

# **A Critical Review and Integration of GIS-Based Spatial Databases for Multi-Commodity and Multi-Mode Freight Movement Modeling and Security Analysis in the USA**

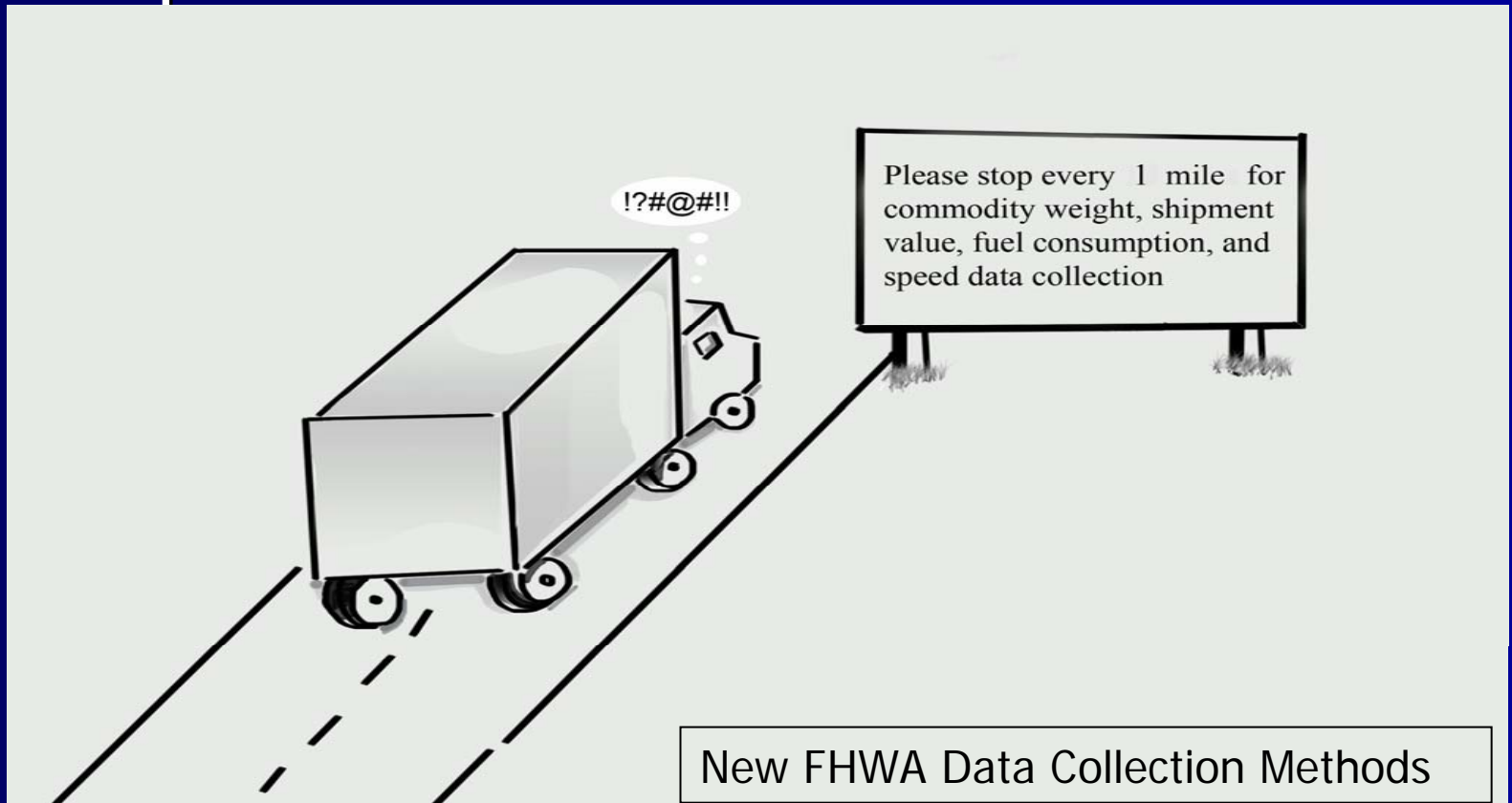
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# Transportation Security

- Increasingly a topic of interest for policy-makers, transportation planners, importers, and exporters
- Multiple disciplines, datasets, software programs, and transportation networks are essential for an effective freight movement analysis

# Freight Data

The problem with data is...



# Public Trade Data

- Trade Stat Express
- Commodity Flow Survey
- Freight Analysis Framework 2002
- International Trade Administration
- Maritime Administration
- US Census Foreign Trade Statistics

# Private Trade Data

- PIERS
- Global Insight
- WISERTrade
- USA Trade Online

# Transportation Networks

- North American Transportation Atlas Database
- Oakridge National Laboratories

# Public and Private Freight Databases

Database	Commodity	Geographic Detail	Status	Code	GIS Data
Trade Stat Express	Aggregated	States and Countries	Free	HS, SITC	No
USA Trade Online	9 digit commodities	US ports and countries	Purchase required	HS	No
United States International Trade Commission	4 digit commodities	US States	Free	HS, SIC, SITC	No
International Trade Administration	3 digit commodities	US States and Metropolitan Areas	Free	SITC	No
PIERS Global Intelligence Solution	9 digit commodities	US Ports and cities, countries	Purchase required	HS	No
US Census Bureau: Foreign Trade Statistics	5 digit commodities	Country Imports	Free	End Use	No
Bureau of Transportation Statistics: NORTAD	2 digit commodities	US States, Canada, Mexico	Free	N/A	Yes: National Transportation Networks, Transborder Freight Data
Global Insight	2 digit commodities	US county level and countries	Purchase required	STCC	No
WISER Trade Foreign Trade Database	6 digit commodities	US states and countries	Purchase required	HS,SITC	No
Freight Analysis Framework	2 digit commodities	US Metropolitan areas and continents	Free		Yes: Metropolitan Areas
US Census Bureau: Commodity Flow Survey	5 digit commodities	US Metropolitan areas	Free	SCTG,STCC	No
Oakridge National Laboratory	N/A	N/A	Free	N/A	Yes: US states, intermodal network, rail, highway, waterway, US cities
US Maritime Administration	Number of containers	US Ports	Free	None	No

# Data Problems

- Incomplete
- Aggregate
- Not enough information



# Network & Software Problems

- Inter-modal stations
- Software training
- Analysis methods

# Other Improvements

- Integration between international trade data and domestic trade flows
- Domain of the shipper
- International port locations