Using Big Data to Evaluate Freight Policies: A Case Study from TN
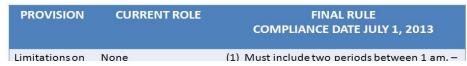
Presenter: Mihalis Golias

Joint Work

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- Mr. Zach Johnson, M.Sc. Student, Department of Civil Engineering, UoM
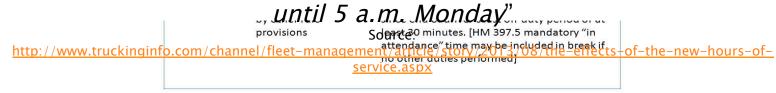
BIG DATA IN VISIBILITY

▸ **Top priority** across public and private sector over the **past year**

▸ Opportunities to create **big**, **useful** data, and put it **to work**

▸ **Leveraging** transportation data to **improve** freight **planning**, **policies** and **operations**

Hours Of Service

- Address **the number of hours** that a commercial motor vehicle (CMV) driver may **drive** and be **on duty** before rest is required

PROVISION	CURRENT ROLE	FINAL RULE COMPLIANCE DATE JULY 1, 2013
Limitations on	None	(1) Must include two periods between 1 am. –

"Formerly, when a driver finished work between 1 a.m. and 5 a.m. on Saturday, he could go back to work Sunday night. Now he can't start until 5 a.m. Monday"

provisions — Source: least 30 minutes. [HM 397.5 mandatory "in attendance" time may be included in break if no other duties performed]

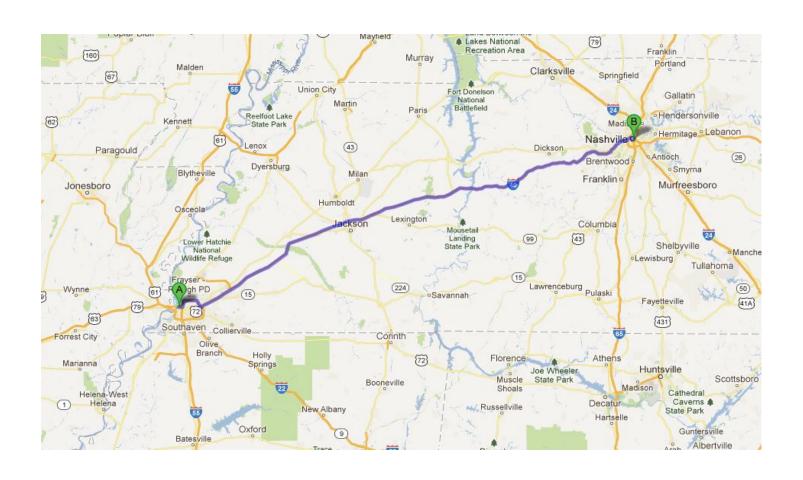Changes of HOS Rules (Source: fmcsa.dot.gov)

- Define a **minimum amount** of time before a driver **may return** to duty and the **total number of hours** he may be on-duty in a week.

What do we know so far?

- Dec. 2011 USDOT Study

- Cost/benefit analysis :
  ◦ Costs to the industry
  ◦ Benefits from accident and fatality reduction
  ◦ Health benefits/costs the new rules will have

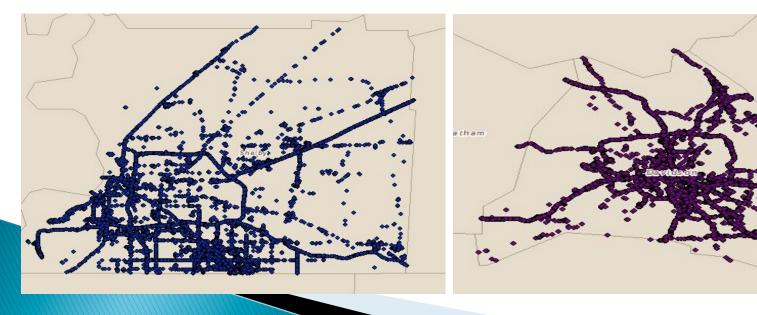- Does not address increased congestion

2010-2011 Hours of Service Rule Regulatory Impact Analysis. Publication RIN 2126-AB26. Analysis Division, FMCSA, U.S. Department of Transportation, 2011.
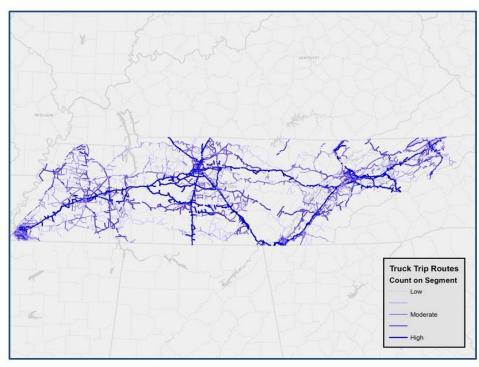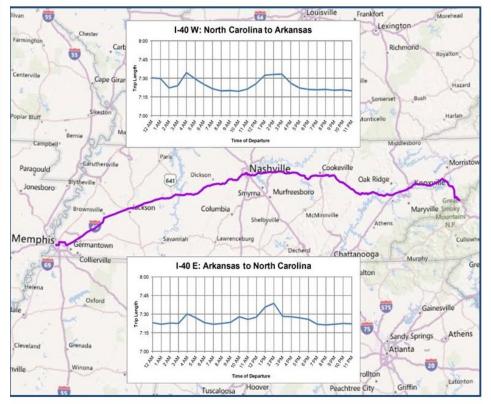
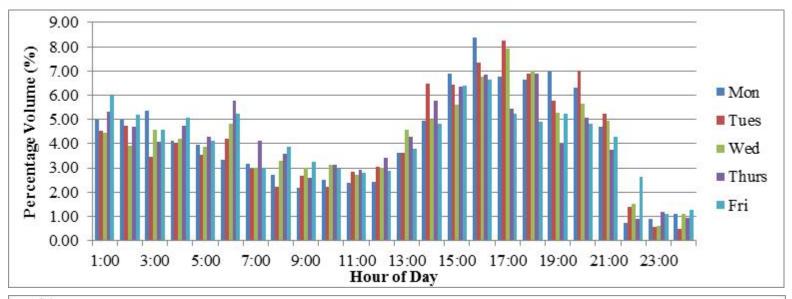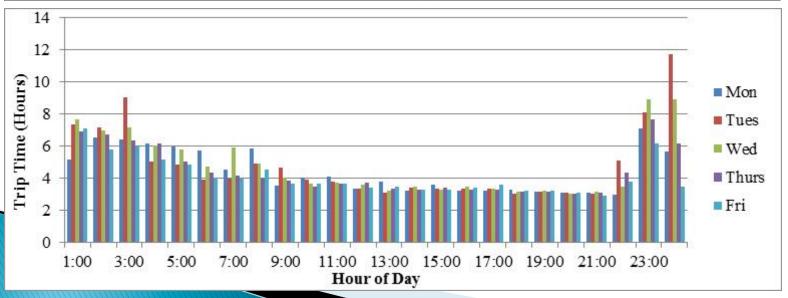# Case Study Area

FROM BIG DATA.......
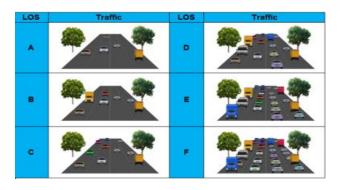
......TO VISIBILITY (1)

Existing Truck Trip Patterns in TN

Truck Trip Routes
Count on Segment
Low
Moderate
High

I-40 W: North Carolina to Arkansas

I-40 E: Arkansas to North Carolina

Average Trip Times on I-40
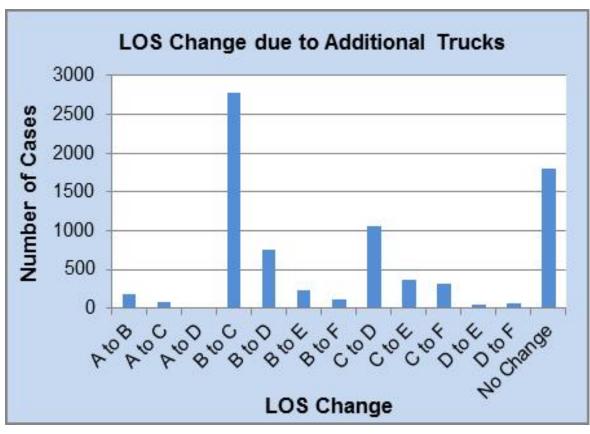
……TO VISIBILITY (2)

.....To Policy Evaluation

LOS Change due to Additional Trucks

Time of Arrival	A to B	A to C	B to C	A to D	B to D	C to D	B to E	C to E	D to E	B to F	C to F	D to F	No Change	Total
7:00 to 8:00AM	1.5%	0.1%	**18.2%**	0.0%	1.0%	**6.4%**	0.0%	0.8%	0.4%	0.0%	0.1%	0.1%	71.4%	100.0%
8:00 to 9:00AM	2.3%	0.9%	**35.6%**	0.1%	9.6%	**13.6%**	2.9%	4.8%	0.6%	1.5%	4.0%	0.8%	23.2%	100.0%
9:00 to 10:00AM	1.5%	0.1%	**18.2%**	0.0%	1.0%	**6.4%**	0.0%	0.8%	0.4%	0.0%	0.1%	0.1%	71.4%	100.0%

Thank you

Q/A

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