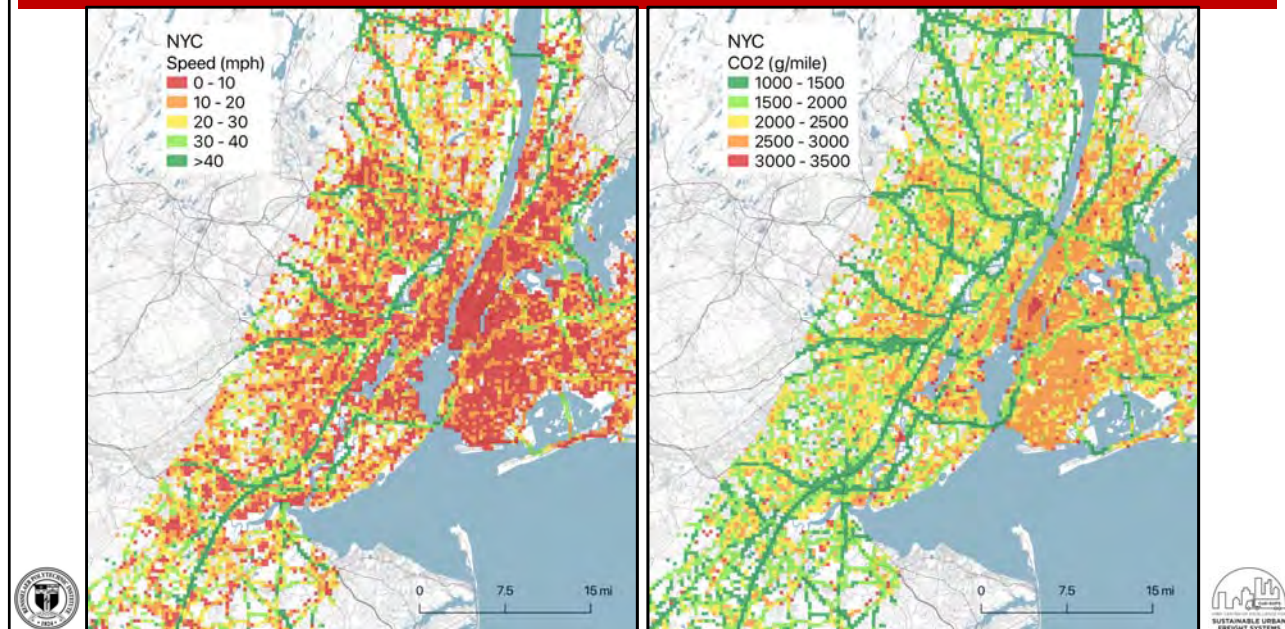
Geographical Areas		Albany	Corridor	NYC
Data Points		128,011,520	184,614,494	843,016,100
Average Speed (mph)		40.38	46.66	25.64
Fuel Consumption (gallons/100 miles)		11.15	11.03	12.50
Emissions (g/mile)	CO	0.14	0.13	0.25
	CO ₂	1238.68	1225.20	1389.30
	NO _x	1.24	1.17	1.89
	PM ₁₀	0.0131	0.0136	0.0099
	PM _{2.5}	0.0137	0.0142	0.0104
	ROG	0.0149	0.0146	0.0194
	TOG	0.0169	0.0166	0.0221
Cost (US\$/mile)		1.74	1.58	2.40

The corridor is the best in terms of fuel consumption and emissions, Albany comes in second, and NYC is the worst.

Results obtained using all datasets (Jul/2018, Oct/2018, Jun/2019)



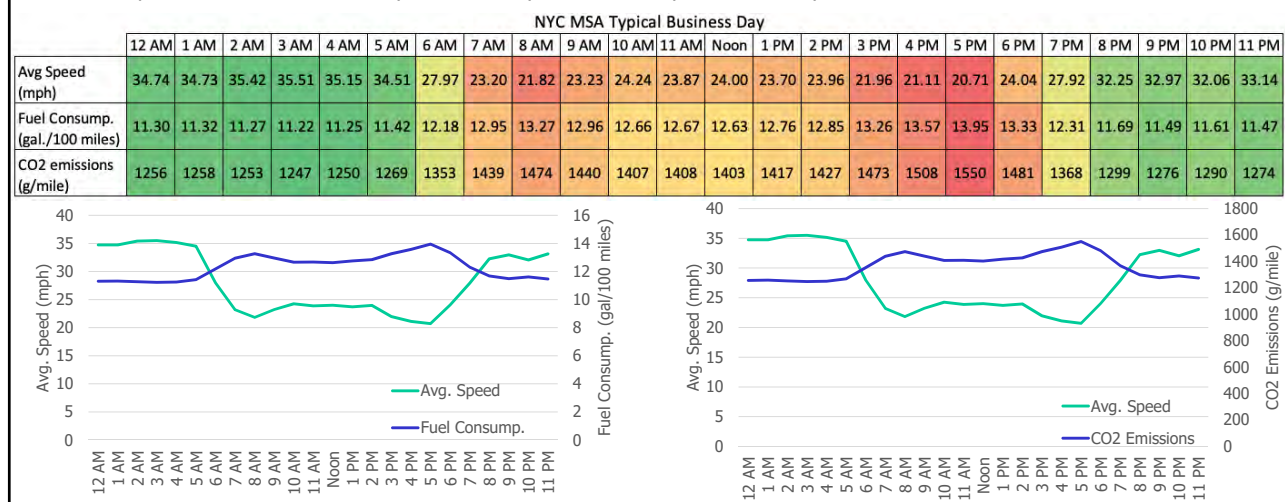
Example of Rasters (July/2018)



Aggregate Metrics Including a Temporal Dimension

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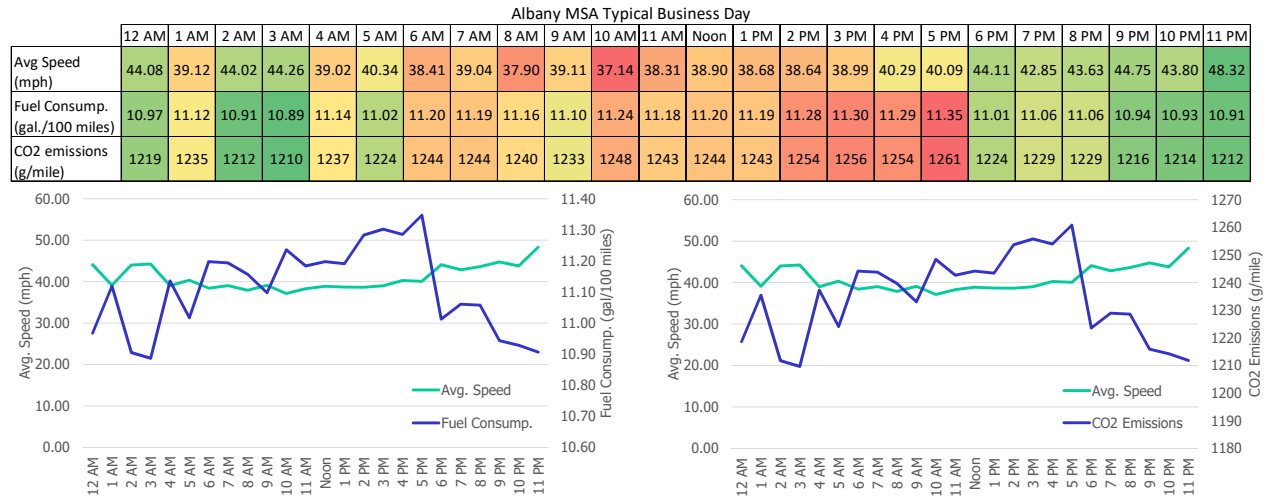
- Data points are aggregate based on the location and the time stamp
- Sample results for every hour of a typical business day in the NYC MSA
 - Computed from data on Tuesdays, Wednesdays and Thursdays from the July/2018 dataset



Performance Metrics by Time of Day

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- Data points are aggregate based on the location and the time stamp
- Sample results for every hour of a typical business day in the Albany MSA
 - Computed from data on Tuesdays, Wednesdays and Thursdays from the July/2018 dataset



Aggregate Metrics by Time of Day

20

- Data points are aggregate based on the location and the time stamp
- Sample results for every hour of a typical business day
 - Computed from data on Tuesdays, Wednesdays and Thursdays from the July/2018 dataset

Avg Speed (mph)																								
	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	Noon	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM
Albany	44.08	39.12	44.02	44.26	39.02	40.34	38.41	39.04	37.90	39.11	37.14	38.31	38.90	38.68	38.64	38.99	40.29	40.09	44.11	42.85	43.63	44.75	43.80	48.32
Corridor	50.14	50.11	51.24	50.65	49.52	49.97	49.29	46.75	44.85	44.89	46.19	45.57	46.02	45.82	47.34	47.96	47.16	49.23	50.98	52.56	49.10	48.05	48.69	51.61
NYC	34.74	34.73	35.42	35.51	35.15	34.51	27.97	23.20	21.82	23.23	24.24	23.87	24.00	23.70	23.96	21.96	21.11	20.71	24.04	27.92	32.25	32.97	32.06	33.14

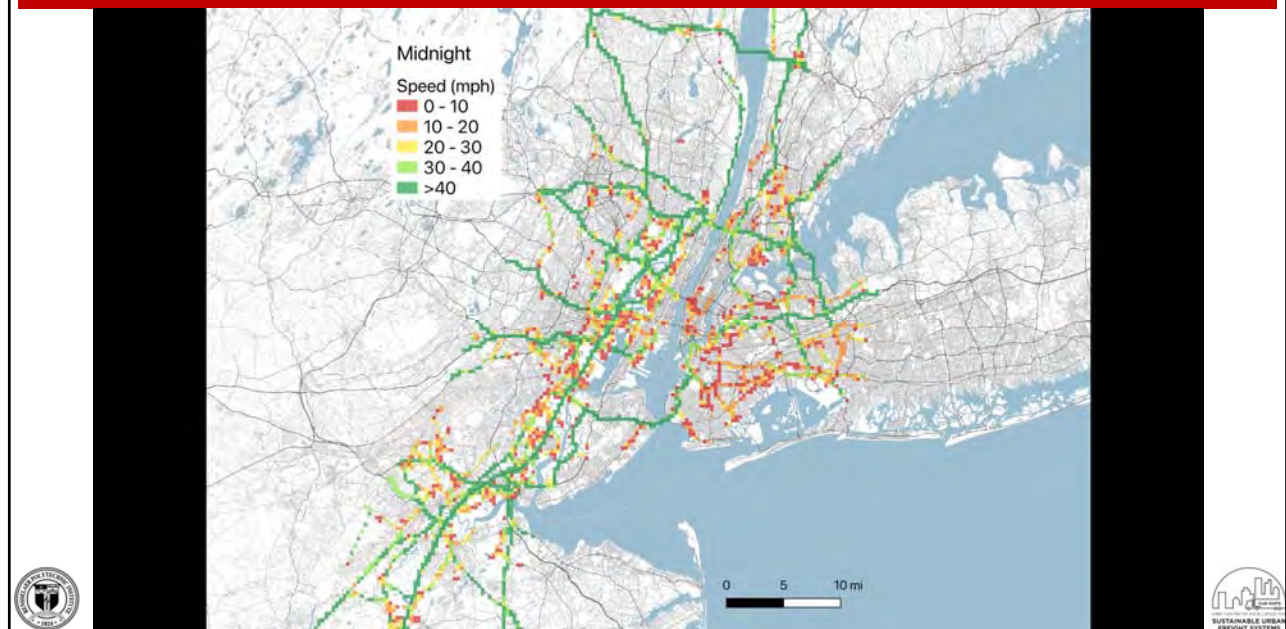
Fuel Consump. (gal. / 100 miles)																								
	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	Noon	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM
Albany	10.97	11.12	10.91	10.89	11.14	11.02	11.20	11.19	11.16	11.10	11.24	11.18	11.20	11.19	11.28	11.30	11.29	11.35	11.01	11.06	11.06	10.94	10.93	10.91
Corridor	10.90	10.75	10.75	10.94	10.94	10.94	10.92	11.12	11.23	11.23	11.15	11.13	11.40	11.13	11.15	11.06	11.11	11.03	11.01	10.78	10.83	10.93	10.97	10.78
NYC	11.30	11.32	11.27	11.22	11.25	11.42	12.18	12.95	13.27	12.96	12.66	12.67	12.63	12.76	12.85	13.26	13.57	13.95	13.33	12.31	11.69	11.49	11.61	11.47

CO2 emissions (g/mile)																								
	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	Noon	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM
Albany	1219	1235	1212	1210	1237	1224	1244	1244	1240	1233	1248	1243	1244	1243	1254	1256	1254	1261	1224	1229	1229	1216	1214	1212
Corridor	1212	1195	1194	1216	1216	1216	1214	1235	1248	1248	1239	1236	1267	1236	1238	1229	1234	1226	1223	1197	1203	1214	1219	1197
NYC	1256	1258	1253	1247	1250	1269	1353	1439	1474	1440	1407	1408	1403	1417	1427	1473	1508	1550	1481	1368	1299	1276	1290	1274



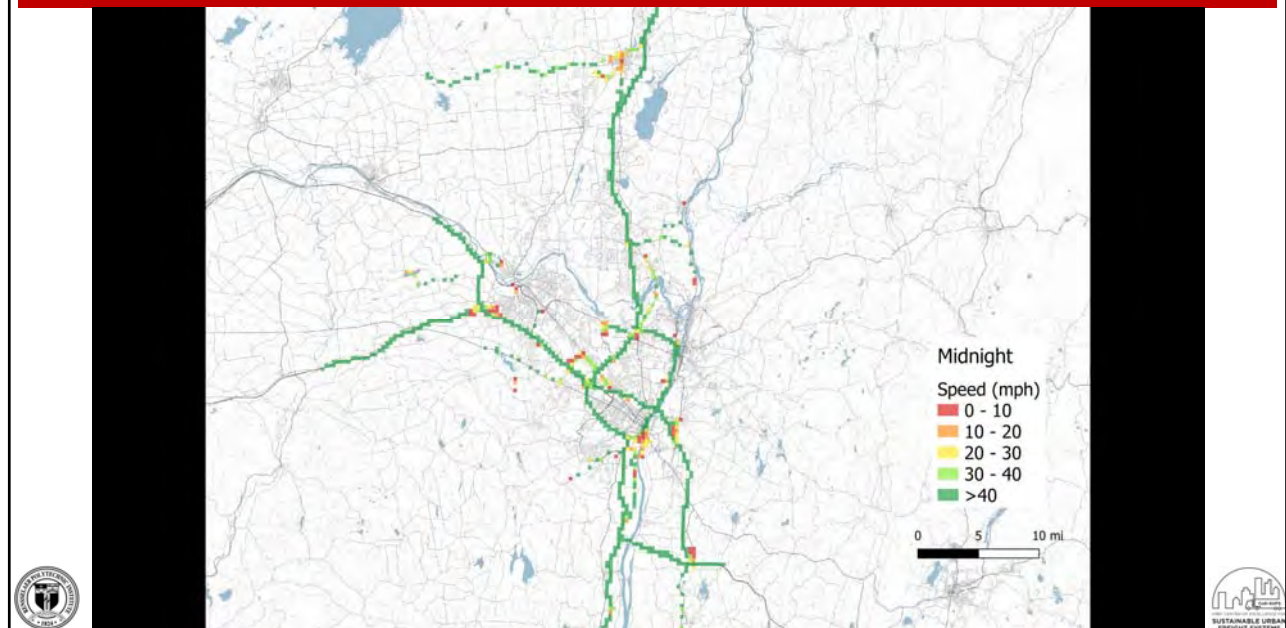
Travel Speeds vs. Time Period for NYC

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Travel Speeds vs. Time Period for Capital District

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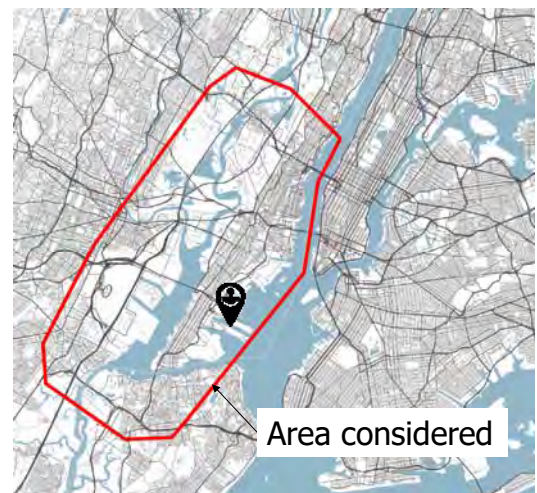
The Effect of Time of Travel at Port of NY / NJ



Port Authority of New York and New Jersey (Preliminary Results)²⁴

- Objective: investigate the impacts of extending/shifting port work hours to reduce emissions and fuel consumption
- Archival GPS data were post-processed to impute second-by-second measurements, to compute second-by-second emissions
- Three periods were considered based on the working hours of the port
 - 1) 3am-6am
 - 2) 6am-6pm
 - 3) 6pm-9pm

3h before ← Current working hours → 3h after



Port of NY and NJ: Emissions and Fuel Consumption Rates

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		3h before	Current working hours	3h after
	Periods of the day	3am-6am	6am-6pm	6pm-9pm
A change of hours increases speed by 22% to 39%	Avg. Speed (mph)	25.95	18.57	22.71
	Fuel Consumption (gal. / 100 miles)	11.95	13.58	13.06
A change of hours reduce CO2 emissions by 13% to 33%	CO (g / mile)	0.21	0.32	0.28
	CO2 (g / mile)	1327.33	1508.42	1450.80
	NOX (g / mile)	1.65	2.40	2.17
A change of hours reduce NOX emissions by 9% to 31%	PM2.5 (g / mile)	0.0106	0.0078	0.0084
	PM10 (g / mile)	0.0110	0.0082	0.0088
	ROG (g / mile)	0.0174	0.0228	0.0207
	TOG (g / mile)	0.0198	0.0260	0.0236



Behavioral Micro-Simulation for EEL (BMS-EEL)



Behavioral Micro-Simulation (BMS-EEL)

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- Objective: Assess impacts of EEL initiatives under simulated conditions
- Approach: Simulate all the tours required for delivering supplies to commercial establishments
 - With the delivery tours it is possible to estimate emissions, costs, VMT
- Tours are simulated based on:
 - Employment, Freight Trip Generation
 - Statistics about delivery stops
 - Economic interconnections among industry sectors (extracted from BEA's Input-Output models)

Progress: Construction of the Delivery Tours by the BMS

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Inputs:

Number of delivery stops
per tour by industry
sector

Number of deliveries per
ZIP code

Interaction between the
shipper and the receivers

Travel time from ZIP code
of shipper to ZIP code of
receivers

For every shipment

Define number of receivers to be included in the
tour based on industry sector of the shipper

Compute probabilities of including receivers in
the tour

Select receivers based on probabilities

Compute sequence of delivery stops

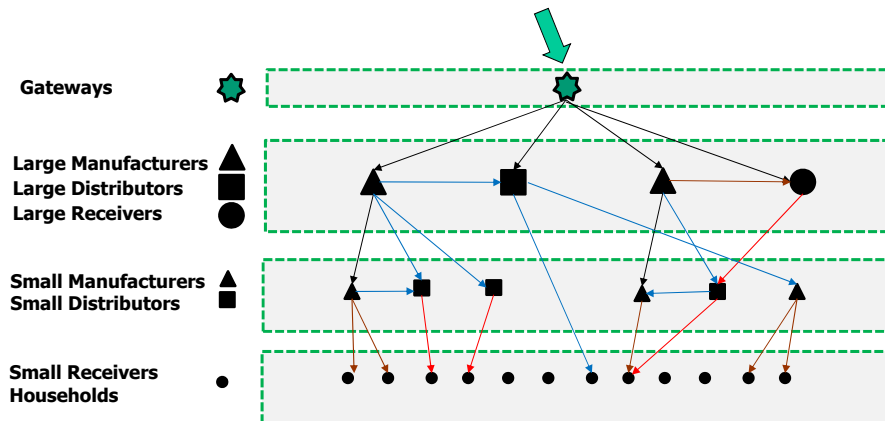
Delivery Tour



Behavioral Micro-Simulation (BMS-EEL)

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The BMS-EEL simulates the flows at the various stages of supply chains to analyze effectiveness of EEL initiatives



(Preliminary) Impacts of the Location of DCs

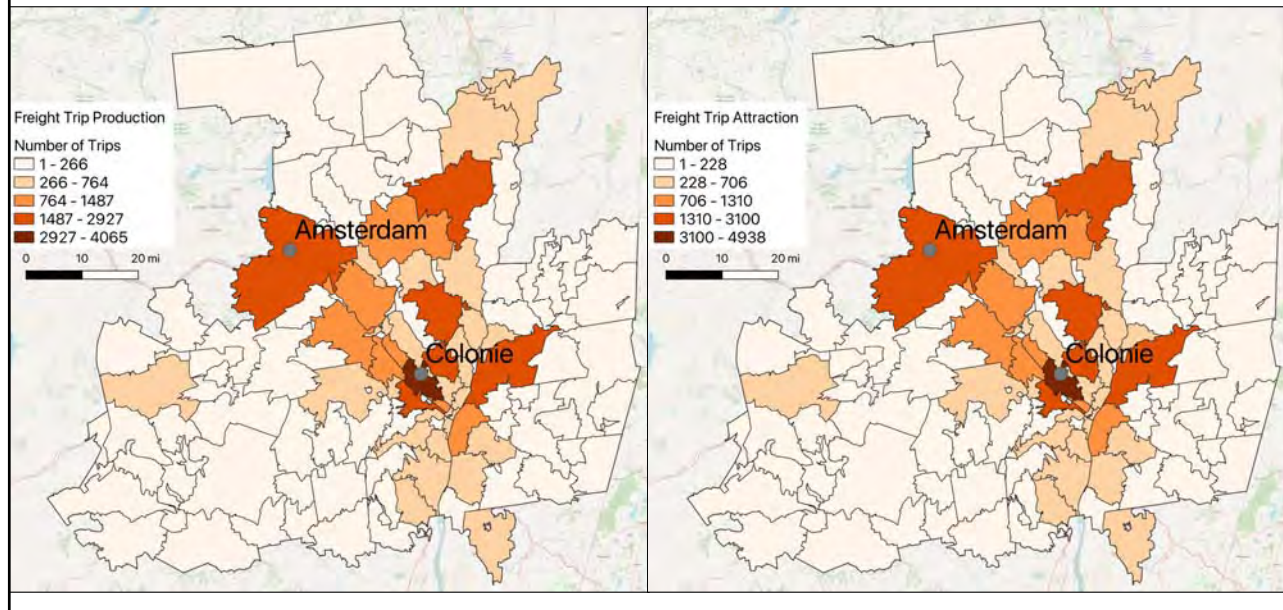
30

- Three scenarios simulated:
 - Scenario 1: Adding a DC in Colonie
 - Closer to city center
 - Central position in the Capital District
 - Easier to reach receivers, a bit more expensive
 - Scenario 2: Adding a DC in Amsterdam
 - Outskirts of the area
 - Easier to build
 - Scenario 3: Relocating a DC from Amsterdam to Colonie



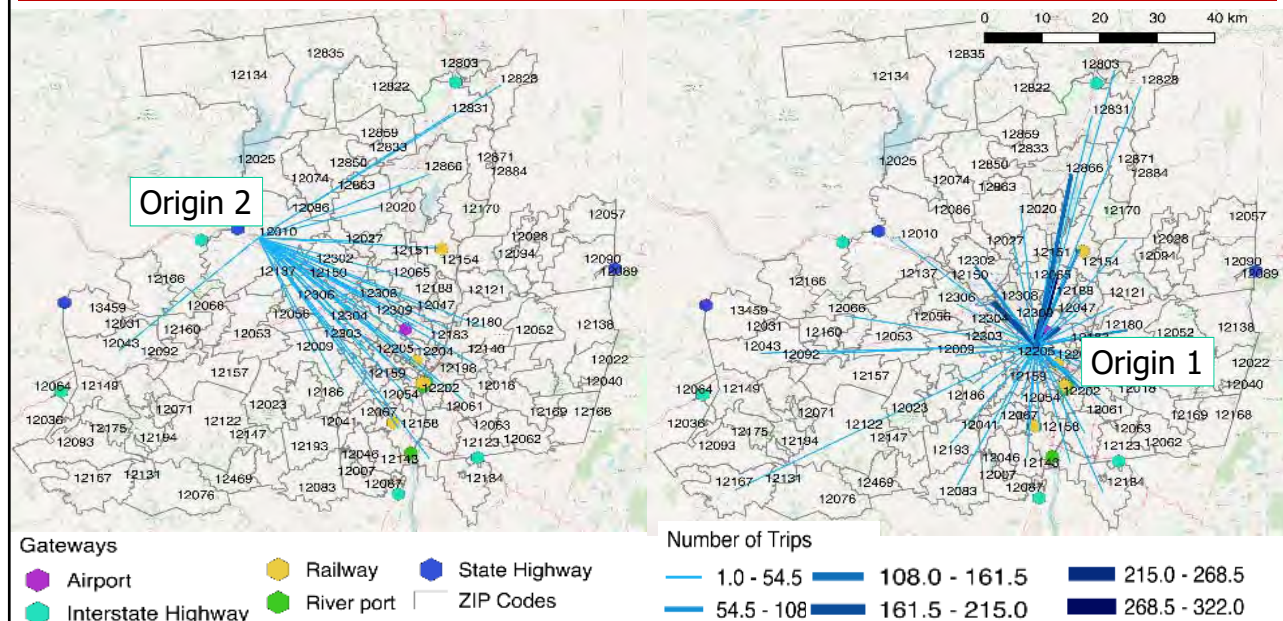
Freight Trip Generation

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Simulated Freight Flows

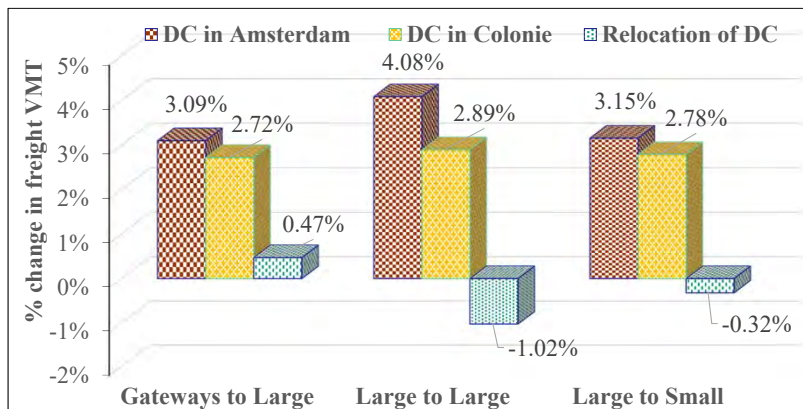
32



FTG Scenarios and Results

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Scenario	FTG in Amsterdam	FTG in Colonie
Additional DC in Amsterdam	Baseline + (160, 260)	Baseline
Additional DC in Colonie	Baseline	Baseline + (160, 260)
Relocation of DC from Amsterdam to Colonie	Baseline - (160, 260)	Baseline + (160, 260)



Modeling Delivery Tours in Troy

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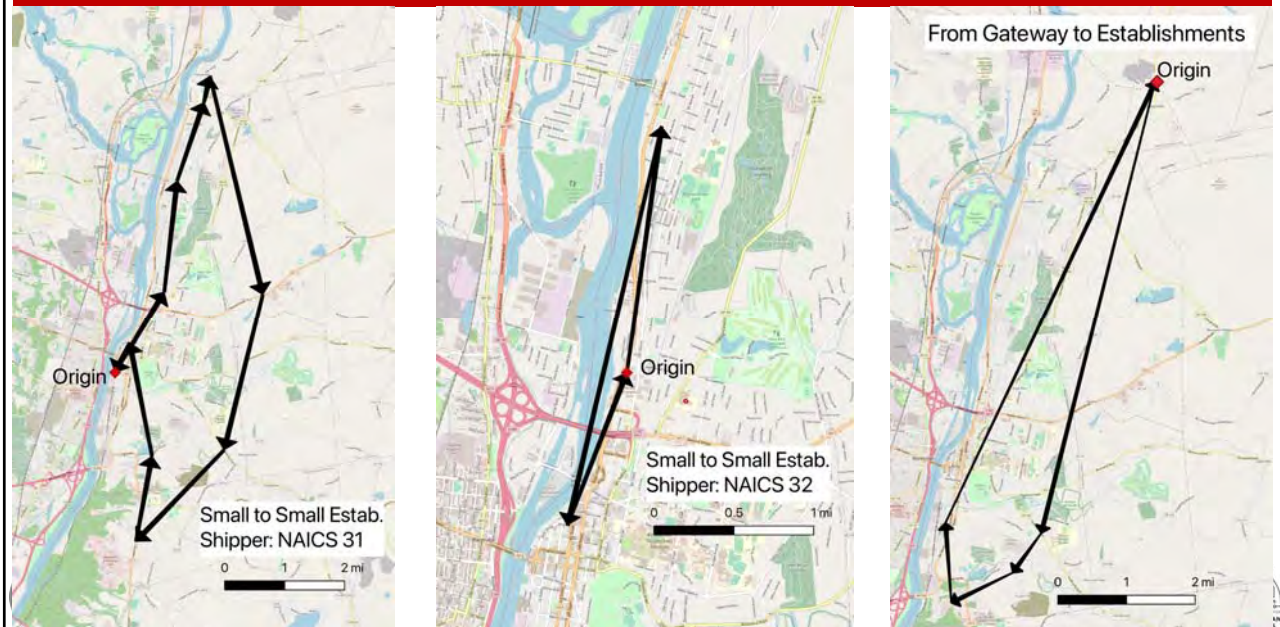


Establishments were grouped by street segment



Examples of Tours

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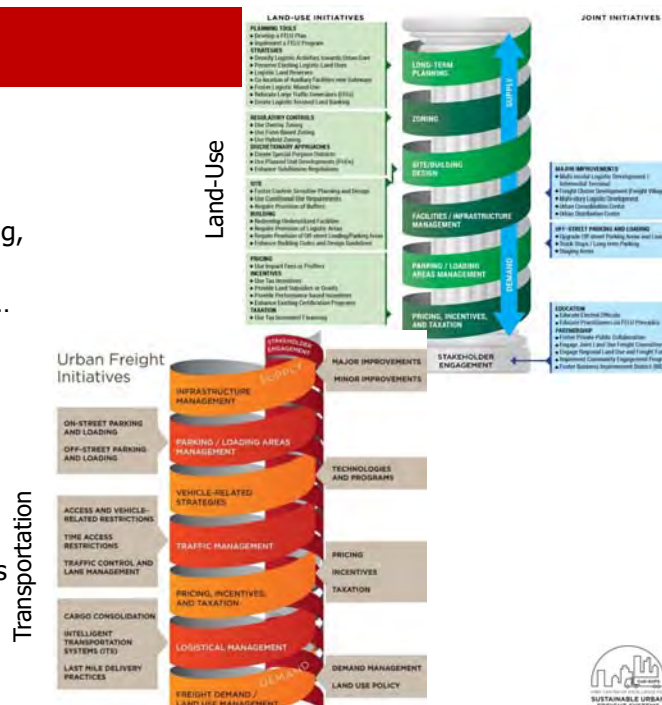
Catalog of Energy Efficient Initiatives and Initiative Selector

Please give it a try at: <https://cite.rpi.edu/iselector/>



Catalog of Initiatives

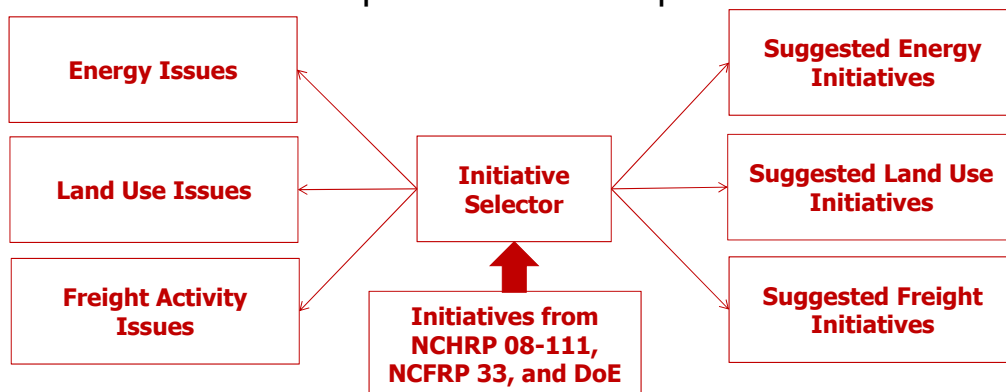
- Initiatives characterized based on:
 - Qualitative Assessment of Overall Energy Efficiency Impact
 - Sources of Energy Efficiency: Vehicle, Routing, Driving,...
 - Geographic Scope: Nation, State, City, Area...
 - Coverage: Corridor or Urban
 - Expected Cost: Low, Medium, High
 - Implementation Time: Short, Medium, Large
 - Benefits Timeframe (years): <1, 1-5, 6-10...
 - Stakeholders Involved
 - Supporting Technologies
 - Assessment of Impacts and Remedial Actions
 - Examples



Initiative Selector: Basic Concept

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- To provide suggestions on potential Freight and Land Use Initiatives, that could help solve or mitigate Land Use and Freight Issues
- Inspired on the one developed for NCFRP Report 33



Please give it a try at: <https://cite.rpi.edu/iselector/>



Once you specify the issue(s), you get suggestions...

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SCHOOL OF ENGINEERING

Center for Infrastructure, Transportation, and the Environment (CITE)

ABOUT US TEAM

RESEARCH SOFTWARE & TOOLS COE-SUFS CONTACT US

SEARCH

Initiative Selector for Fostering Freight System Performance, Energy Efficiency, and Freight-Efficient Land Use

This application has been co-funded by the Transportation Research Board's (TRB) National Cooperative Freight Research Program Project - Improving Freight System Performance in Metropolitan Areas and the VREF Center of Excellence for Sustainable Urban Freight Systems.

Select aspects of the traffic problems you seek solutions to on the left. The results will contain links to all the unique documents describing potential solutions.

Type of Initiatives

☐ Energy

☒ Land Use

☐ Stakeholder Engagement

☐ Transportation

Nature of the Problem

☐ Select All

☐ Congestion

☐ Livability Issues

☒ Logistics Sprawl

☐ Noise

☐ Pollution

☐ Safety

☐ Systematic inefficiencies

Geographic Scope

☐ Select All

☐ City/MSA

☐ Area

View Selected Clear Selected

Search within results

Select	Initiative Name	PDF	Initiative Type	Public Investment	Private Investment	Implementation Time	Risk of Unintended Consequences	Group
<input type="checkbox"/>	Co-Location of Auxiliary Facilities Near Major Gateways		Land Use	Low / High	Low / High	Medium / Long	Low	Long-Term Planning
<input type="checkbox"/>	Create Logistic-Focused Land Banking		Land Use	Low / High	None	Medium / Long	Low	Long-Term Planning
<input type="checkbox"/>	Create Special Purpose Districts		Land Use	Low	Low / High	Short	Moderate	Zoning

Not fully functional yet

Please give it a try at: <https://cite.rpi.edu/selector/>

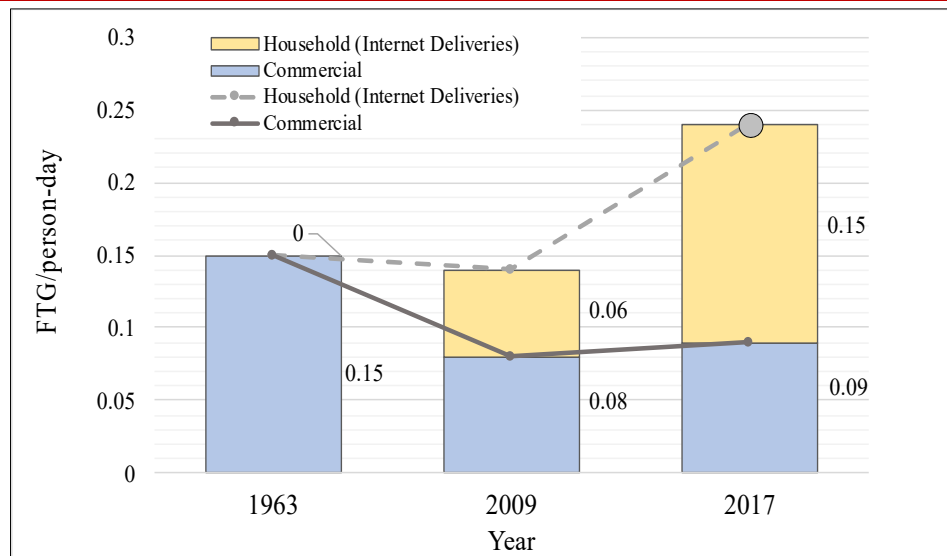
<p>Create Special Purpose Districts</p> <p>Description: Special districts or special purpose districts with defined specific uses of a given area. Most districts are developed for particular business activity. These districts can have governing bodies, for example, restrict certain building types, or support truck traffic of freight, reduce logistics sprawl, and enhance livability.</p> <p>Geographic scope: City/MSA, Area, Corridor, Parcel</p> <p>Problem source: Inadequate infrastructure, Large trucks, Large lot sizes, etc.</p> <p>Expected costs and level of effort: Implementation of special districts consider the local needs of an area, which may require a moderate governing body, so efforts may include selecting board members, regional master plans. Costs of creating a special purpose district and governing body.</p> <p>Stakeholders involved: Local communities, Developers, Regional Planning Agencies</p> <p>Time to fruition: 6-10 years</p> <p>Advantages:</p> <ul style="list-style-type: none"> Supports localized needs Offers more timely and responsive planning than larger governmental areas Enhances freight efficiency <p>Examples:</p> <ul style="list-style-type: none"> Special Hunts Point District in South Bronx, New York. This is the food sector and provides a buffer between industry and residences. <p>Source: (City of New York)</p> <p>Freight District in Portland, Oregon: This district designates an area by, for example, removing geographic constraints. (City of Portland)</p> <p>Related land use initiatives: Overlay Zoning to Foster FELU, H Initiatives, Freight Cluster Development</p> <p>Complementary transportation initiatives: Parking and Land Use Initiatives</p> <p>References: (City of Portland 2006, City of New York 2008, U.S. Local Agency Formation Commission 2019)</p>	<p>Develop a Freight-Efficient Land Use (FELU) Plan</p> <p>Description: A FELU plan integrates freight activity considerations into a land-use plan so that potential negative impacts from freight activities can be identified at an early planning stage and mitigation plans can be implemented in advance. Addressing logistics land use through comprehensive planning will improve the efficiency of freight activity, and allow land use to be harmonized for all economic sectors while minimizing costs due to externalities caused by freight transportation.</p> <p>Geographic scope: City/MSA, Area, Corridor</p> <p>Initiative group: Long-Term Planning; Planning Tools</p> <p>Problem source: Inadequate infrastructure, All traffic, Urban deliveries, Double parking, Other parking issues, Sidewalk conflicts, Incompatible land use</p> <p>Expected costs and level of effort: The main effort to develop a FELU plan is engaging stakeholders, since the cost of developing the plan is low. However, the cost of implementing a land-use plan fluctuates depending on the geographic area. Commonly, land costs in urban areas are considerably high. These larger upfront investments of the public sector are balanced with the significant reduction of externalities such as VMT or emissions. High levels of effort and coordination among all stakeholders are required to accurately and effectively plan for logistic land uses.</p> <p>Stakeholders involved: Local Communities, Producers, Receivers, Departments of Transportation, Regional Planning Agencies, Planning Commission</p> <p>Time to fruition: 6-10 years</p> <p>Advantages:</p> <ul style="list-style-type: none"> Organizes future land development Increases employment opportunities Decreases costs for goods and services Beneficial to local economy Improves community livability <p>Disadvantages:</p> <ul style="list-style-type: none"> Extensive stakeholder coordination is necessary The plan has to be revised and updated over time Promotion of education of elected officials to demonstrate the impact of a FELU plan is necessary <p>Examples:</p> <ul style="list-style-type: none"> Paris, France. Three regional plans were developed and reserved areas for freight infrastructure and (re)development in the metropolitan region. This allows the interaction between logistic intensive land uses and the rest of land uses. (Dablanc, 2015b) <p>Source: (Dablanc, 2015b)</p> <p>Related land use initiatives: All land-use initiatives</p> <p>Complementary transportation initiatives: All transportation initiatives</p> <p>References: (Federal Highway Administration, 2012b; Dablanc, 2015b)</p>	<p>wards the Urban Core</p> <p>Freight traffic. Allocating spaces for logistical facilities and retail locations. Complementary to this is the use of roads to allow large vehicle trucks to serve the needs, logistics sprawl, livability issues due to freight</p> <p>Initiative group: Long-Term Planning; Strategies</p> <p>for logistics facilities. Also, to control the activities on logistic activities. Lastly, it might be necessary some for the private firms they must be willing to relocate to in the city center. And, lastly cost of operations will increase.</p> <p>ers, Developers, Regional Planning Agencies, Building</p> <p>advantages:</p> <ul style="list-style-type: none"> Higher facility costs Potential opposition from local residents May result in increased urban congestion <p>of logistics facilities into the city. The latest Parisian as (Dablanc 2017). In addition, there has been a re-s—in urban areas as a micro-distribution center. As an city, now operated by Chronopost express—a private deliveries are done using a fleet of electric and diesel</p> <p>Source: (Dablanc 2017)</p> <p>Logistic Mixed-Use, Urban Distribution Centers, Multi-facilities</p> <p>Initiatives</p>
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Behavioral Research: How to Mitigate Ecommerce Traffic



Long-Term View of Freight Trip Generation in NYC

42



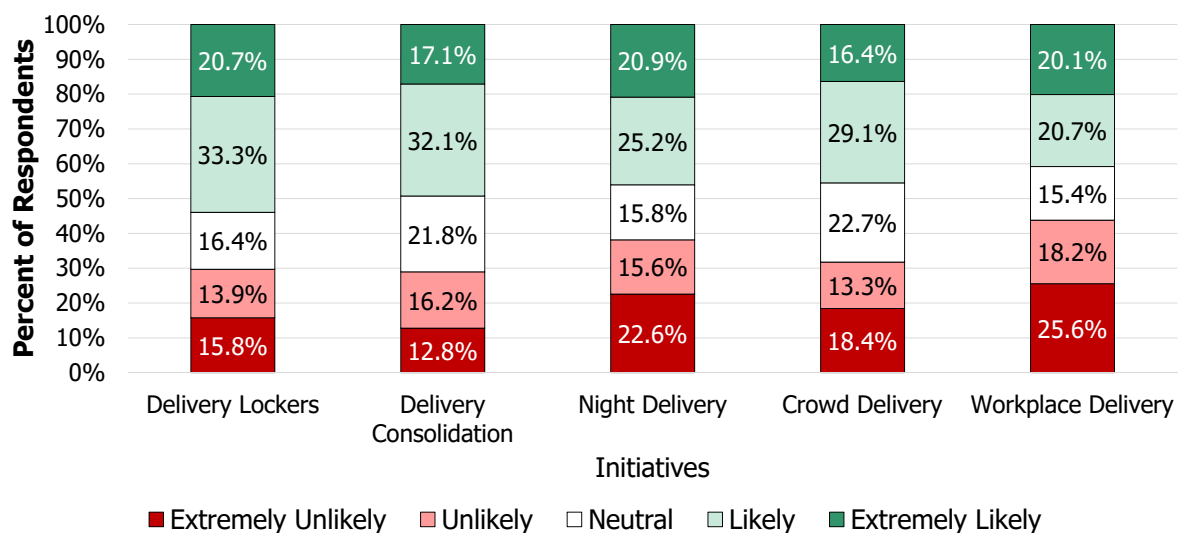
1st Round: 2019 Household Internet Survey

- To gain insight about most promising energy efficient initiatives in household deliveries
- 507 complete responses:
 - Results weighted to account for demographic discrepancies
 - Average 10.26 online shopping orders/month and 5.25 deliveries/month
 - 9.61 online shopping orders/month and 5.17 deliveries/month
- Five demand management initiatives evaluated:
 - Delivery lockers
 - Delivery to workplace
 - Delivery consolidation
 - Night delivery
 - Crowd delivery



Households' Acceptance of Demand Management Initiatives

44



Discussion About Pilot Tests



Role of Pilot Tests

46

- Small Pilot Tests of novel operational concepts are part of the project
 - Delayed by the COVID-19 pandemic
- Ideally, the Pilot Tests:
 - Should be of interest to the stakeholders involved, with potential to benefit all involved if fully implemented
 - If you have freight/logistical issues that you want to solve, let's talk.
 - Should not require large investments in time or money
- Benefits to participants
 - May find solutions to issues that affect them
 - Raise awareness about these issues
 - Good PR...

Potential Ideas

47

- In collaboration with private sector
 - Pilot test the effects of changes in time-of-delivery, such as staggering (spreading) the deliveries across the day
 - Consolidate orders (and deliveries) to distribution centers, large buildings, commercial centers, etc. to reduce truck traffic
 - Quantify the effects of restrictions on tandems to identify potential solutions
- In collaboration with the public sector
 - Pilot test the installation of shared use delivery lockers
 - Segregation of service and freight vehicles to better manage the curbside
- Of, course all ideas are more than welcomed!



Roles

48

- The US DoE project would fund RPI's participation
 - We will, in collaboration with partners, do the field work, design, and analyses of the data
 - There is a tiny amount of funds to defer some expenses, with DoE approval
 - We will do the bulk of the work
- Any suggestions about potential pilot tests? Email us:
 - José Holguín-Veras, jhv@rpi.edu
 - Jeffrey Wojtowicz, wojtoj@rpi.edu



Thanks



Delivery Lockers

50

- Delivery lockers are secure compartments where consumers can have parcels delivered in public locations
- They are suitable for small- to medium-sized non-perishable items
- These lockers are typically free for consumers to use and are often located at convenience stores, grocery stores, or public facilities
- Delivery lockers remove the chance of failed deliveries and reduce the number of individual stops required to deliver parcels, reducing vehicle miles traveled, congestion and emissions



Delivery Consolidation

51

- Delivery consolidation is a strategy where multiple deliveries to a single destination are consolidated into a single delivery
- Consolidation may be done by the shipper, such as with Amazon's "Amazon Day" program, or at an intermediate location where packages from multiple shippers can be consolidated
- Delivery consolidation reduces the number of freight trips, reducing the total vehicle miles traveled



Off-hours or Night Delivery

52

- Off-hour delivery or night delivery is a strategy that items are delivered to homes outside of regular business hours
- The idea is to deliver items when receivers are likely to be home and able to accept deliveries, thus greatly reducing the likelihood of a failed delivery or porch piracy
- At off-hours, roads are less congested and there is less competition for commercial vehicle parking, thus increasing delivery efficiency by reducing tour time, and potentially allowing for more deliveries in a tour



Workplace Delivery

53

- Workplace delivery is an alternative delivery strategy in which consumers have items delivered to their place of work instead of their residences
- As many parcel carriers operate during regular business hours, receivers are often not at their homes when deliveries are made. By delivering to places of work, carriers can ensure that receivers obtain their items, reducing the likelihood of failed deliveries
- Delivering at the workplace potentially reduces the number of delivery stops, since the carriers can deliver multiple parcels at a large office building instead of delivering in each recipient's home



Segregation of Parking Spaces

54

- This initiative aims to allocate dedicated parking spaces for freight vehicles and dedicated parking spaces for service vehicles
- The mean occupation time of service vehicles is 88.69 minutes, while the mean occupation time of freight vehicles is only 15.66 minutes
- By segregating the parking spaces for freight and service vehicles, the availability of parking for freight vehicles increases
- Traffic in general is benefited as the externalities produced by double parking and cruising for parking decrease



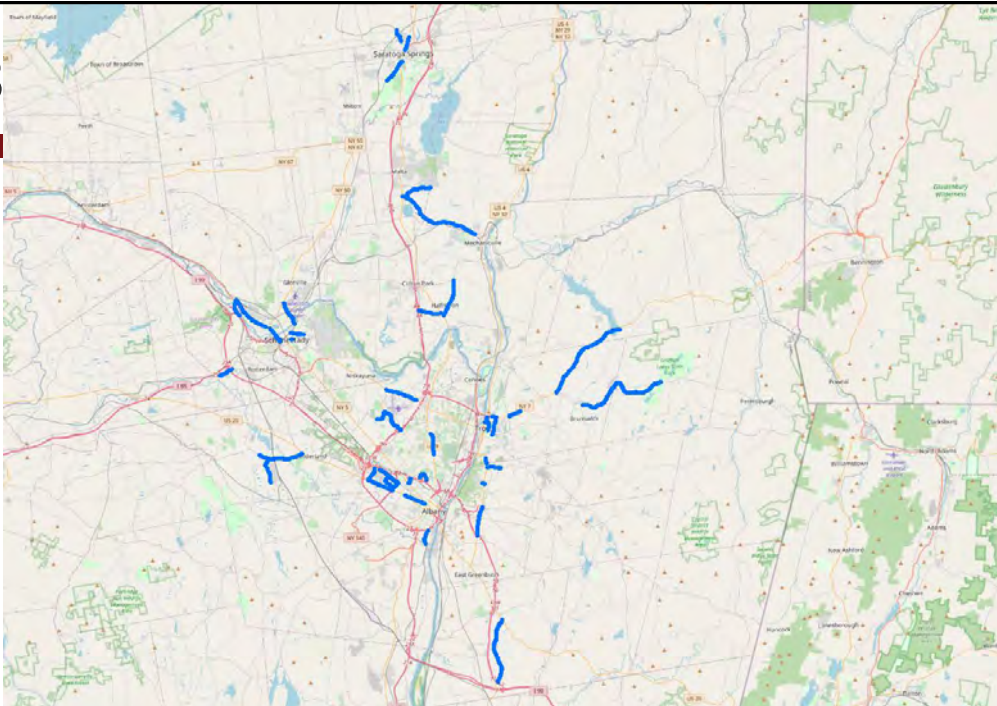
2. Energy Efficient Logistics Project: Update and Pilot Initiatives

Dr. José Holguín-Veras, Rensselaer Polytechnic Institute

<https://cite.rpi.edu/energy-efficient-logistics/>



3



4. Regional Truck Parking Study Update

- February 17 - Freight Advisory Committee
 - ▣ Recommended *Regional Truck Parking Study* or *Local Delivery Optimization* to Planning Committee
- April 7 - Planning Committee
 - ▣ Selected the *Regional Truck Parking Study*
- Request for Expressions of Interest (REI) with Scope-of-Work
 - ▣ Released May 19 due June 23



4. Regional Truck Parking Study

- Received 3 letter of interest
- Convened a consultant selection committee:
 - ▣ NYSDOT R1, NYSTA, CDRPC, and CDTC
- Current: consultant selection process
- Next Steps: Contracting > **Convene Study Advisory Committee** (Fall)
- Regular updates at Freight Advisory Committee meetings



5. TIP Solicitation

- Transportation Improvement Program (TIP) – a fiscally constrained list of the next 5 years of transportation projects
- Release of solicitation pending Policy Board approval
- Fall timeline (Sept. to Dec.)
- Process:
 - ▣ Eligible project sponsors submit candidate projects
 - ▣ Staff evaluation and scoring
 - Benefit/Cost ratio and Merit Score (inc. Freight)
 - ▣ Planning Committee makes project recommendations to the Policy Board > Policy Board officially approves



5. TIP Solicitation

Potential Freight Advisory Committee Role:

- Review candidate projects and provide input as it relates to Freight and Goods Movement
- Review draft Freight merit scores
- **Other roles for the Freight Advisory Committee?**
- *Could change November meeting date to December/January*



FREIGHT (5 POINTS POSSIBLE)	
Freight and Goods Movement (5 points)	
Award 1 point for each of these criteria (for a cumulative total of up to 5 maximum): <ul style="list-style-type: none"> • Project improves a MPO or NYSDOT identified freight movement issue. • Project removes/substantially improves a freight related land-use compatibility, noise, or safety issue. • Project is located on, or provides access to, the CDTC Freight Priority Network, and provides a travel time and/or reliability benefit(s). • Project enhances access to a key freight generator (Ex: Airport, Ports, Major Distribution Centers, Industrial Park/cluster of industrial land uses). • Project enhances access to any intermodal freight movement (Ex: air to truck/rail, rail to truck/water, water to rail/truck/air, etc.). 	1 to 5
Project has neutral effect (no known impact, positive or negative) on freight and goods movement.	0
Project is located on, or provides access to, the CDTC Freight Priority Network, and increases travel time and/or decreases reliability.	-1
Project negatively affects freight movement or safety in an area with a known MPO or NYSDOT identified freight movement or freight-related safety issue; alternatively, project introduces a specifically freight-related land use incompatibility (e.g., substantial increase to freight traffic load in residential area, introduction of significant freight traffic noise or other significant freight related nuisance).	-2
FREIGHT SUBTOTAL SCORE	

6. Member Updates

- i. Airport
- ii. Marine
- iii. Rail
- iv. Trucking
- v. Other Private Industry (manufacturing, distribution, warehousing, etc.)
- vi. Institutional/Government/Non-profit



7. Next Meeting

- Remaining 2021 Freight Advisory Committee Dates
 - ▣ November 17*
- Still virtual for the time being

* Subject to change to accommodate TIP process



Thank you for attending!

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