

# An Overview of the Canada Naturalistic Driving and Canada Truck Naturalistic Driving Studies

Charlie Klauer, John Pearson, & Jon Hankey

Virginia Tech Transportation Institute

Council of Deputy Ministers Responsible for  
Transportation and Highway Safety

7<sup>th</sup> International Symposium on Naturalistic  
Driving Research

Inn at Virginia Tech

Blacksburg, VA



# Canada NDS & Canada Truck NDS

- ❑ Canada NDS was designed to be 'sister site' to SHRP2 NDS
  - Notable exceptions are over-the-shoulder camera
- ❑ Addition of 25 commercial heavy vehicles were also instrumented
  - These drivers ranged from coast to coast, regional, and local/short haul.



# CNDS Primary Research Questions

- ❑ What is the distribution of causal/contributing factors to crashes and near-crashes in Saskatchewan, Canada?
  - Rural highways
  - Winter conditions
- ❑ What is the prevalence of risky behaviors?
  - Of primary interest is speeding (per speed limit but also per roadway conditions), secondary task engagement, drowsiness, and impairment.





# CNDS Study Data collection

- 140 vehicles were instrumented
- Targeted 125 participants/Replaced some participants.
  - Participants were recruited for 24 months, 18 months, or 12 months
  - Data collection occurred from 6/2013-10/2015
- Recruited participants through SGI
  - SGI sent letters to target the population of interest
  - Participants were paid \$450 per year
- Questionnaires/Surveys (Same as SHRP2)



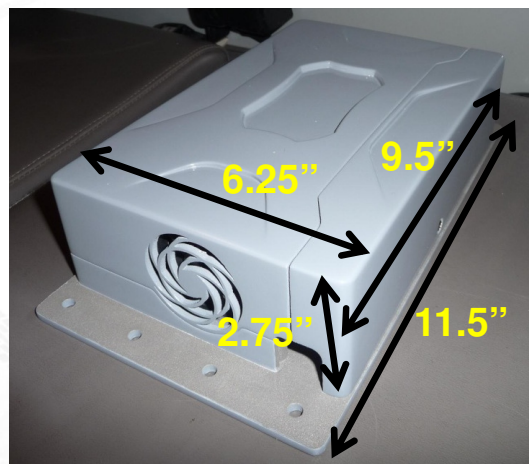
# Light Vehicle Recruitment

Study Participant Numbers						
	Age 18-25		Age 26-65		Age 66+	
	Male	Female	Male	Female	Male	Female
High Mileage Commuter	3	8	17	15	7	2
Low Mileage Commuter	21	18	15	13	10	11





# DAS Photos



Main Unit

Front Radar Assembly

Head Unit



January 11, 2010

# Camera Image Samples

**Forward View - color**



- 15 Hz continuous video
- 640x320 pixels

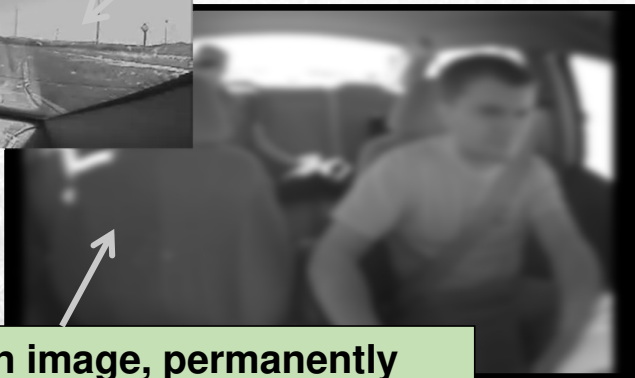
**Driver Face – Rotated for max pixel efficiency**



**Right-Rear View**



**Center stack – Pedal Interactions**



**Periodic still cabin image, permanently blurred for passenger anonymity**

January 11, 2010

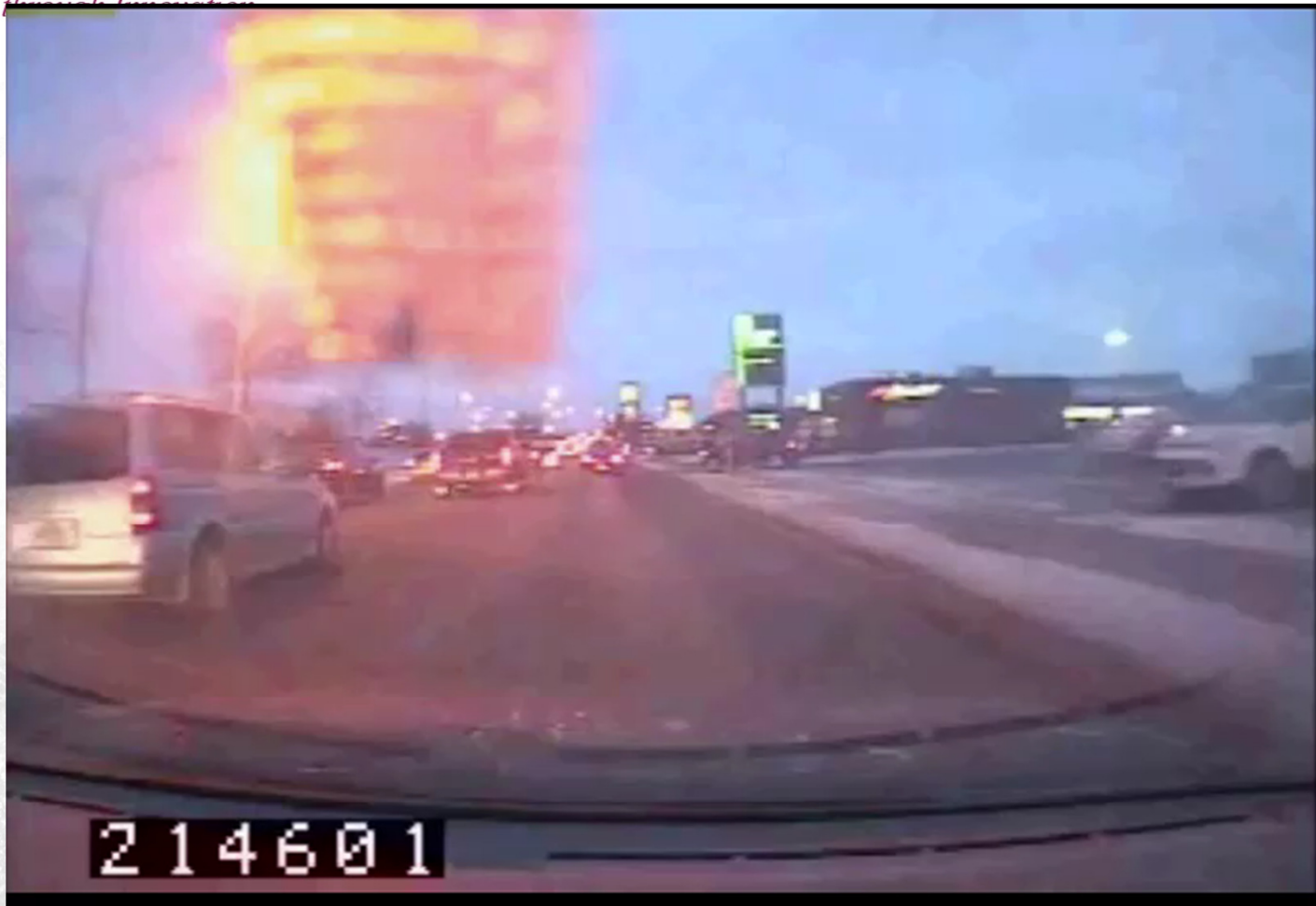
7











# Canada Naturalistic Truck Driving Study





# Project Data Collection

- 25 trucks completed data collection
  - 25 participants (3 teams)
  - 2 females
  - 5 trucks with long routes (7-10 days on and 3-4 days off)
  - 2-3 double-trailer drivers



# Procedure

- ❑ Collected questionnaire/assessments on drivers
  - Based upon other commercial NDS studies
  - Driver logs
  - Driver abstracts
- ❑ Instrumented 25 trucks (with reinstrumentations)
  - Similar DAS as light vehicle study with cameras, radar, accelerometers, etc.
- ❑ Collect data for ~12 months = ~22 data years.





# Data is publically available...

- ❑ Insight Canada Website –
  - Similar set up to SHRP2 NDS Insight website
  - <https://insight.canada-nds.net/>
  
- ❑ Insight Canada Truck Website –
  - Under development...to be released early 2019



# Acknowledgements

- Council of Deputy Ministers Responsible for Transportation and Highway Safety
- Transportation Association of Canada
- Canadian Council of Motor Transport Administrators
- Saskatchewan Highways
- U of Saskatchewan
- Transport Canada
- Saskatchewan Government Insurance
- Others...

