

# View from the Road

## The Trucking Industry's Top Issues

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(ATRI)

# ATRI

**Trucking industry's NFP research organization**

- **Safety**
- **Mobility**
- **Economic Analysis**
- **Technology**
- **Environment**

**[www.truckingresearch.org](http://www.truckingresearch.org)**

# Board of Directors



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# 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



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# 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)

# Driver Shortage: The Top Industry Issue

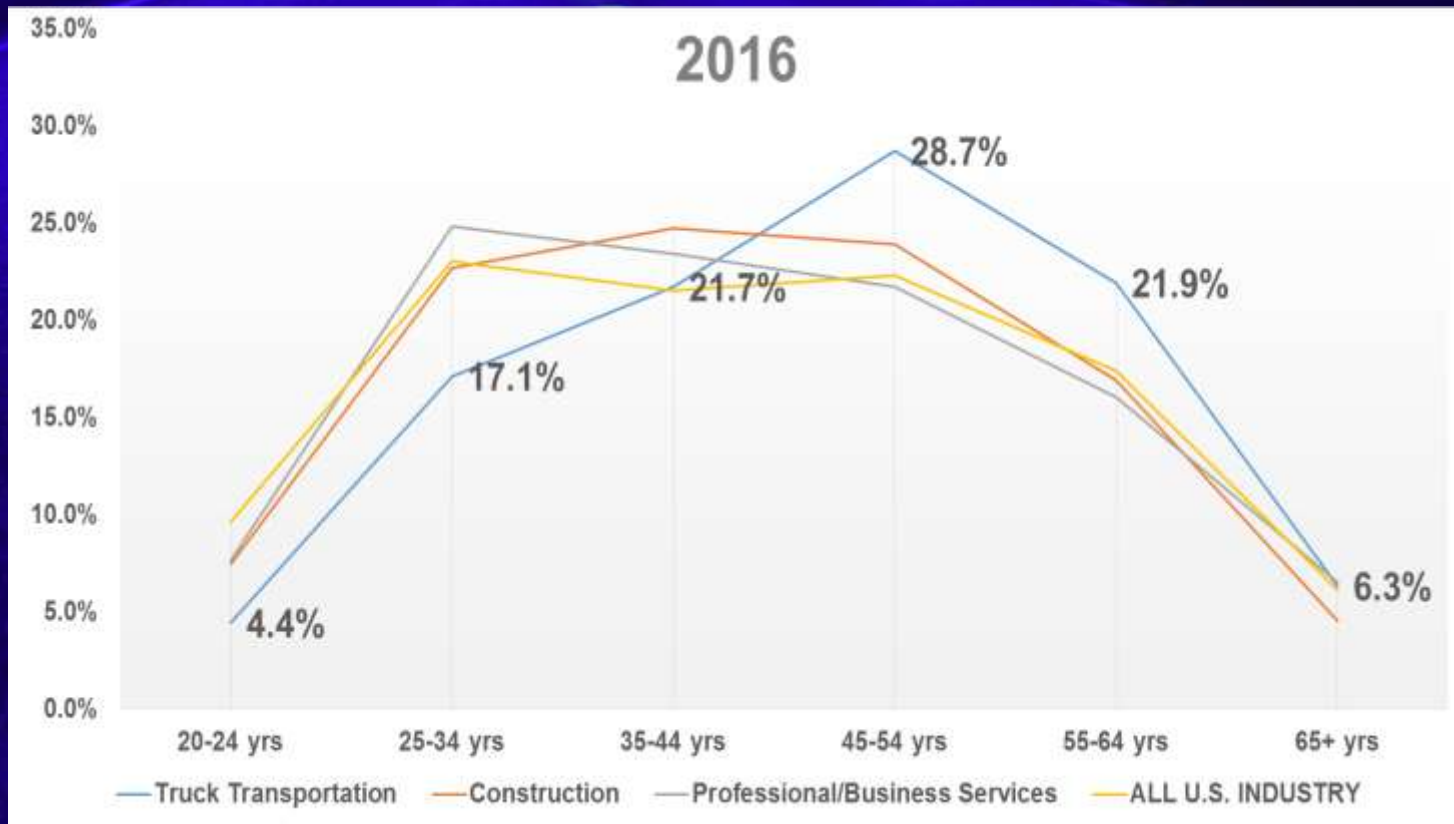
## Top Industry Issues

- Driver Shortage - #1
- Driver Retention - #3

## Outlook and Projections

- ATA estimates driver shortage of around 51,000
- Current trend projects shortage will reach 174,000 drivers by 2026
- Driver wages #1 cost center
- Wages, bonuses, and benefits continue to rise

# Age Demographics





# Training Opportunities

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%
<b>Trade and Industry/Transportation</b>	<b>28.8%</b>
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

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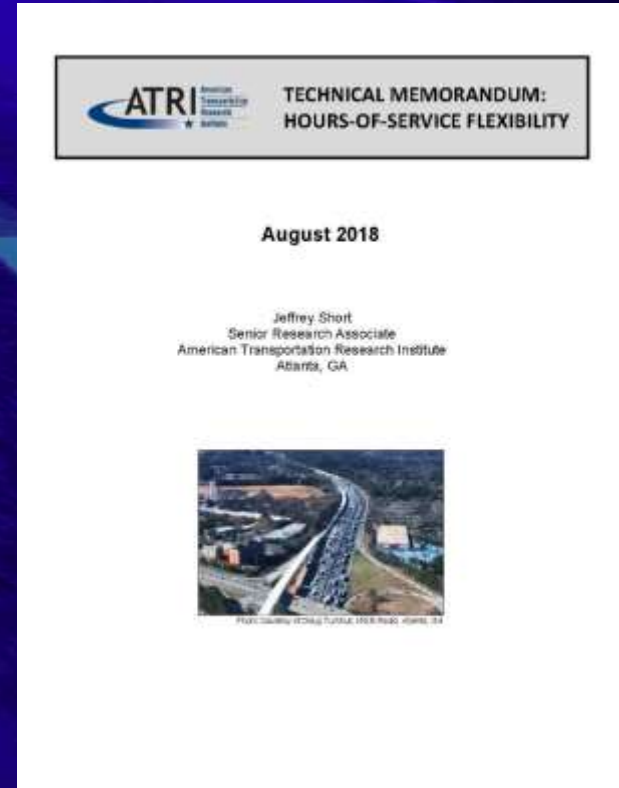


# Identifying Safe Drivers

- **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**
- **Next step – beta test tool on ~100 drivers of varying ages, safety performance**
  - ◆ **Tested at MATS in March and GATS in August**

# Hours-of-Service Flexibility

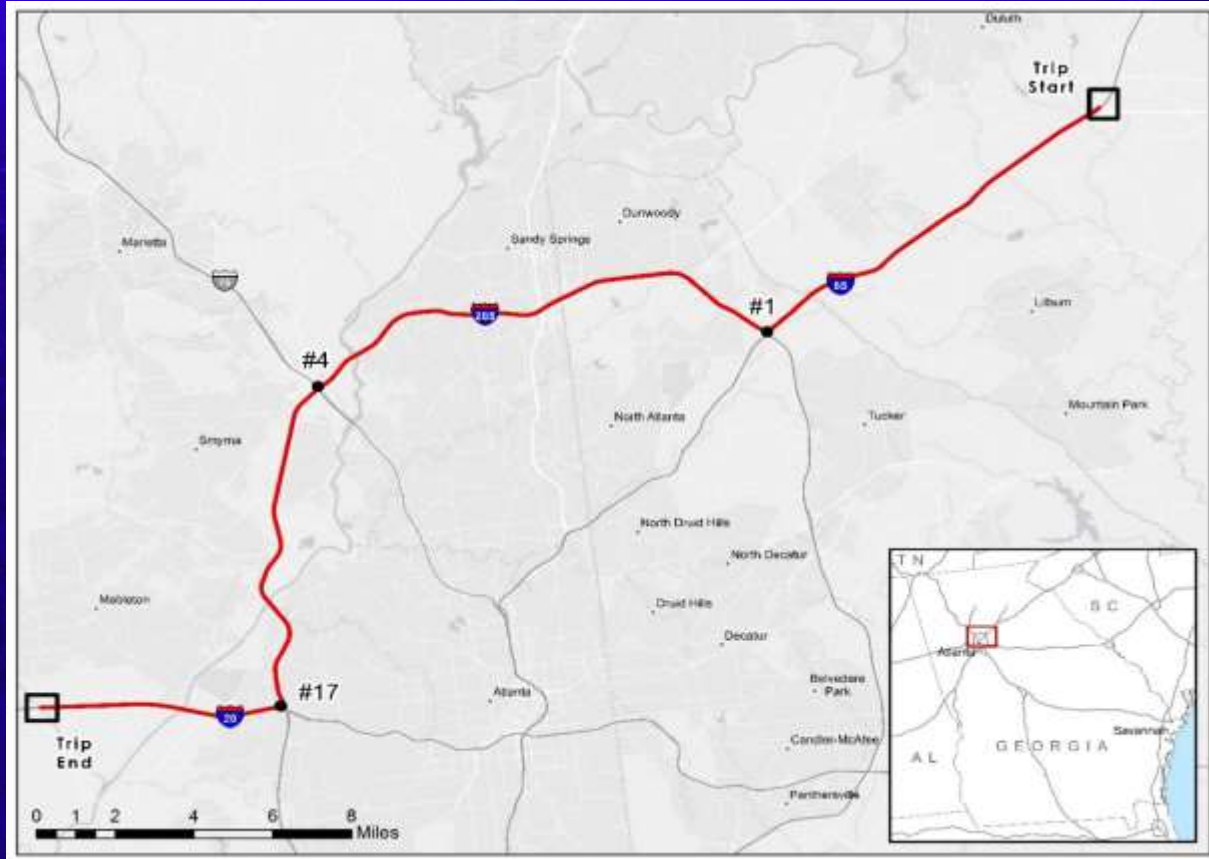
- Top RAC priority from 2017
- Would flexibility in HOS rules, specifically the 10-hour break, provide opportunity to improve congestion?



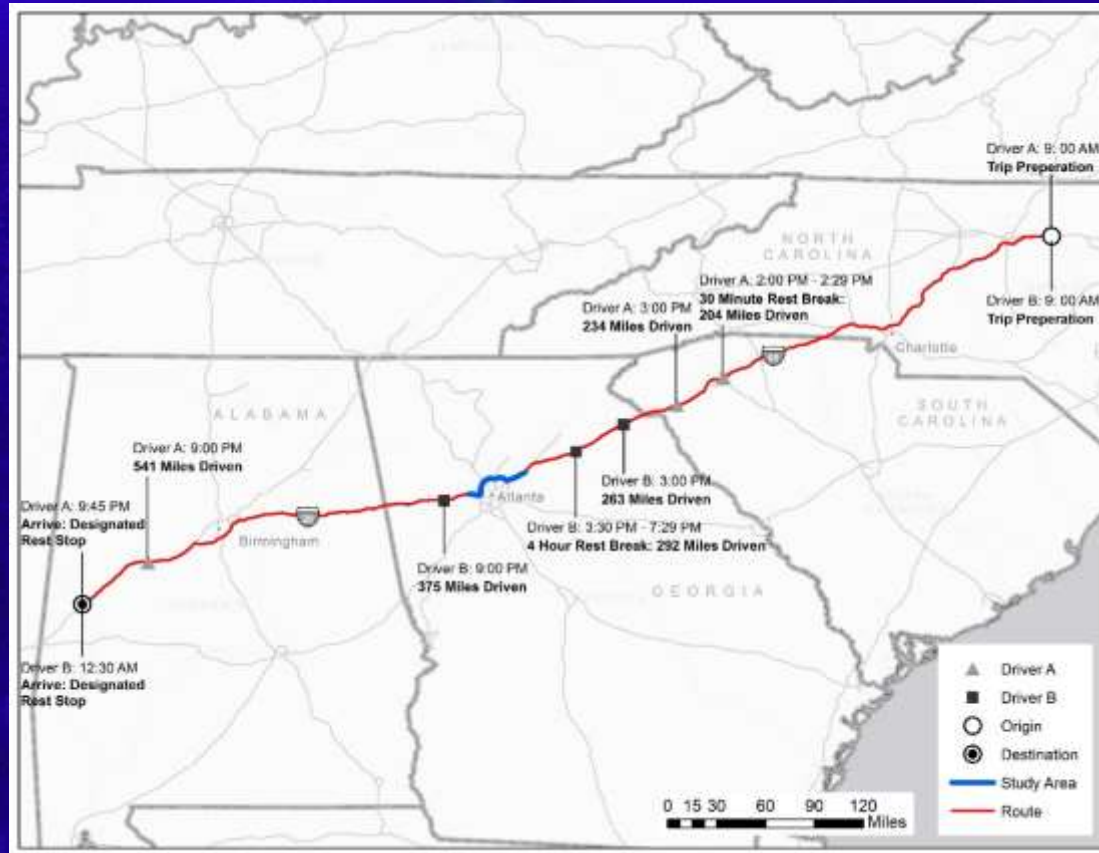
# HOS Flexibility

- Uses ATRI's truck GPS dataset to model impacts of split rest beyond current 8/2
- Study area was 40-mile corridor in Atlanta
  - ◆ Goes through top truck bottlenecks ranking #1, #4 and #17
- Depending on time of day, travel times range from 40 minutes to over 90 minutes

# 40-Mile Corridor Across Atlanta



# Two Trips Modeled Current HOS and 6/4 Split



# HOS Flexibility Saves Time and \$\$

Scenario	Drive Time	14-Hour On-Duty Window
Current	10 hr 45.5 min	12 hr 45.5 min
Flexible	10 hr 00 min	11 hr 30 min

- Flex schedule driver logged 45.5 mins less drive time and 1 hr, 15.5 mins less on-duty time
- Similar results for 7/3 and 5/5 split

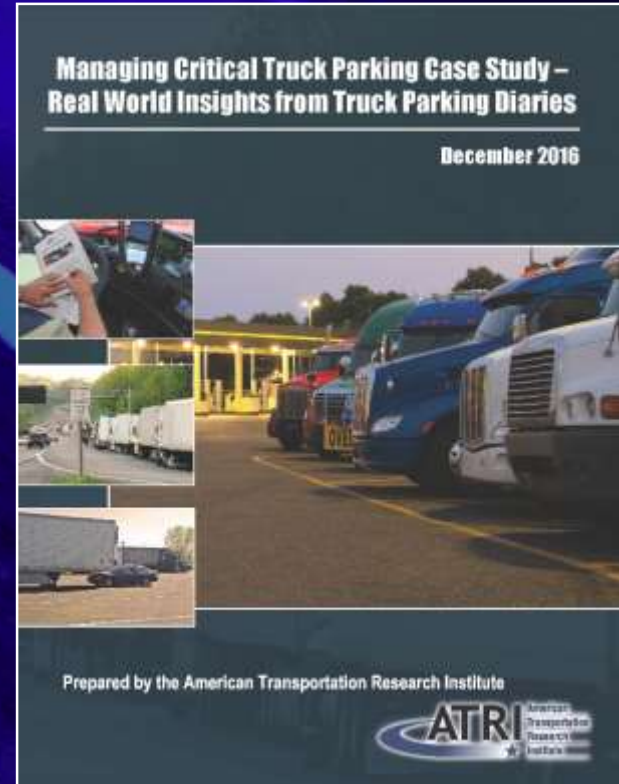


# HOS Flexibility Saves Time and \$\$

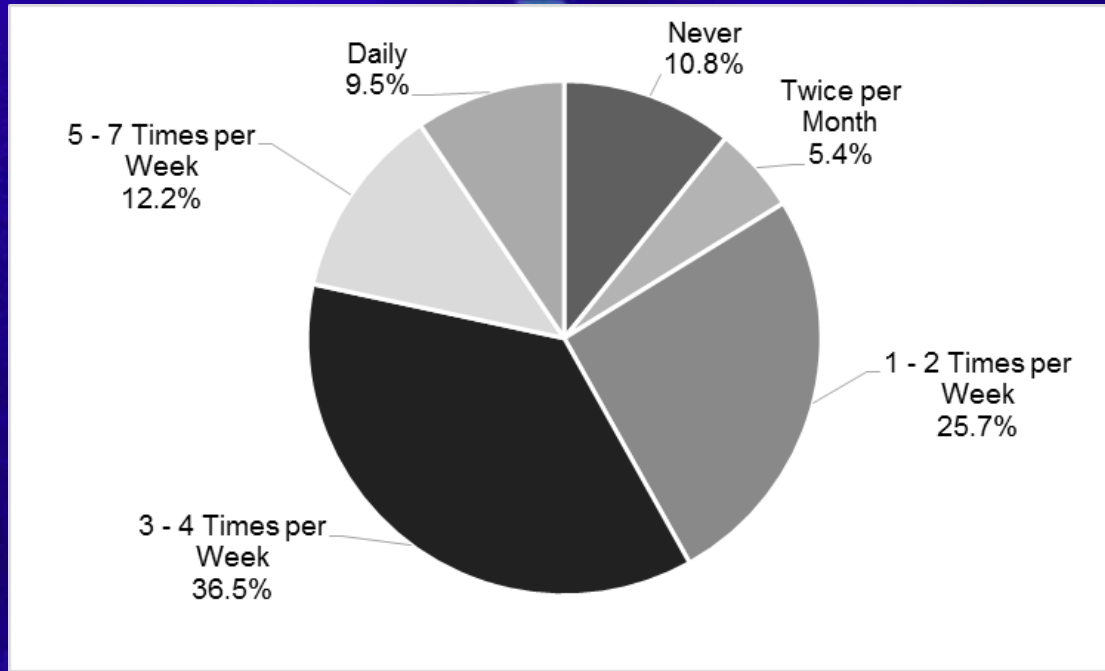
- If just 25 trips per day avoid ATL study segment at worst times due to flexibility = 4,700 fewer hours drive time annually saved
  - ◆ Equates to cost savings of >\$300,000 per year for the 25-truck sample at one location
- Extrapolate to 500 congested locations nationally – just 25 trips per location
  - ◆ 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 Diary Report

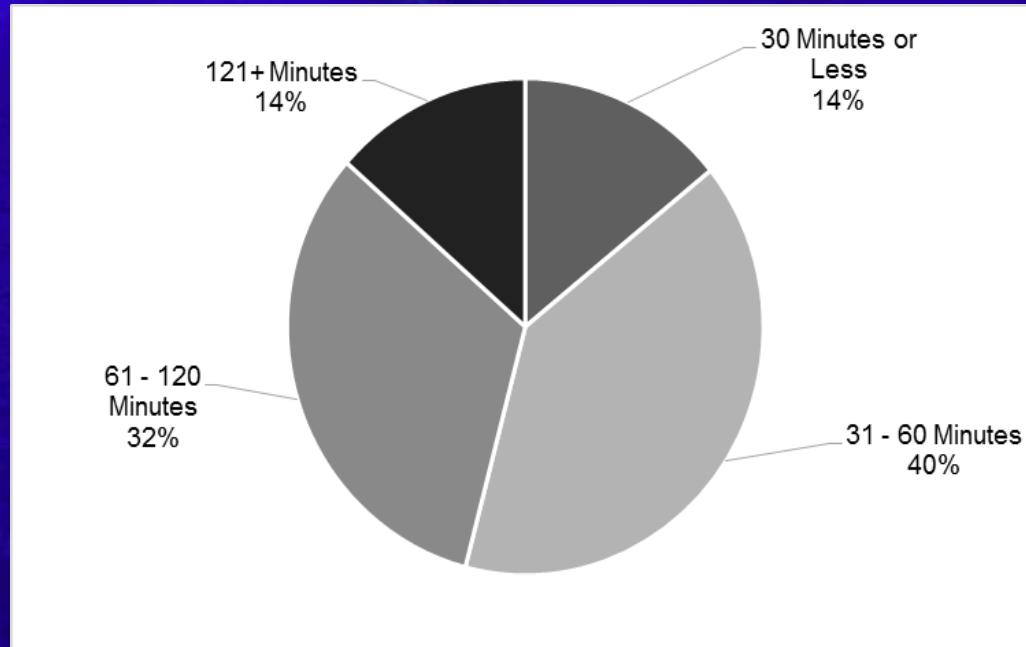
- **Truck Parking Diaries**
- **Drivers kept 14 days of parking activity**
- **Includes when, where, how long to find a spot, how many spots occupied by non-CMV, lost productivity, etc**
- **148 completed diaries were returned between June and September 2016**
  - ◆ **2,035 days of truck parking activity**
  - ◆ **4,763 unique stops**



# 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**

# "Easy" Fixes

## ■ Public Sector

- ◆ Increase time limits at public rest areas
- ◆ Allow parking at weigh stations, other public facilities
- ◆ Reduce legal obstacles (e.g. zoning laws) for private truck stop operators to open/expand facilities



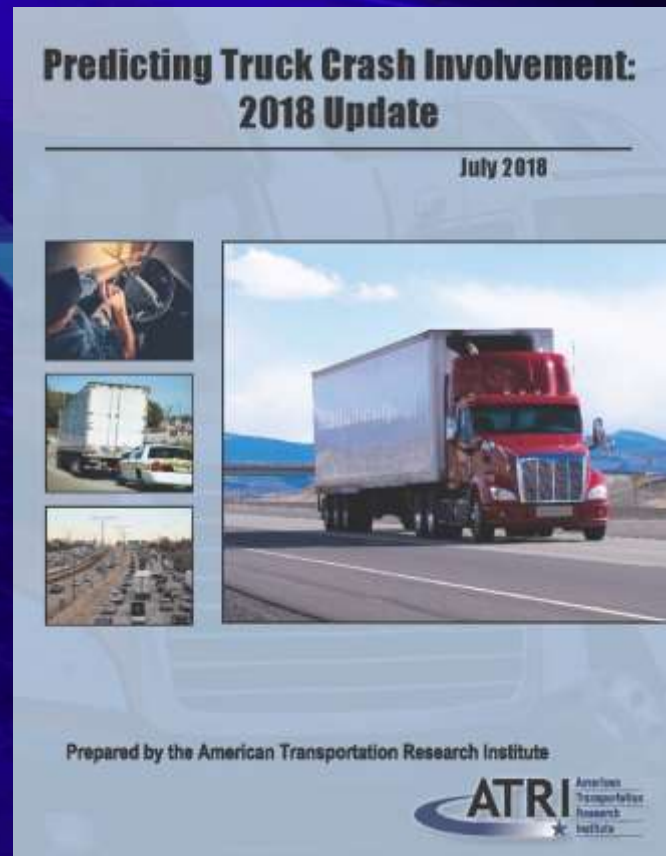
# "Easy" Fixes



- **Private Truck Stops**
  - ◆ Better management of available spaces
  - ◆ Separate space for bobtails/non-CMV's
- **Motor Carriers**
  - ◆ Carrier-paid truck parking reservation fees may offset productivity loss from pulling over early, reduce driver stress, improve retention
- **Professional Drivers**
  - ◆ Plan, plan, plan
  - ◆ Better utilization of available spaces

# Crash Predictor 2018 Update

- Analysis of over 435,000 driver records to identify behaviors (prior crashes, violations, convictions) most predictive of future crash involvement
- Updates earlier Crash Predictor Models from 2005 and 2011



# Top 10 Crash Predictor Behaviors

<b>If a driver had:</b>	<b>Crash likelihood increased:</b>
<b>A Reckless Driving violation</b>	<b>114%</b>
<b>A Failure to Yield Right of Way violation</b>	<b>101%</b>
<b>A Failure to Keep in Proper Lane conviction</b>	<b>83%</b>
<b>A Failure to Use / Improper Signal conviction</b>	<b>82%</b>
<b>A Past Crash</b>	<b>74%</b>
<b>An Improper Lane / Location conviction</b>	<b>72%</b>
<b>An Improper Pass conviction</b>	<b>70%</b>
<b>A Reckless / Careless / Inattentive / Negligent Driving conviction</b>	<b>69%</b>
<b>An Improper or Erratic Lane Changes conviction</b>	<b>66%</b>
<b>An Improper Lane Change violation</b>	<b>63%</b>



# Stable Predictors of Crash Risk

Across all three ATRI Crash Predictor Models, the top five stable predictors of crash risk are:

1. A Past Crash
2. An Improper Lane / Location conviction
3. A Reckless / Careless / Inattentive / Negligent Driving conviction
4. An Improper or Erratic Lane Changes conviction
5. An Improper Lane Change violation

# Impact of Gender

- **Female drivers safer than males in every statistically significant behavior**
- **Men 20% more likely to be involved in crash than women**

Event	Relative to Females, Likelihood for Males Increased By:
Reckless / Careless / Inattentive / Negligent Driving conviction	88%
Seat Belt violation	78%
Failure to Obey Traffic Signal / Light conviction	73%
Speeding 1-15 Miles Over Speed Limit conviction	70%

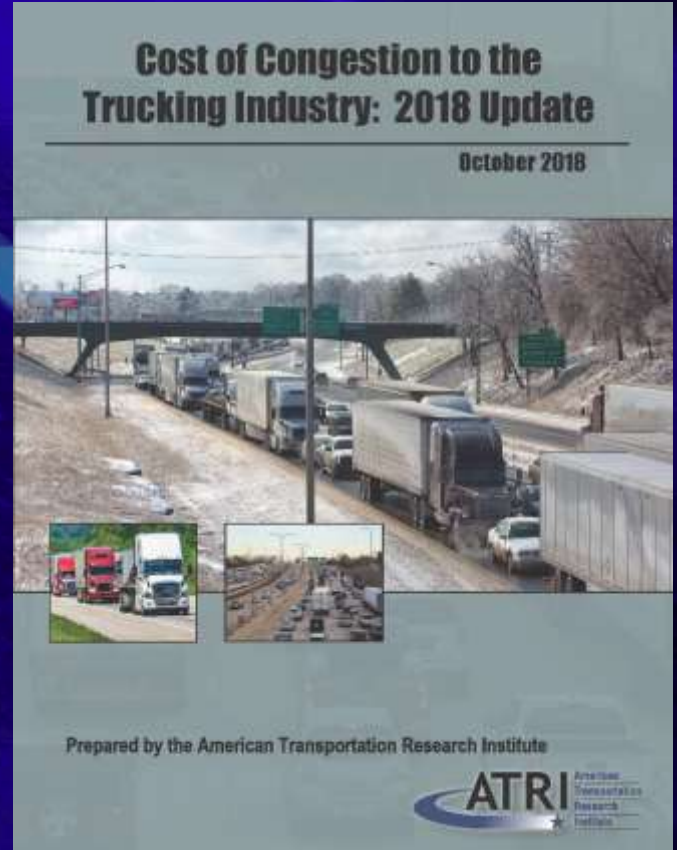
# State Enforcement Analysis

Rank	State	Traffic Enforcement Inspections	Percent	Crashes	Percent	Difference (p.p.)
1	IN*	31,023	8.31%	4,833	3.45%	-4.86
2	NM*	13,800	3.70%	725	0.52%	-3.18
3	WA*	14,058	3.77%	1,624	1.16%	-2.61
4	CA*	37,318	9.99%	10,755	7.68%	-2.32
5	MD*	12,967	3.47%	2,083	1.49%	-1.99
6	IA*	9,795	2.62%	1,794	1.28%	-1.34
7	NV*	5,105	1.37%	360	0.26%	-1.11
8	AZ*	9,985	2.67%	2,353	1.68%	-0.99
9	KY*	11,118	2.98%	2,802	2.00%	-0.98
10	IL	21,673	5.80%	7,080	5.05%	-0.75

\* One of the "Top Tier" states in 2011

# 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**





# Congestion Costs: Urban Concentration

Metropolitan Area	Total Cost (Billions)	Cost per Mile
New York/ Newark/ Jersey City, NY/NJ/PA	\$4.93	\$676,845
Chicago/ Naperville/ Elgin, IL/IN/WI	\$2.28	\$405,429
Miami/ Fort Lauderdale/ West Palm Beach, FL	\$2.24	\$921,931
Philadelphia/ Camden/ Wilmington, PA/NJ/DE/MD	\$1.67	\$392,127
Los Angeles/ Long Beach/ Anaheim, CA	\$1.63	\$818,124
Washington/ Arlington/ Alexandria, DC/VA/MD/WV	\$1.41	\$429,440
Dallas/ Fort Worth/ Arlington, TX	\$1.38	\$357,428
Houston/ The Woodlands/ Sugar Land, TX	\$1.36	\$437,436
Atlanta/ Sandy Springs/ Roswell, GA	\$1.11	\$342,886
Nashville/ Davidson/ Murfreesboro/ Franklin, TN	\$1.11	\$445,088

**90.9% of congestion was recorded in urban locations**

## 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](http://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 @ I-90	33.8	7.76%
7	Baltimore, MD: I-695 @ I-70	37.2	0.25%
8	Queens, NY: I-495 (Long Island Expressway)	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%



# Transportation Infrastructure Funding

- Analyzes/scores six different approaches for federal transportation infrastructure revenue
  - ◆ Fuel Tax
  - ◆ Registration Fees
  - ◆ General Fund Allocations
  - ◆ Financing
  - ◆ VMT Tax
  - ◆ Tolling

## A Framework for Infrastructure Funding

November 2017



Prepared by the American Transportation Research Institute

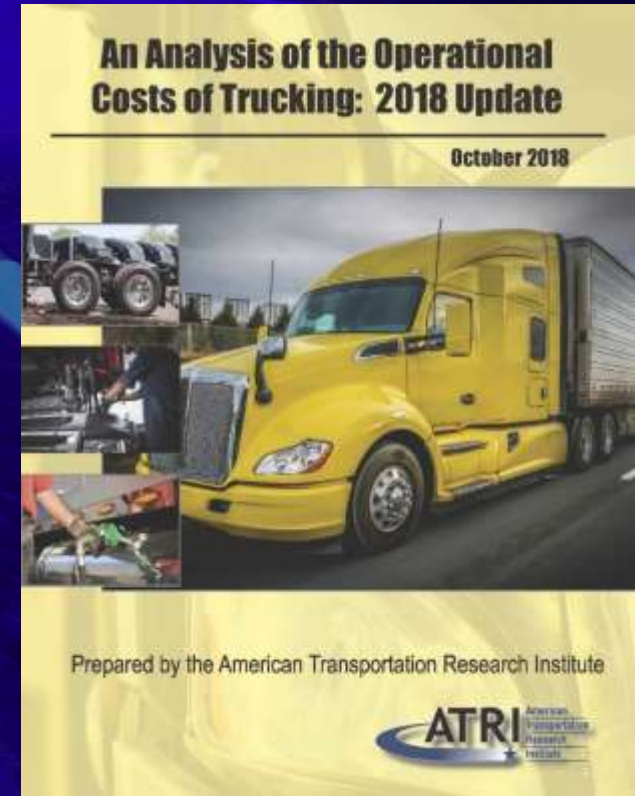


# Highway Funding Options

	Administration	Efficiency	Equity	Effectiveness	Score
<b>Fuel Tax</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5.00</b>
<b>Registration Fee</b>	<b>3</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>3.75</b>
<b>General Fund</b>	<b>5</b>	<b>3</b>	<b>2</b>	<b>2</b>	<b>3.00</b>
<b>Financing</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>2</b>	<b>2.75</b>
<b>VMT Tax</b>	<b>1</b>	<b>1</b>	<b>5</b>	<b>3</b>	<b>2.50</b>
<b>Tolling</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>2.00</b>

# 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
<b>Vehicle-based</b>					
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
<b>Driver-based</b>					
Driver Wages	\$0.440	\$0.462	\$0.499	\$0.523	\$0.557
Driver Benefits	\$0.129	\$0.129	\$0.131	\$0.155	\$0.172
<b>TOTAL</b>	<b>\$1.676</b>	<b>\$1.703</b>	<b>\$1.575</b>	<b>\$1.592</b>	<b>\$1.691</b>

# Bonus Points

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

# 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**



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