



DAWSON

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INTRODUCTIONS

DAWSON SOLUTIONS (DAWSON)

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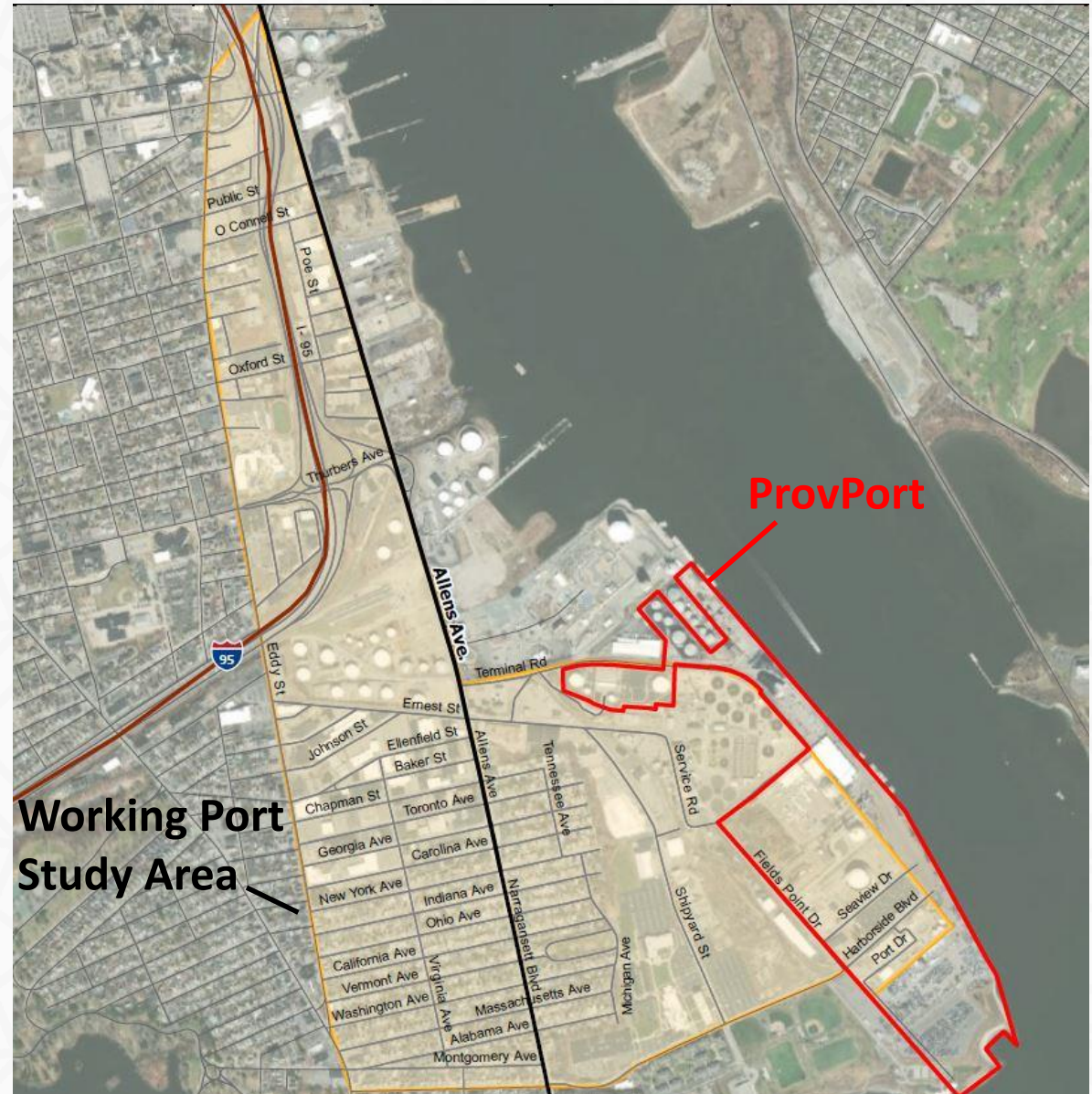
RI TRUCK COUNT AND ASSESSMENT STUDY

The U.S. Environmental Protection Agency (EPA), Region 1 planned a two-phase Truck Count and Assessment study for the Providence Port Area of Rhode Island.

- Phase I - Develop an inventory of medium and heavy-duty freight trucks (Class 5-8) and the activity they engage in while serving businesses/facilities in the working port area.
- Phase II - Identify potential strategies to reduce air emissions, noise and congestion from heavy-duty trucks and their activity.

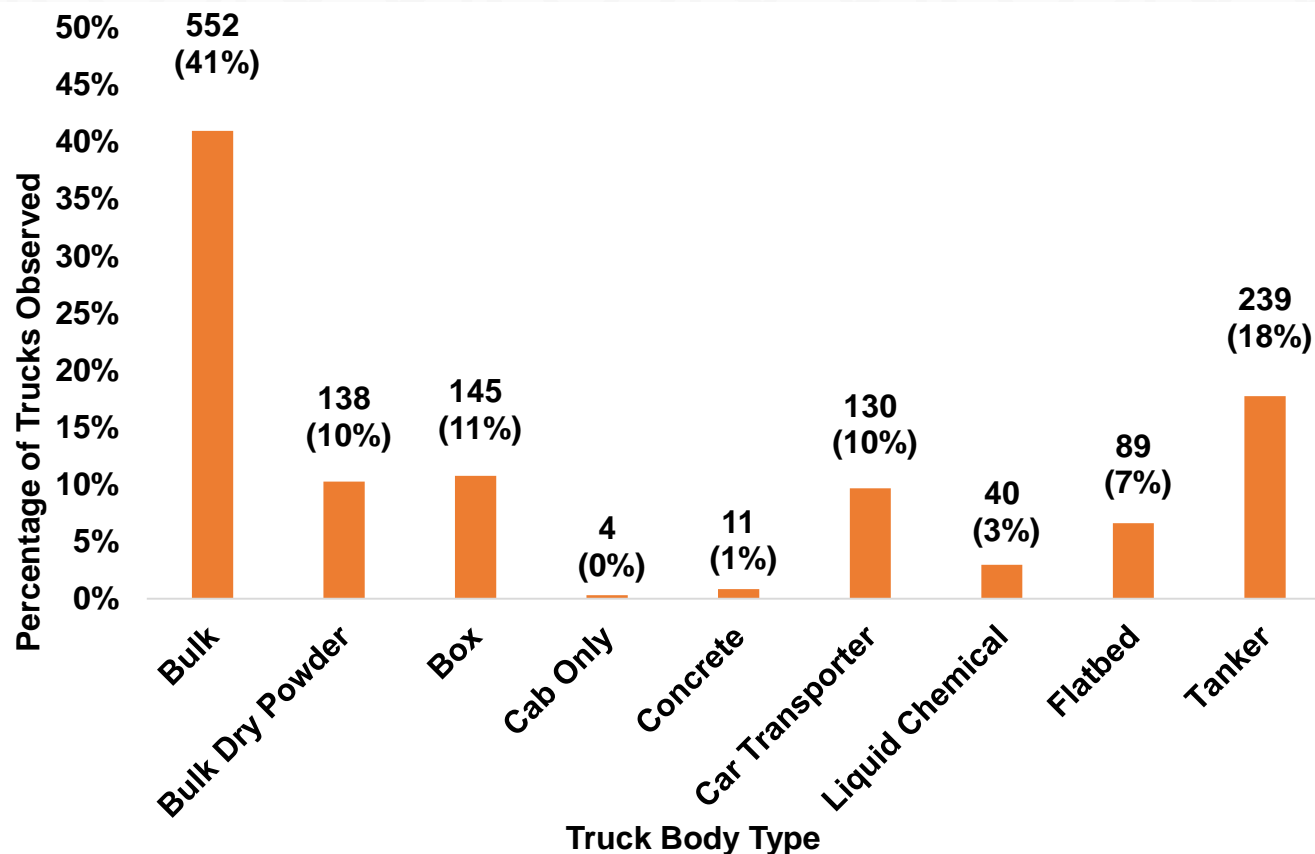
Project Background

- EPA is working with state, local, and community stakeholders as part of the national Ports Initiative
- Collected data will assist EPA and its partners with their goals
- The Project is focused on Port truck operations



Phase I Results

- Phase I was completed in September and involved Port Business and Stakeholder Interviews and Truck Volume and Type Data Collection
 - Bulk Carriers and fuel tankers constituted the majority of trucks observed (Class 7 and 8)
 - Trucking in the study area is conducted by a wide range of companies, often contracted by port businesses.



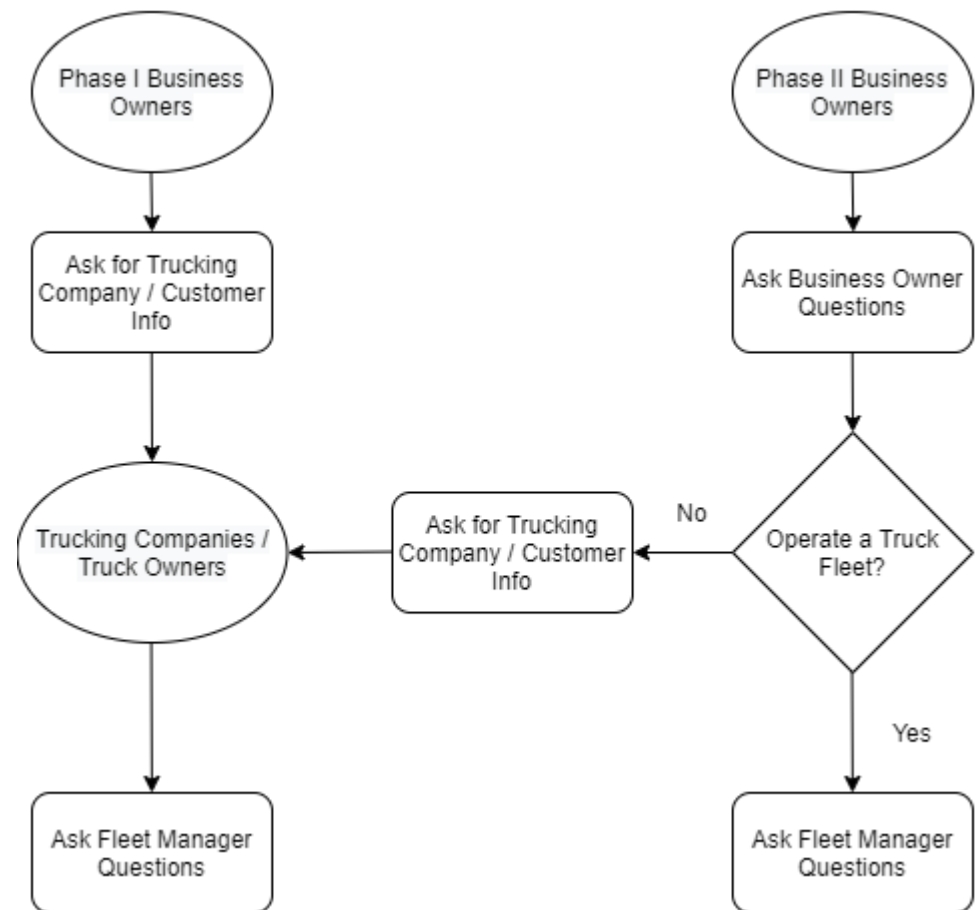
Phase I - Combined Truck Body Types Recorded

Phase II Data Collection Process Overview

- Interviews were used to elicit responses from three groups:
 - Port Area Businesses (Continuation of Phase I Scope)
 - Fleet Managers
 - Drivers
- Driver Interviews were conducted at four locations at ProvPort:
 - McInnis Cement
 - Grimaldi Export Car Terminal
 - Schnitzer Northeast
 - ProvPort central parking area

Data Collection Process Overview

- Fleet Managers may work at trucking companies, or Port Businesses that operate a trucking fleet.
- Fleet Managers were identified through referrals from Port businesses, the Rhode Island Trucking Association, and USDOT data



Interview Process

Phase II Interview Subjects

PORT BUSINESSES INTERVIEWEES

- Hudson Terminal
- Harsco Recycling (Stericycle)
- SIMS Metal Management
- Schnitzer Steel Industries
- Lehigh Cement

FLEET MANAGER INTERVIEWEES

- DJ Cronin
- Kafin Oil
- Henry Oil
- Schnitzer Steel Industries
- Mid-America Salt
- JP Noonan
- Univar Solutions USA, Inc.
- B&B Trucking
- Lehigh Salt
- E. Constantini Trucking, Inc.
- Morton Salt

Interview Results – Business Owner Interviews

- Five additional Business Owners interviewed: increased breadth of business types
- Similar results to Phase I Interviews
- Schnitzer was the first business owner interviewed that operates its own truck fleet in Providence
 - All others contract to trucking companies or customers pick-up
- Most businesses do not dictate routes to trucking companies, and do not utilize scheduling windows or appointment systems

Interview Results – Fleet Manager Interviews

- Fleet managers for the following business types were interviewed:
 - 3 trucking companies (1 general, 1 bulk, 1 gasoline)
 - 2 heating oil companies
 - 3 Port Businesses (1 metal, 1 salt, 1 chemicals)
- Trucking companies serve multiple customers at the port, and heating oil companies purchase from multiple terminals
- Truck ages ranged from new to 24 years in age, with an average age of 7 years

Company Type	National Firm (Trucks in Other Markets)	Trucks Owned (Providence / New England Area)	Average Truck Age	Newest Truck Year	Oldest Truck Year
Heating Oil		3	10	2020	2002
Heating Oil		6	7	2020	1998
General Trucking		400	3	2021	2004
Bulk Hauling		16	15	2019	1996
Gasoline Tanker Company		25	5	2020	2000
Metal Recycling	Yes	12	6	2020	2005
Chemical Distribution	Yes	24	4	2017	2015

Company Type, Fleet Size, and Truck Ages for Fleet Manager Interviewees

Interview Results – Fleet Manager Interviews

- Only two interviewed companies have anti-idling technology on their trucks
- Four of the companies do subcontract to owner-operators or other trucking companies
- Trucks make 1 to 4 trips per day to the port depending on the business and season

Company Type	Trucks Owned (Providence / New England Area)	Trips Per Day	Repeat Trips to Port per Truck per Day
Heating Oil	3	3 to 6	1 to 2 loads per truck (2 loads in busy season)
Heating Oil	6	6	1 load per truck
General Trucking	400	60	Up to 4 loads per truck
Bulk Hauling	16	216 to 254 at peak times (cobble ship in port, winter salt operations)	4 loads a day for aluminum oxide, multiple loads for other products
Gasoline Tanker Company	25	Up to 40	2 to 4 loads per truck depending on volume
Metal Recycling	12	Did not answer	
Chemical Distribution	24	Normally 1 per truck	Sometimes 2 trips per driver

Trips to Providence Port Area per Day per Company

Interview Results – Fleet Manager Interviews

- Routes vary widely, especially for trucking companies that serve multiple customers
- 90-100% of back hauls are empty hauls
- Three companies had truck replacement strategies, and three were familiar with incentive programs to fund cleaner trucks

Company Type	Trucks Owned (Providence / New England Area)	Average Truck Age	Replacement Policy	Purchasing Challenges	Familiar with Incentive Programs?
Heating Oil	3	10	None	Cost	Unfamiliar, would be interested
Heating Oil	6	7	No set policy, replace as needed	Cost	Unfamiliar, would be interested
General Trucking	400	3	Purchase 25 new trucks per year, lease 25 new trucks per year	None	Yes, participated in VT
Bulk Hauling	16	15	None	None	Yes, participated through Providence Port
Gasoline Tanker Company	25	5	1 truck yearly	Availability and cost	Did not answer
Metal Recycling	12	6	Did not answer	Did not answer	Did not answer
Chemical Distribution	24	4	Yes	None	Yes

Truck Replacement Policies, Purchasing Challenges, and Incentive Programs

Interview Results – Port Business and Fleet Manager Interviews

- Suggestions to improve port efficiency/air quality included:
 - Limit weight restrictions to minimize truck trips
 - Further adoption of automated swipe-in systems for truck drivers
 - Implementation of TWIC Express Lane
- Two companies stated that they did not see a need for increasing truck parking or staging at the port

Interview Results – Truck Driver Interviews

- 61 Drivers Interviewed (14 Owner/Operators)
- Truck ages ranged from new to 22 years
 - Average age was 9 years
- Larger truck fleets corresponded with younger trucks based on the interview sample

Truck Age (years)	Trucks Recorded	Median Fleet Size	Largest Fleet Size	Smallest Fleet Size
0-5	29	19	186	1
6-10	2	9	17	1
11-15	11	5	51	1
16-20	8	2	16	1
20+	2	6	8	3

Driver Interviewee Truck Age and Fleet Size

Interview Results – Truck Driver Interviews

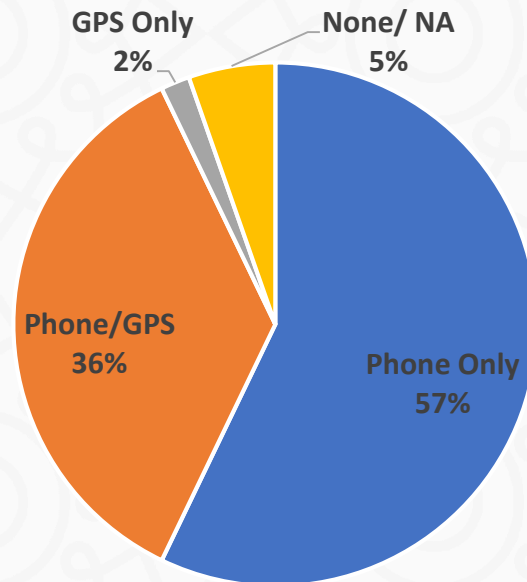
- Owner/Operators' trucks range 1 to 20 years in age
- Owner/operators were most prevalent at the auto export terminal during the interview period
- 3-5 trips to the port per week for car transporters
- 5-10 trips to the port per week for bulk transports

Duration of Truck Ownership	Replacement Schedule Miles/Years	New or Used Replacement	Why Used?	Subsidy Required / Desired	Trips to Port per Week	Model/Year of Truck	Truck Body Type
20 yrs		Used		Unanswered	5-10	1999 Kenworth	Bulk Transport
>10 yrs		New		\$70k	5-10	1998 Mack	Dump Truck
>10 yrs		Either		\$20k	5	2001 Dodge	Tow Truck
8 yrs		New		\$10k	4		Car Transporter
7 yrs	Need to replace in 2020/2021	New		\$10 -15k	3-4		Car Transporter
7 yrs	Every 7-10 yrs	Used	Cost	\$40k new	4-5		Car Transporter
6 yrs		Either		\$20k	3+		Flat Bed
6 yrs	Every 6-7 yrs	New		\$10 -15k	4-5		Car Transporter
4 yrs		Used	Cost	\$10-15k	4		Pickup Truck
3 yrs		New - Semi			3-4		Car Transporter
2 yrs		New			5	2018 Ram 3500	Car Transporter
2 yrs	Every 5-7 yrs	Used			3-4		Car Transporter
1 yr		New		No need	4-5		Car Transporter
	Need to replace soon	Used	Cost	\$10 -15k if new	4		Car Transporter

Owner/Operator Interview Results

Interview Results – Truck Driver Interviews

- 68% of trips were round trips that began and ended at the same location, with an intermediate stop at the port
- All drivers had an empty haul for one leg of the trip
- All but one driver stated they do not idle longer than five minutes
- The majority of drivers indicated that they use a smartphone as their primary navigation aid



Interviewee Navigation Aids

Interview Results – Truck Driver Interviews

- Interviewees made anywhere from 1 trip per week to 45 trips per week to the port
- Average trips per week per driver was between 9 and 11 trips
 - Median trips per week per driver was 5 trips
- Most drivers interviewed return to the port multiple times per week

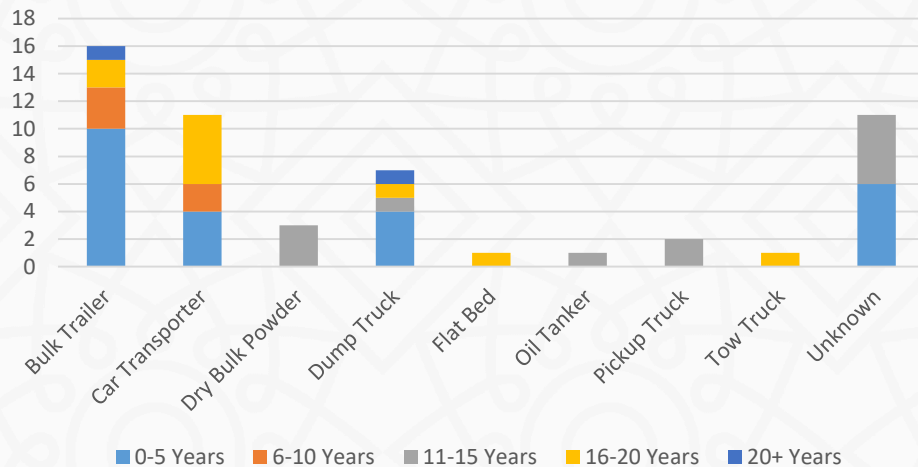
Trips	Drivers	Percentage of Drivers
1-5	18	33%
5-10	26	47%
10-20	5	9%
20+	6	11%
Total	55	100%

Trips to Providence Port Area per Week

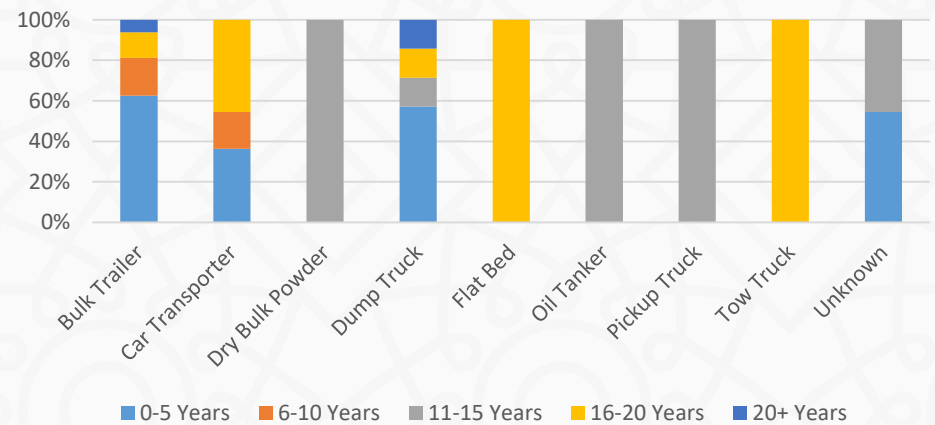
Interview Results – Truck Driver Interviews

- Bulk cargo and car transporter drivers were the most commonly interviewed drivers
- Bulk trailers and dump trucks tended to be the newest vehicles, while car transporters tended to be older.

Number of Trucks by Body Type and Age



Truck Age per Body Type as a Percentage of Trucks

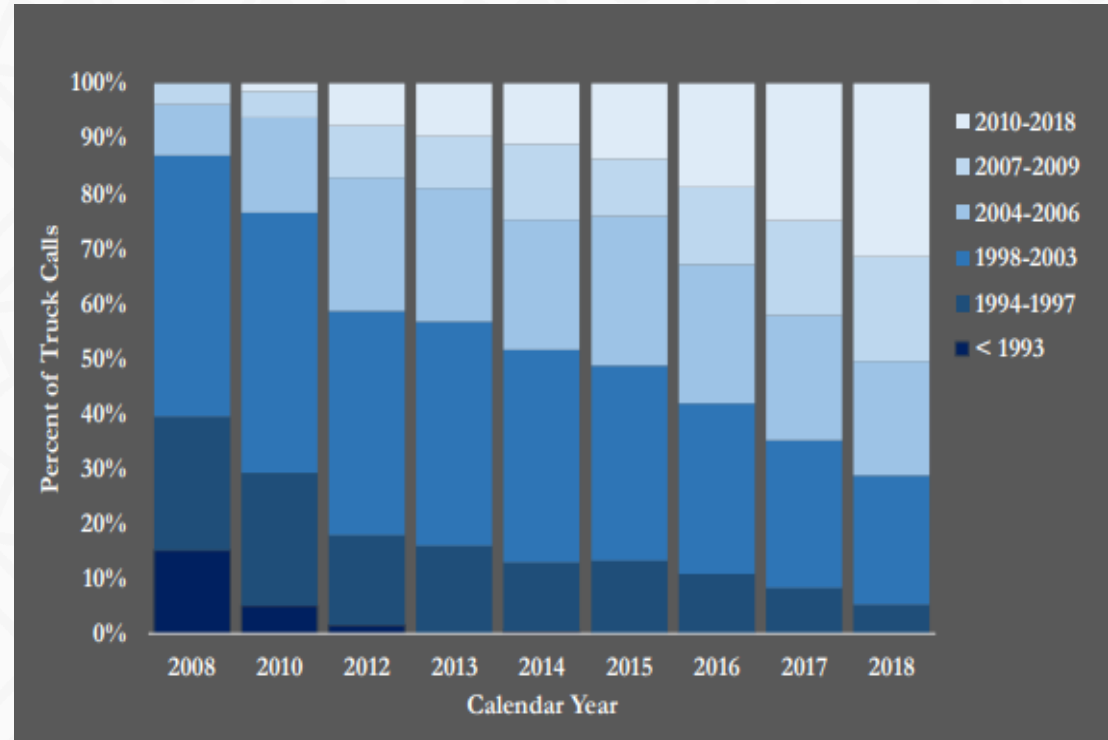


Possible Strategies

- Reducing the Number of Older Trucks
- Truck Management Initiatives
- Efficiency
- Environmental Credentials
- Truck Intrusion

Possible Strategies – Reduce Number of Older Trucks

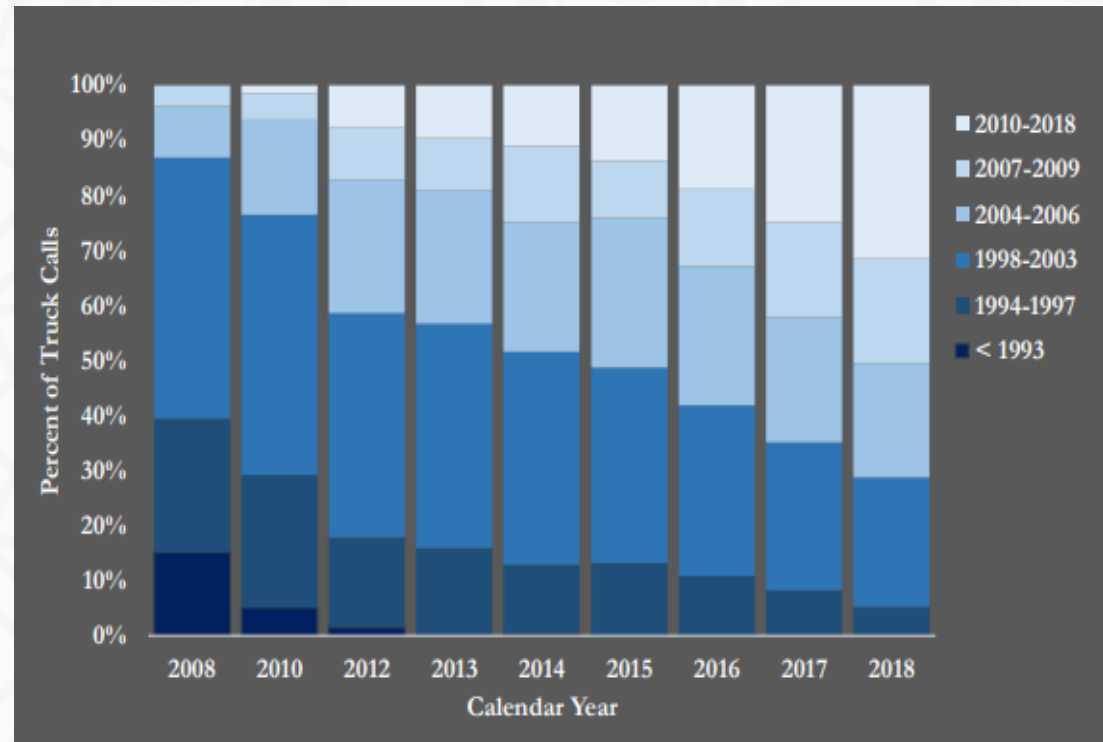
- Why is replacing older trucks a strategy?
- Vehicle emission standards have become more stringent
 - Exhaust after treatment technology
 - Diesel Particulate Filters (DPF)
 - Selective Catalytic Reduction (SCR)
- Truck Model Year
 - >2010. Trucks equipped with both DPF and SCR
 - 2007-2009. DPF but not SCR
 - Pre 2007. No DPF or SCR



Source: [PANYNJ 2018 Multi-Facility Emissions Inventory](#)

Possible Strategies - Reduce Number of Older Trucks

- Natural evolution to less polluting models over time
 - Average age of Class 8 truck is 6 ½ years.
- Inherent challenges accelerating the take up of newer trucks
 - Small companies/owner operator
 - Truck Cost – Ave price of Class 8 - \$38k for a used truck, new \$113k
 - Lease vs. purchase
 - Side benefit of leasing is truck turnover



Source: [PANYNJ 2018 Multi-Facility Emissions Inventory](#)

Possible Strategies – Truck Management

- Vehicle Booking Systems
 - Objective – Align port processing capacity with truck arrivals
 - Widespread in container terminals
 - Not so in bulk facilities
- Truck Queuing/Staging Areas
 - Dedicated facility, combined with call forward system
 - Where could a facility be located? Does demand justify this?



Corpus Christi Truck Staging Area

Possible Strategies – Truck Operations Efficiency

- Improve Truck Efficiency
 - Dual Transaction/Matchback/Street turn/Load Matching
 - Reduce empty truck miles and truck trips



Possible Strategies – Truck Operations Efficiency

- Some traction in container sector
- Benefits – reduce costs and number of trucks entering ports
- Requires management time and effort
- Co-ordination with customers and transporters
- Providence Port Area challenges
 - Origin, destination of trips
 - Seasonality and Discharge profiles
 - Commodities and vehicle type
 - Outgoing petroleum tanker – incoming scrap metal X
 - Outgoing salt – incoming scrap metal ✓

Possible Strategies – Truck Intrusion

- Measures to avoid/mitigate truck intrusion in neighborhoods
 - Truck Route Network
 - Defines routes
 - Doesn't exclude trucks for making deliveries
 - Separate trucks and vulnerable road users
 - Provides a mechanism for enforcement for off route trucks



Possible Strategies – Truck Intrusion

- Measures to avoid/mitigate truck intrusion in neighborhoods
 - Bypass/Truck Corridors
 - Direct Access to I-95 SB?
 - Boston: dedicated Freight Corridor and Thomas J. Butler Memorial Park
 - Park provides a buffer between truck route and residential areas



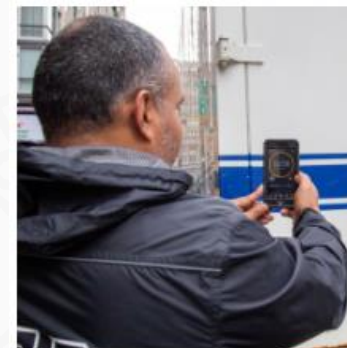
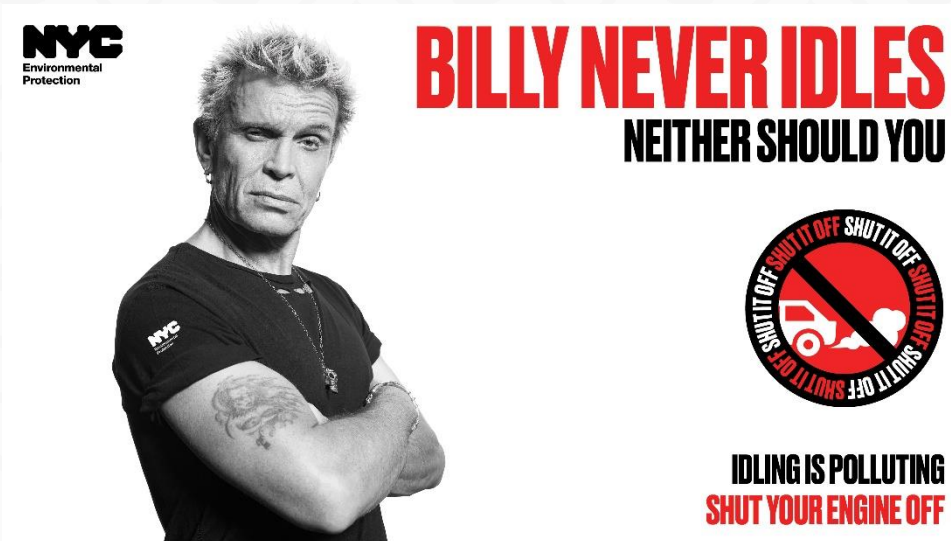
Possible Strategies – Green, Environmental Schemes and Credentials

- Increase the uptake of voluntary green/environmental schemes
 - EPA SmartWay for carriers, shippers/receivers, and trucks
 - Green Marine air emissions criteria
 - Incentivize use of existing schemes for the port's carriers
 - Work with Parties in the supply chain
 - Use public procurement e.g., Boston City contracts and truck sideguards



Possible Strategies – Anti-Idling

- Two primary approaches to addressing idling:
 - Technology/Opportunity (is it possible to idle?)
 - Auxiliary Power Units can eliminate long-term idling
 - Idle limiters shut off engine after preset time
 - Scheduling can limit downtime
 - Behavior (does a driver choose to idle?)
 - Can address via enforcement or training
 - NYC has deputized citizens to cite trucks/buses



No idling more than 3 minutes! Exceptions: emergency vehicles or vehicles operating necessary machinery.



No idling for more than 1 minute around a public or private school.

Conclusions and Next Steps

- The Providence Port Area primarily serves bulk cargo and petroleum products and trucking observed in Phase I reflects this
- Most port businesses do not own or operate their own trucks
- Potential strategies require working with businesses, truckers, or government depending on the level of intervention
- The Project Team will continue performing/summarizing outstanding interviews (through the finalization of the report)
- The Project Team will continue tweaking potential strategies based on further analysis of the interview results (through the finalization of the report)

RI TRUCK COUNT AND ASSESSMENT STUDY

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Questions?