

Trucking Industry Issues – Where Research Makes a Difference

**Rebecca M. Brewster
President and COO
American Transportation
Research Institute**



ATRI

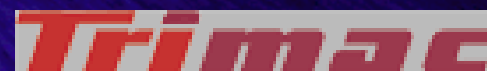
Trucking industry's NFP research organization

- Safety and Human Factors
- Technology
- Environmental Factors
- Economic Analysis
- Transportation Security

www.atri-online.org



Board of Directors



Research Advisory Committee



Trucking Industry's Top Ten

- Annual Industry Survey commissioned by American Trucking Associations
- Over 4,000 industry stakeholders rank issues and strategies
- Provides guidance for national and state associations in directing their advocacy efforts
- Indicator of industry's changing priorities

Top Industry Issues

1. Economy
2. CSA 2010
3. Government Regulation
4. Hours-of-Service
5. Driver Shortage
6. Fuel Issues
7. Transportation Funding/Infrastructure
8. Onboard Truck Technology
9. Environmental Issues
10. Truck Size and Weight

CRITICAL ISSUES IN THE TRUCKING INDUSTRY – 2010



Presented to the
American Trucking Associations

Prepared by
The American Transportation Research Institute
October 2010



950 North Glebe Road
Arlington, VA 22203
(703)638-1966
atri@trucking.org
www.atri-online.org



2. CSA 2010

- **Compliance, Safety, Accountability**
- **Pilot tested in nine states; full deployment 12/10**
- **Intended to provide more targeted safety interventions**
- **Evaluate carriers and drivers using seven BASICs (Behavior Analysis and Safety Improvement Categories) most likely to lead to crashes:**
 - ◆ **Unsafe Driving**
 - ◆ **Fatigued Driving (HOS)**
 - ◆ **Driver Fitness**
 - ◆ **Controlled Substances/Alcohol**
 - ◆ **Vehicle Maintenance**
 - ◆ **Cargo-Related**
 - ◆ **Crash Indicator**


3. Government Regulation

- Steady climb in ranking from #7 in 2005
- One out of 10 ranked top concern in 2010

- FMCSA – carrier/driver safety
- FHWA – truck size & weight
- PHMSA – hazmat regulations
- NHTSA – vehicle design
- CBP – cross border operations
- EPA – engine, fuel economy standards
- Host of state and local regulations as well

Idling Regulations Compendium

- Updated regularly with truck idling limits, exemptions and fines plus hyperlinks to more than 40 idling regulations throughout the U.S.
- Available online free of charge as PDF and formatted as a cab card
- www.atri-online.org



COMPENDIUM OF IDLING REGULATIONS

The information in this table is for reference purposes only and should not be relied upon for regulatory compliance. This information may contain errors and omissions and is subject to change. Actual state, county or city codes should be referenced for specific requirements. On-line users may access these codes by clicking on the individual regulations.

State	Maximum Idling Time	Exemptions
Arizona, Maricopa County	6 minutes (30 min. for bus passenger comfort or 60 min/90 min if greater than 75° F) Fines: \$100 – 1st violation \$300 – 2nd+ violations	<ul style="list-style-type: none"> Traffic or adverse weather conditions Emergency or law enforcement purposes Power takeoff involving cargo or work functions Conform to manufacturer's specifications Maintenance or diagnosis Hours of service compliance
Maricopa County Vehicle Idling Restriction Ordinance Maricopa County Air Quality Department (602) 506-6010, www.maricopa.gov/air		
California	6 minutes Fines: Minimum \$300 Subsequent penalties can range from \$1,000 to \$10,000	<ul style="list-style-type: none"> Bus passengers are onboard or 10 minutes prior to boarding Traffic conditions Queueing beyond 100' of residential Adverse weather conditions or mechanical difficulties Vehicle safety inspection Service or repair Power takeoff involving cargo or work functions Prevent safety or health emergency Emergency vehicles
CA Code of Regs. Title 17, Div. 1, Art. 1, Ch. 10, 22465 California Air Resources Board (909) 242-4460, www.arb.ca.gov		
California, City of Sacramento	6 minutes (prohibits refrigeration unit operation within 100' of residential or school unless loading/unloading) Fines: Not <\$100 nor >\$25,000 per violation (Title 1, Ch. 1.28.010)	<ul style="list-style-type: none"> Traffic conditions/control Traffic conditions Vehicle safety inspection Service or repair Conform to manufacturer's specifications Power takeoffs involving cargo or work functions Prevent safety or health emergency Hours of service compliance @ truck/est stop To recharge hybrid electric vehicles
Sacramento City Code, Title 1, Ch. 1.28, 010 City of Sacramento Department of Transportation (916) 264-5011, www.cityofsacramento.org/transportation		
California, Placer County	6 minutes (prohibits refrigeration unit operation within 100' of residential or school unless loading/unloading) Fines: \$50 Minimum	<ul style="list-style-type: none"> Traffic conditions/control Traffic conditions Vehicle safety inspection Service or repair Conform to manufacturer's specifications Power takeoffs involving cargo or work functions Prevent safety or health emergency Hours of service compliance @ truck/est stop To recharge hybrid electric vehicles Operate intermittent equipment Alternatively fueled vehicles Attainment areas
Placer County Code, Article 11A.16 Placer County Air Pollution Control District (930) 745-2330 www.placer.ca.gov/airpollution/11a014.htm		

Updated: January 2009

4. Hours-of Service

- **Govern commercial driver work and rest hours**
- **First rules change in 60+ years occurred 2004**
 - ◆ Extended driving time from 10 to 11 hours
 - ◆ Off-duty requirement from 8 to 10 hours
 - ◆ Maximum on-duty from 15 to 14
 - ◆ New 34-hour “restart” provision included
- **Reduced flexibility in sleeper berth provision in 2005**
- **Awaiting new rules from FMCSA**

5. Driver Shortage

- **Returning as top 10 concern after dropping off in 2009**
 - ◆ **Economy impacts on driver population – decreased freight demand; scaling back of entry-level driver hiring/training; elimination of marginal safety drivers**
- **Economic recovery leading to tightened driver capacity**
- **CSA impacts on driver hiring uncertain at this point**

6. Fuel Issues

- Volatility in fuel prices keeps this issue in top 10
- Top concern in 2005 and 2008; third in 2009
- Diesel fuel hit \$4.70/gallon in July 2008; declined 40% by August 2010
- Fuel traditionally second highest operating expense after labor



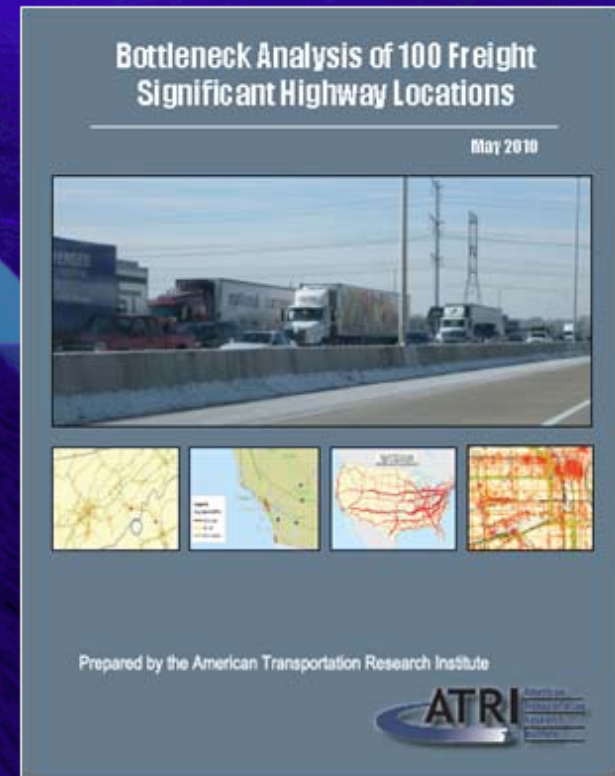
7. Transportation Funding/Infrastructure

- **Combination issue for 2010 – includes congestion, highway infrastructure, transportation funding**
- **Recession led to reduced VMT, in turn reduced congestion**
- **Deteriorating state of infrastructure and lack of long-term reauthorization looms as top concern**



Analysis of Freight Bottlenecks

- **Joint FHWA / ATRI release of analysis of 100 critical freight locations (May 2010)**
- **List to grow to 250 in 2011**
 - ◆ **Increased attention from local units of gov't**



Analysis of Freight Bottlenecks

Ranking	Description	Average Speed	Peak	Non-Peak
1	Chicago, IL: I-290 at I-90/I-94	30	23	34
2	Chicago, IL: I-90 at I-94	34	23	40
3	Newark, NJ: I-95 at SR-4	32	25	36
4	Austin , TX: I-35	35	21	44
5	Atlanta, GA: I-285 at I-85	47	36	52
6	St. Louis, MO: I-70 at I-64 (West)	42	36	45
7	Los Angeles, CA: SR-60 at SR-57	48	41	51
8	Dallas, TX: I-45 at I-30	44	35	48
9	Chicago, IL: I-90 at I-94 (South)	47	38	50
10	Philadelphia, PA: I-76 at US-30	36	31	38
11	Louisville, KY: I-65 at I-64/I-71	46	37	51
12	Las Vegas, NV: I-15 at I-515	38	34	40
13	Kansas City, MO: I-70 at I-670 at US71	45	44	46
14	Houston, TX: I-45 at US-59	42	32	47
15	Atlanta, GA: I-75 at I-285 (North)	49	40	54

2009 Bottleneck Analysis of 100 Freight Significant Highway Locations

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

Bottleneck Summary

The bottleneck location is shown in **Figure 1**.
The speed profile is shown in **Figure 2**.

Average Speed

47

Peak Average Speed

36

Nonpeak Average Speed

51

Nonpeak/Peak Speed Ratio

1.41

Congestion Index

1,313,889

Ranking (out of 100)

5

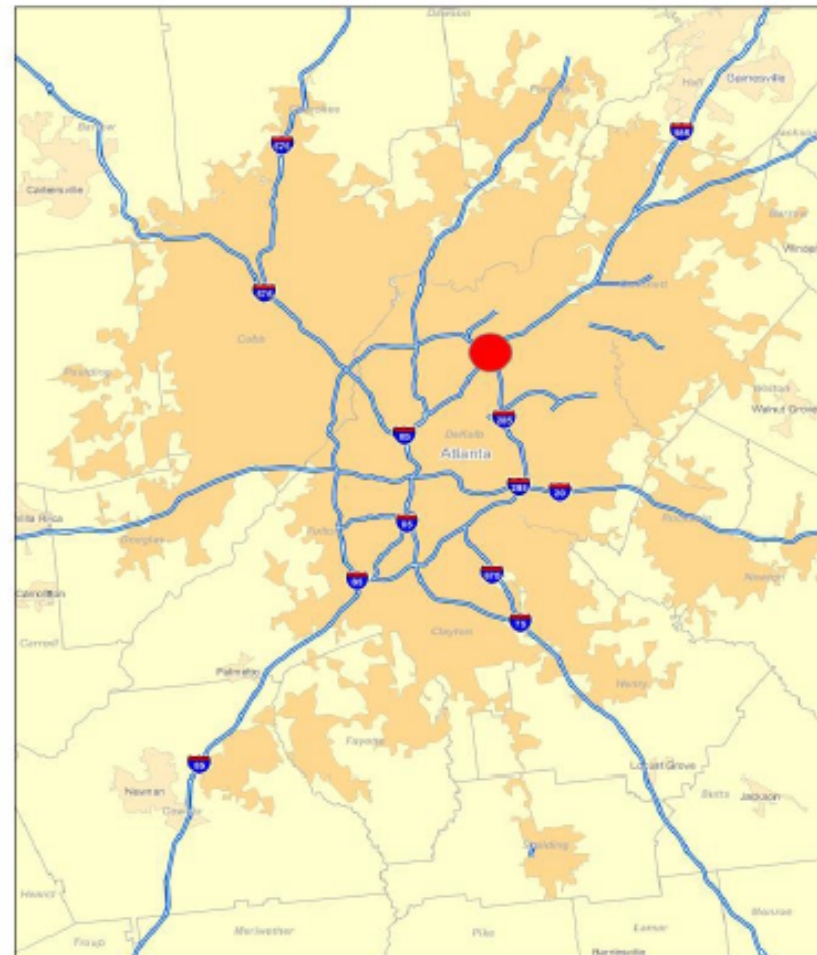


Figure 1: Location Map

Speed Profile

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

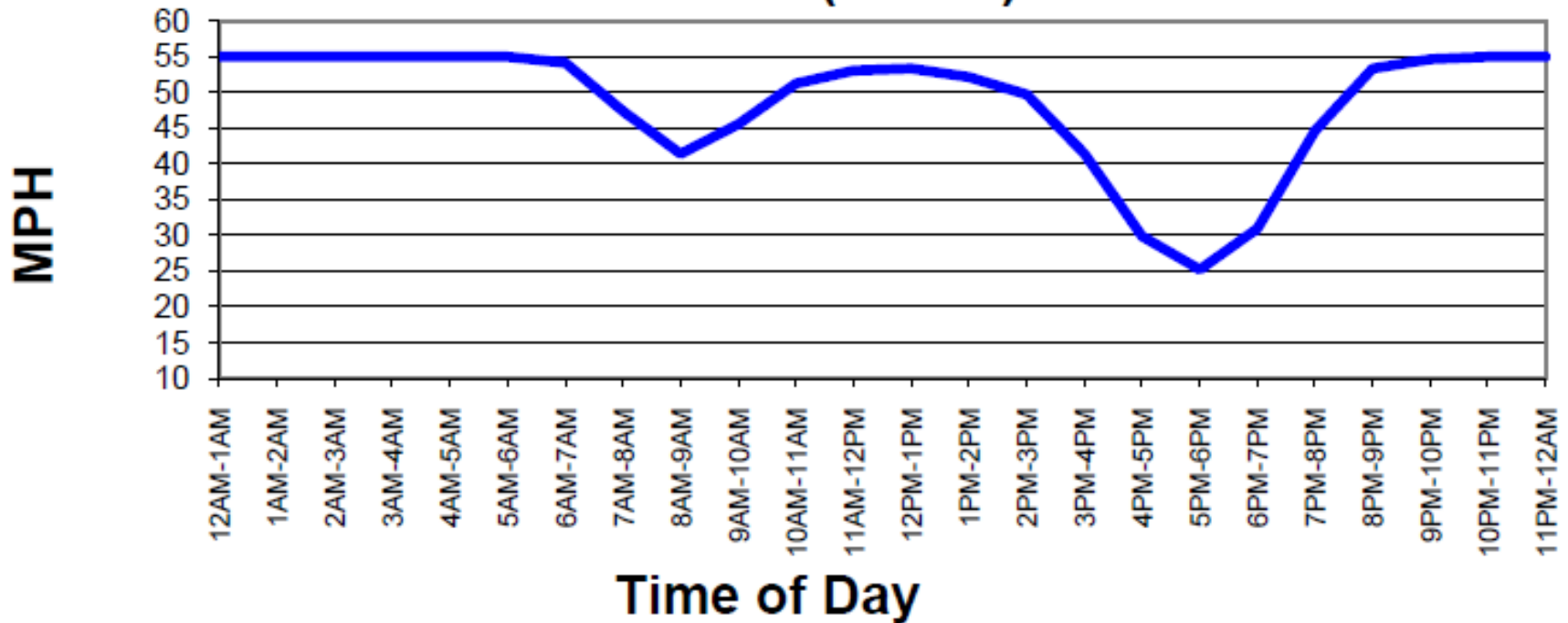
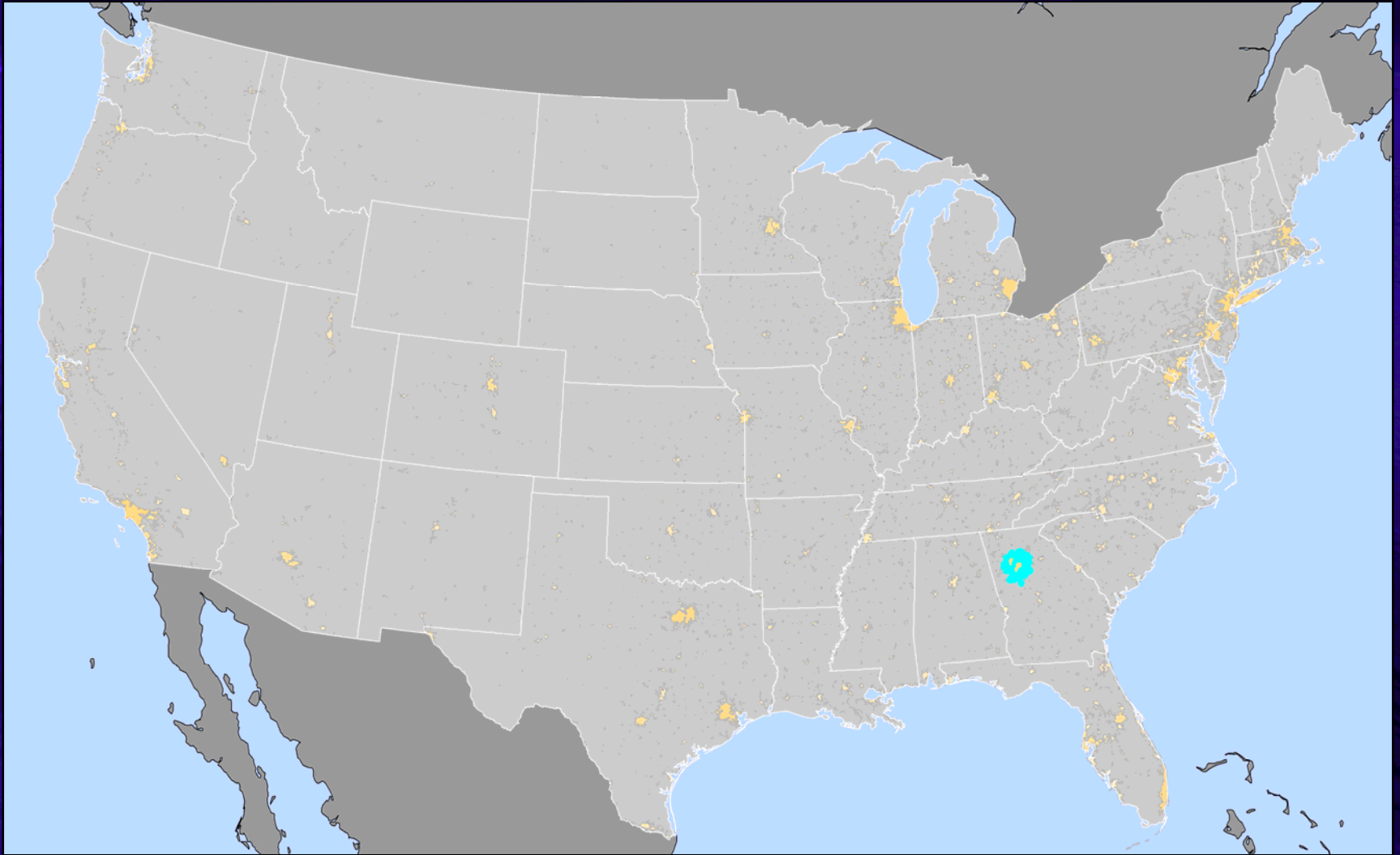
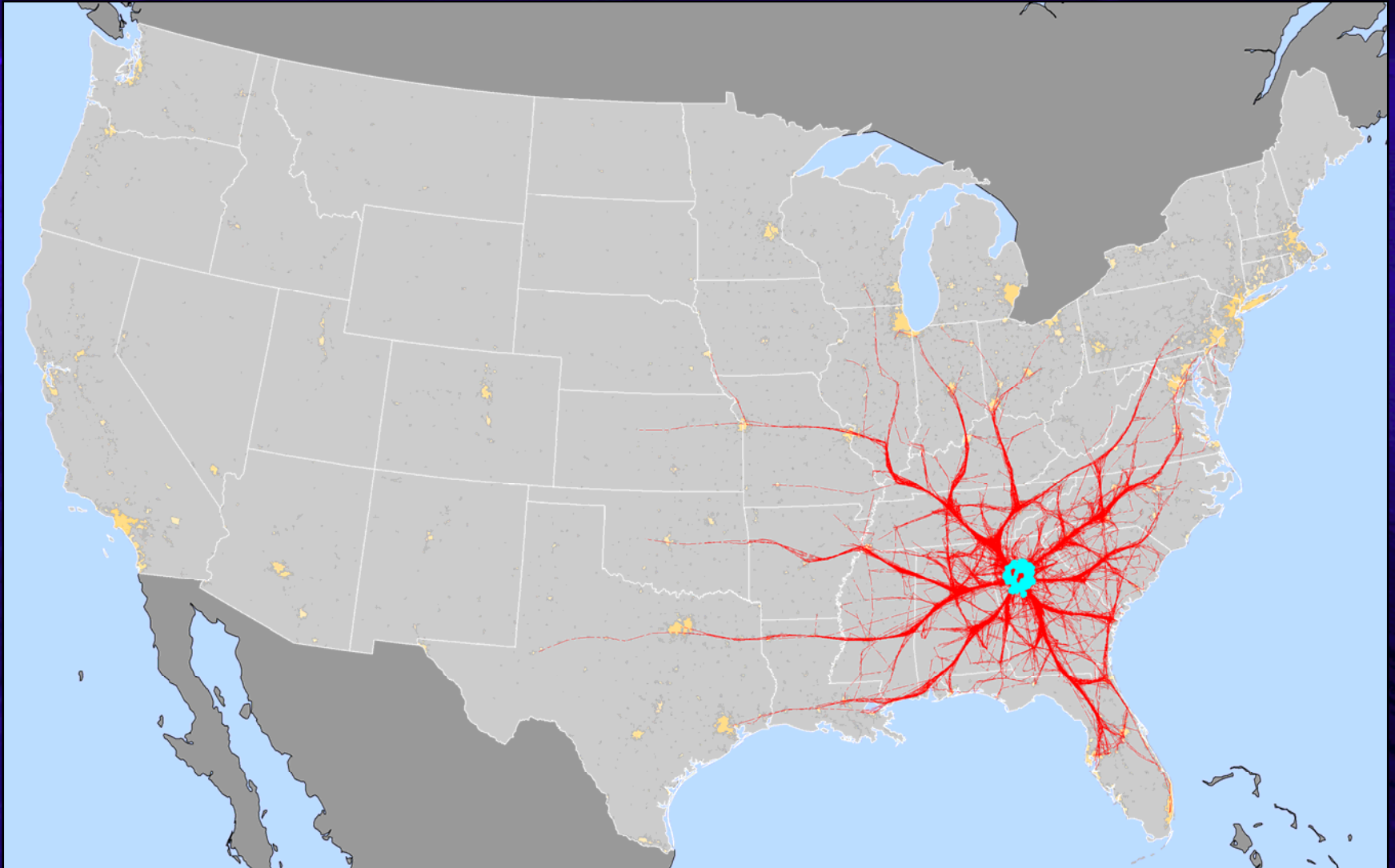


Figure 2: Speed Profile

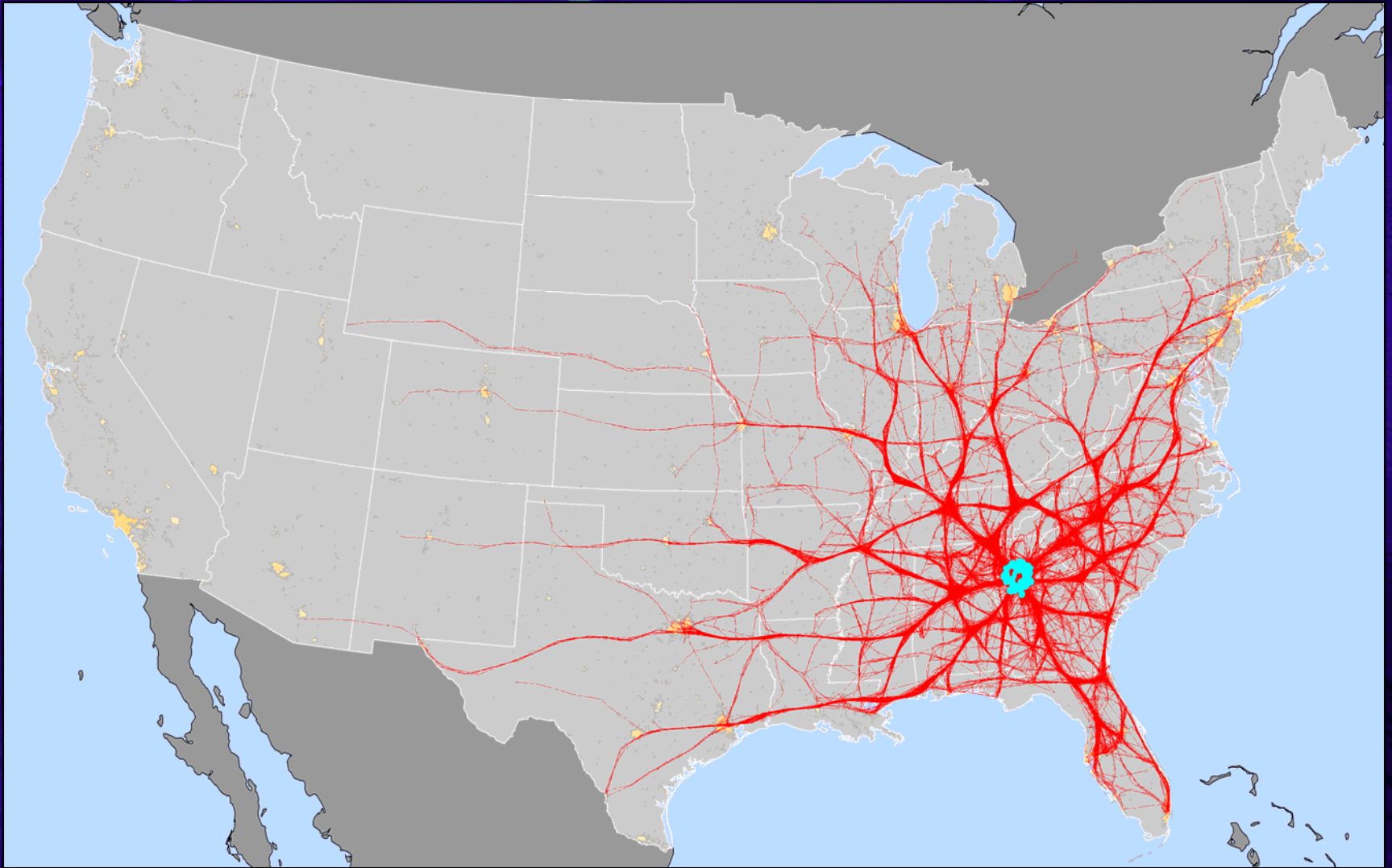
3,000 Trucks Analyzed



Truck Movement After 24 Hours



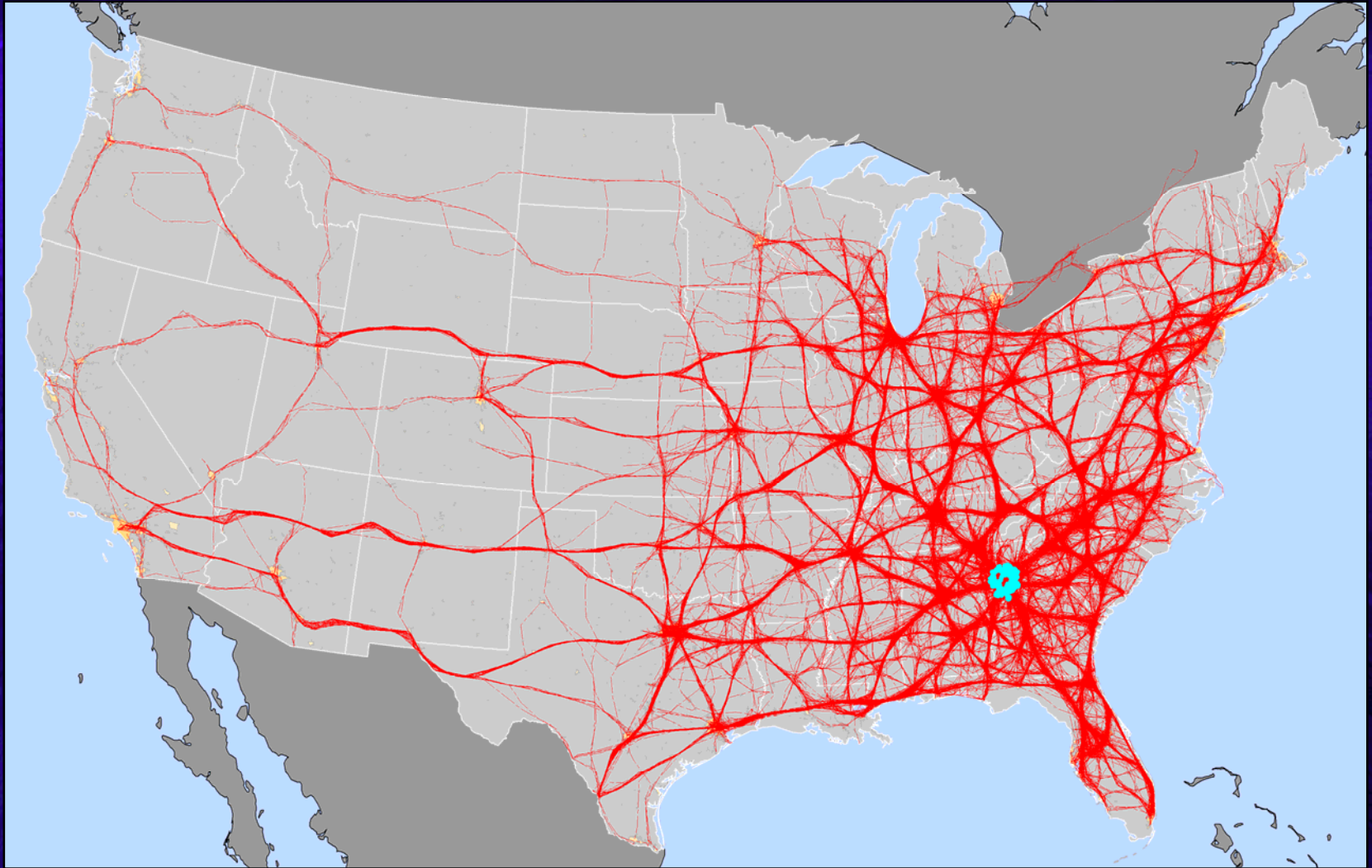
Truck Movement After 48 Hours



Truck Movement After 72 Hours



Truck Movement After 5 Days

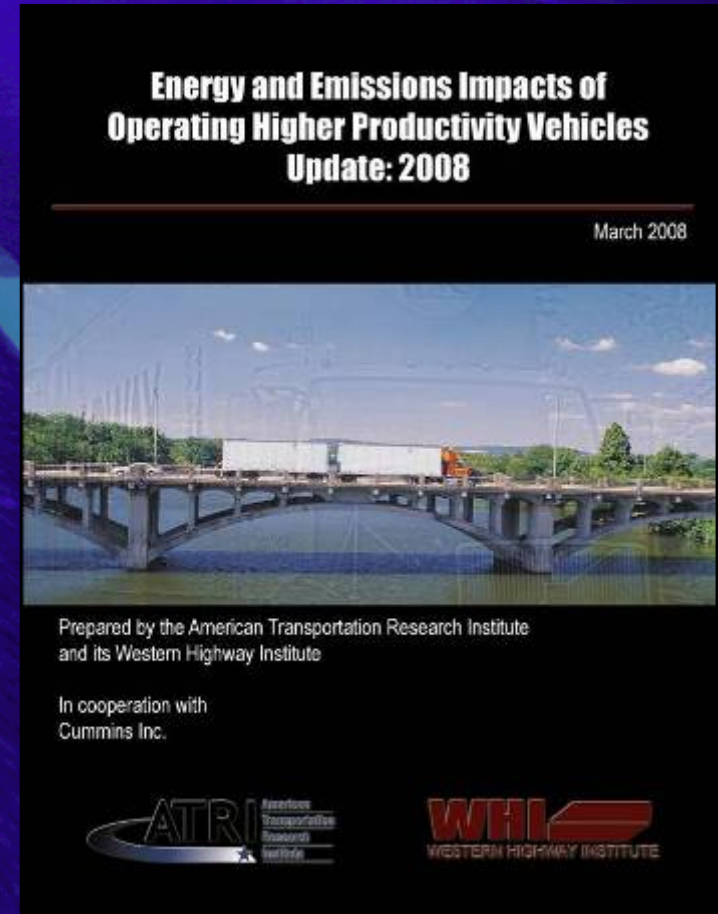


Truck Movement After 7 Days



9. Environmental Issues

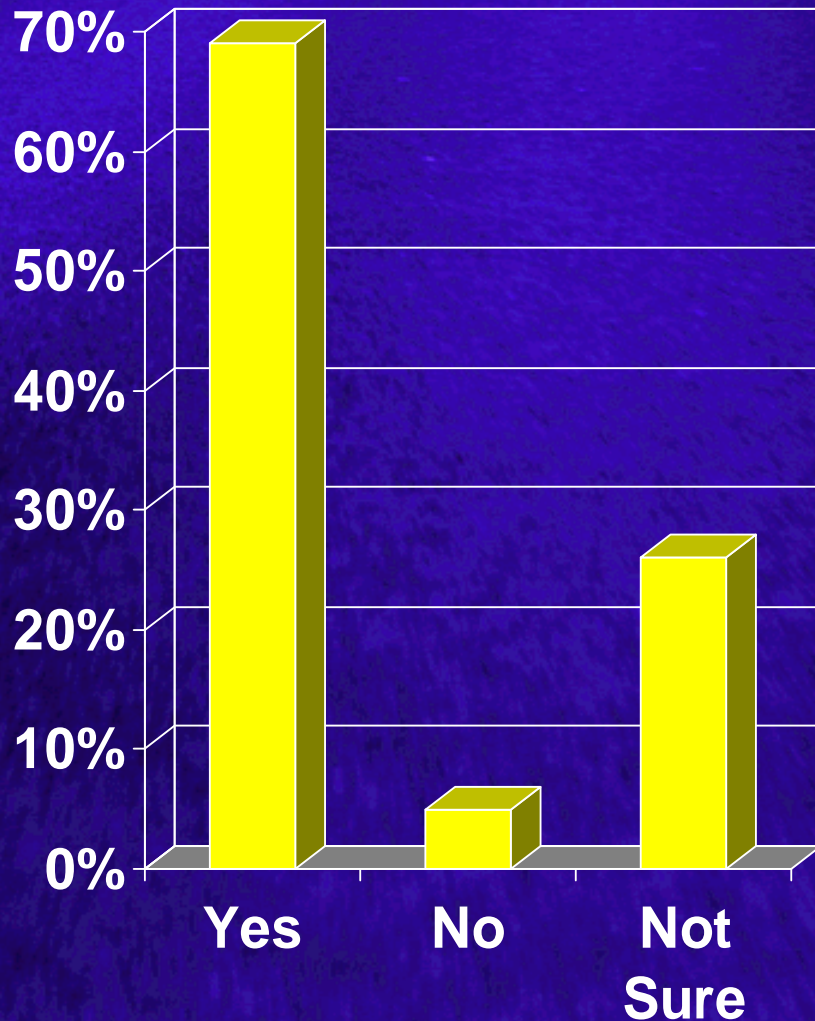
- Recommended strategy to advocate for Higher Productivity Vehicles (longer and/or heavier)
- ATRI study identified energy and emissions benefits resulting from use of HPVs
- Depending on configuration, increases in ton miles per gallon increased between 17 and 39 percent



10. Truck Size and Weight

- Flexibility in truck size and weight seen as potential solution for:
 - ◆ Congestion
 - ◆ Environmental Concerns
 - ◆ Driver Shortage
- Use of HPVs on dedicated truck lanes being explored
 - ◆ I-70 DTL Feasibility Study

Overall do you support the concept of dedicated truck lanes on I-70?



- **Support: safety, faster and more reliable travel times, reduce congestion**
- **Not sure: cost, adequate alternate routes, design issues**

Motor Carrier Perspectives

Highlights

- Nearly 70% of carriers interviewed support the concept of DTLs on I-70
- 84% stated that drivers would use an I-70 DTL corridor the same amount or more than the current facility
 - ◆ None stated that drivers would decrease use
 - ◆ Drivers would “likely prefer” travel on DTLs

Motor Carrier Perspectives

What do motor carriers see as benefits?

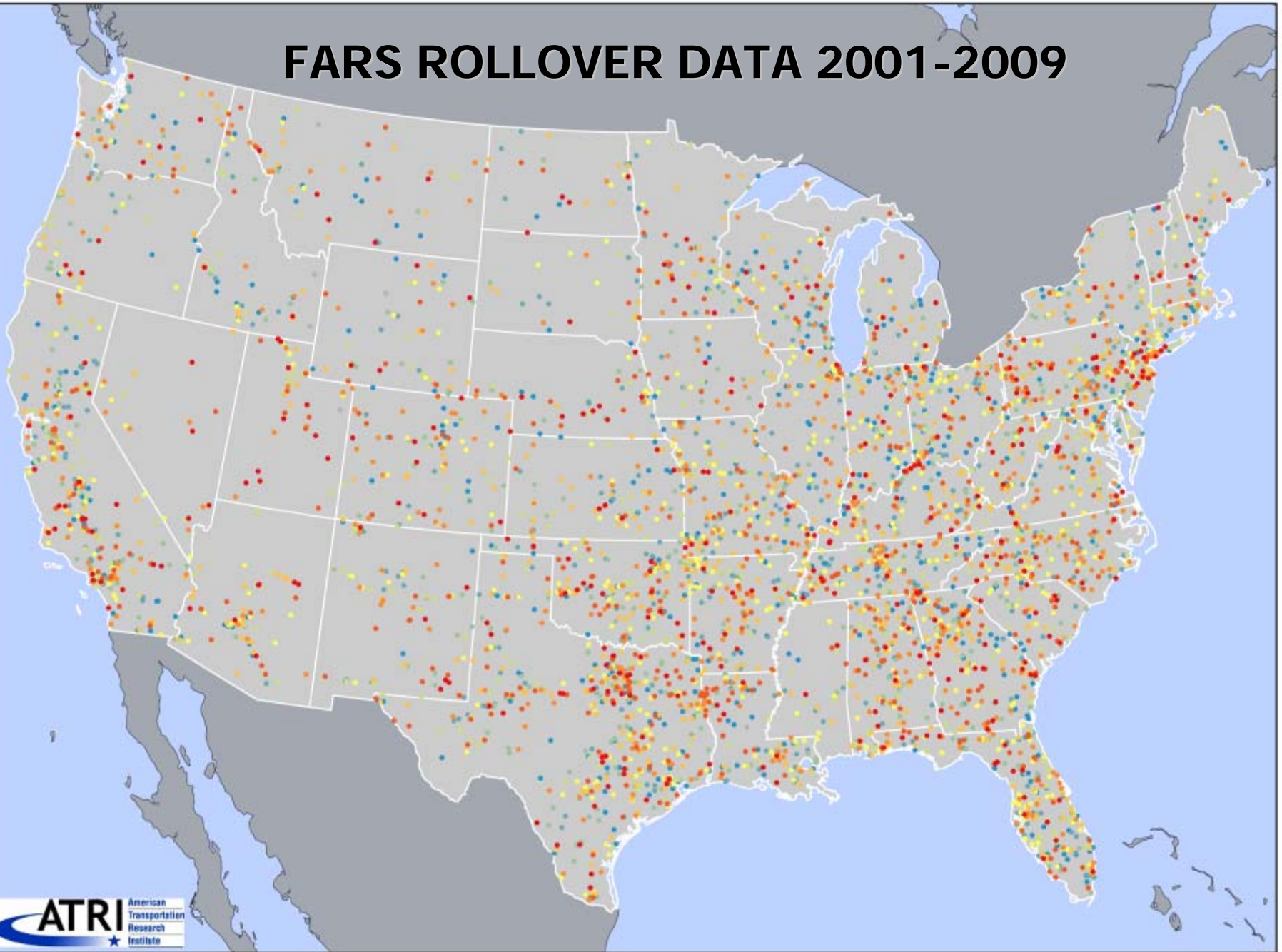
- **Safety**
- **Mobility/level of service**
 - ◆ **Less congestion**
 - ◆ **Greater reliability**
 - ◆ **Better travel times**
- **Cost savings**
- **Use of higher productivity vehicles**

2010	2009	2008	2007	2006	2005
1. Economy	1. Economy	1. Fuel Costs	1. HOS	1. Driver Shortage	1. Fuel Costs
2. CSA 2010	2. Govt Regulation	2. Economy	2. Driver Shortage	2. Fuel Issues	2. Driver Shortage
3. Govt Regulation	3. Fuel Issues	3. Driver Shortage /Retention	3. Fuel Issues	3. Driver Retention	3. Insurance Costs
4. HOS	4. Congestion	4. Govt Regulation	4. Congestion	4. HOS	4. HOS
5. Driver Shortage	5. HOS	5. HOS	5. Govt Regulation	5. Congestion	5. Tolls/Hwy Funding
6. Fuel Issues	6. Commercial Driver Issues	6. Congestion	6. Tolls/Hwy Funding	6. Govt Regulation	6. Tort Reform
7. Transp. Funding/ Infrastructure	7. Environ Issues	7. Tolls/Hwy Funding	7. Tort Reform	7. Hwy Infrastructure	7. Govt Regulation
8. Onboard Truck Technology	8. Tolls/Hwy Funding	8. Environ Issues	8. Truck Driver Training	8. Tort Reform	8. Congestion
9. Environmental Issues	9. Truck Size & Weight	9. Tort Reform	9. Environ Issues	9. Tolls/Hwy Funding	9. Environ Issues
10. Truck Size & Weight	10. Onboard Truck Technology	10. Onboard Truck Technology	10. Onboard Truck Technology	10. Environ Issues	10. Truck Security

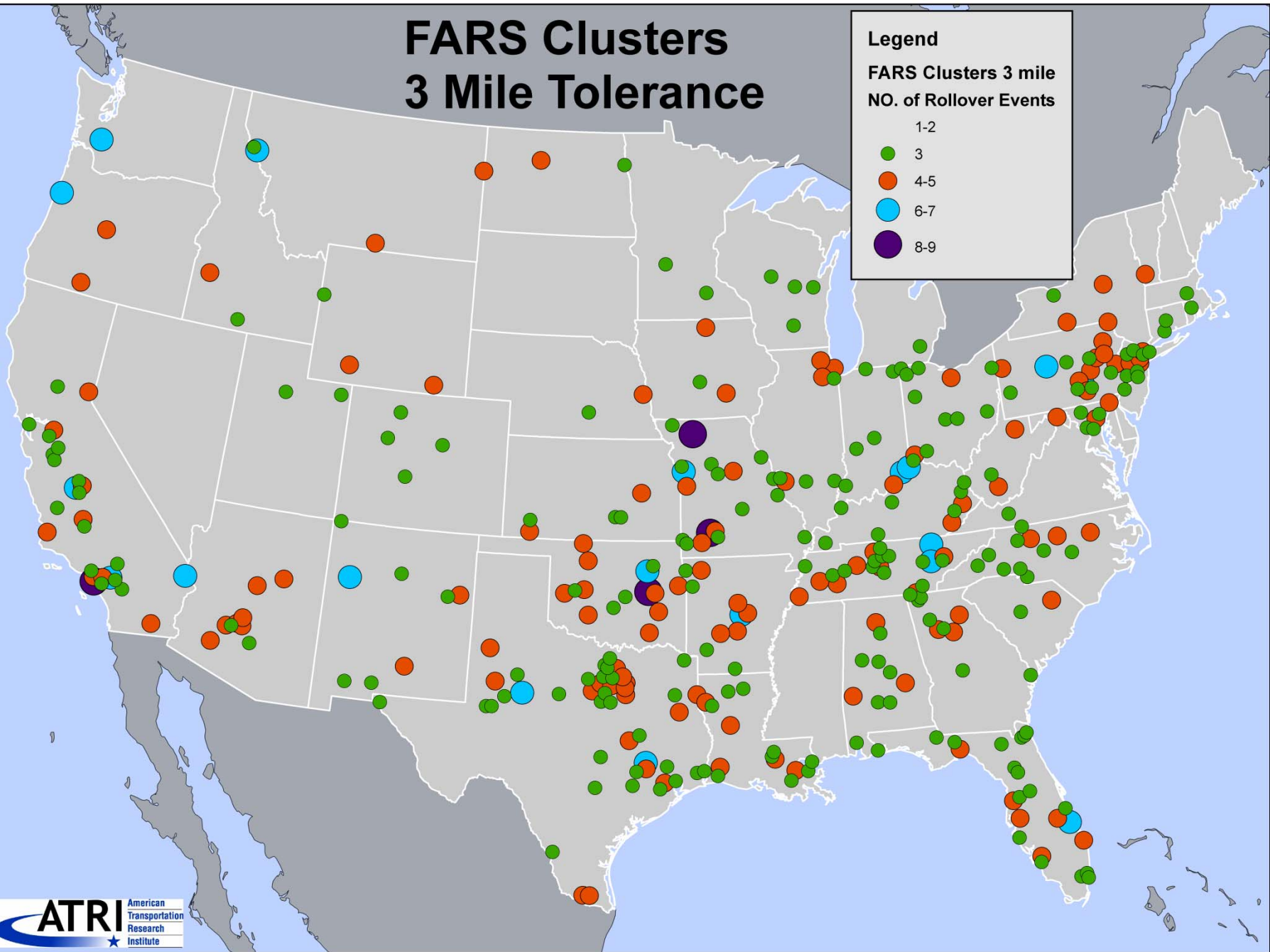
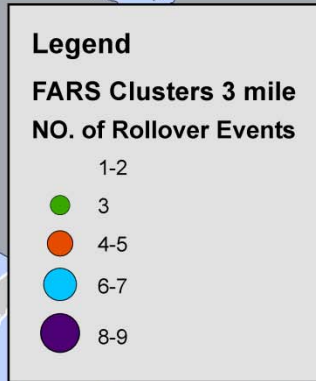
Mapping Rollovers

- **Truck rollovers at the top in terms of costly crashes**
- **ATRI's methodology: crash involvement data and GIS tools to identify high risk rollover locations**
- **Completed beta test using FARS data to test methodology for identifying rollover incidents**
- **Collaboration with AASHTO in state data outreach**
- **Working with in-cab communications providers to architect real-time data push to drivers**

FARS ROLLOVER DATA 2001-2009



FARS Clusters 3 Mile Tolerance

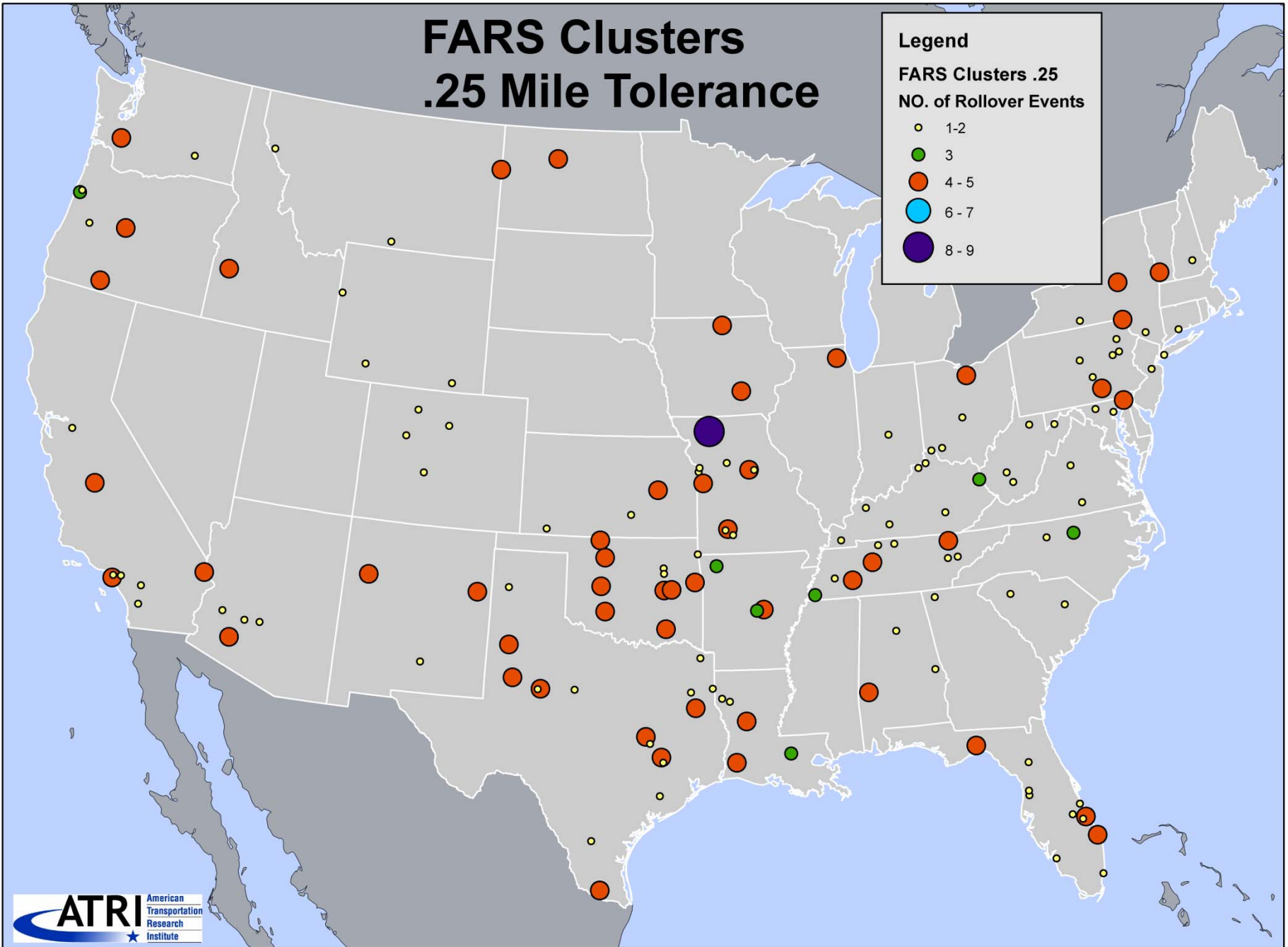


FARS Clusters .25 Mile Tolerance

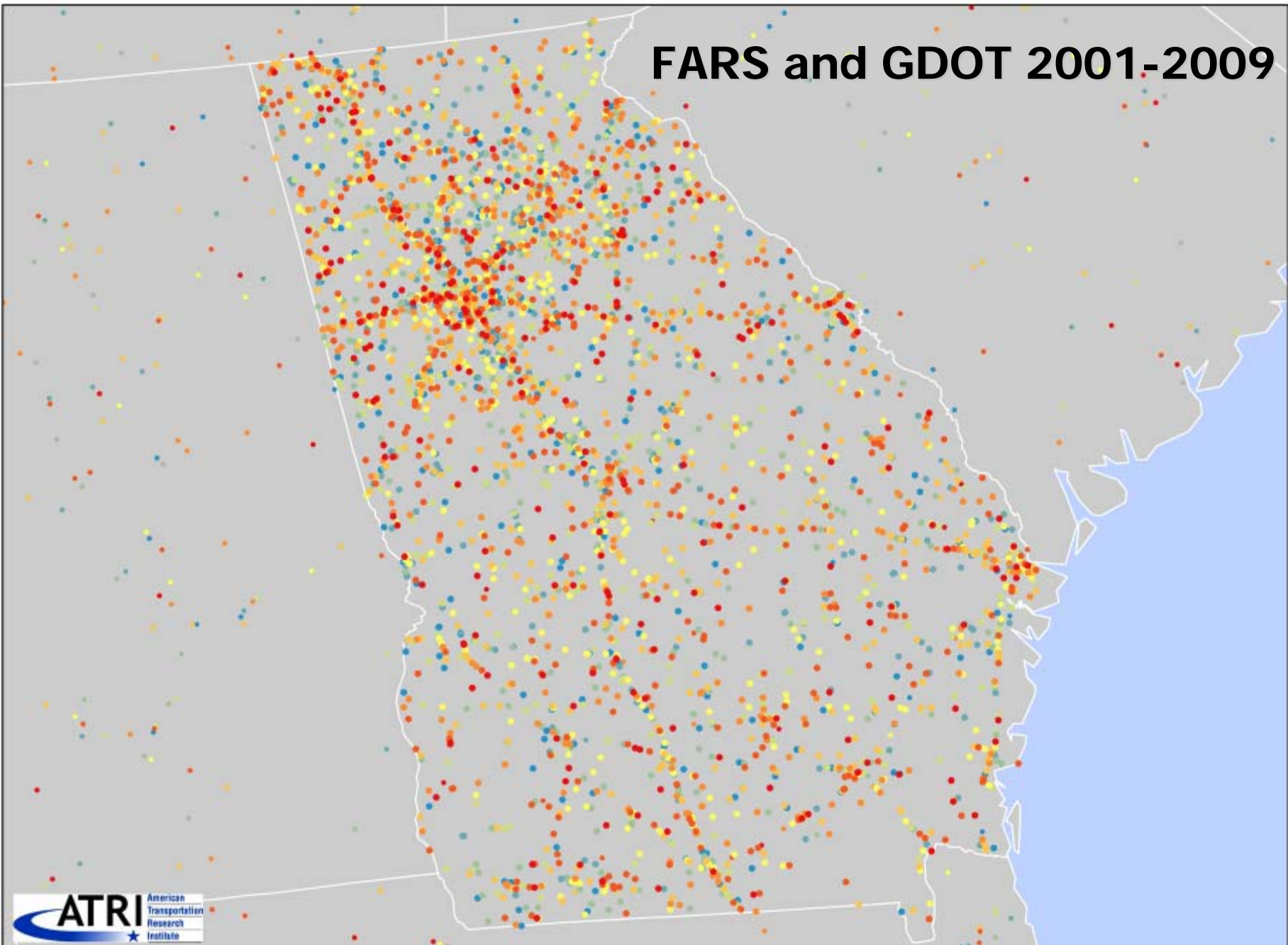
Legend

FARS Clusters .25
NO. of Rollover Events

- 1-2
- 3
- 4-5
- 6-7
- 8-9

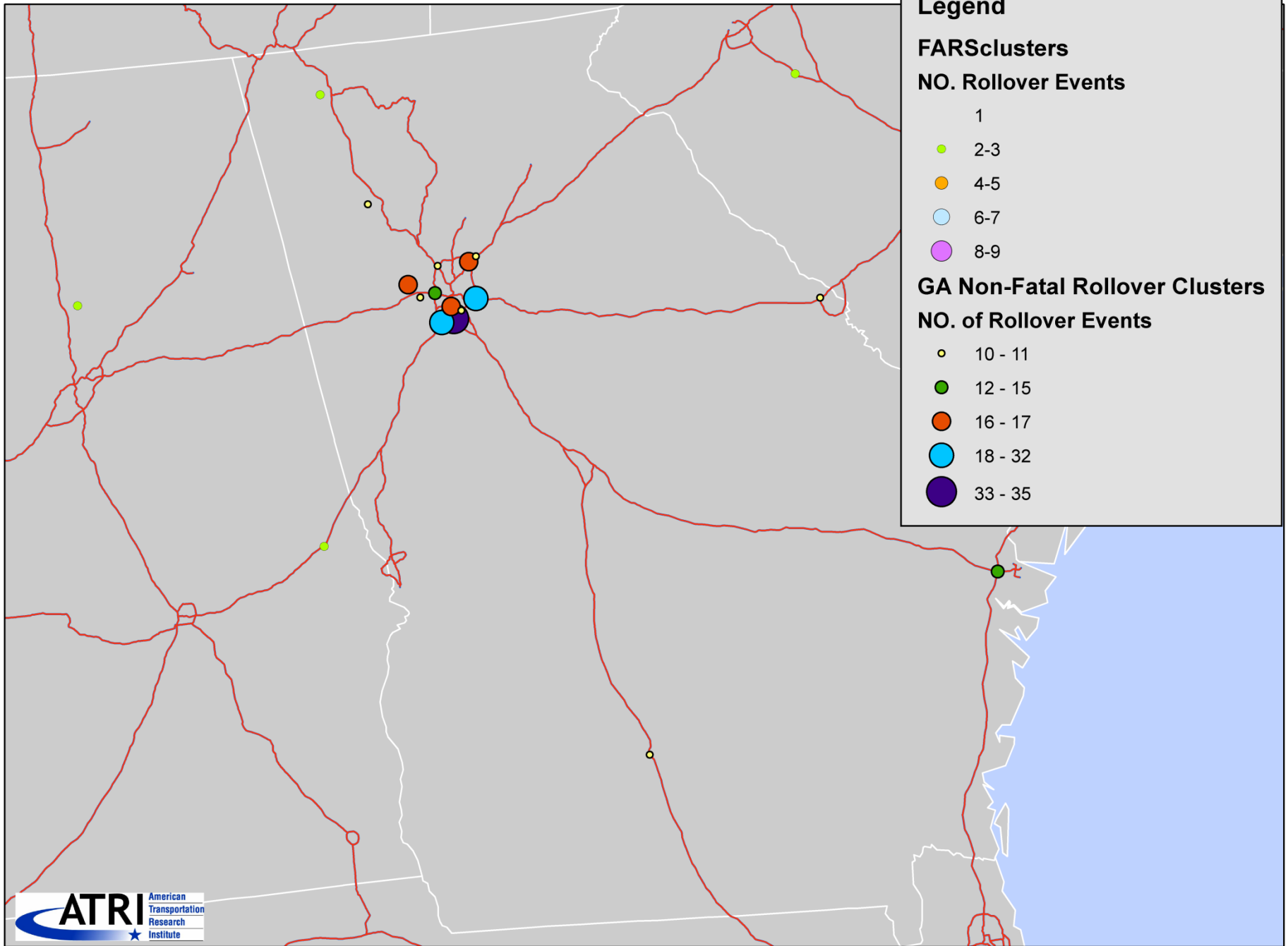


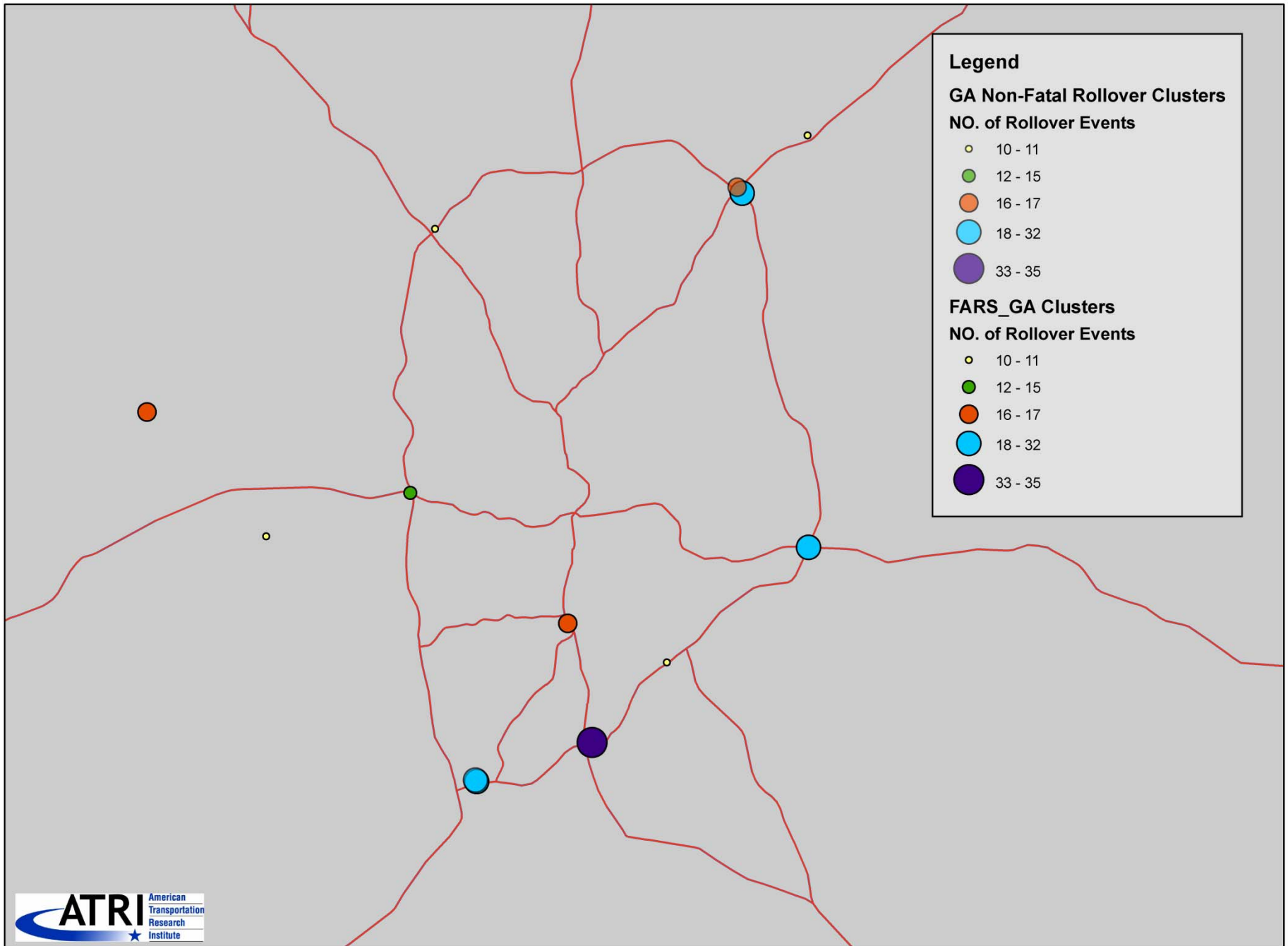
FARS and GDOT 2001-2009



GDOT Large Truck Rollovers at 85/285 North
2001-2009







Predicting Truck Crash Involvement: 2011 Update

2005 If a Driver has:	The Crash Likelihood Increases:
A Reckless Driving violation	325%
An Improper Turn violation	105%
An Improper or Erratic Lane Change conviction	100%
A Failure to Yield Right of Way conviction	97%
An Improper Turn conviction	94%
A Failure to Maintain Proper Lane conviction	91%
A Past Crash	87%
An Improper Lane Change violation	78%
A Failure to Yield Right of Way violation	70%
A Driving Too Fast for Conditions conviction	62%

Predicting Truck Crash Involvement: 2011 Update

2011 If a Driver has:	The Crash Likelihood Increases:
A Failure to Use / Improper Signal conviction	96%
A Past Crash	88%
An Improper Passing violation	88%
An Improper Turn conviction	84%
An Improper or Erratic Lane Change conviction	80%
An Improper Lane/Location conviction	68%
A Failure to Obey Traffic Sign conviction	68%
A Speeding 15+ Speed Limit conviction	67%
Any conviction	65%
A Reckless/Careless/Negligent Driving conviction	64%

Predicting Truck Crash Involvement: 2011 Update

■ Similarities

- ◆ 5 of the top 10 behaviors in 2005 continue to be significant crash predictors
 - A Past Crash (e.g. 87% vs. 88%)
 - An Improper Turn conviction
 - An Improper or Erratic Lane Change conviction
 - A Driving Too Fast for Conditions conviction
 - An Improper Lane Change violation
- ◆ Of all 34 behaviors measured in the study, 25 (73.5%) show consistent patterns

Predicting Truck Crash Involvement: 2011 Update

■ Differences Explained

- ◆ Fewer violations, citations and crashes lower the sample size so much that conclusions can not be drawn
 - Reckless driving violation – 88% increased likelihood
 - However, only 166 drivers issued reckless driving violation with eight having a crash
- ◆ Disciplinary action or other countermeasures may have been taken with drivers having received a specific violation or conviction known to be associated with high crash risk

Predicting Truck Crash Involvement: 2011 Update

Both explanations hold true:

If a driver had:	Percent of Drivers with Violation (2002)	Percent of Drivers with Violation (2008)	Percent Change
An Improper Passing violation	0.49%	0.11%	-76.82%
A False or No Log Book violation	44.44%	20.10%	-54.77%
A Speeding violation	25.04%	11.96%	-52.26%
A Failure to Yield Right of Way violation	0.27%	0.14%	-49.07%
A Disqualified Driver violation	1.65%	0.86%	-47.92%
An Improper Turns violation	0.16%	0.08%	-46.86%
A Following Too Close violation	1.42%	0.80%	-43.79%
A Medical Certificate violation	10.59%	6.19%	-41.53%
A Reckless Driving violation	0.10%	0.06%	-39.89%
A Size and Weight violation	23.88%	14.52%	-39.19%
Any Moving violation	44.50%	27.49%	-38.23%
An Improper Lane Change violation	1.02%	0.64%	-37.44%
A Failure to Obey Traffic Control Device violation	3.44%	2.52%	-26.81%
An Hours-of-Service violation	20.50%	17.32%	-15.51%
Any OOS violation	37.95%	34.74%	-8.45%

Questions?

Rebecca Brewster

770-432-0628

rbrewster@trucking.org

www.atri-online.org

