

The Trucking Industry's Top 10

Rebecca M. Brewster
President and COO
American Transportation
Research Institute

STEP UP
And leave your
footprint.



ATRI

Trucking industry's NFP research organization

- Safety
- Mobility
- Economic Analysis
- Technology
- Environment

www.truckingresearch.org

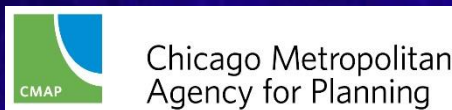
STEP UP
And leave your
footprint.



Board of Directors



Research Advisory Committee



2018 Top Industry Issues

1. Driver Shortage (1)
2. Hours-of-Service (3)
3. Driver Retention (5)
4. ELD Mandate (2)
5. Truck Parking (4)
6. CSA (6)
7. Driver Distraction (8)
8. Transportation Infrastructure / Congestion / Funding (9)
9. Driver Health and Wellness (10)
10. Economy (11)

CRITICAL ISSUES IN THE TRUCKING INDUSTRY – 2017



Presented to the
American Trucking Associations

Prepared by
The American Transportation Research Institute
October 2017



950 North Glebe Road
Arlington, VA 22203
(703)838-1966
atri@trucking.org
TruckingResearch.org

Top Issues Drivers vs. Carriers

Commercial Drivers

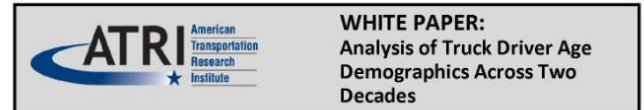
1. Hours-of-Service
2. Truck Parking
3. ELD Mandate
4. Driver Distraction
5. Driver Retention
6. CSA
7. Driver Health/Wellness
8. Transportation Infrastructure /Congestion/ Funding
9. Driver Shortage
10. Automated Truck Technology

Motor Carrier Execs

1. Driver Shortage
2. Driver Retention
3. Hours-of-Service
4. Transportation Infrastructure /Congestion/ Funding
5. ELD Mandate
6. CSA
7. Driver Distraction
8. Tort Reform
9. Truck Parking
10. Federal Preemption of State Regulation of Interstate Trucking (F4A)

Analysis of Truck Driver Age Demographics Across Two Decades

- Identified as a top RAC priority – 2013
- Analysis of U.S. Census Bureau data
- Examines demographic trends in driver workforce with implications for future

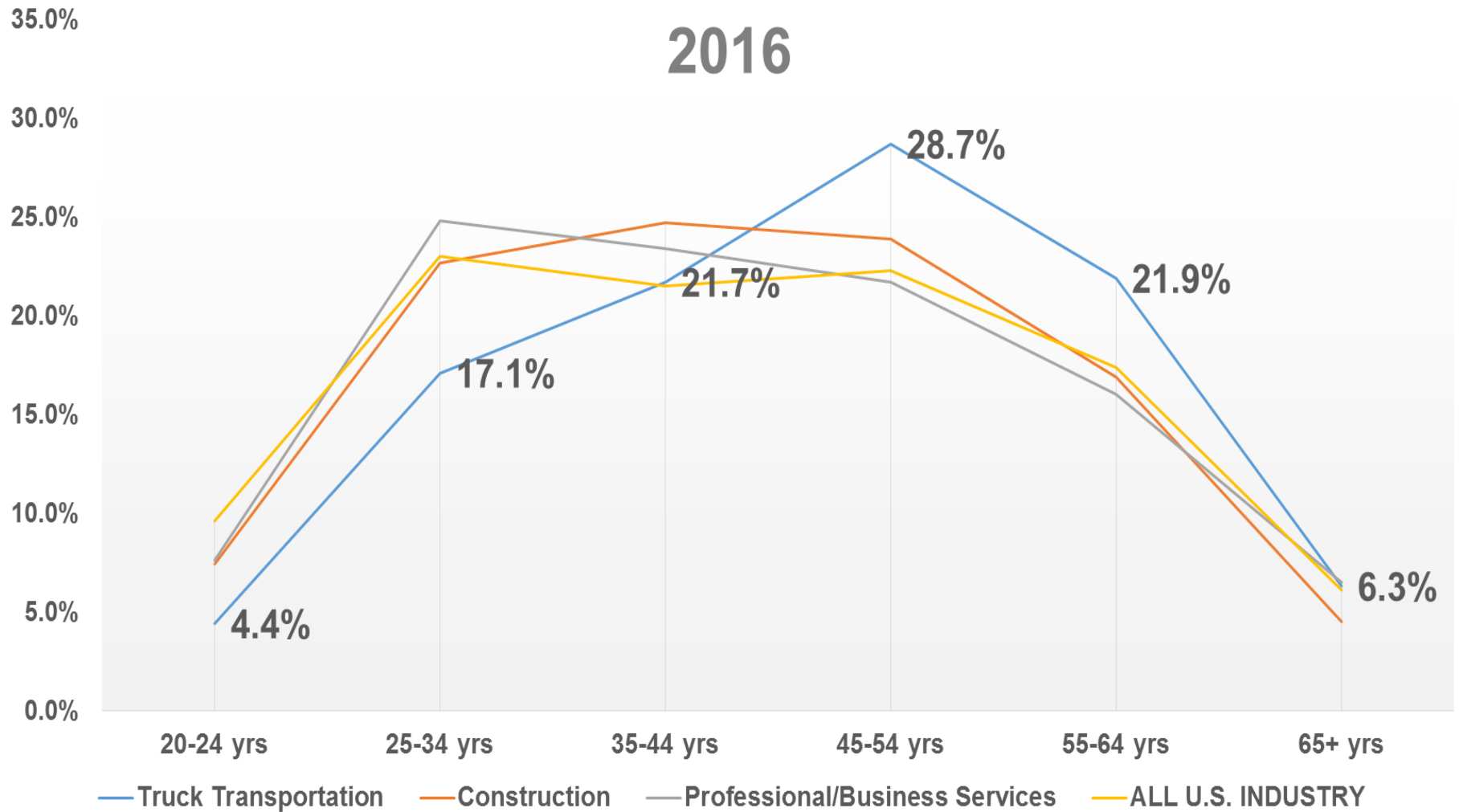


December 2014

Jeffrey Short
Senior Research Associate
American Transportation Research Institute
Atlanta, GA



Truck Driver Age Demographics



Truck Driver Age Demographics

Program Type	Public Schools Offering Program
Business	96.5%
Computer Technology	94.4%
Mechanics and Repair	81.9%
Precision Production	78.9%
Construction	73.5%
Childcare and Education	68.3%
Healthcare	64.9%
Agriculture	62.4%
Other Technology	58.3%
Marketing	57.9%
Food Service and Hospitality	57.4%
Communications and Technology	53.6%
Other Occupational Programs	48.2%
Personal and Other Services	48.0%
Trade and Industry/Transportation	28.8%
Protective Services	25.8%

Driver Safety Assessment Tool

- Is it possible to identify younger individuals with the same characteristics of safe, older drivers?
- Prior studies focus on relationship between a single driver characteristic and safety outcomes
- ATRI's research will investigate the relationship between multiple driver characteristics and safety outcomes



Developing a Younger
Driver Assessment Tool
Technical Memorandum #1

August 2017

Caroline Boris
Research Analyst
American Transportation
Research Institute

Monica M. Luciana, Ph.D.
Professor
University of Minnesota
Department of Psychology

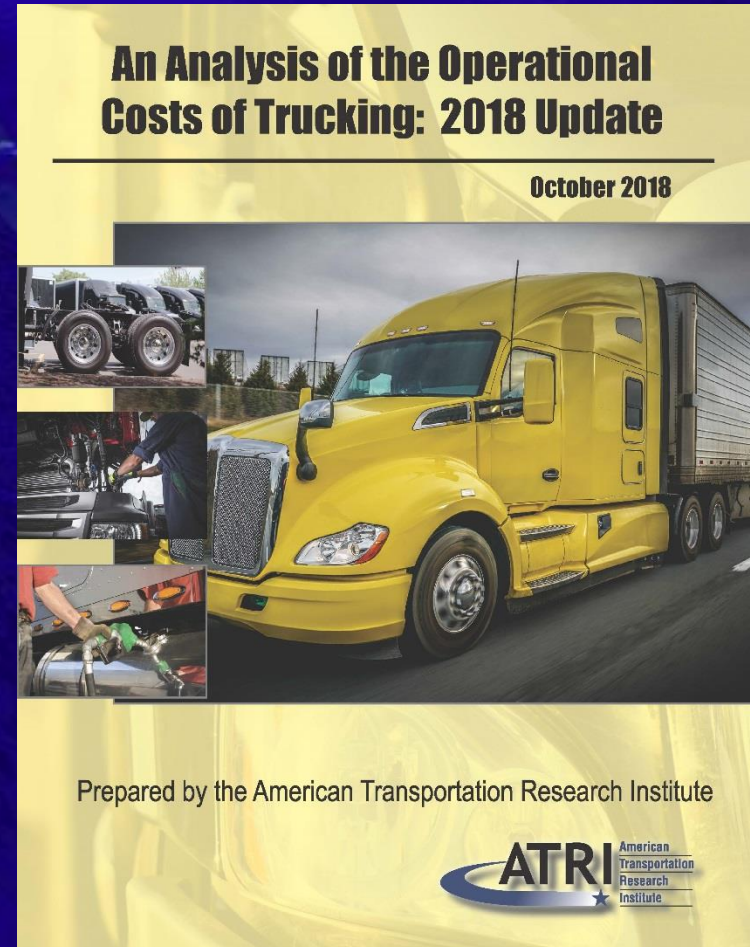


Driver Safety Assessment Tool

- **Driver safety in commercial and non-commercial drivers can be reliably predicted by a number of individual factors:**
 - ◆ **Personality traits**
 - ◆ **Health status**
 - ◆ **Driving experience**
 - ◆ **Age**
 - ◆ **Cognitive ability**
 - ◆ **Attitudes regarding safety**
- **Nearing completion – beta test tool on ~100 drivers of varying ages, safety performance**

Operational Costs of Trucking

- **Collects and analyzes real-world motor carrier operational data**
- **Covers data from 2008-2017**
- **Calculates costs by mile and by hour**
- **Sector, regional analyses included**



Operational Costs of Trucking

Average Carrier Costs per Mile

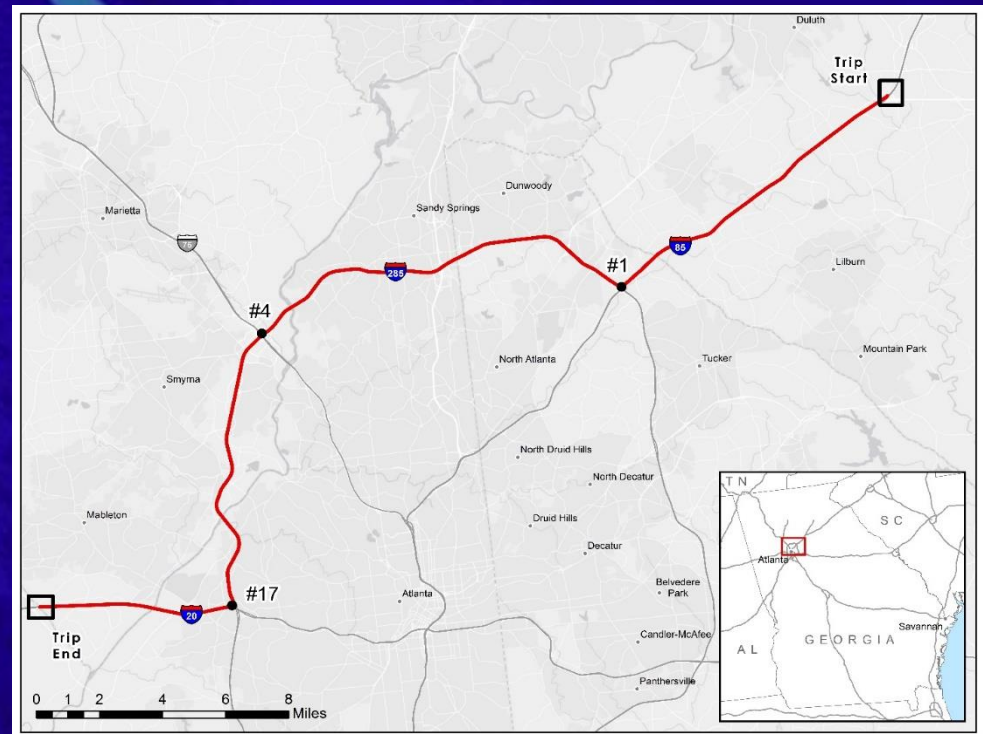
Motor Carrier Costs	2013	2014	2015	2016	2017
Vehicle-based					
Fuel Costs	\$0.645	\$0.583	\$0.403	\$0.336	\$0.368
Truck/Trailer Lease or Purchase Payments	\$0.163	\$0.215	\$0.230	\$0.255	\$0.264
Repair & Maintenance	\$0.148	\$0.158	\$0.156	\$0.166	\$0.167
Truck Insurance Premiums	\$0.064	\$0.071	\$0.074	\$0.075	\$0.075
Permits and Licenses	\$0.026	\$0.019	\$0.019	\$0.022	\$0.023
Tires	\$0.041	\$0.044	\$0.043	\$0.035	\$0.038
Tolls	\$0.019	\$0.023	\$0.020	\$0.024	\$0.027
Driver-based					
Driver Wages	\$0.440	\$0.462	\$0.499	\$0.523	\$0.557
Driver Benefits	\$0.129	\$0.129	\$0.131	\$0.155	\$0.172
TOTAL	\$1.676	\$1.703	\$1.575	\$1.592	\$1.691

Operational Costs of Trucking

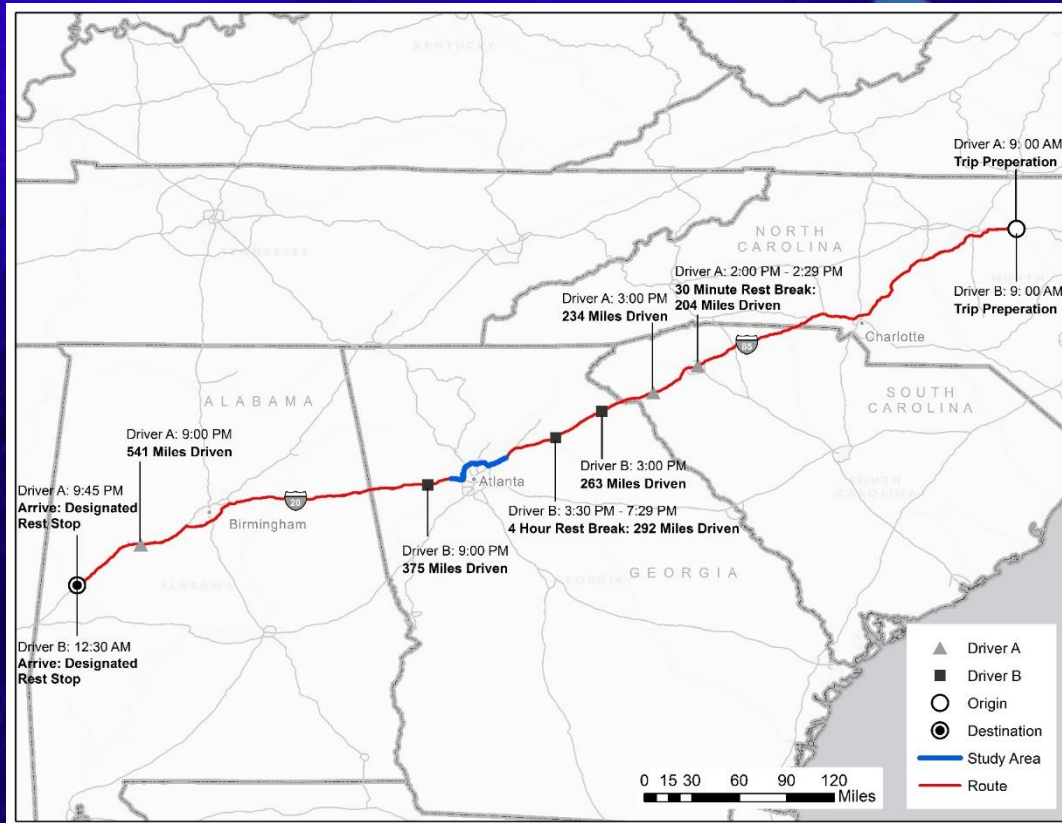
Bonus Type	Average Bonus per Driver
Safety	\$1,317
On-Time Delivery	\$2,542
Starting	\$1,401
Retention	\$974

Hours-of-Service Flexibility

- **Would flexibility in HOS rules provide opportunity to improve congestion?**
- **Depending on time of day – 40 mile trip can range from 40 minutes to over 93 minutes**
- **Cost for one trip ranges from \$42.32 to \$99.11**



Two Trips Modeled Current HOS and 6/4 Split



Driver B – Flex HOS Rules – logged 45.5 minutes less drive time and 75.5 minutes less on-duty time

HOS Flexibility Saves Time and \$\$

- **If 25 trips per day avoid ATL study segment at worst times = 4,700 fewer hours drive time annually saved**
 - ◆ **Cost savings of >\$300,000 per year**
- **Extrapolate to 500 congested locations nationally, 25 trips per location**
 - ◆ **2.3 million hours drive time saved**
 - ◆ **Direct operating costs savings >\$150 million**
 - ◆ **Does not include societal benefits from decreases in truck-related congestion and more efficient supply chains**

Truck Parking

- **Truck Parking Diaries - drivers kept 14 days of parking activity**
 - ◆ Over 2,000 days/4,700+ parking stops
- **Includes when, where, how long to find a spot, how many spots occupied by non-CMV's, lost productivity**
- **ATRI involved in numerous multi-state/state and regional Truck Parking research initiatives**
 - ◆ **Truck Parking Information Management System Development**
 - ◆ **Driver Surveys**
 - ◆ **Truck GPS Analysis**

Managing Critical Truck Parking Case Study – Real World Insights from Truck Parking Diaries

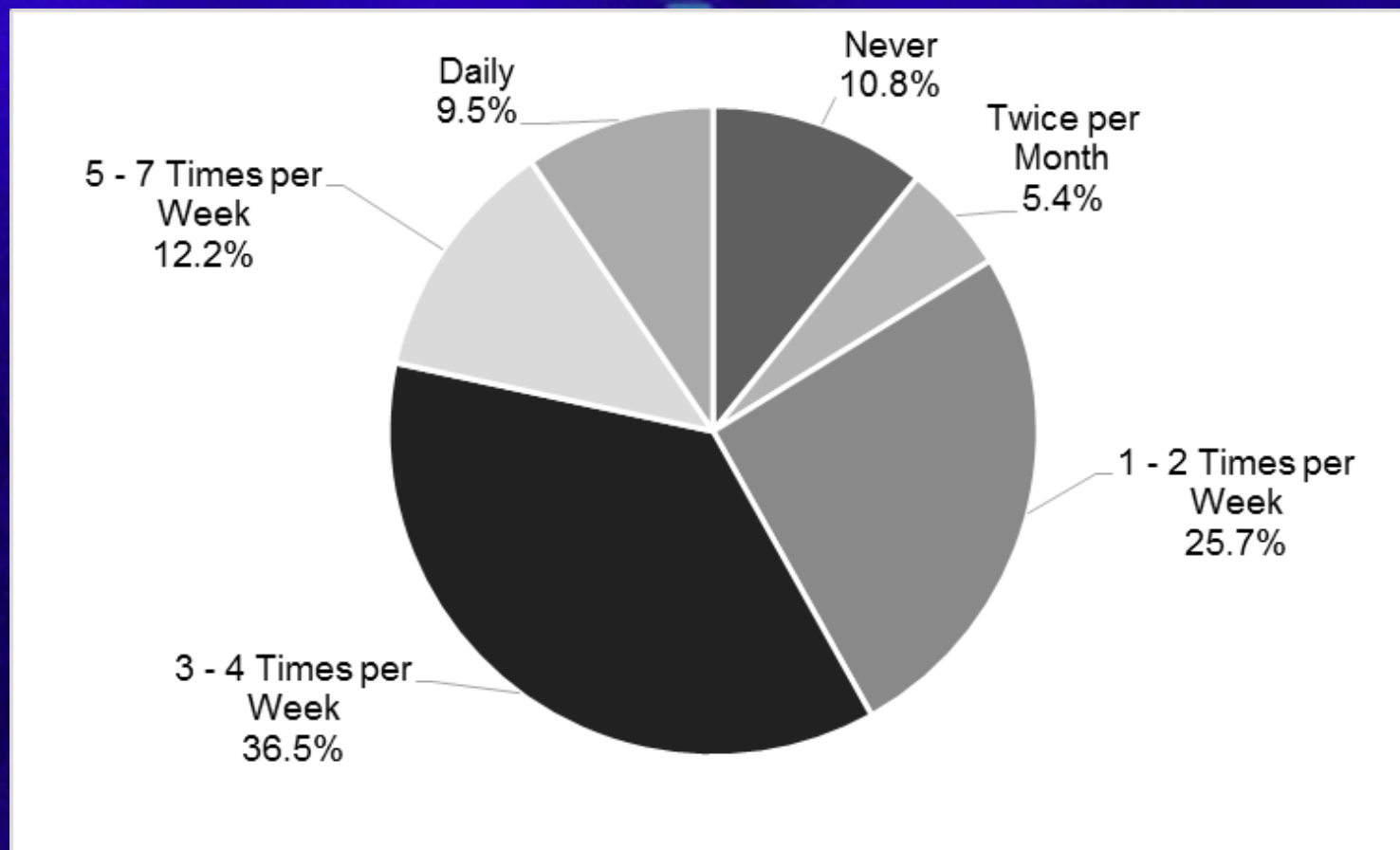
December 2016



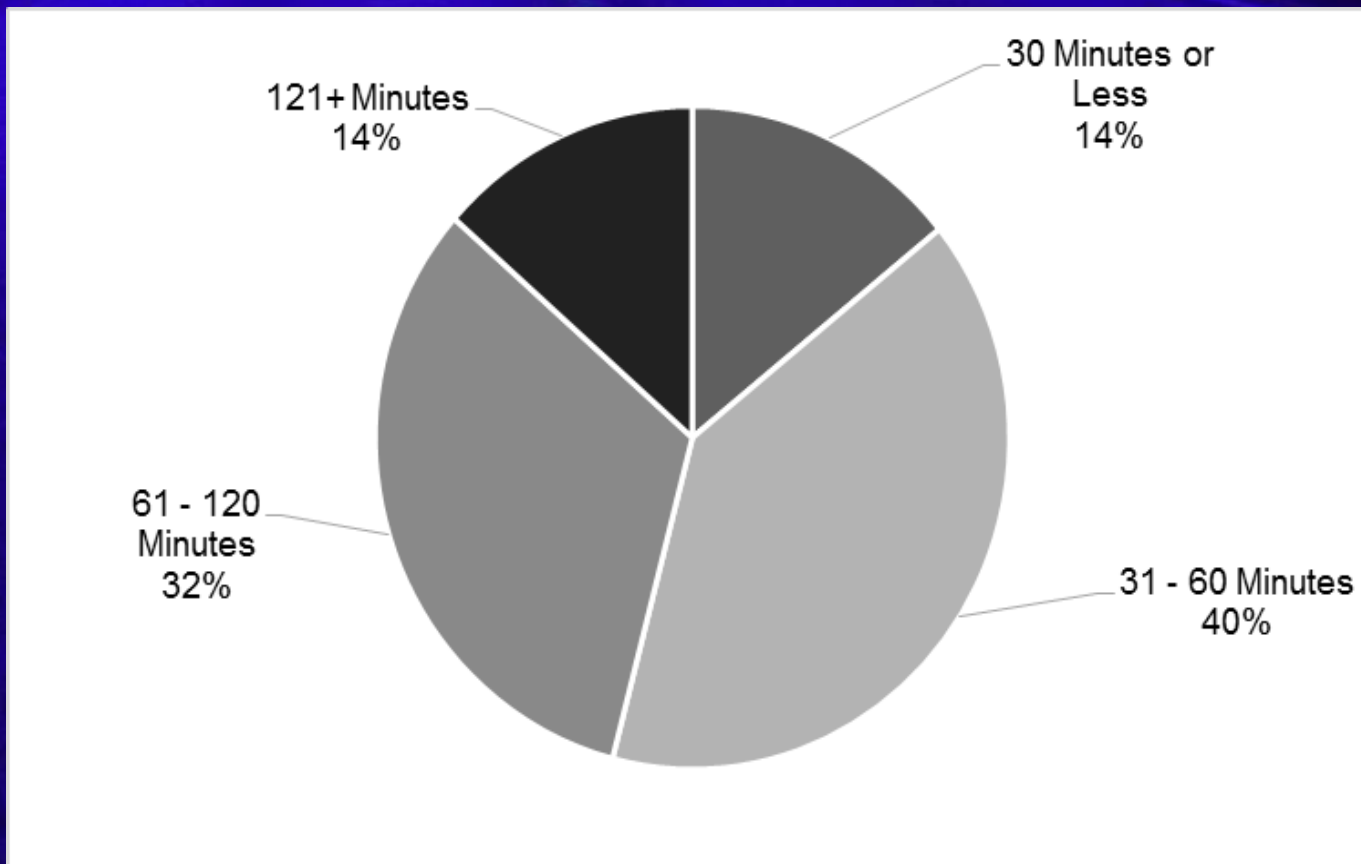
Prepared by the American Transportation Research Institute



Frequency of Unauthorized/Undesignated Parking



Average Remaining Drive Time



Average = 56 minutes/day

Opportunity Cost = \$4,600 annually

ELDs: nearly 2x as likely to spend 30+ minutes looking for parking

No Vacancy

Cumberland County, PA Rest Area: I-81 Northbound
January, 2017

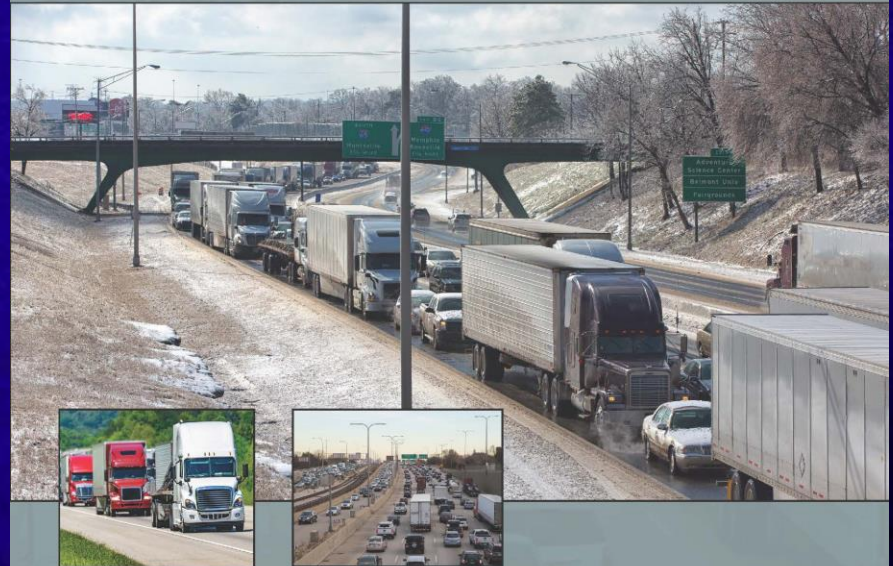


Cost of Congestion

- Congestion on U.S. NHS cost trucking industry \$74.5B in 2016
- Lost productivity = 1.2 billion hours
 - ◆ Equates to 425,533 commercial drivers sitting idle for entire year

Cost of Congestion to the Trucking Industry: 2018 Update

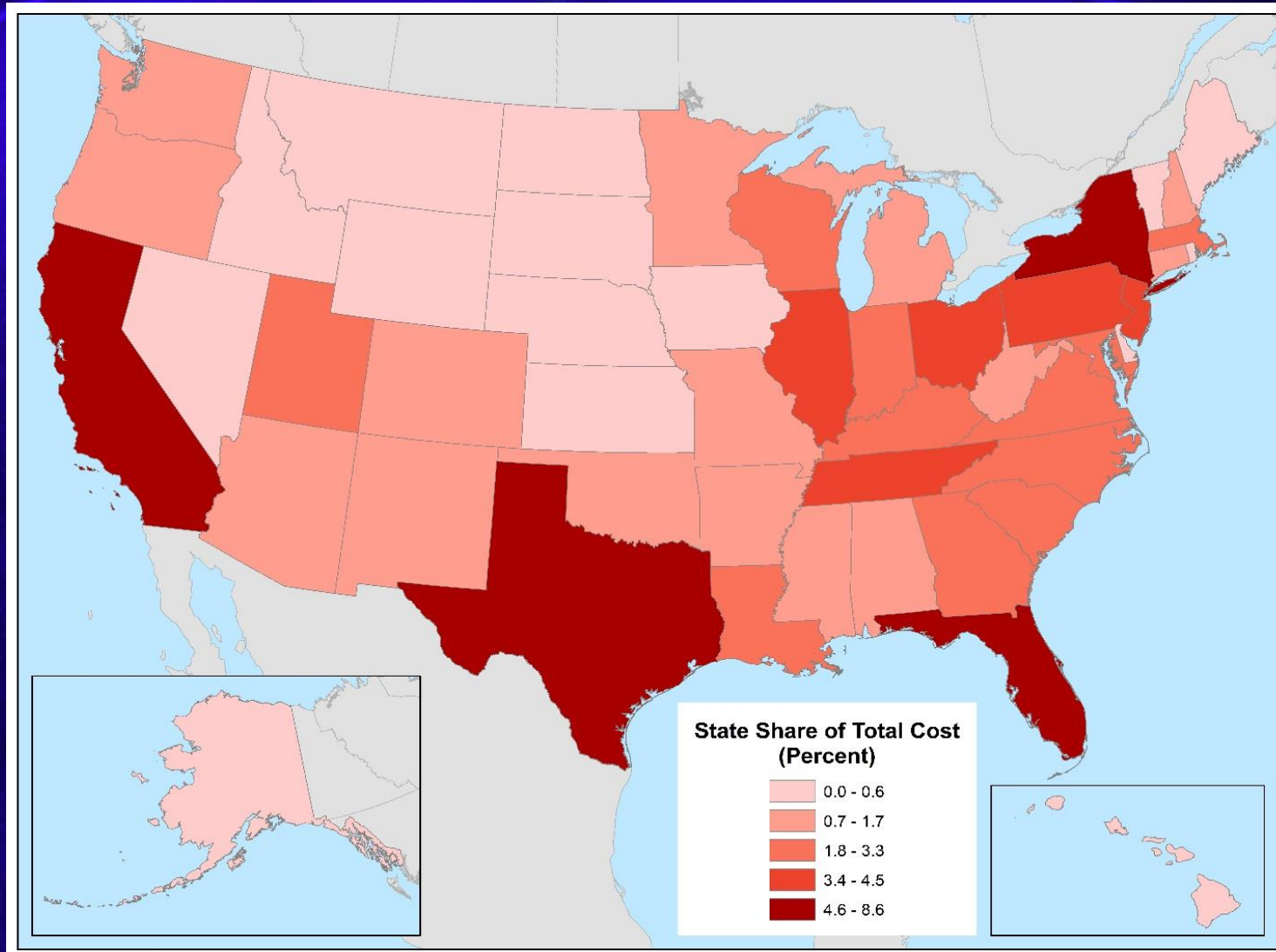
October 2018



Prepared by the American Transportation Research Institute



State Share of Total Cost of Congestion



Congestion Costs the Economy

ATRI research identified trucking industry costs of **\$63.4 billion** as a result of congestion on the nation's highways. That cost generates from **996 million lost hours** of industry productivity, the equivalent of **362,000** truck drivers sitting still for an entire year.



To view the top 100 list of truck bottlenecks along with detailed profiles for each location, please visit ATRI's website at TruckingResearch.org

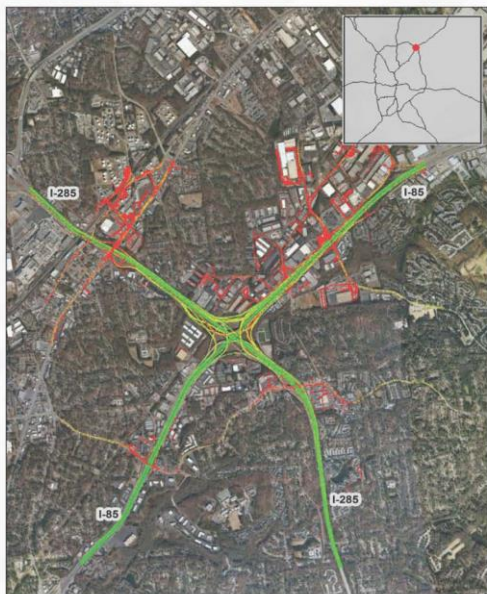
- = Top 100 Bottlenecks
- = States with the Most Bottlenecks

The Nation's
**TOP TRUCK
BOTTLENECKS**
2018

2018 Top 10 Truck Bottlenecks

Rank	Location	Average Peak Speed	Y-o-Y Change in Average Peak Speed
1	Atlanta, GA: I-285 at I-85 (North)	24.7	-4.10%
2	Fort Lee, NJ: I-95 at SR 4	24.9	-8.18%
3	Chicago, IL: I-290 at I-90/I-94	21.2	-4.70%
4	Atlanta, GA: I-75 at I-285 North	30.4	-6.58%
5	Los Angeles, CA: SR 60 at SR 57	34.2	-3.61%
6	Boston, MA: I-95 at I-90	33.8	7.76%
7	Baltimore, MD: I-695 @ I-70	37.2	0.25%
8	Queens, NY: I-495 (Long Island Expy)	17.6	0.20%
9	Cincinnati, OH: I-71 at I-75	39.1	2.58%
10	Louisville, KY: I-65 at I-64/I-71	37.4	18.77%

Atlanta, GA: I-285 at I-85 (North)



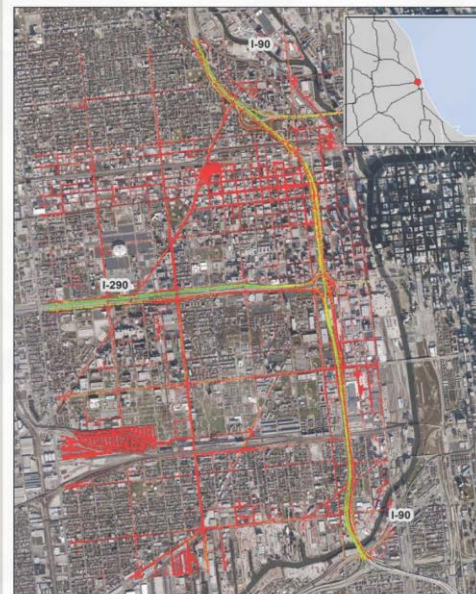
Summary

National Ranking by Congestion Index	1
Average Speed	37.0
Peak Average Speed	24.7
Nonpeak Average Speed	43.5
Nonpeak/Peak Ratio	1.8
Peak Average Speed Percent Change 2017 - 2018	-4.10%

Average Speed by Time of Day I-285 at I-85 (North)



Chicago, IL: I-290 at I-90/I-94



Summary

National Ranking by Congestion Index	3
Average Speed	25.9
Peak Average Speed	21.2
Nonpeak Average Speed	27.7
Nonpeak/Peak Ratio	1.3
Peak Average Speed Percent Change 2017 - 2018	-4.70%

Average Speed by Time of Day I-290 at I-90/I-94



Top Issues Drivers vs. Carriers

Commercial Drivers

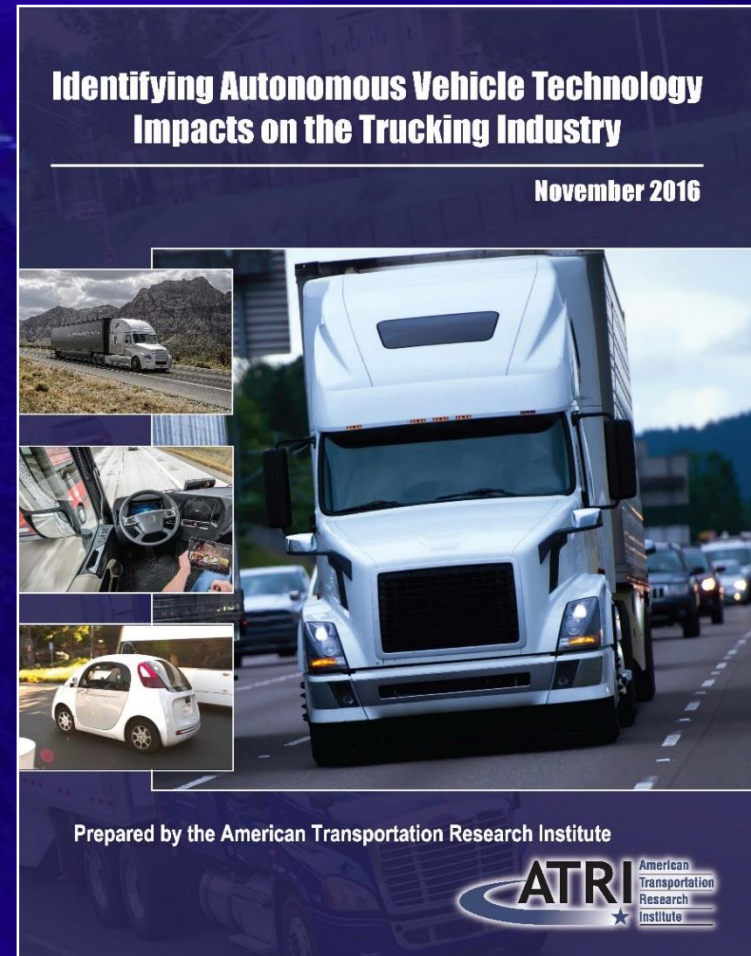
1. Hours-of-Service
2. Truck Parking
3. ELD Mandate
4. Driver Distraction
5. Driver Retention
6. CSA
7. Driver Health/Wellness
8. Transportation Infrastructure /Congestion/ Funding
9. Driver Shortage
10. Automated Truck Technology

Motor Carrier Execs

1. Driver Shortage
2. Driver Retention
3. Hours-of-Service
4. Transportation Infrastructure /Congestion/ Funding
5. ELD Mandate
6. CSA
7. Driver Distraction
8. Tort Reform
9. Truck Parking
10. Federal Preemption of State Regulation of Interstate Trucking (F4A)

Autonomous Vehicle Technology Impacts

- RAC-identified top research priority for 2016
- Maps AV impacts to trucking industry's top concerns
 - ◆ HOS
 - ◆ CSA
 - ◆ Driver H/W
 - ◆ Congestion



Top Issues	Key Autonomous Truck Benefit
Hours-of-Service	Allows for driver rest and productivity to occur simultaneously.
Compliance, Safety, Accountability	Will decrease raw SMS scores, though percentile scoring needs to change.
Driver Shortage	Driving more attractive with higher productivity, less time away from home, and additional logistics tasks; fewer drivers may be needed.
Driver Retention	Companies with autonomous technology may attract and retain drivers.
Truck Parking	If "productive rest" is taken in the cab during operations, less time will be required away from home at truck parking facilities and fewer facilities will be needed.
Electronic Logging Device Mandate	Modifications will be necessary depending on level of autonomy.
Driver Health and Wellness	Driver could be less sedentary; injuries could be reduced.
The Economy	Carriers that use AT may see productivity and cost benefits.
Infrastructure / Congestion / Funding	Urban congestion could be mitigated through widespread use of autonomous vehicles (including cars).
Driver Distraction	Drivers will not be distracted from driving if vehicle in autonomous mode.

2018 Top Research Priorities

- Urban Planning and Smart City Design for Trucks**
- Assessing the Consistency/Accuracy of CMV Crash Data**
- Role and Impact of Government Regulations on Autonomous Vehicles**
- Best Practices for Cannabis Intoxication Testing**
- Inconsistencies in CDL Testing**
- Autonomous Truck Impacts on the Truck Driver**

Rebecca Brewster
rbrewster@trucking.org

770-432-0628

www.truckingresearch.org



@ATRIPREZ

STEP UP
And leave your
footprint.

