



Trucking Industry Issues – Moving Freight in the 21st Century

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Transportation Engineering and Safety Conference

Penn State University

State College, Pennsylvania

December 6, 2018

Overview

- Moving Stuff – Not People
- The Changing Economy
- General Issues in Freight
- Changing Technology
- Long Haul Freight
- Road Pricing & Freight
- Port Drayage
- Local Delivery

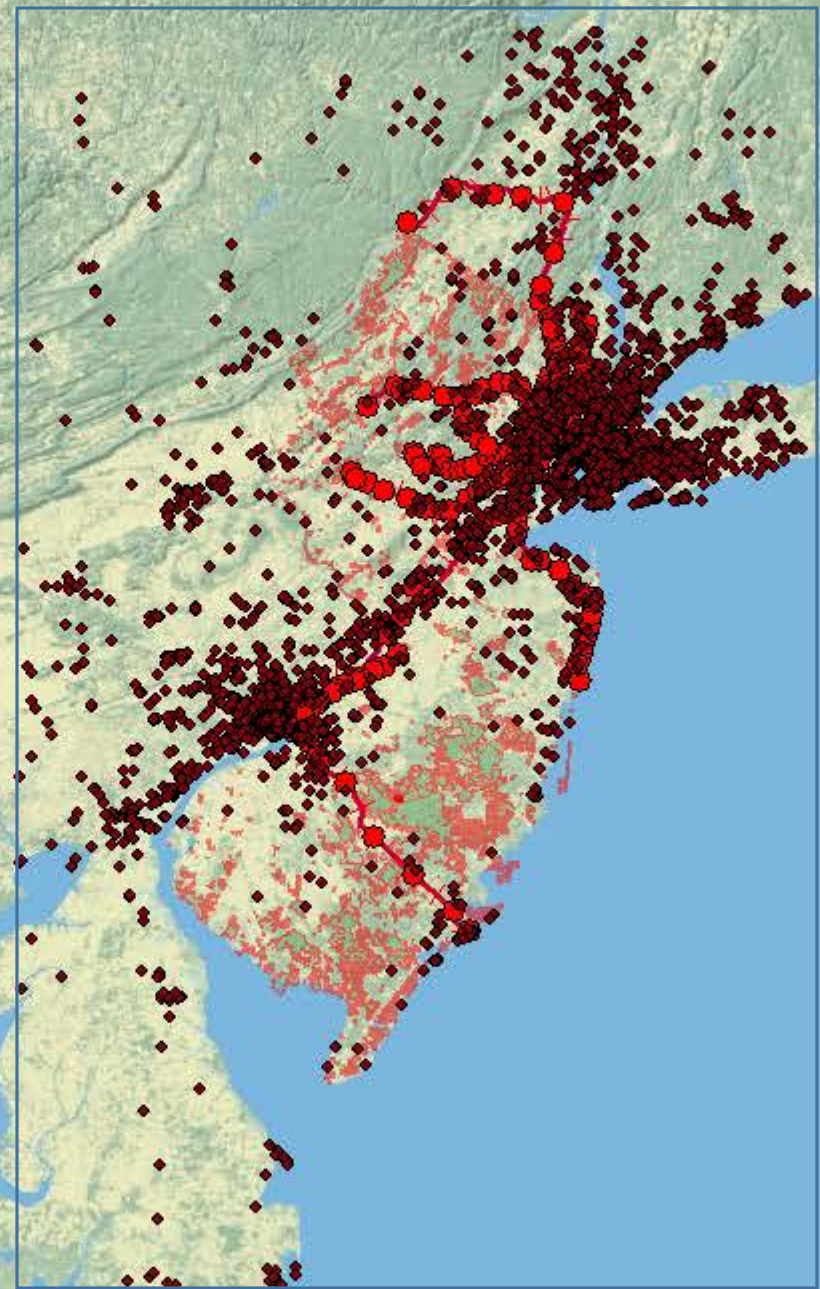
Changing Households

- Households used to travel a lot to get goods and services.
- Go to store to rent a DVD or buy a CD – Now Netflix and I-Tunes.
- Go to a restaurant to get a meal.
- Go to store to buy various items – Now Amazon, Ebay & such..
- Go to store to purchase a physical map – now cell phone and GPS services
- Buy a car and have it for your own use every day – Now Lyft, Uber and Zipcar.
- Travel to a location to have a meeting – Now Skype or GotoMeeting.
- Now these services are bundled in some cases with transportation services, communications or the delivery of goods.

The Changing Economy

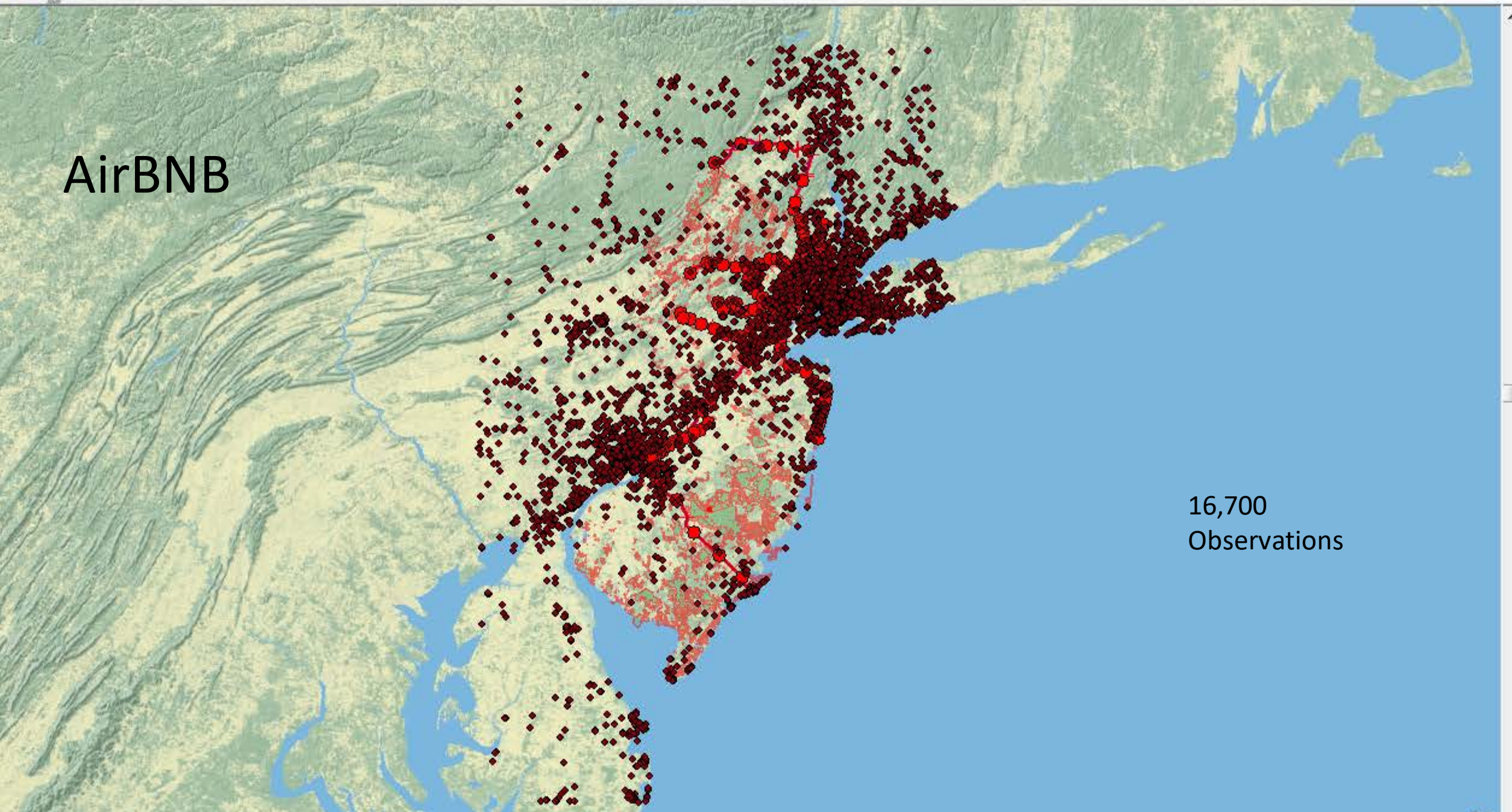
Not Just Transportation – But Many Aspects

AirBNB



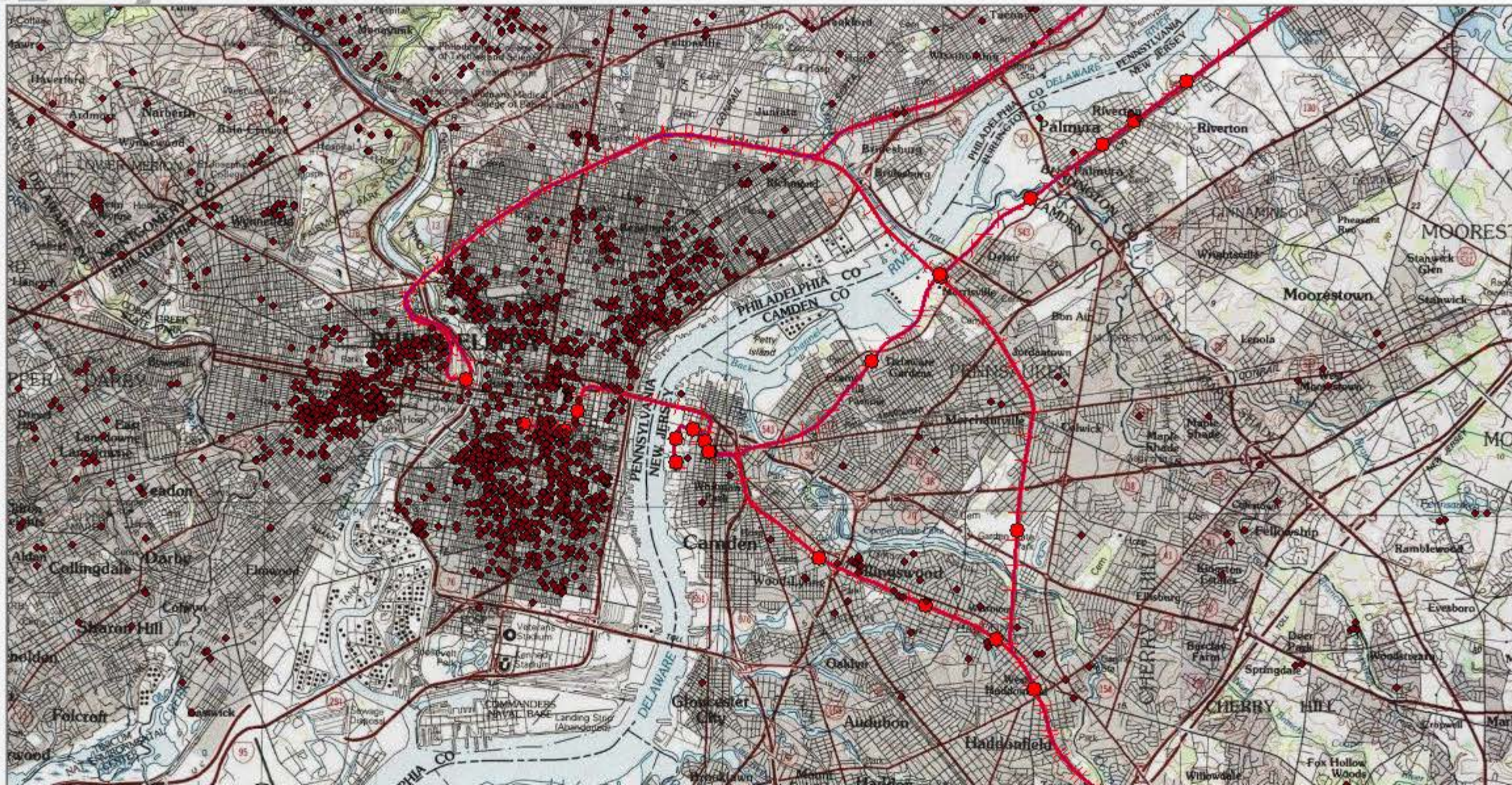
9,000
Observations

AirBNB



16,700
Observations

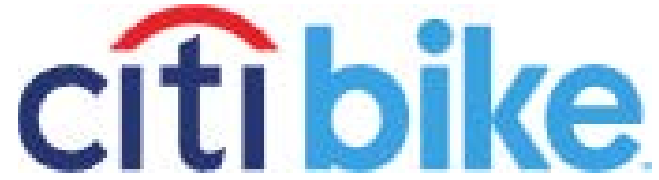
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Changing Transportation

Households appear to be doing new things...





Ola Cabs - India



Sidecar - DOA



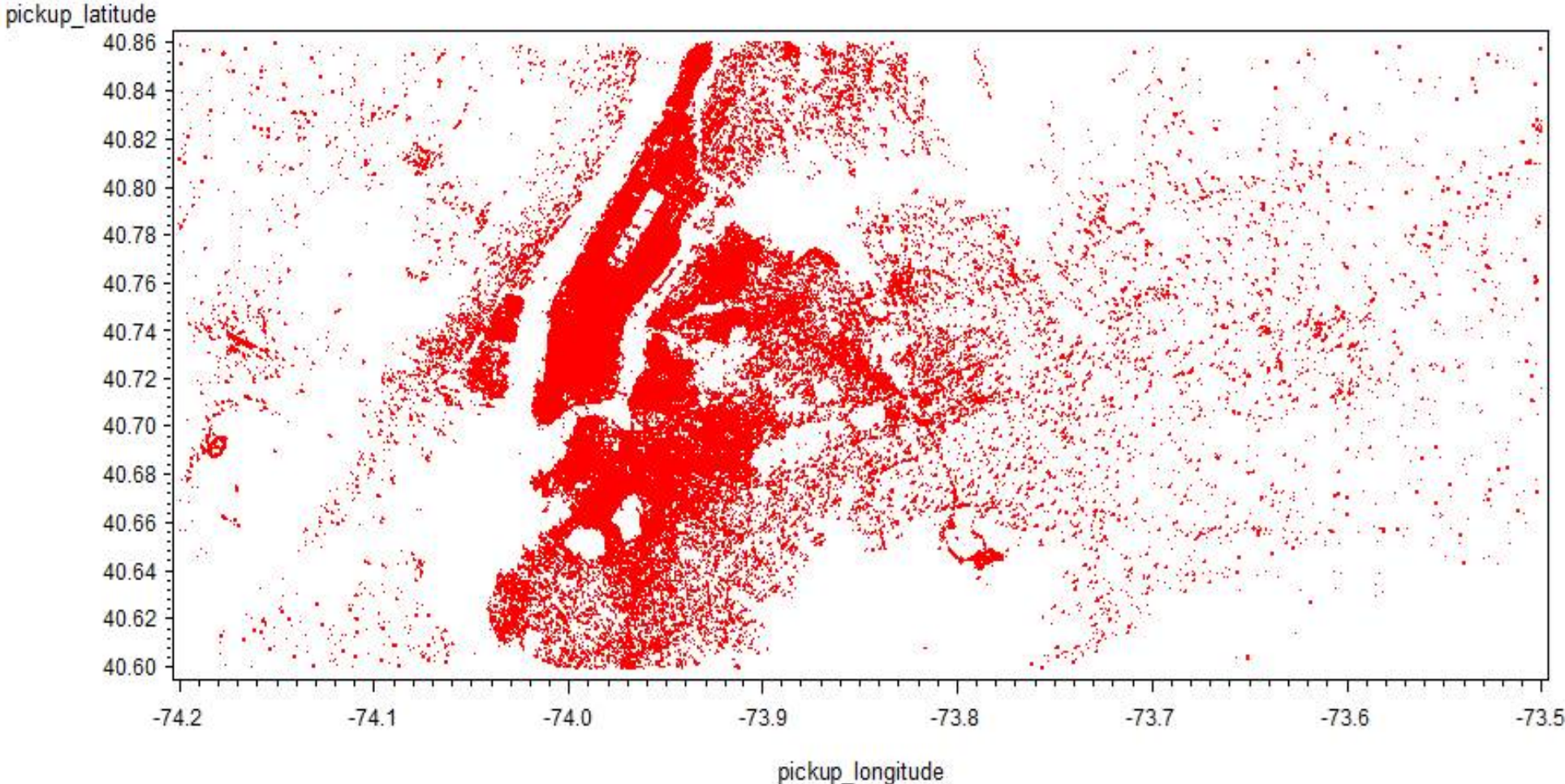
New Stuff – New Research

- **Meeting Announcement: Committee for a Study of Mobility as a Service - Washington, D.C.**
- TRB will host its first committee meeting for the Mobility as a Service Study on December 17-18, 2018 in Washington D.C. The meeting is open to the public, but an RSVP is required. This study will examine the role of new and expanding shared mobility options, such as transportation network companies, taxis, carsharing, bikesharing, scootersharing, and microtransit, in the provision of transportation services, and specifically the relationship to and the impact of these services on existing public transit operators. The committee will examine what steps transit operators could take so these new services can be complementary to, rather than competitive with, transit, and what role transit agencies could play in becoming mobility managers in the new mobility landscape.





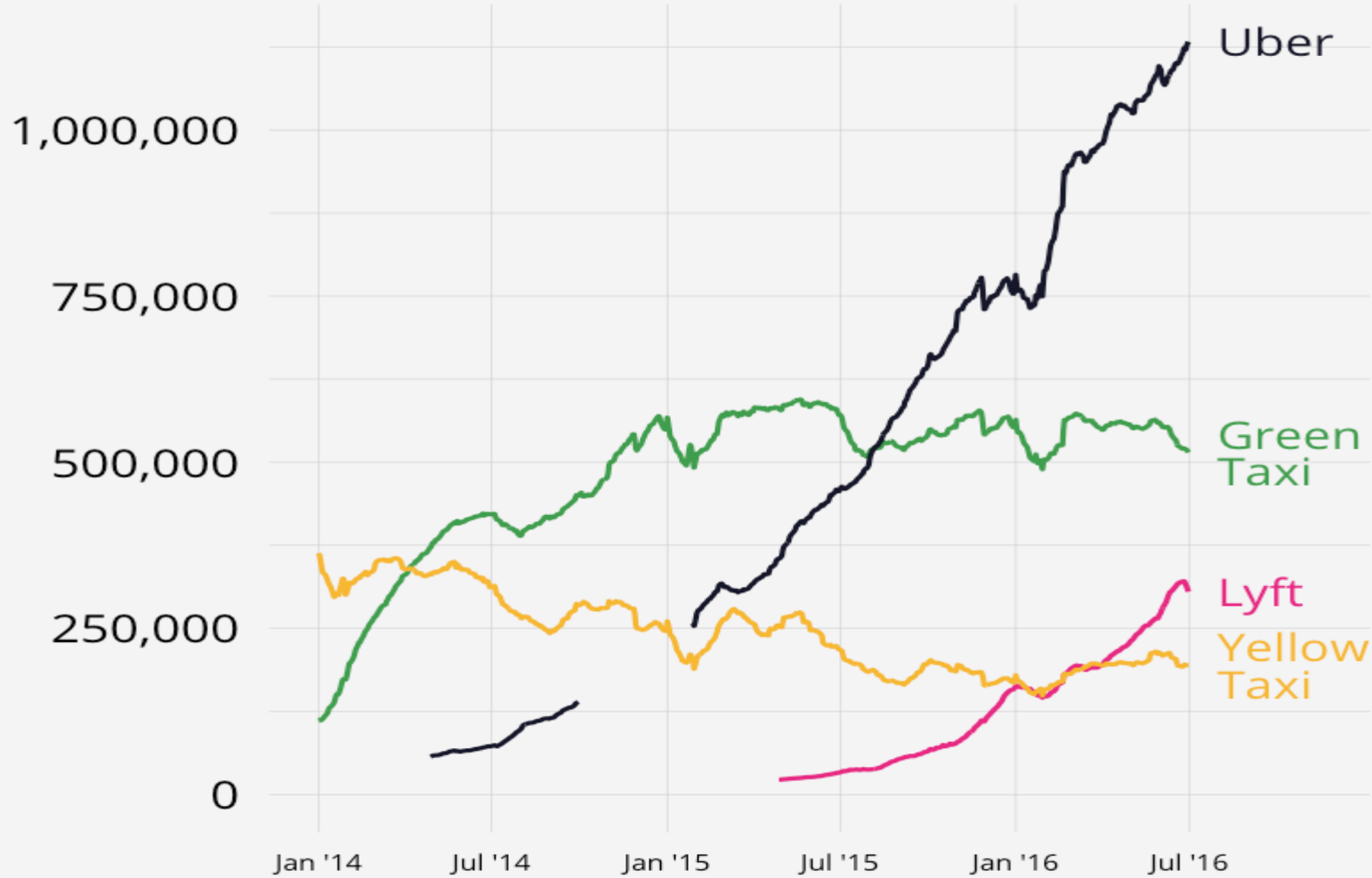
Uber Trips Origins in "New York" – From Uber



Data Obtained From Uber by NYC Taxi and Limousine Commission for April – October 2014

Brooklyn Monthly Taxi Pickups

trailing 28 days, based on NYC TLC trip data



Hitchin' a ride: Fewer Americans have their own vehicle

Jan 23, 2014 Contact Bernie DeGroat



ANN ARBOR—American households without a vehicle have increased nearly every year since 2007 —providing further evidence that motorization may have peaked in the United States, says a University of Michigan researcher.



Following up his research from last year showing that Americans own fewer light-duty vehicles per household, drive them less and consume less fuel than in the past, Michael Sivak of the U-M Transportation Research Institute examined recent trends (2005-12) in the proportion of U.S. households without a car, pickup truck, SUV or minivan. He also studied variations in this proportion for the 30 largest U.S. cities for 2007 and 2012.

Sivak found that 9.2 percent of U.S. households

RECENT FEATURES

Few local leaders satisfied with public transit options



Michigan local government leaders say transit services are important, but lack of funding discourages their development
By Thomas Ivacko and Debra Horner



A crash in space: Six things you didn't know about MESSENGER's Mercury impact



US Households Without a Vehicle

Rank	City	% car-free
1	New York City	56%
2	Washington, DC	38%
3	Boston	37%
4	Philadelphia	33%
5	San Francisco	31%
6	Baltimore	31%
7	Chicago	28%
8	Detroit	26%

U.S. Average = 9.22%

Household Modes of Travel

- Private Automobile
- Shared Vehicle – Carpool / Fampool
- Shared Vehicle – Taxi, Jitney, Lyft, Uber, Scooter
- Walking
- Bicycle
- Mass Transit – Commuter Rail, Metro, Bus, Ferry
- Air Travel
- Non-Travel – Online Shopping / Video Meetings

Trucking Industry Issues

From – The American Transportation Research Institute (ATRI)

So – It May Be More Reflective of Major Carrier Issues

Versus

Society or Drivers or Small Hauler Issues

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- [Critical Issues in the Trucking Industry - 2018](#)
- [Cost of Congestion to the Trucking Industry: 2018 Update](#)
- [An Analysis of the Operational Costs of Trucking: 2018 Update](#)
- [ATRI Hours-of-Service Flexibility Technical Memo](#)
- [Predicting Truck Crash Involvement: 2018 Update](#)
- [MAASTO Truck Parking Survey Analysis - May 2018](#)
- [Identifying State Freight Plan Best Practices](#)

**Documenting
Truck Parking
Studies Across
the Nation
Click Here**



Driver Shortage Once Again Ranked As Trucking Industry's Top Concern



What Others are Saying About ATRI

"Perhaps no other issue has as great an impact on this nation's supply chain as traffic congestion. In the face of growing and pervasive congestion, not only does the trucking industry lose billions annually but ultimately the consumer pays the price through higher prices on the shelf. Doing nothing to address the state of our nation's infrastructure will create a significant impediment to the growth of our economy."

LATEST NEWS

- [Driver Shortage Once Again Ranked As Trucking Industry's Top Concern](#)
- [ATRI Solicits ELD Data for Industry Clearinghouse](#)
- [State DOT Personnel, Consultants and Organizations Involved in Truck Parking - Take This Survey](#)
- [Trucking Industry Congestion Costs Now Top \\$74 Billion Annually](#)
- [New ATRI Research Shows Trucking Industry's Operational Costs Continue to Climb](#)
- [ATRI Launches Online Driver Survey on Detention Impacts](#)
- [ATRI Research Quantifies Benefits of Hours-of-Service Flexibility: Reduced Driving Time and Lower Costs](#)

CRITICAL ISSUES IN THE TRUCKING INDUSTRY – 2018



Presented to the
American Trucking Associations

Prepared by
The American Transportation Research Institute

October 2018

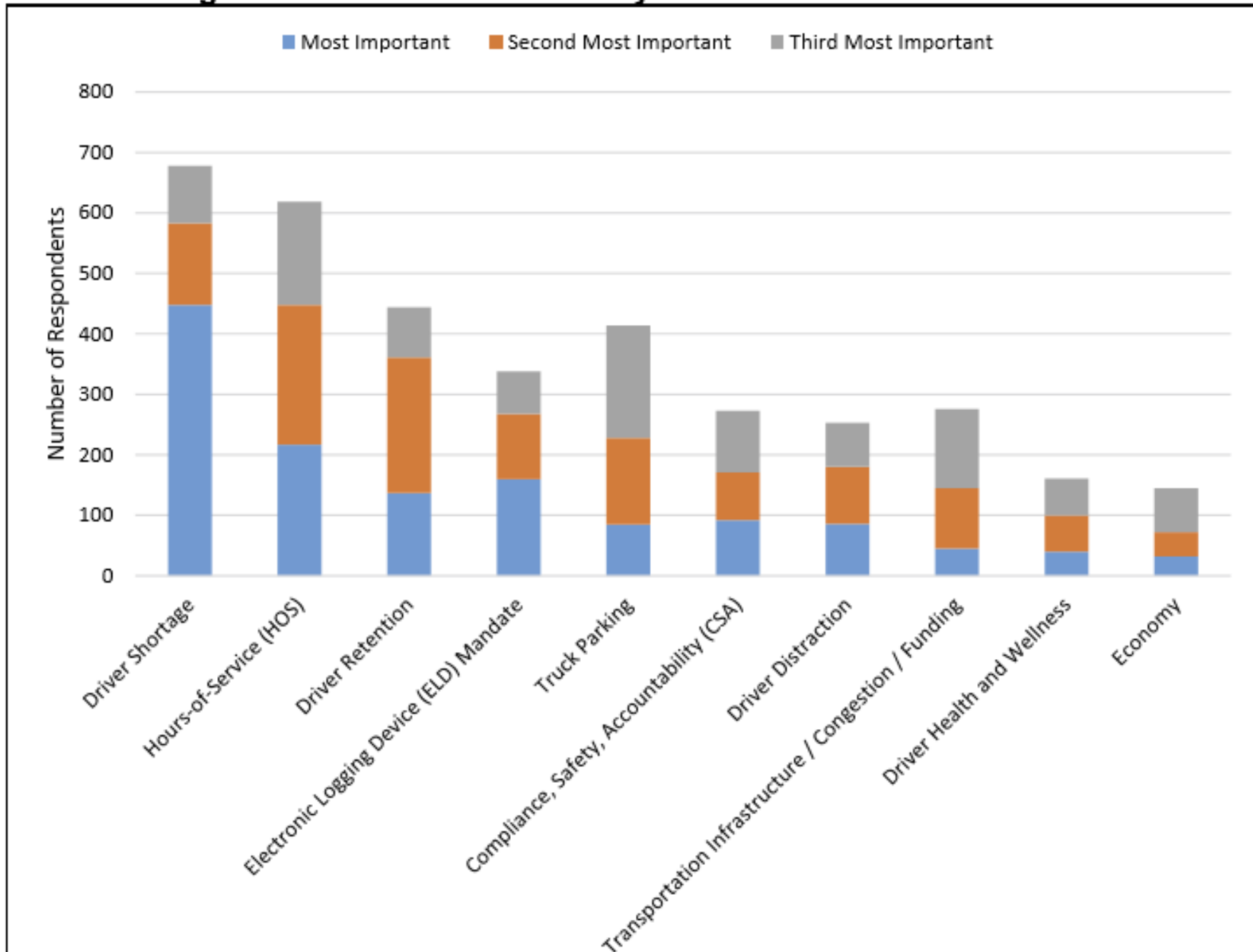
The Trucking Industry Segments

- [For Hire Truckload Carriers](#)
- [Private Fleets](#)
- [Less Than Truckload Carriers](#)
- [Household Movers](#)
- [Inter-modal](#)

from CDLLife.com

- Specialty Carriers
- Hazmat Carriers
- Local Delivery
- Owner - Operators

Figure 1: Distribution of Industry Issue Prioritization Scores



Solution?

Autonomous Vehicles?

Einride Local Delivery Truck







Volvo's Truck

Hub to Hub

For Controlled Environments

- Ports
- Highway Lanes
- Farming
- Mines
- Quarries

Control:
GPS & LIDAR



Volvo Vera
Autonomous
Truck

When Will It Happen?

What is the Timeline for Autonomous Vehicles?

Segments of Autonomous Vehicle Market

- Long Haul Trucks
 - Taxi Type Services
 - Local Delivery
 - Personal Vehicles
-
- Case Study - Walmart

Truck Fleet



On the road to doubling fleet efficiency

Our approximately 6,000 trucks in the U.S. log millions of miles every year, delivering products to thousands of locations across the country. So when it comes to sustainability and fleet efficiency, the goal is simple: deliver more while driving fewer miles. This goal is the driving principle behind our commitment to **double fleet efficiency by the end of 2015** (compared to 2005).

Since 2007, we've delivered 830 million more cases while driving 300 million fewer miles. That is an improvement of 84.2% over our 2005 baseline.

Our associates and vendors work in multiple ways to drive efficiency, including:

- Effective driving techniques, such as minimizing idle time and progressive shifting, to ensure optimal performance



Walmart – Peterbilt
Advanced Vehicle Concept

Walmart Advanced Vehicle Experience Key Components

Tractor	Trailer
Advanced aerodynamics (20% aero improvement from current Model 386)	Trailer body built almost exclusively with carbon fiber; single-piece 53-foot panels in roof and sidewalls
Microturbine-powered series hybrid electric drivetrain is clean, efficient and fuel flexible	Use of advanced adhesives eliminates need for most rivets
Centered driver's seat that can rotate 180 degrees	Convex nose shape enhances aerodynamics while maintaining cargo capacity
Electronic dashboard with customizable gauges and performance data	Solid, 53-foot one-piece floor reduces weight without sacrificing strength or performance
Sliding driver's door and fold out step for safety and security	Next-generation low-profile LED lighting is more energy efficient and less prone to damage
Full size cab/sleeper Flex Studio with fold out bed	

Walmart and Trucking

- Replaces whole tractor fleet every 5 years.
- 6,400 Tractors and 61,000 Trailers – one of the largest private fleets in USA
- 700 Million Miles each year – own fleet and contract trucks
- So... When Autonomous Trucks are ready for deployment – Walmart is likely to go fully autonomous in 5 years.
- I doubled the cost of vehicles from \$200,000 to \$400,000
- Cost 2.6 Billion Dollars – or \$520 Million a year for 5 years (50% increase)
- Walmbart is worth 285.43 Billion in Market Capitalization
- Total Cash = 6.75 Billion Dollars
- Total Debt = 34 Billion Dollars

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Print



Rating Action: Moody's affirms Walmart's Aa2 long-term and Prime-1 short-term ratings following Flipkart announcement

09 May 2018

New York, May 09, 2018 -- Moody's Investors Service ("Moody's") today affirmed all ratings of Walmart Inc. ("Walmart"), including the Aa2 long-term and Prime-1 commercial paper rating. The outlook is stable.

"Today's affirmations follow Walmart's announcement that it was acquiring around 77% of India-based online retailer Flipkart for around \$16 billion, a transaction which we view favorably as it provides Walmart with immediate scale in the burgeoning Indian e-commerce arena," stated Moody's Vice President Charlie O'Shea. "As Flipkart is expected to generate meaningful losses for at least the next few years, this is clearly an investment for the future, and when viewed in tandem with the recently-announced sale of a majority stake in Asda, is indicative of Walmart's long-standing strategy of shifting resources into higher growth potential markets and segments when opportune," continued O'Shea. "The overall impact on Walmart's credit profile is relatively benign as the company has built some cushion over the past few years, and we expect the company to follow past practice and utilize share repurchases as the lever when necessary to largely maintain its quantitative profile over the next 2-3 years."

Affirmations:

..Issuer: Manhattan Transportation Development Dist KS

Related Issuers

[Manhattan Transportation Development Dist KS](#)[Walmart Inc.](#)

Related Research

[Credit Opinion: Walmart Inc.: Update to credit analysis - World's largest retailer with superior credit metrics and excellent liquidity.](#)

[Credit Opinion: Walmart Inc.: Update to credit analysis following Flipkart announcement](#)

Retail Stores

Bricks and Mortar vs Online



Shipping Tracking

Wow!

Save up to 18% on UPS shipping for your business. Sign up and start saving in your first week of shipping. [Sign Up Now](#)

Tracking Number [Track](#) [Log-In](#) for additional tracking details. [Other Tracking Options](#)

1ZV817410383696199

Updated: 12/23/2015 8:16 A.M. Eastern Time

On Vehicle for Delivery Today Delivered

Scheduled Delivery Updated To:
Wednesday, 12/23/2015

Last Location:
Tinton Falls, NJ, United States, Wednesday, 12/23/2015

[Notify me with Updates »](#)
[Change Delivery »](#)

What time will your package be delivered to your home? Get **FREE** estimated Delivery Windows on most UPS packages. [Continue](#)
[I am already a UPS My Choice® Member](#)

Need more information?
[Get Help](#)

Shipping Information
To:
FAIR HAVEN, NJ, US

Shipped By
UPS Ground

Scheduled Delivery Updated To:
Wednesday, 12/23/2015

Notify me with Updates »

Last Location:
Tinton Falls, NJ, United States, Wednesday, 12/23/2015

Change Delivery »

Get Help

What time will your package be delivered to your home? Get **FREE** estimated Delivery Windows on most UPS packages.

Continue

[I am already a UPS My Choice® Member](#)

Shipping Information

To:
FAIR HAVEN, NJ, US

Shipped By

UPS Ground

Shipment Progress

[What's This?](#)

Location	Date	Local Time	Activity
Tinton Falls, NJ, United States	12/23/2015	5:15 A.M.	Out For Delivery
	12/23/2015	3:57 A.M.	Arrival Scan
Saddle Brook, NJ, United States	12/23/2015	2:33 A.M.	Departure Scan
Martinsburg, WV, United States	12/21/2015	4:35 P.M.	Origin Scan
United States	12/21/2015	4:34 P.M.	Order Processed: Ready for UPS

Additional Information

Shipped/Billed On: 12/21/2015
Type: Package
Weight: 2.00 lbs

 2 - Two Hour Delivery Windows Each Year
 Unlimited Package Redirects
 Upgrade to **UPS MyChoice Premium™** »
(Select the "Manage Membership" link to upgrade)



Arriving today by 8pm

On time



Get shipment updates with the free Amazon app

amazon

[Prefer to get text messages instead?](#)

Shipment details

Latest update: **Wednesday, Dec 23**

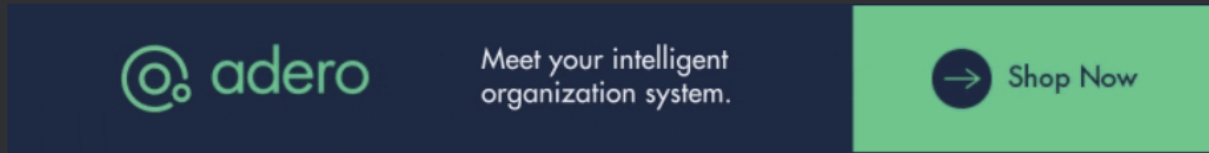
5:48 AM	Out for delivery Tinton Falls, NJ, US
Carrier: UPS, Tracking #: 1ZA86R000312734028	

[Show more](#)

3 orders in this shipment

[View order details](#)
105-6733419-6904215

[View order details](#)



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AdChoices

! Get a head start on your holiday shopping with Engadget's 2018 gift guide!

Latest in Holiday



Luxury resort bans gadgets at swimming pool to create most 'haven'

Inside UPS' Worldport: How a shipping titan moves 2,000 packages every 17 seconds

Worldport Statistics

Building area:	5,200,000 square feet (90 football fields)
Sort Capacity:	350,000 packages per hour (Phase 1) 416,000 packages per hour (Phase 2)
Processing Time:	Parcel = 8 - 43 min
	Smalls Sort = 11 - 16 min
	Incompatibles = 12 - 45 min
Capital Investment:	\$2.4 billion (total including Worldport Freight Facility)
Economic Impact:	\$600 million+ in construction costs
Aircraft Parking	125 ramp parking positions



SUPPORT AEROSAVVY

Stickers!

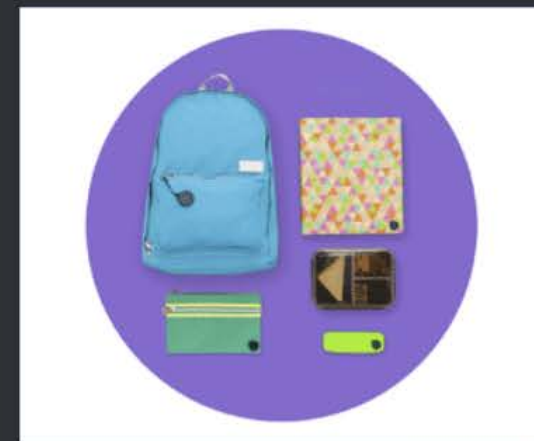


aerosavvy



Louisville, Kentucky's passenger terminal (3.3 million passengers/year) looks tiny next to UPS Worldport.

The interior contains a dizzying array of conveyor



AdChoices

Image Credit:

The Brave New World

Where are we going?



Mark Blinch / Reuters

What in the World Is Causing the Retail Meltdown of 2017?

The Atlantic

In the middle of an economic recovery, hundreds of shops and malls are shuttering. The reasons why go far beyond Amazon.

DEREK THOMPSON | APR 10, 2017 | BUSINESS



TEXT SIZE

The UES is facing a retail vacancy epidemic


Availability is climbing on Third and Madison avenues faster than anywhere in the city: TRD analysis

By Rich Bockmann | August 04, 2017 08:00AM



Dedicated to making your clients' home buying experience a remarkable one.

Popular




SMI pays \$73M for stake in Toll project



Joel Gluck scores \$69M Brooklyn refi



Roommate-matching startup Roomi raises \$11M in Series A round

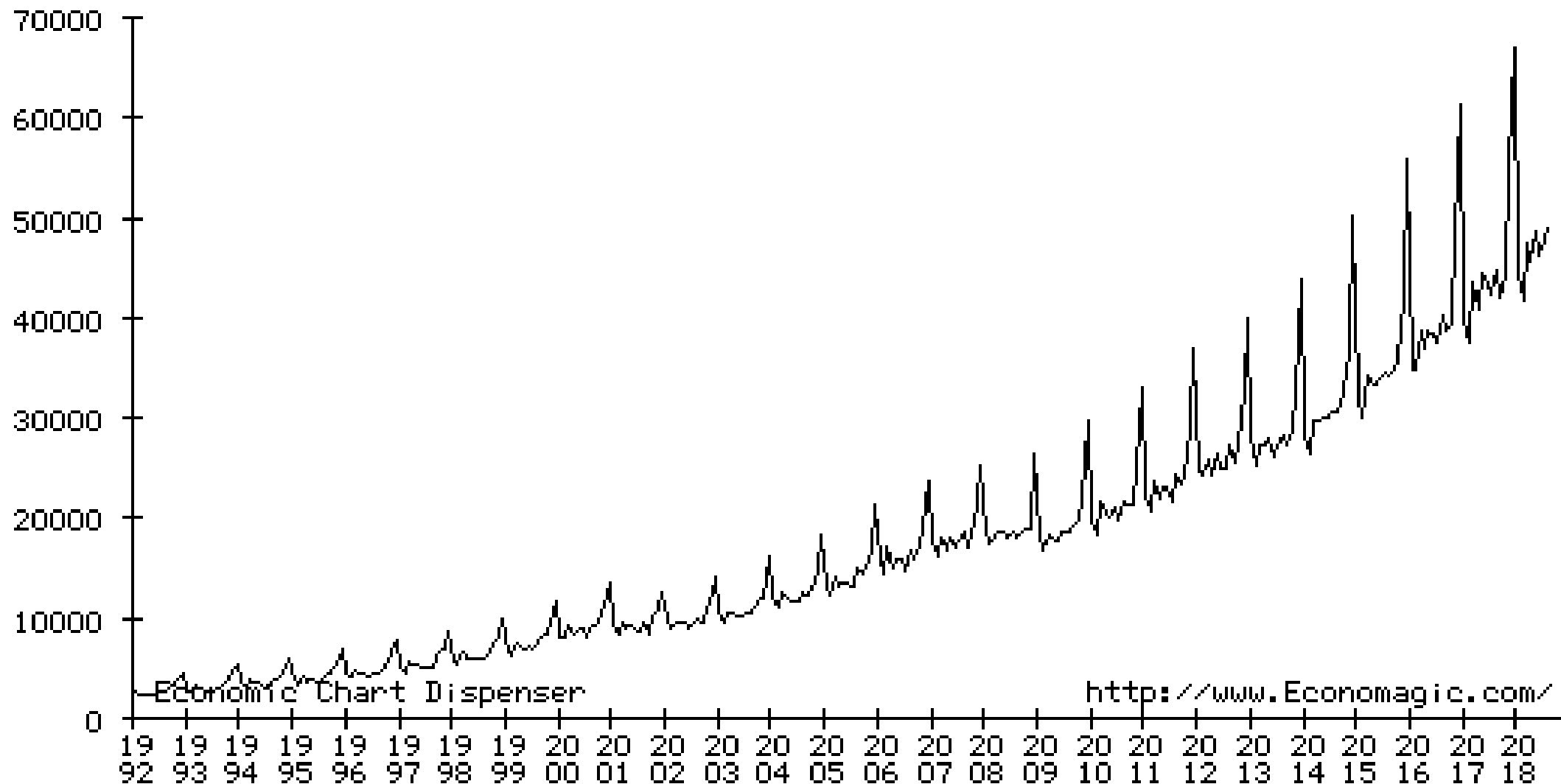


Selling a luxury co-op in Brooklyn? You could

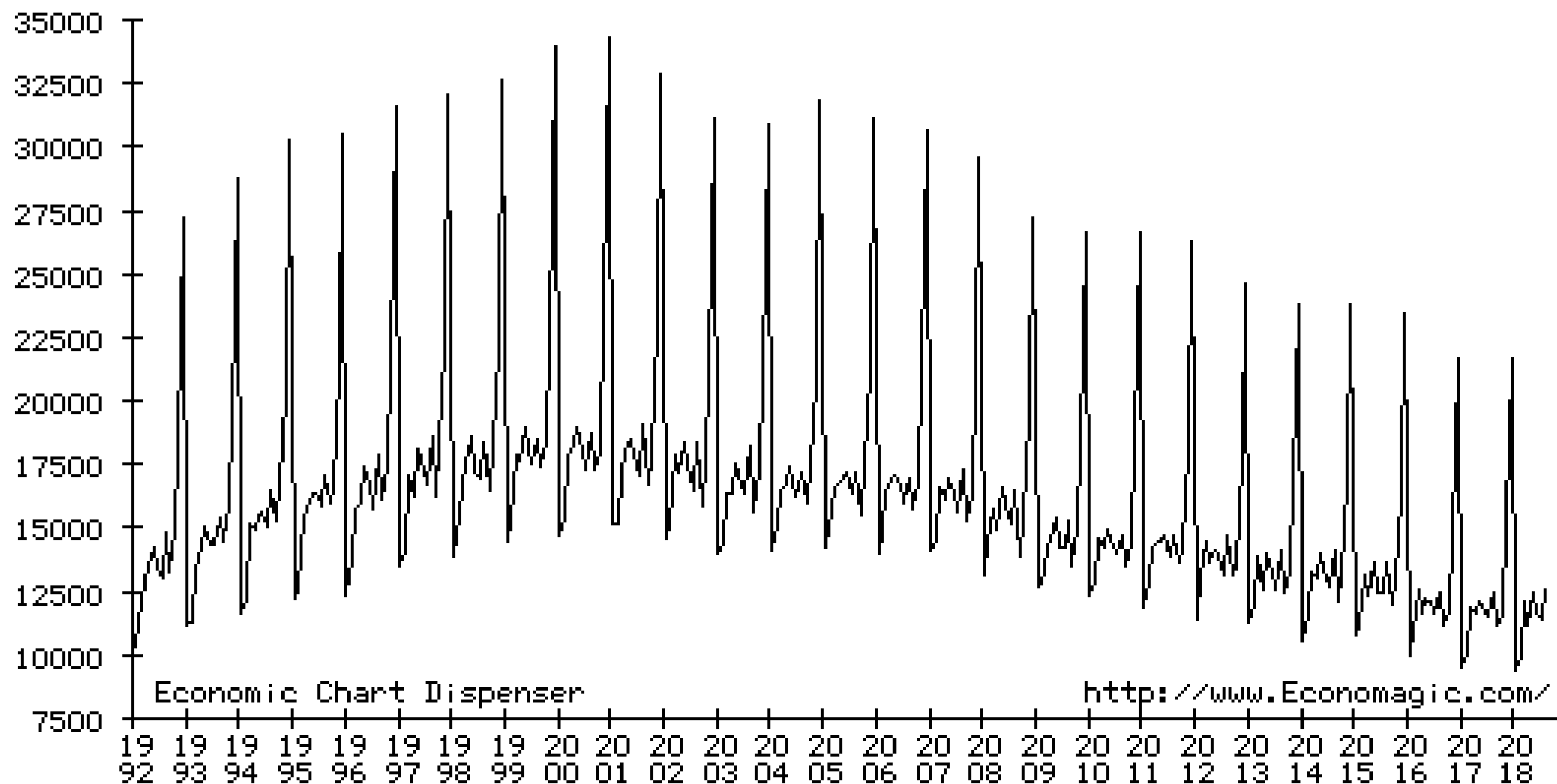
Local Delivery

- End of the Line for Long Haul Packages – Amazon / EBay / Online
- Local Packages – Amazon Now / Local Firms
- Local Prepared Food Delivery
- Groceries – Whole Food / Amazon Prime

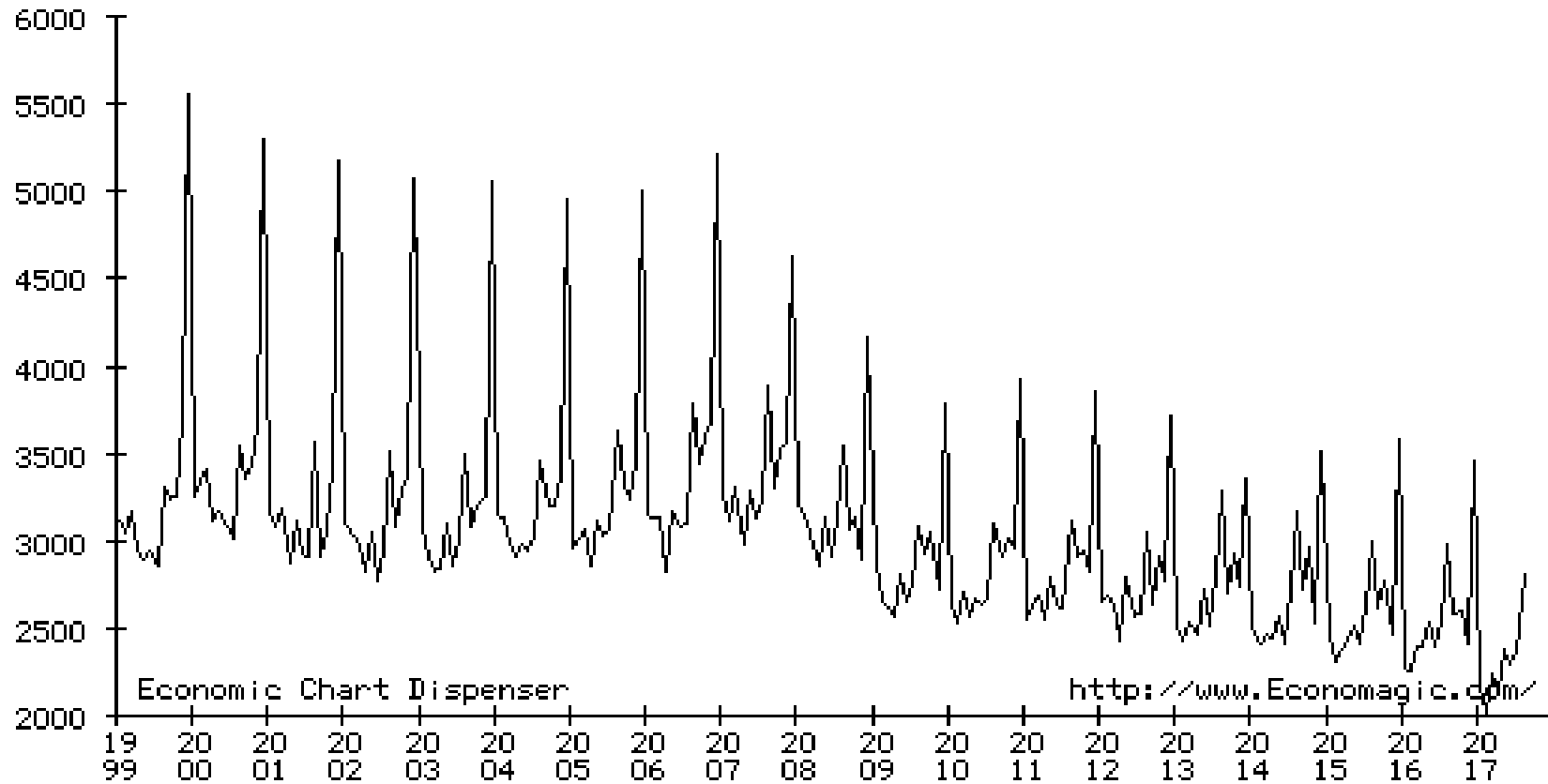
US Retail Sales: NAICS 4541: Electronic Shopping and Mail-order Houses



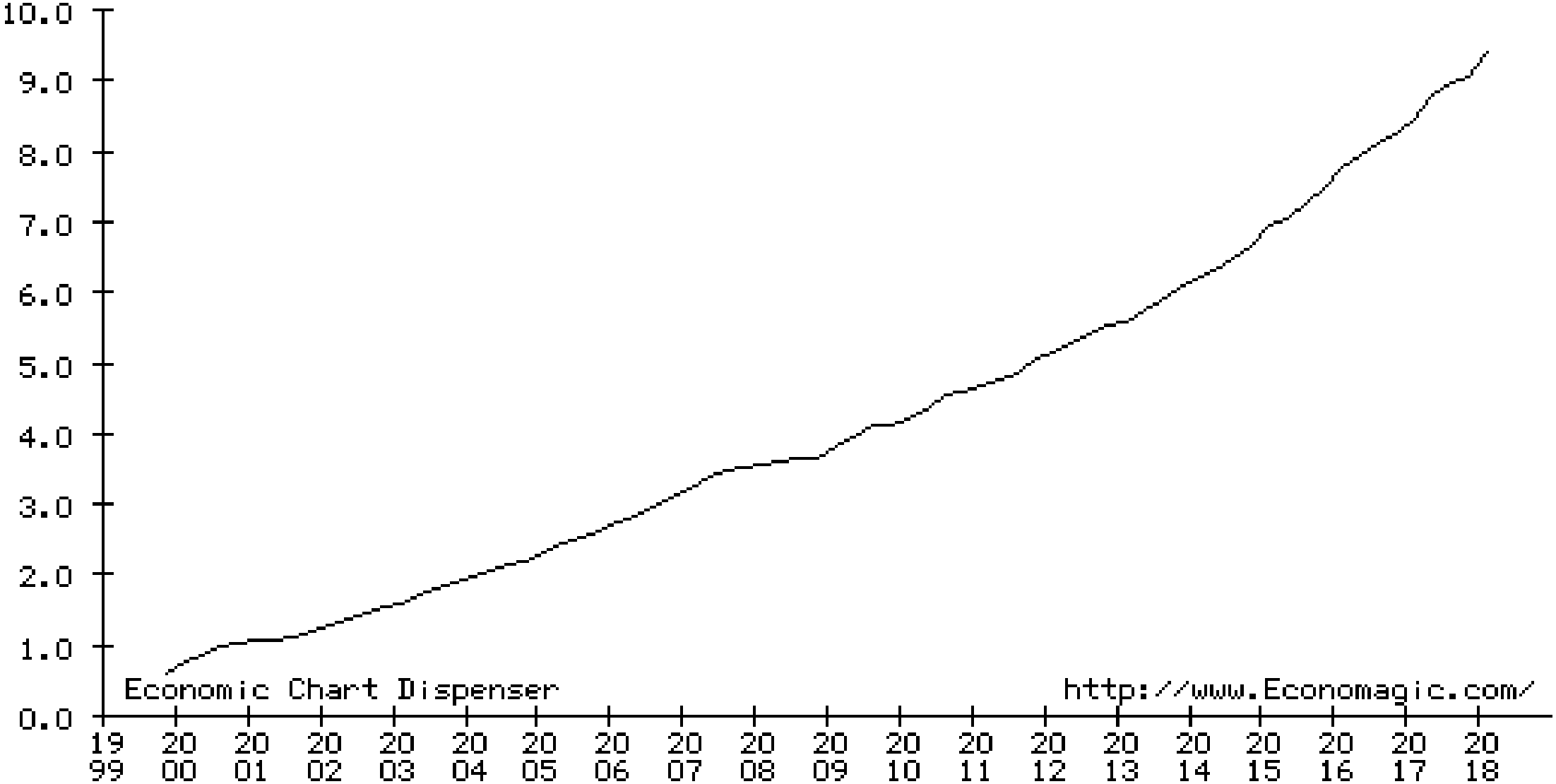
US Retail Sales: NAICS 4521E: Department Stores: Millions of dollars: NS



US Retail Sales: Office supplies, stationery, and gift stores: NAICS 4532



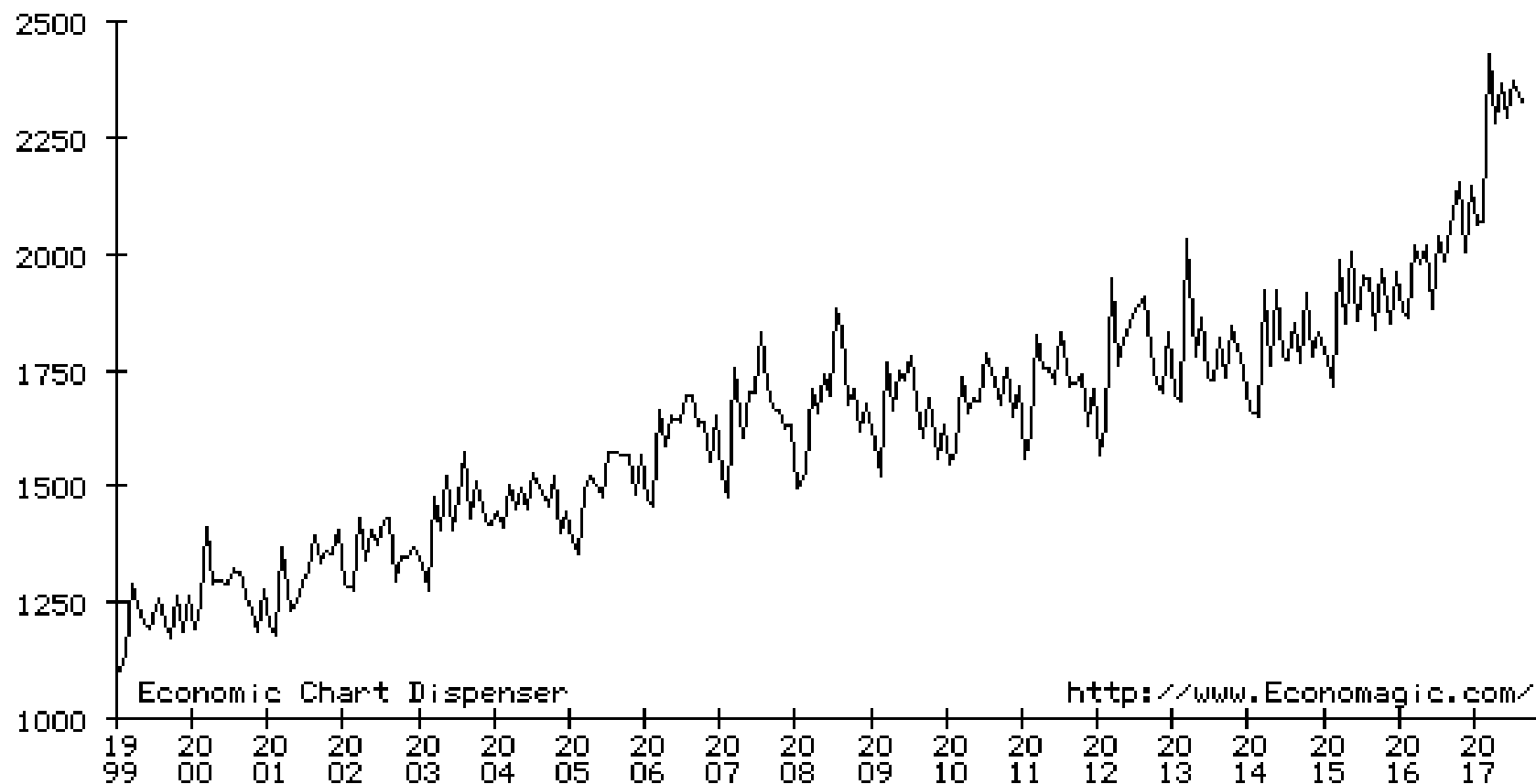
Quarterly E-Commerce U.S. Retail Sales as a Percent of Total: Seasonally



Economic Chart Dispenser

<http://www.Economagic.com/>

US Retail Sales: Drinking places: NAICS 7224: NSA: Millions of dollars



The Doorman's Dilemma: What to Do With All Those Packages?



US CROWDSOURCED DELIVERY PLAYERS

Name:	Instacart	Postmates	Grubhub	Deliv	UberEATS	UberRUSH	DoorDash
Date founded:	Founded 2012	Founded 2011	Founded 2004	Founded 2012	Launched 2014	Launched 2015	Founded 2013
Geographic footprint:	~150 US cities	~235 US cities	1,200 US cities	1,400 US cities	Operates in ~60 US cities	New York, Chicago, San Francisco	~25 US cities
Funding raised to date:	\$675 million	\$278 million	IPO 2014	\$40 million	N/A	N/A	\$187 million
Delivery segments:	Grocery & retail delivery	Delivers anything	Restaurant delivery	Retail delivery	Restaurant delivery	Delivers anything	Restaurant delivery






GRUBHUB
FOOD DELIVERY
DRIVERS
BE RIGHT BACK

Delivery from Whole Foods Market

Get \$10 off your first order

Use code SAVE10WF at checkout


Restrictions apply. See terms & conditions below.



Grab & go snacks



Bread & bakery



"Alexa, add kale to my Whole Foods cart."



Delivery Hours: 8:00 AM to 10:00 PM

Holiday feast



Beef, Poultry, & Pork ▶



Produce & Organic Produce ▶

WHO DELIVERS MY PRIME NOW ORDER?



While most of your Amazon orders probably get delivered by the folks at UPS or FedEx, Prime Now orders are a little different, as the deliveries are



Amazon Prime Now Shopper

Job ID: SF180017732 |

Apply

DESCRIPTION

Nodes with Prime Now/Whole Foods Shopper Reqs

Warehouse/Shopper Team Member (Seasonal, Part-Time, Full-Time, Flexible Hours)

Shifts:

Over-night, Sunrise, Day, Twilight, Weekend

Location

[Wexford, Shadyside, Upper St. Clair]

Job opportunities vary by location. We update postings daily with open positions.

Salary

Up to \$15/Hour

Job details



USA, PA, P



Fulfillment
Associate

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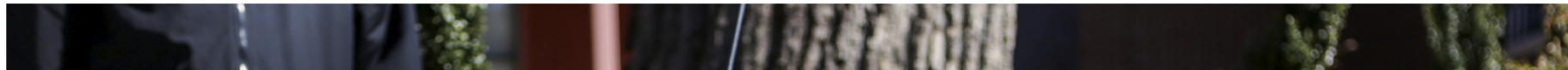
ROBOTICS

Hungry? Call Your Neighborhood Delivery Robot

March 23, 2017 · 10:01 AM ET
Heard on Morning Edition

KAT LONSDORF

LISTEN · 3:48 + QUEUE





operations for Starship in the District, to go for a walk with one of the little bots.



The robots from Starship Technologies have removable linings to keep the delivery items they are carrying at the appropriate temperature.

Meg Kelly/NPR

Drayage Data Maritime to Warehouse

Truck Toll Impact
New York Maritime Ports

King, David A., Gordon, Cameron E., Peters, Jonathan R. (2014) "Does Road Pricing Affect Port Freight Activity: Recent Evidence from the Port of New York and New Jersey" Research in Transportation Economics. Volume 44. Pages 1-70 - Summer 2014, 2-11.

Emma
Maersk



Type	Container Ship
Class	PS
DWT	156907 t
TEU	15550
LOA	398 m
Breadth	56 m
Maximum draft	16 m
BRT	170794 t
NRT	55396 t







Port Drayage Issues

- Large Scale Ships – 14,000 TEUs
- NY/NJ - 3rd Largest Maritime Port in USA
- Enhanced Port Homeland Security Issues
- Port of NY & NJ is less well served by rail services.
- Most freight moves out of port by truck
- Drayage Market tends to be one of the least desirable segment of trucking industry.
- High road tolls in the region
- Who should pay for Port/Road/Rail Infrastructure Improvements?

What is the cheapest distance between two points?

- This is the question that freight carriers and shippers are always asking themselves.
- Road tolling is but one of many components of total carrying cost that freight haulers are constantly seeking to minimize.
- Can the cost of tolling be high enough to change cheapest distance significantly?
- If so, what economic consequences might this have?

Freight tolling issues

- Distortion of route choices
- Distortion of business location choices
- Freight shipping market structure and toll burden
- Use of toll revenues – reinvestment or diversion
- Distortion of mode choice

The Natural Experiment

- There is an area in the United States where there is a lot of tolling to study: the New York City metropolitan area. Tolls here are numerous and for some particular crossings (e.g. the George Washington Bridge) very high, especially for trucks.
- The area is also the site of one of the largest ports in the country – the Port of New York/New Jersey – a major final product destination and a major trucking hub.
- NY Metro thus offers an opportunity for a full-bodied empirical analysis to consider the second order economic effects of tolling on freight traffic.
- This paper conducts an exploratory empirical analysis, using some fine grained data; this appears to be relatively rare in the existing literature on freight tolls.

The freight market in New York

- The New York region boasts nearly 20 million residents and sits at the center of the Northeast Corridor megalopolis region that features about 18 percent of the U.S. population and 20 percent of the nation's Gross Domestic Product (GDP).
- Transport and delivery of goods in and out of New York and New Jersey represents about eight percent of total employment growth in recent years, and 1 in 13 jobs in New York State is being supported by the trucking industry.
- 405 million tons of freight annually leave, arrive and move through the ten-county region within the New York Metropolitan Transportation Council (NYMTC 2014) jurisdiction and had a total economic value of \$1.34 trillion in 2007, and most of this freight arrived at and left the ports by truck.

Two Tests

- Examined the distribution of trips out of two key facilities in the Port of New York and New Jersey
- How much do road tolls represent as a percent of the cost of a NY/NJ drayage trip?
- Do road tolls have the potential to distort the optimal port for cargo by raising the costs for a give trip?
- 65% of road tolls in NY Metro are diverted to fund mass transit projects.
- What is the optimal port for cargo going to various locations based on costs and the impact of road tolls on trip costs.

Data

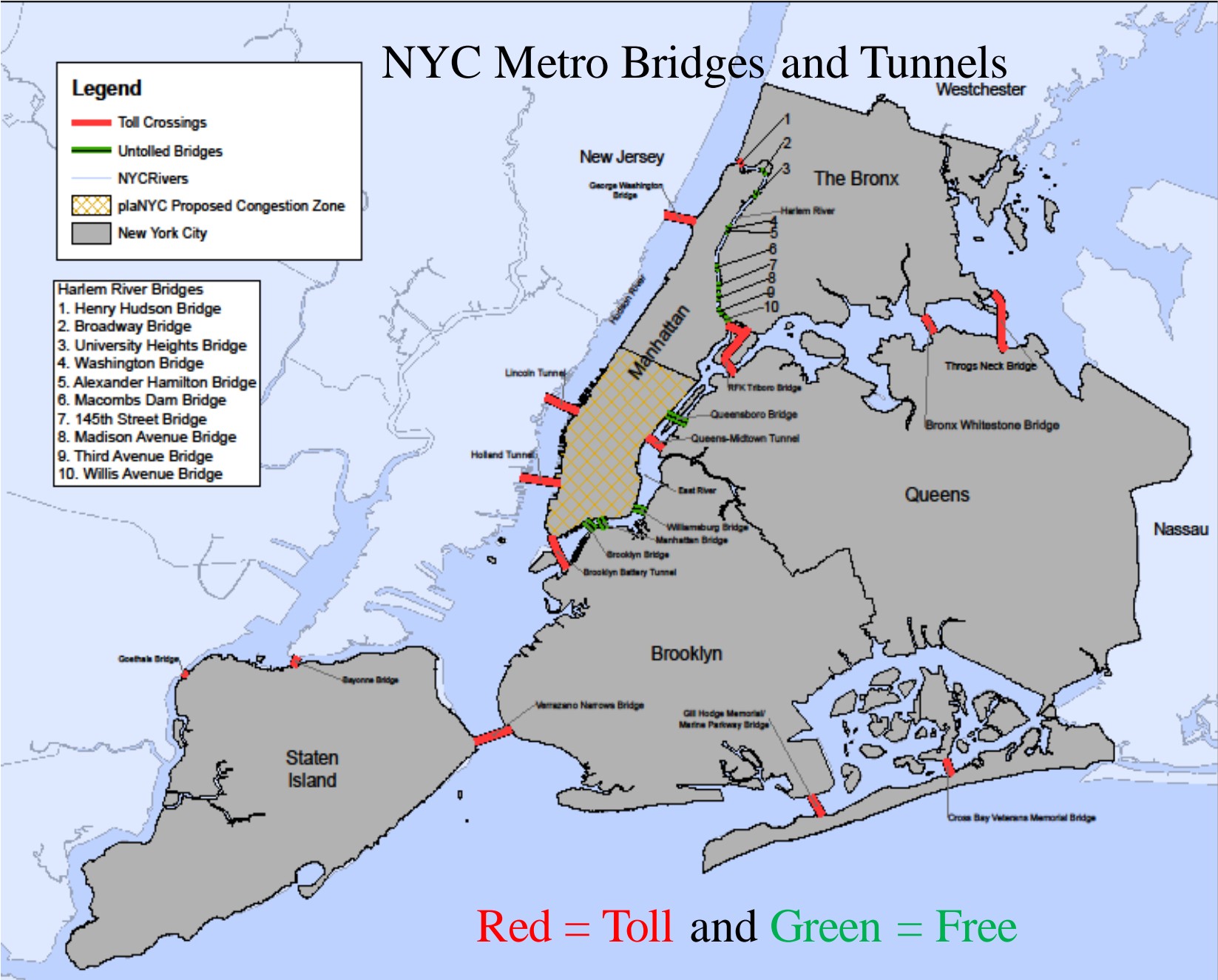
- **Major data source:** In response to the Port Authority of New York/New Jersey (PANYNJ) toll increases in July 2011, the operators of New York City Terminals (NYCT) in partnership with the PANYNJ (their landlord) commissioned a joint study of the impact of these tolls and their recent increase on the competitive position of the NYCT.
- The survey contained 6,740 observations collected from February 27 to March 2 2012 at two facilities – the Global Marine Terminal in Hudson County and the New York Container Terminal in Richmond County (the Borough of Staten Island).
- There is a significant amount of information regarding the origin/destination pairs of regional freight movements at the New York Metro port facilities and roughly 40% of the truck freight activity occurring at these facilities during the sample week are captured.

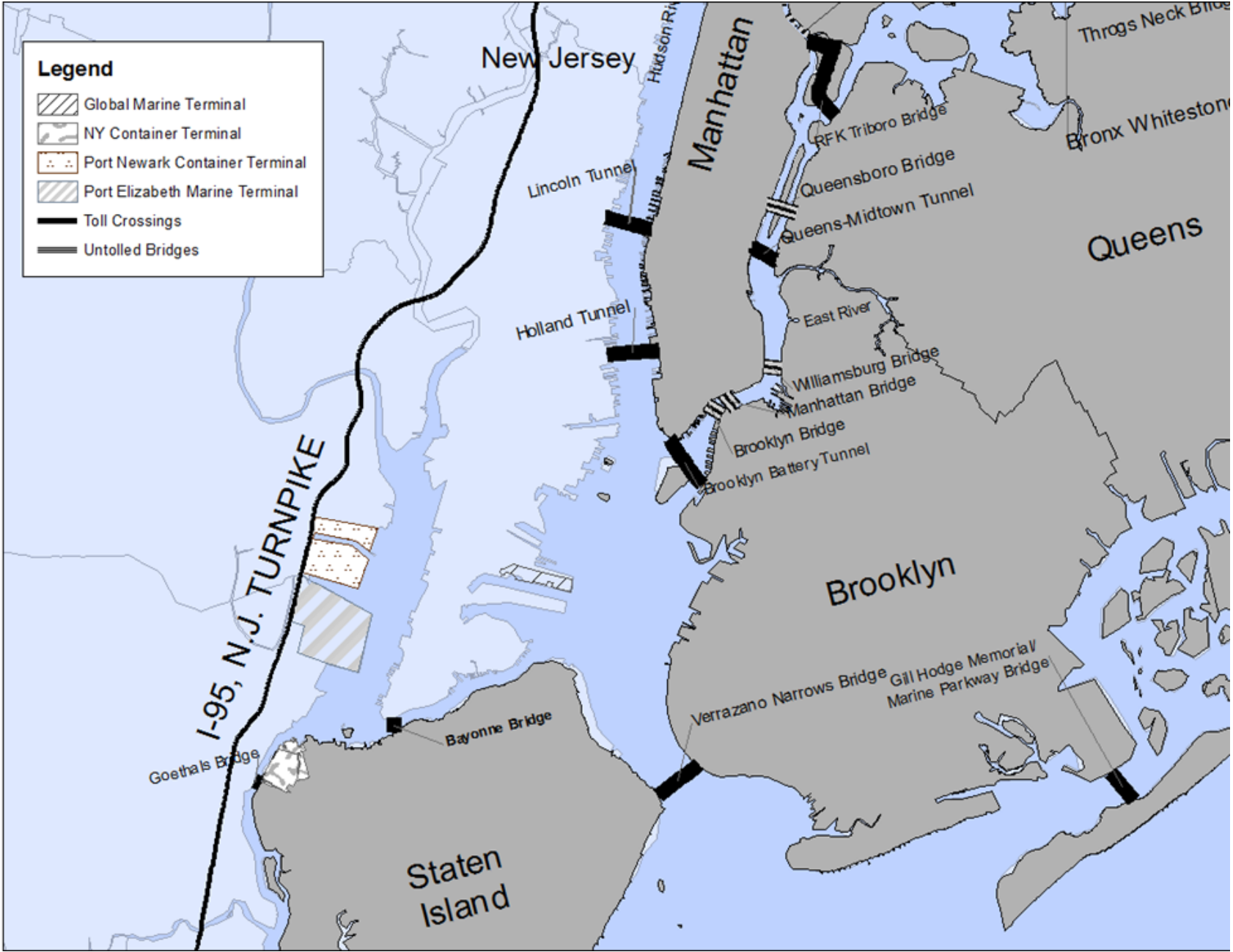
NYC Metro Bridges and Tunnels

Legend

- Toll Crossings
- Untolled Bridges
- NYCRivers
- plaNyC Proposed Congestion Zone
- New York City

- Harlem River Bridges**
1. Henry Hudson Bridge
 2. Broadway Bridge
 3. University Heights Bridge
 4. Washington Bridge
 5. Alexander Hamilton Bridge
 6. Macombs Dam Bridge
 7. 145th Street Bridge
 8. Madison Avenue Bridge
 9. Third Avenue Bridge
 10. Willis Avenue Bridge





Test 1

Distribution of Drayage Trips

- Table 1 shows outbound truck traffic from two of the major maritime container terminals in the area, the Global Marine Terminal and the New York Container Terminal (NYCT), drawn from the primary data source described above.
- These data confirm what is well known about the general nature of the New York freight market: the vast majority of trips out of Global Terminal and the NYCT are to and from NY and NJ.

Table 1: Outbound Freight Destinations from the Port of New York and New Jersey				
Destination	Global		NYCT	
	Trips	Share	Trips	Share
Canada	90	2.5%	14	0.4%
Alaska	1	0.0%	0	0.0%
Connecticut	41	1.1%	32	1.0%
Delaware	7	0.2%	6	0.2%
Georgia	0	0.0%	1	0.0%
Illinois	1	0.0%	0	0.0%
Massachusetts	81	2.3%	56	1.8%
Maryland	10	0.3%	6	0.2%
Maine	6	0.2%	3	0.1%
Missouri	1	0.0%	0	0.0%
New Hampshire	1	0.0%	0	0.0%
New Jersey	2813	78.6%	2607	82.5%
New York	311	8.7%	211	6.7%
Ohio	13	0.4%	6	0.2%
Pennsylvania	125	3.5%	180	5.7%
Rhode Island	4	0.1%	6	0.2%
Tennessee	1	0.0%	0	0.0%
Texas	2	0.1%	0	0.0%
California	0	0.0%	7	0.2%
Wisconsin	2	0.1%	0	0.0%
Missing	69	1.9%	25	0.8%
<u>Total</u>	<u>3579</u>		<u>3161</u>	
<u>NY& NJ</u>	<u>3124</u>	<u>87.3%</u>	<u>2818</u>	<u>89.1%</u>



Loaded Containers in TEUs and Total ExpressRail Lifts by Month

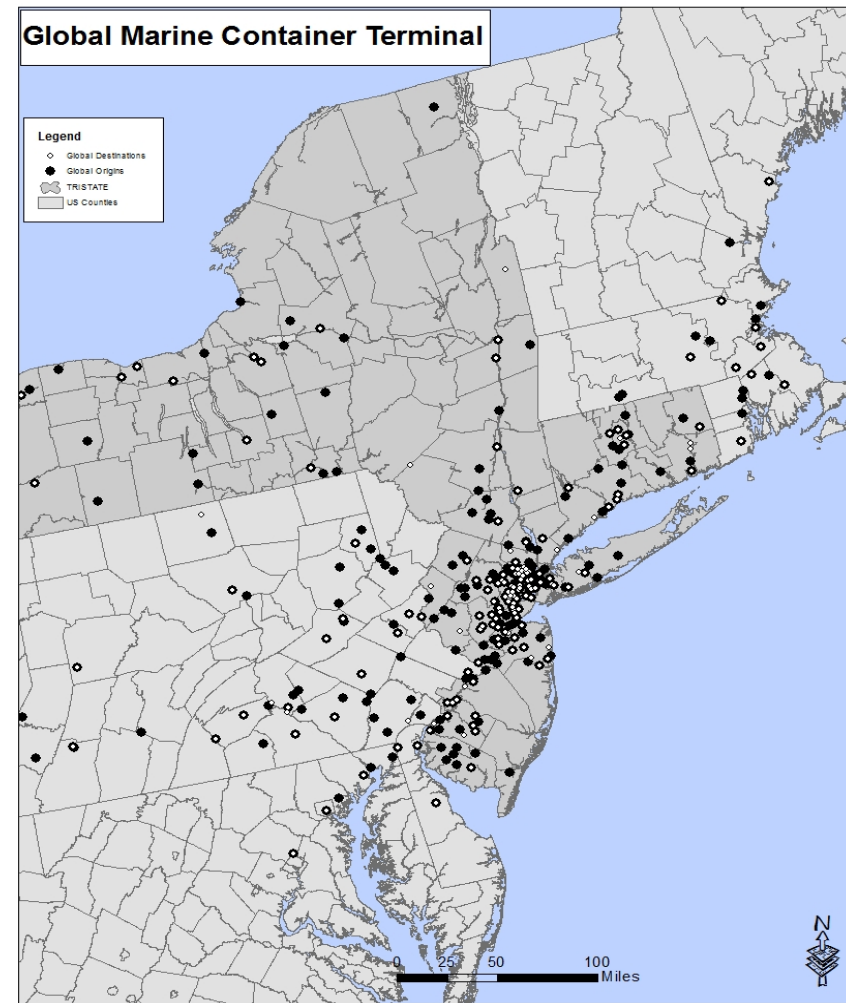
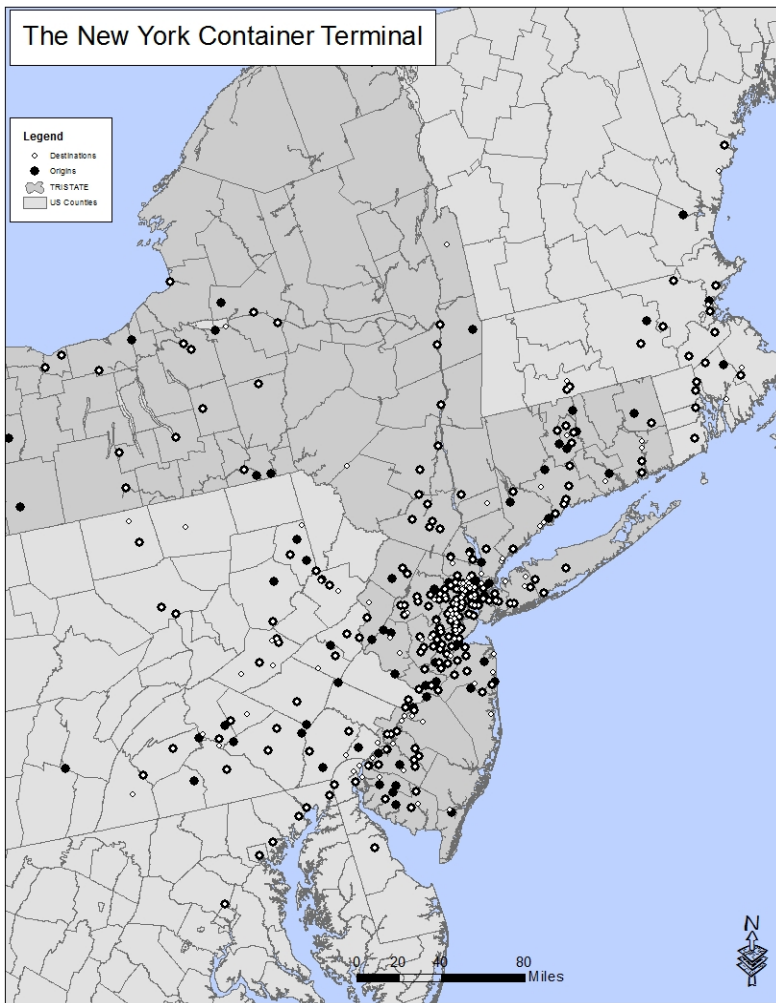
[View Refer Statistics](#) >

2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006
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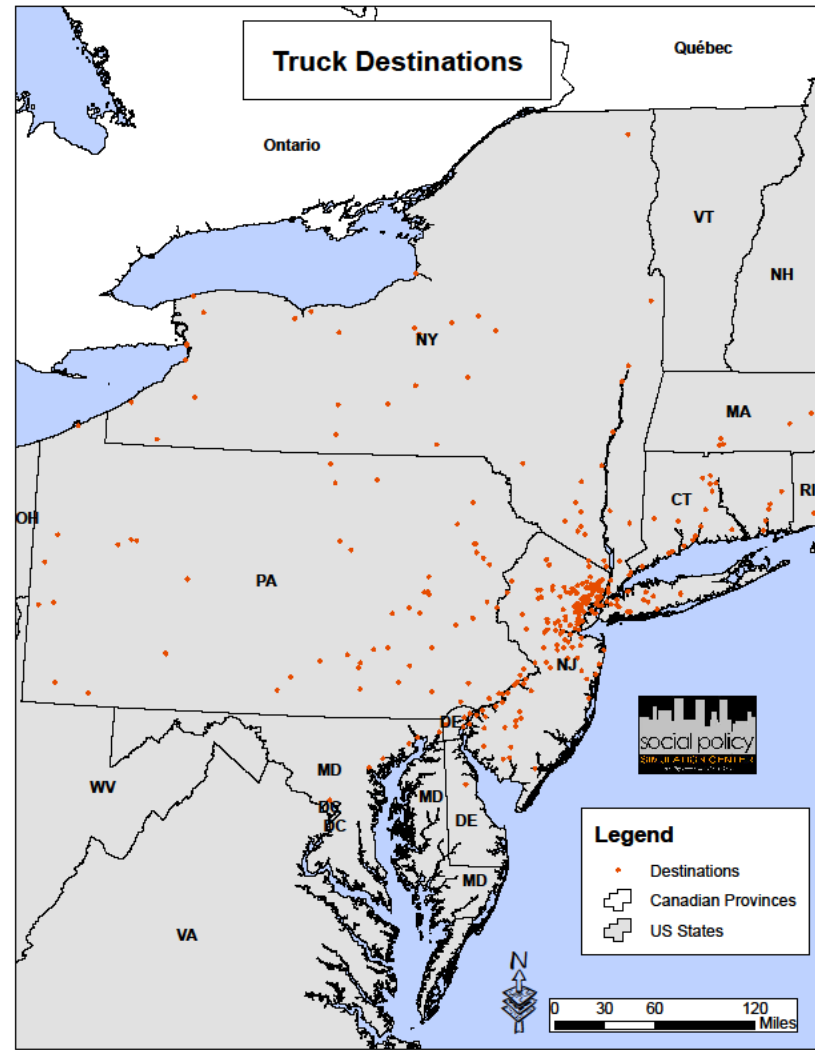
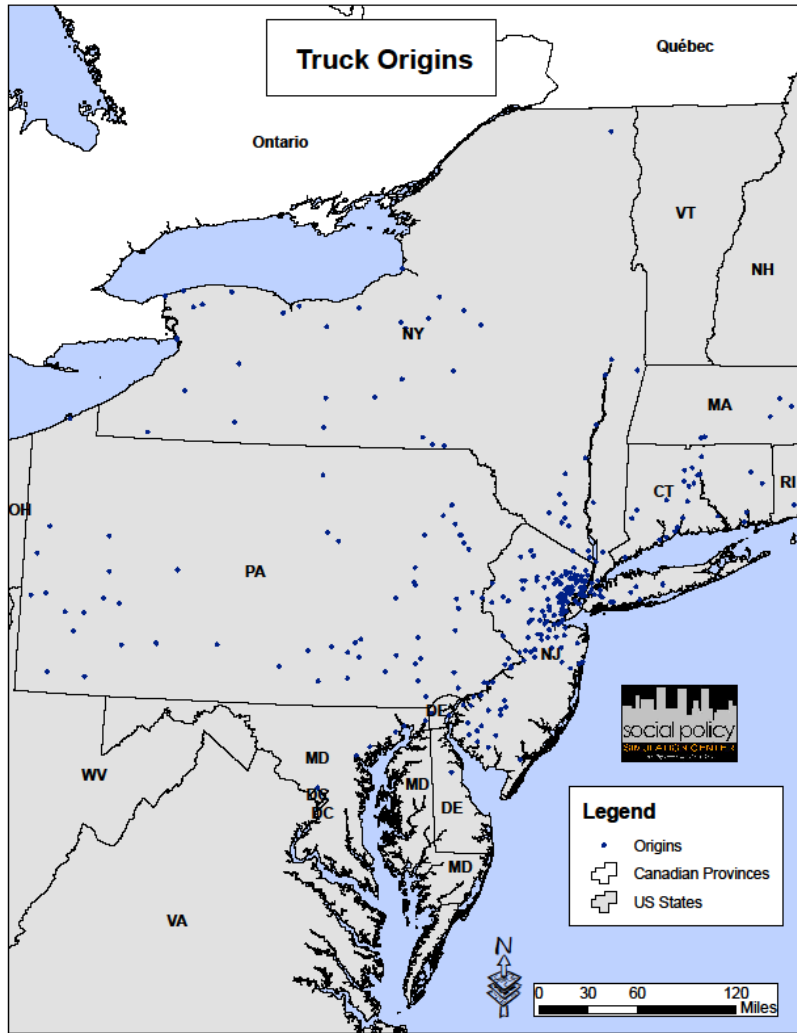
Source: PONYNJ Terminal Operator and Facility Rail Data

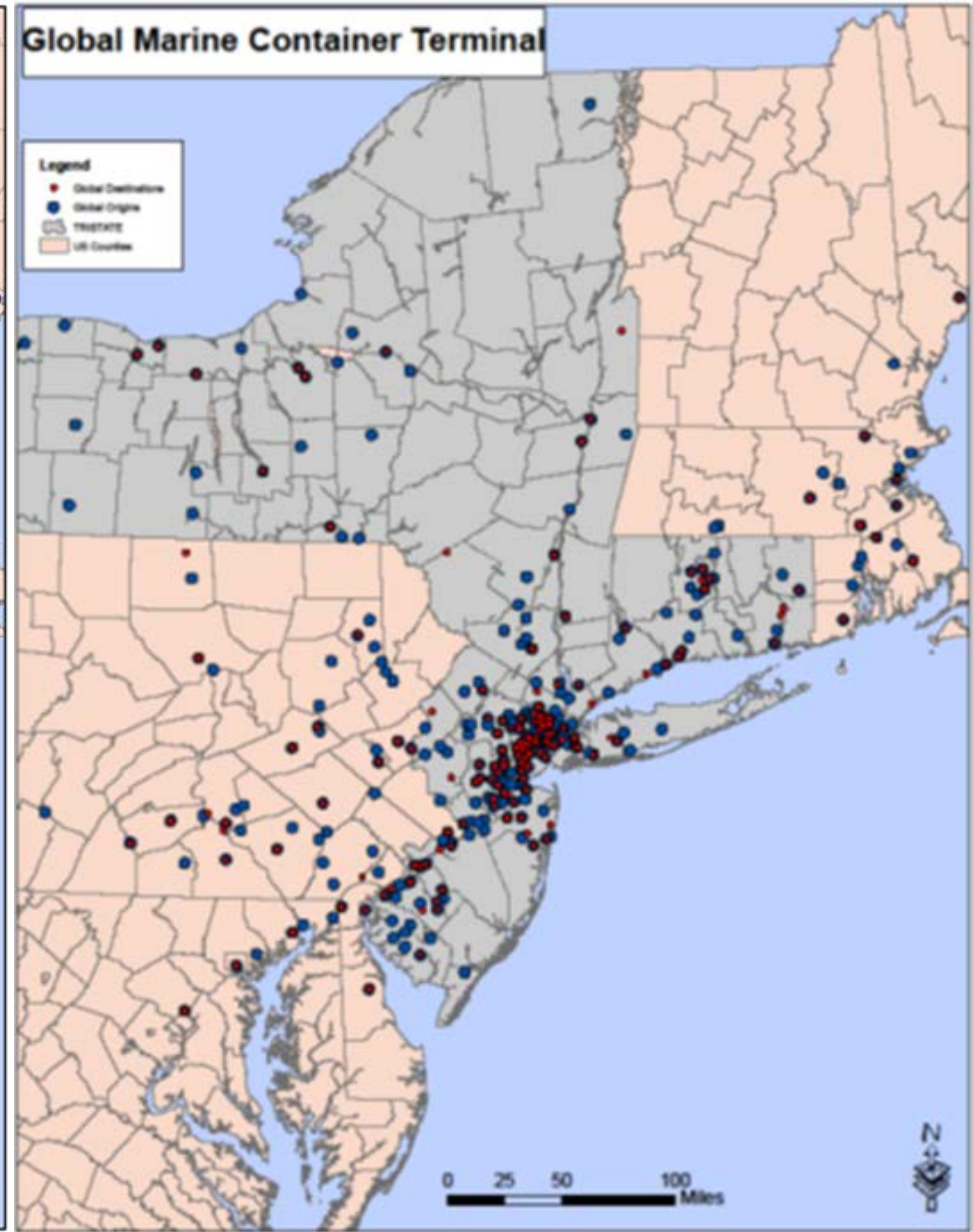
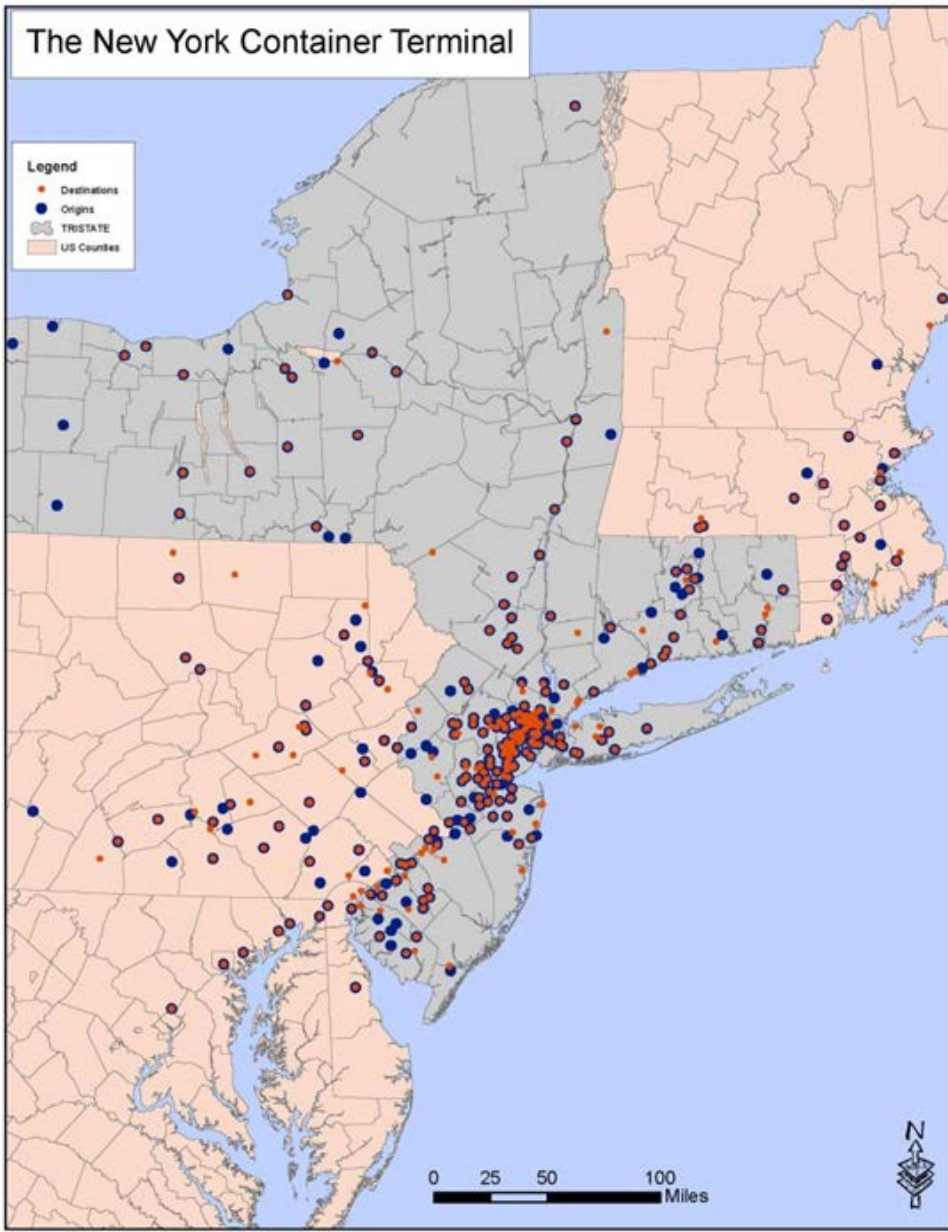
Year-to-Date								
YTD	Import TEUs		Export TEUs		Total TEUs			Total Rail Lifts
	Loads	Empties	Loads	Empties	Loads	Empties	Total	
YTD Dec 2017:	3,396,469	20,491	1,415,322	1,878,535	4,811,791	1,899,026	6,710,817	567,649
YTD Dec 2016:	3,202,690	26,195	1,356,127	1,666,941	4,558,817	1,693,136	6,251,953	540,149
% Change	6.1%	-21.8%	4.4%	12.7%	5.5%	12.2%	7.3%	5.1%

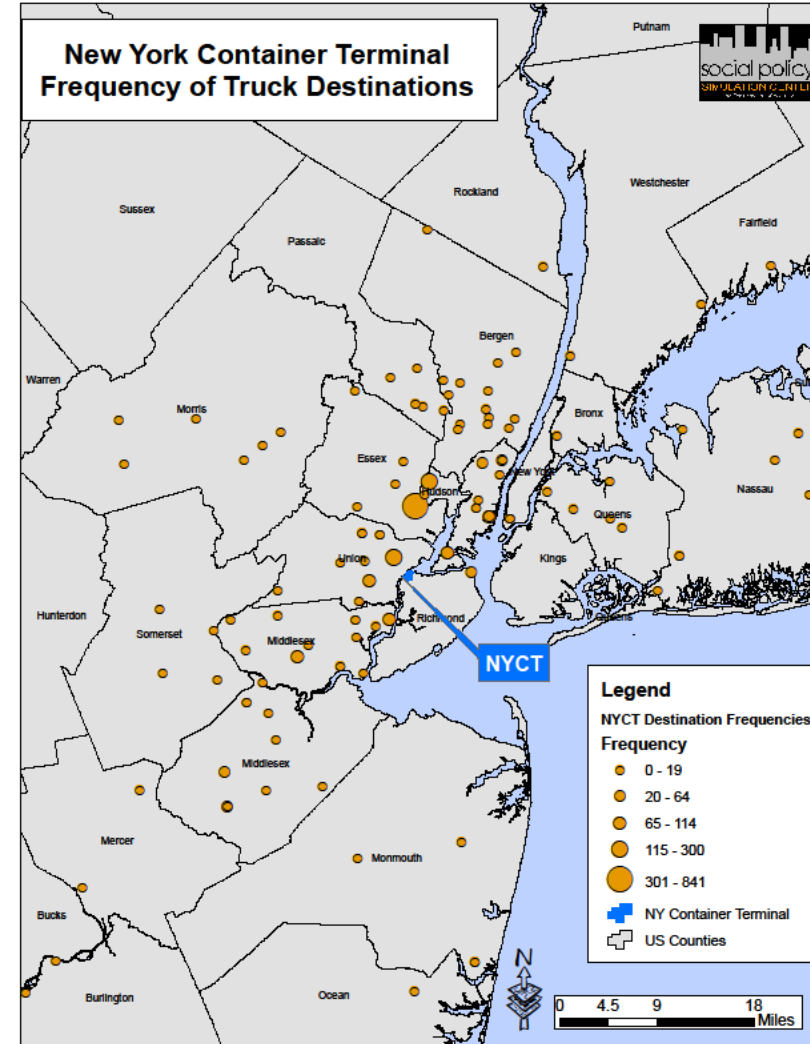
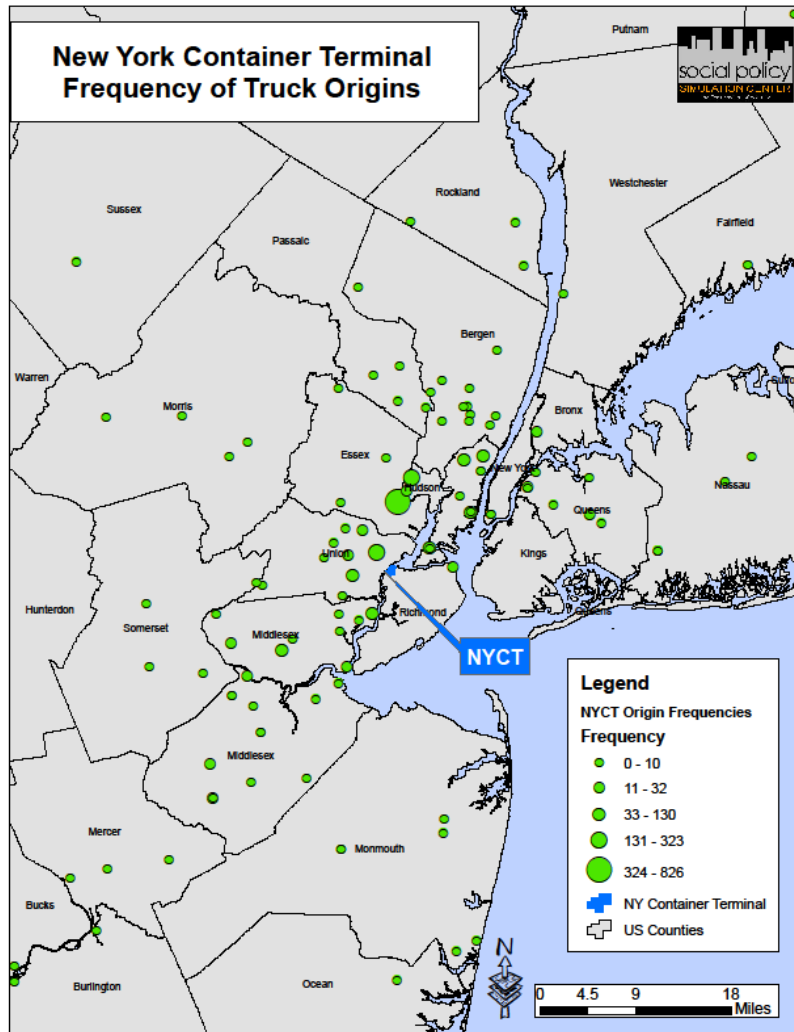
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- > [Port Environmental Initiatives](#)
- > [Clean Vessel Incentive Program](#)
- > [Truck Replacement Program](#)
- > [Clean Truck Progress Report](#)
- > [Multimedia](#)
- > [Education](#)
- > [History](#)
- > [Regional Economic Benefits](#)
- > [Trade Stats](#)



- The mappings of the origin-destinations for the two terminals shows how local most of the traffic to and from there is.
- What is behind this and what is its economic significance?







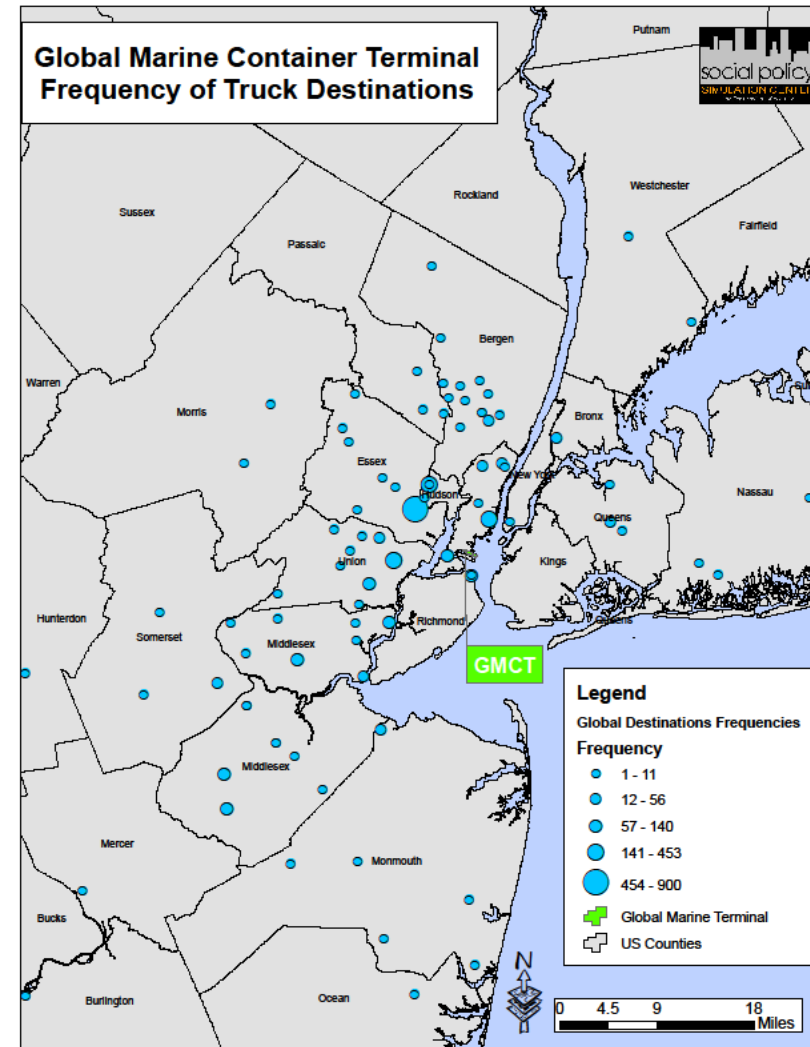
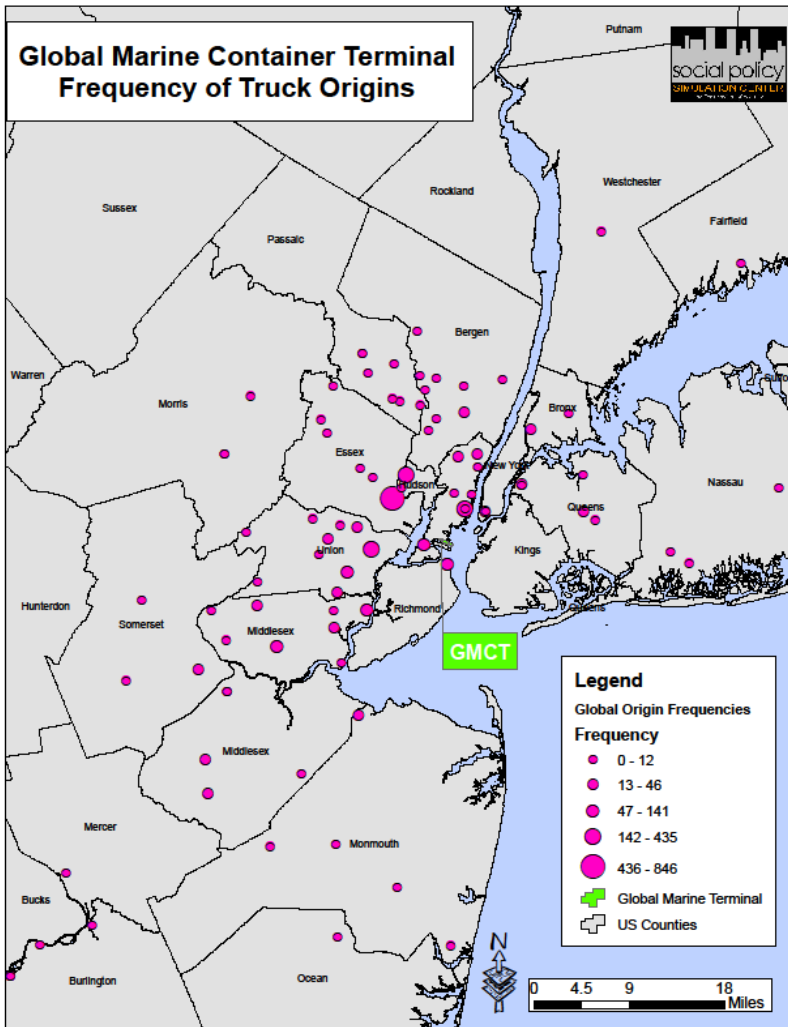


Table 4: Toll and Operation Cost Estimates for 20 Mile Trip from New York Area Ports, 2011

Cost of Operations	Average Cost per Mile	U.S. Average		To and From Global		To and From NYCT		
		Total Costs	% of Costs	Total Costs	% of Costs	Total Costs	% of Costs	
Vehicle Based								
Fuel and Oil	\$ 0.59	\$ 11.80	35%	\$ 11.80	27%	\$ 11.80	14%	
Truck/Trailer Lease or Purchase	\$ 0.19	\$ 3.78	11%	\$ 3.78	9%	\$ 3.78	5%	
Repair and Maintenance	\$ 0.15	\$ 3.04	9%	\$ 3.04	7%	\$ 3.04	4%	
Truck Insurance Premiums	\$ 0.07	\$ 1.34	4%	\$ 1.34	3%	\$ 1.34	2%	
Permits and Licenses	\$ 0.04	\$ 0.76	2%	\$ 0.76	2%	\$ 0.76	1%	
Tires	\$ 0.04	\$ 0.84	2%	\$ 0.84	2%	\$ 0.84	1%	
Tolls: General	\$ 0.02	\$ 0.34	1%	\$ 0.34	1%	\$ 0.34	0%	
Tolls: Bridges				\$ 8.97	21%	\$ 48.22	59%	
Driver-based								
Driver Wages	\$ 0.46	\$ 9.20	27%	\$ 9.20	21%	\$ 9.20	11%	
Driver Benefits	\$ 0.15	\$ 3.02	9%	\$ 3.02	7%	\$ 3.02	4%	
Total Costs	\$ 1.71	\$ 34.12	100%	\$ 43.09	100%	\$ 82.34	100%	

Note: Estimates are of overall cost of a 20 mile trip. General operating costs from 2012 ATRI Average Carrier Costs per Mile.

Test 2

Optimal Port by Zip Code – Truck Shipping

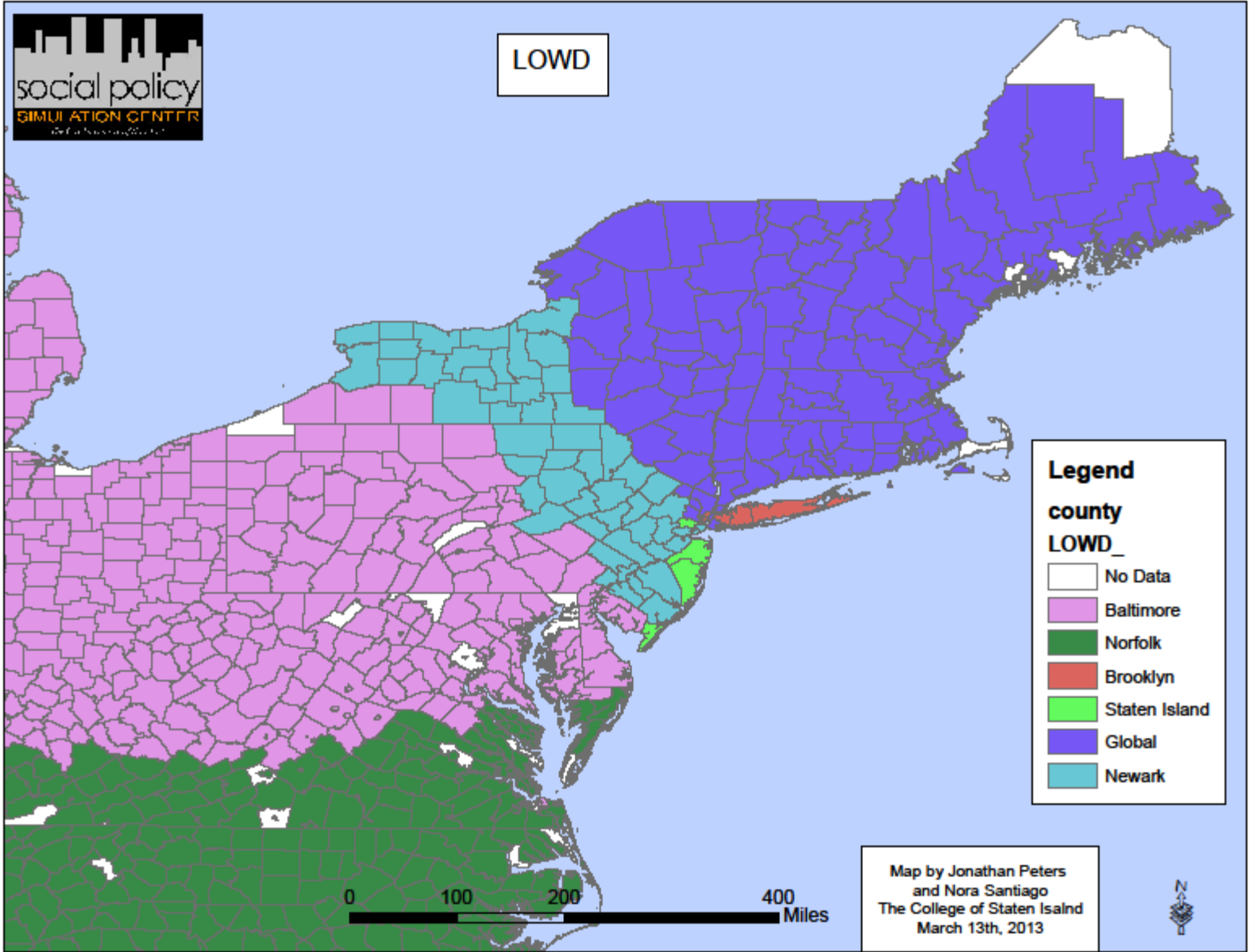
Shortest Distance Versus Lowest Cost

- Trips were then priced based on the reported average ton mile cost for freight as reported by Delcan Corporation based on the Cass Freight Index for freight movements into the ports of New York, Baltimore and Norfolk.
- Based upon the distance traveled and the rates for rail and truck transport, the authors were able to estimate the cost of delivery to counties either by rail or truck from the three ports in general.
- These data suggest that the New York area ports are substantially more expensive than other ports along the Atlantic for both rail and truck movements.

Table 2: Ton Mile Rates from Cass Freight Index

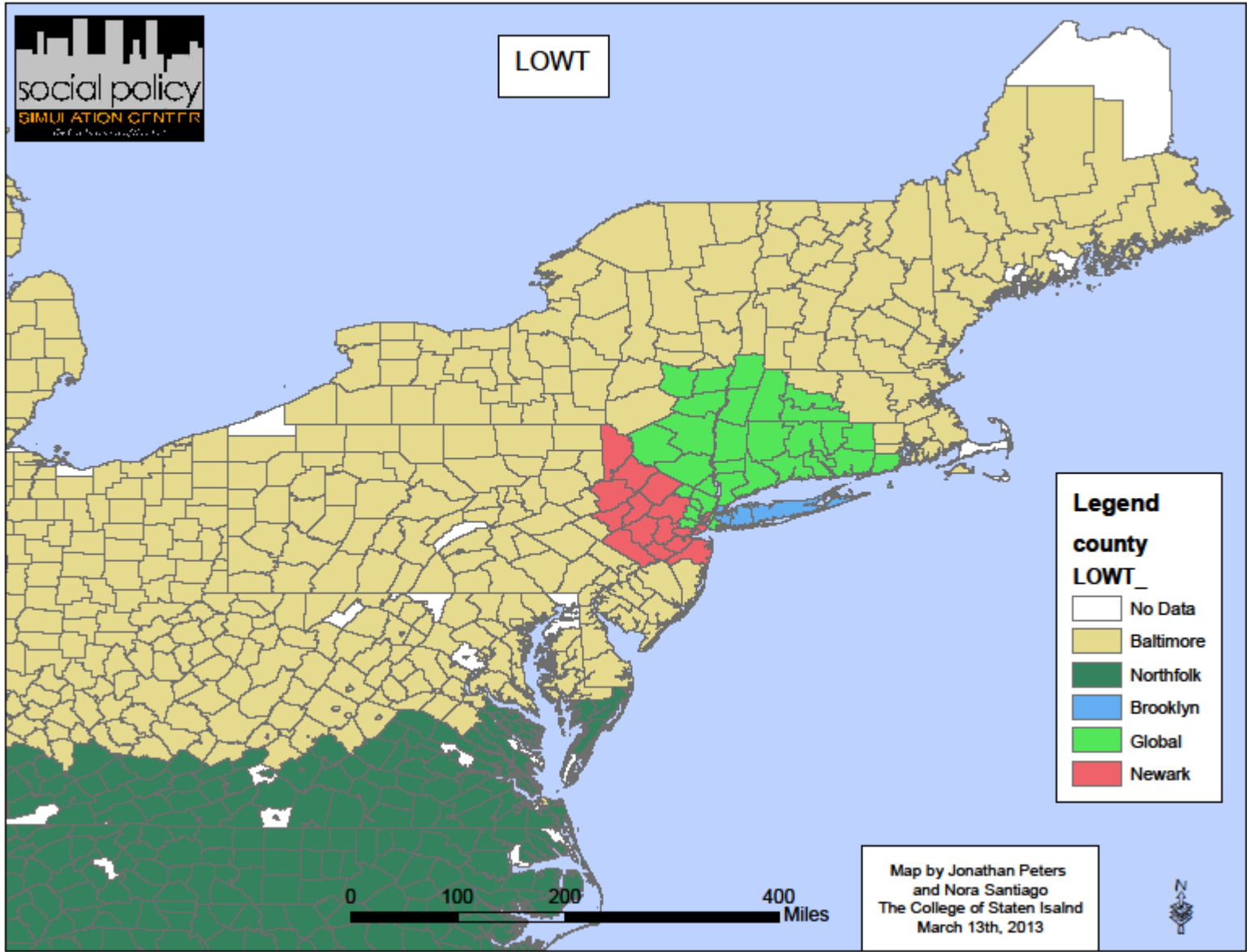
Port Area	Rail Cost	Truck Cost
New York Metro	\$ 0.79	\$ 1.36
Baltimore	\$ 0.56	\$ 0.66
Norfolk	\$ 0.52	\$ 0.66

LOWD





LOWT



Legend

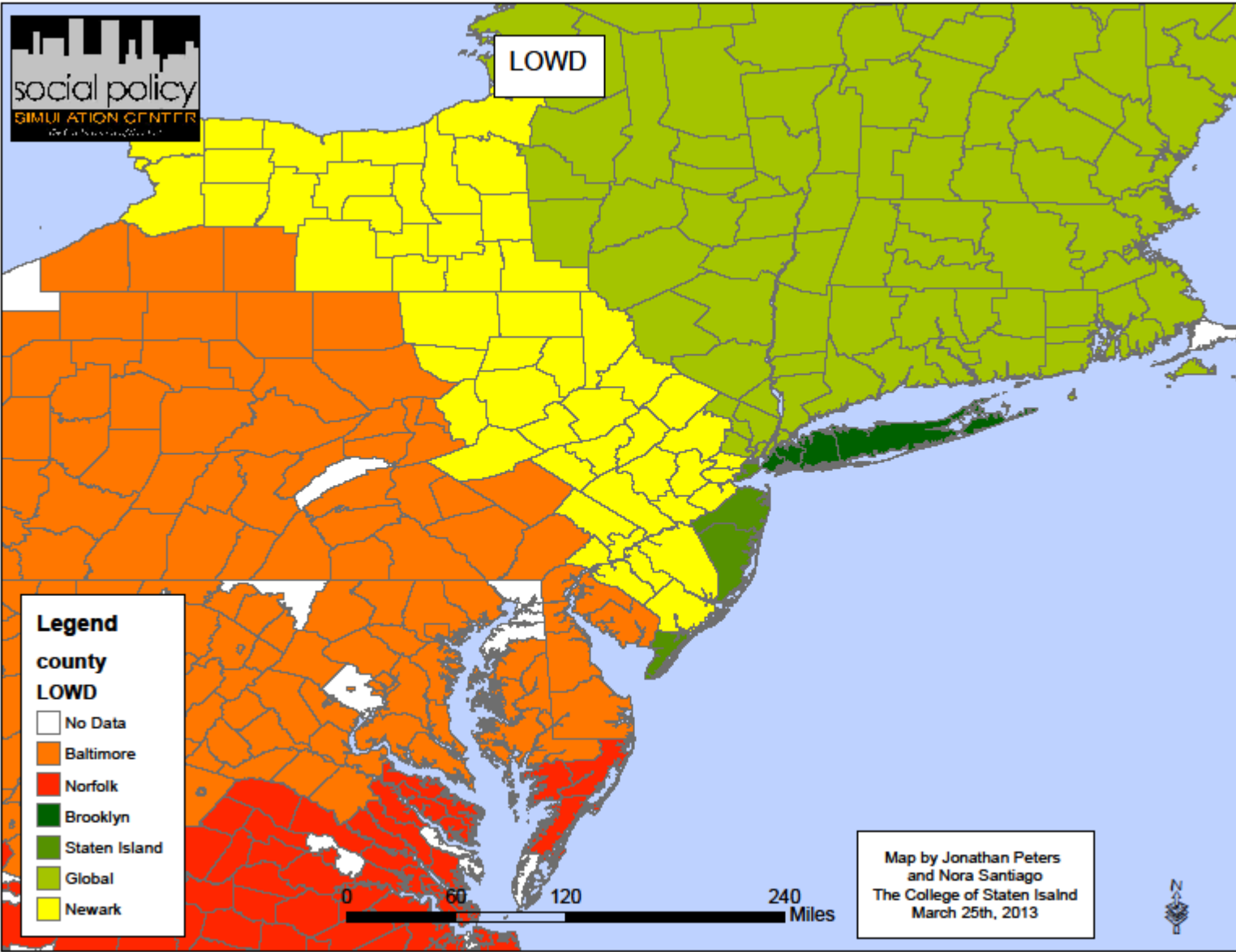
county

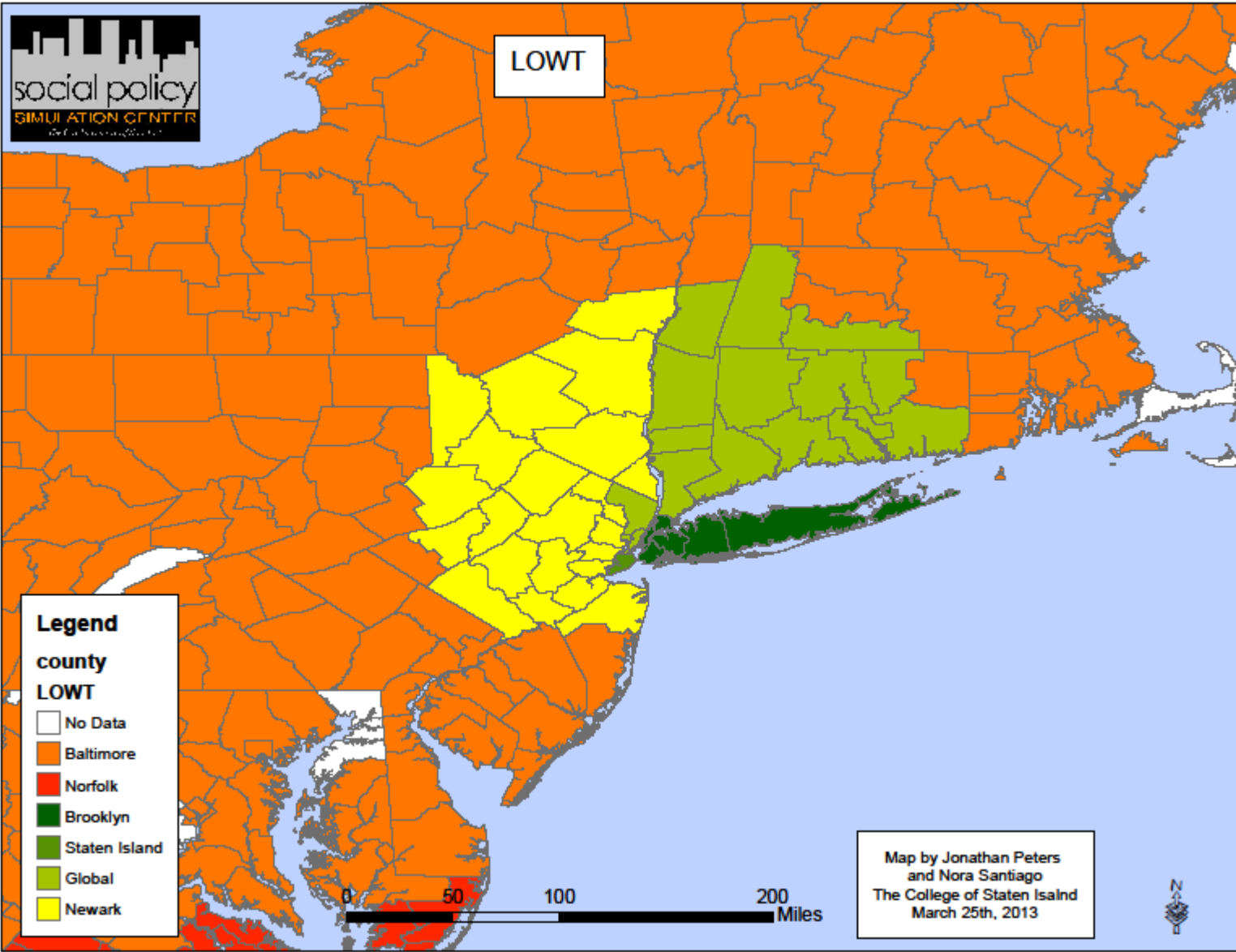
LOWT_

- No Data
- Baltimore
- Northfolk
- Brooklyn
- Global
- Newark

Map by Jonathan Peters
and Nora Santiago
The College of Staten Island
March 13th, 2013

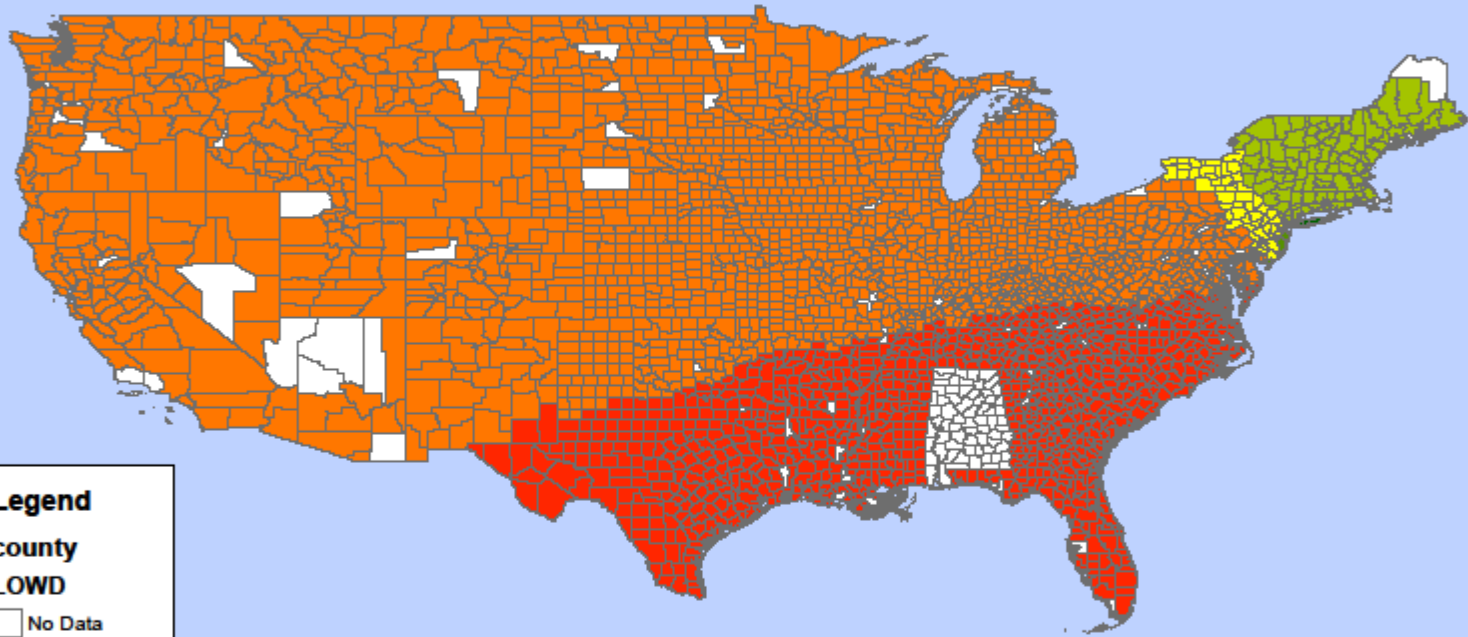








LOWD



Legend

county

LOWD

- No Data
- Baltimore
- Norfolk
- Brooklyn
- Staten Island
- Global
- Newark

0 360 720 1,440 Miles

Map by Jonathan Peters
and Nora Santiago
The College of Staten Island
March 25th, 2013



An unintentional industrial policy?

- Industrial policy – government incentives and subsidies to pick ‘winners and losers’ from various industries in various locations – is generally not seen as efficient for advanced economies.
- However this work suggests that tolls in the New York metropolitan region may be, in effect, a sort of unintentional ‘shadow’ industrial policy that is affecting business location decisions in some sectors (e.g. port commerce and warehousing) and freight carriage route and mode selections more generally.
- More analysis of various sorts is indicated.

Questions?

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