

Local Perspective: Using Freight Fluidity Measures in SD Crossborder Region

TRB Conference on Advancing Freight Fluidity
Performance Measures

Dec 9-10, 2015

Washington, DC



Overview

- Freight fluidity challenges in the San Diego Border Region
- Measuring fluidity as lost economic output
 - 2007 and 2017
- Measuring fluidity as an environmental impact
- Improving fluidity with expanded capacity and smarter infrastructure
- Addressing fluidity by applying ITS solutions
- Monitoring fluidity with visualization tools and third party data

Economic Challenge: Otay Mesa Commercial POE Current Conditions

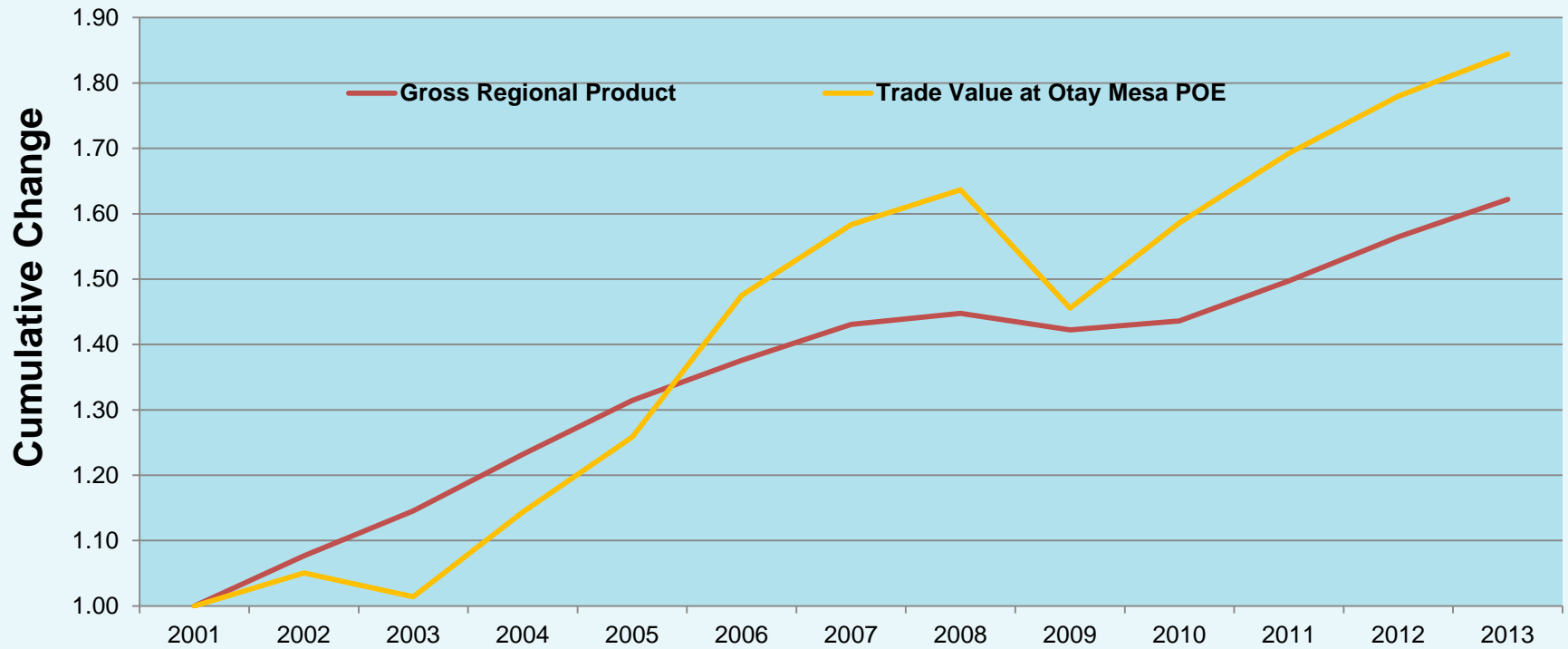


Overview of Border Region : Otay Mesa East POE



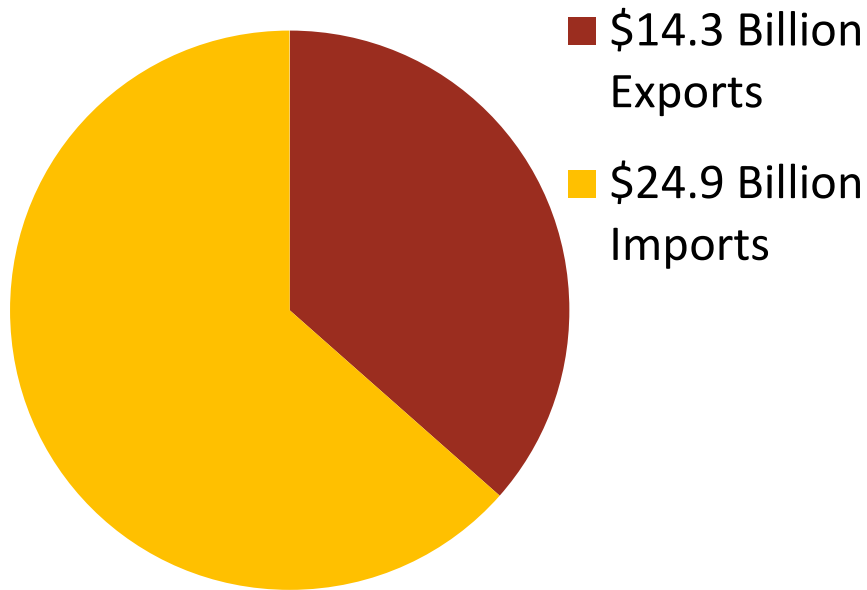
Value of Otay Mesa Truck Trade Vs. San Diego GDP

**Value of OM Truck-Trade Outpacing Growth
In San Diego Regional Gross Product**



2014 Trade Value at Otay Mesa: \$39.2 B

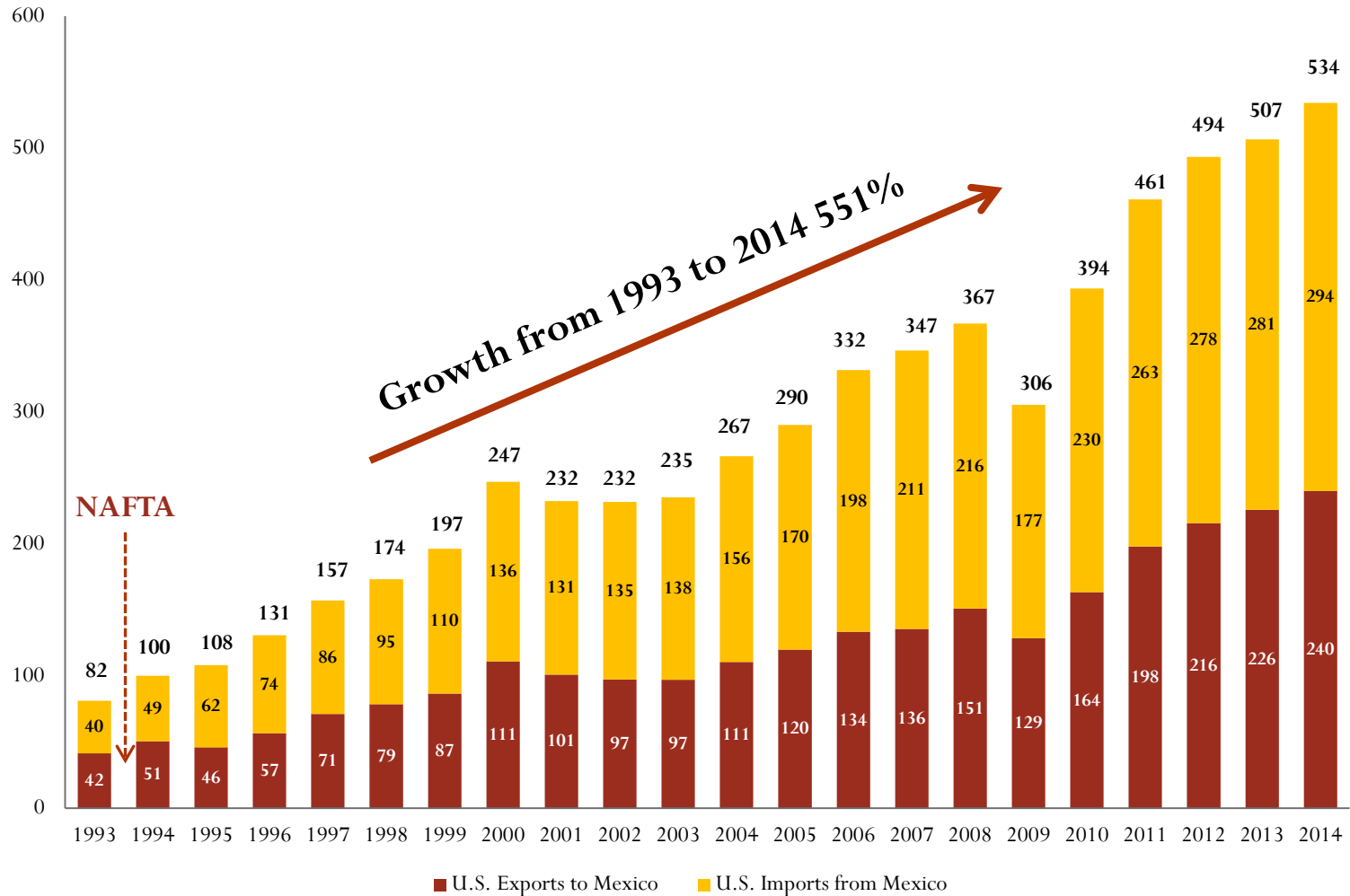
Import/Export Values



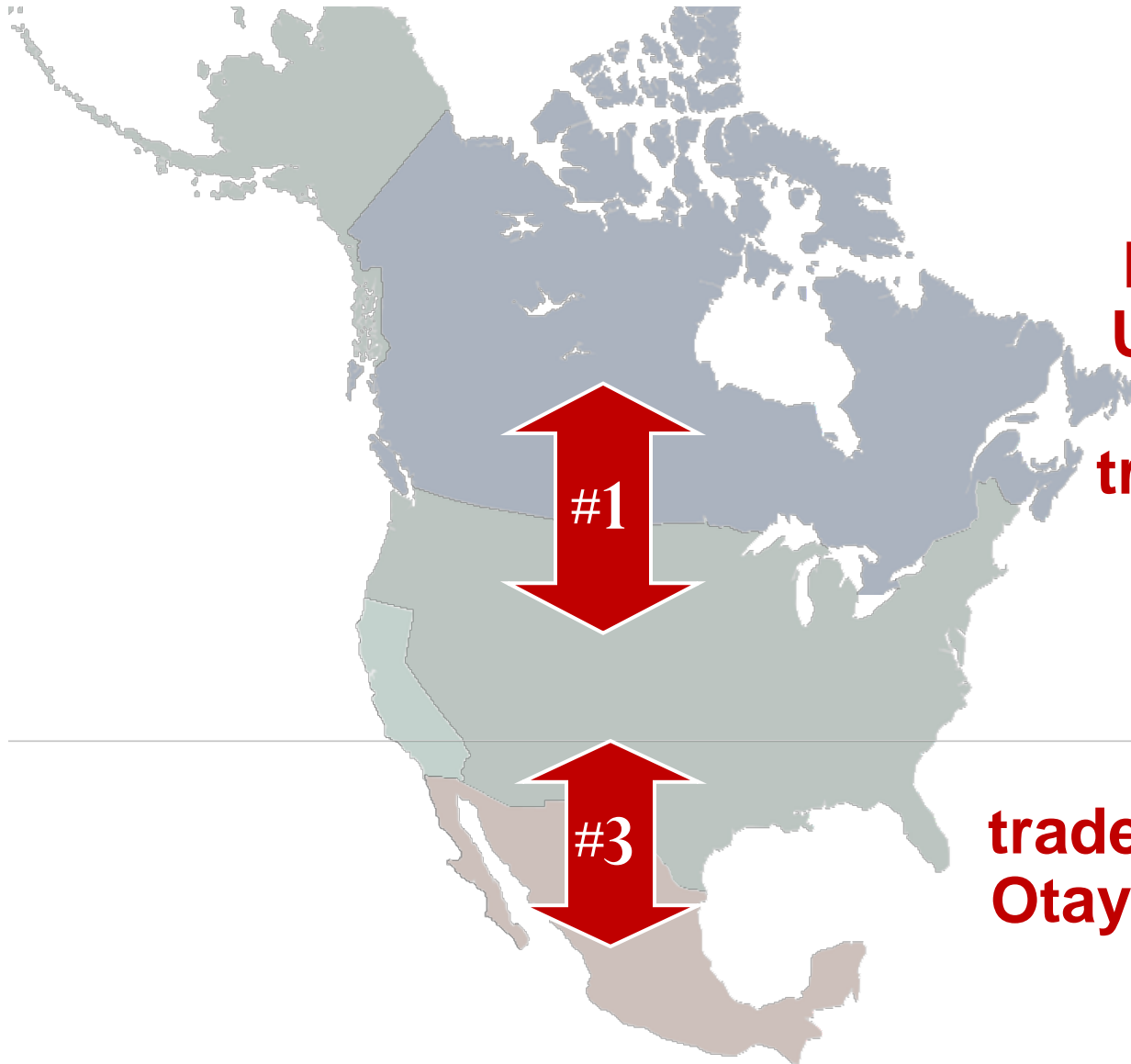
- Otay Mesa, largest POE crossing between CA and MX
- > 1.6 million truck crossings/year
- Key two-way trade commodities
 - Electronics
 - Agricultural goods
 - Vehicles
 - Medical devices

U.S. – Mexico Trade Growth

(Billions of dollars)



Economic Opportunity



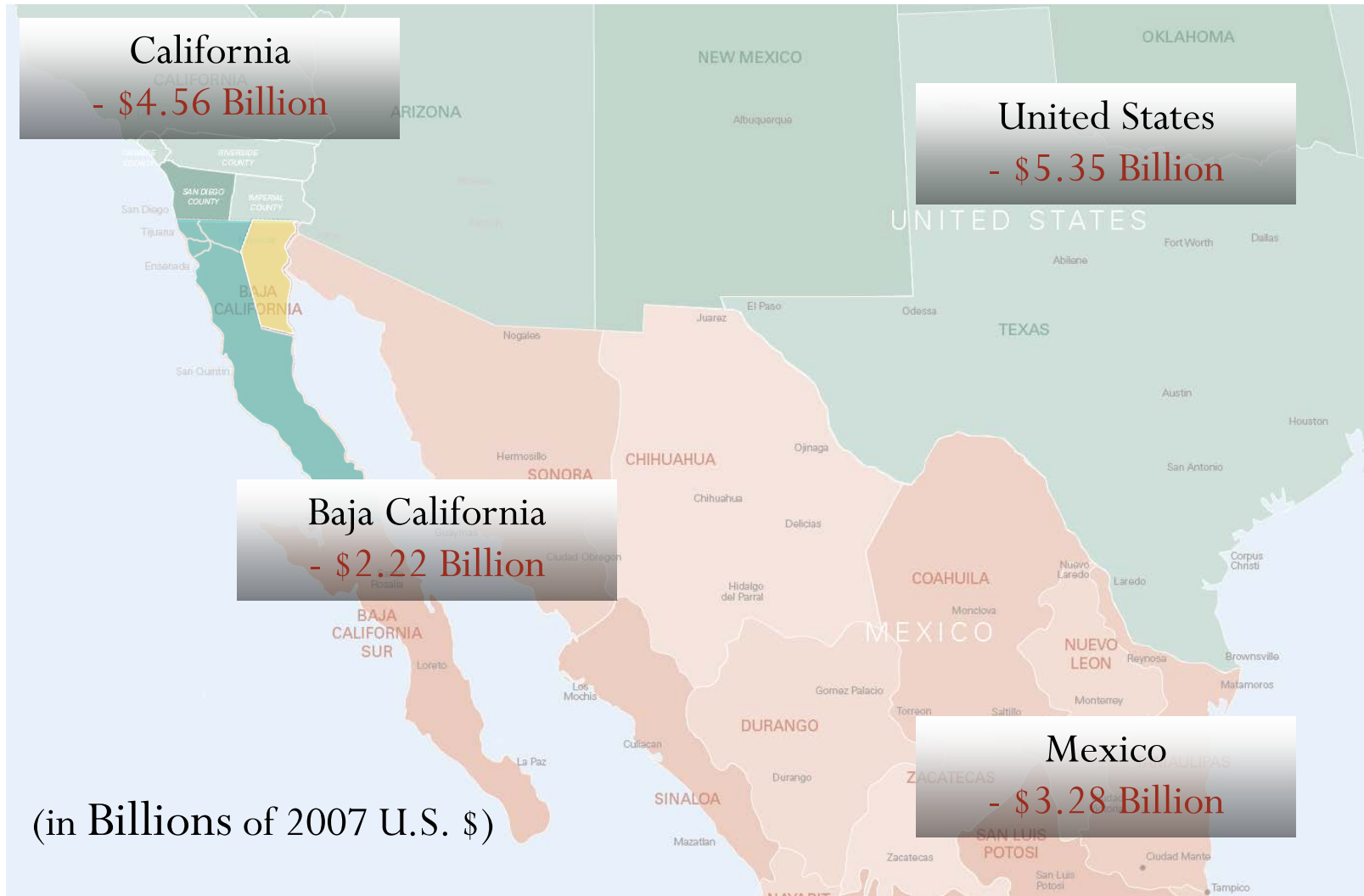
**Mexico is the
United States'
3rd largest
trading partner**

**8% of
U.S.- Mexico
trade value crosses at
Otay Mesa and Tecate**

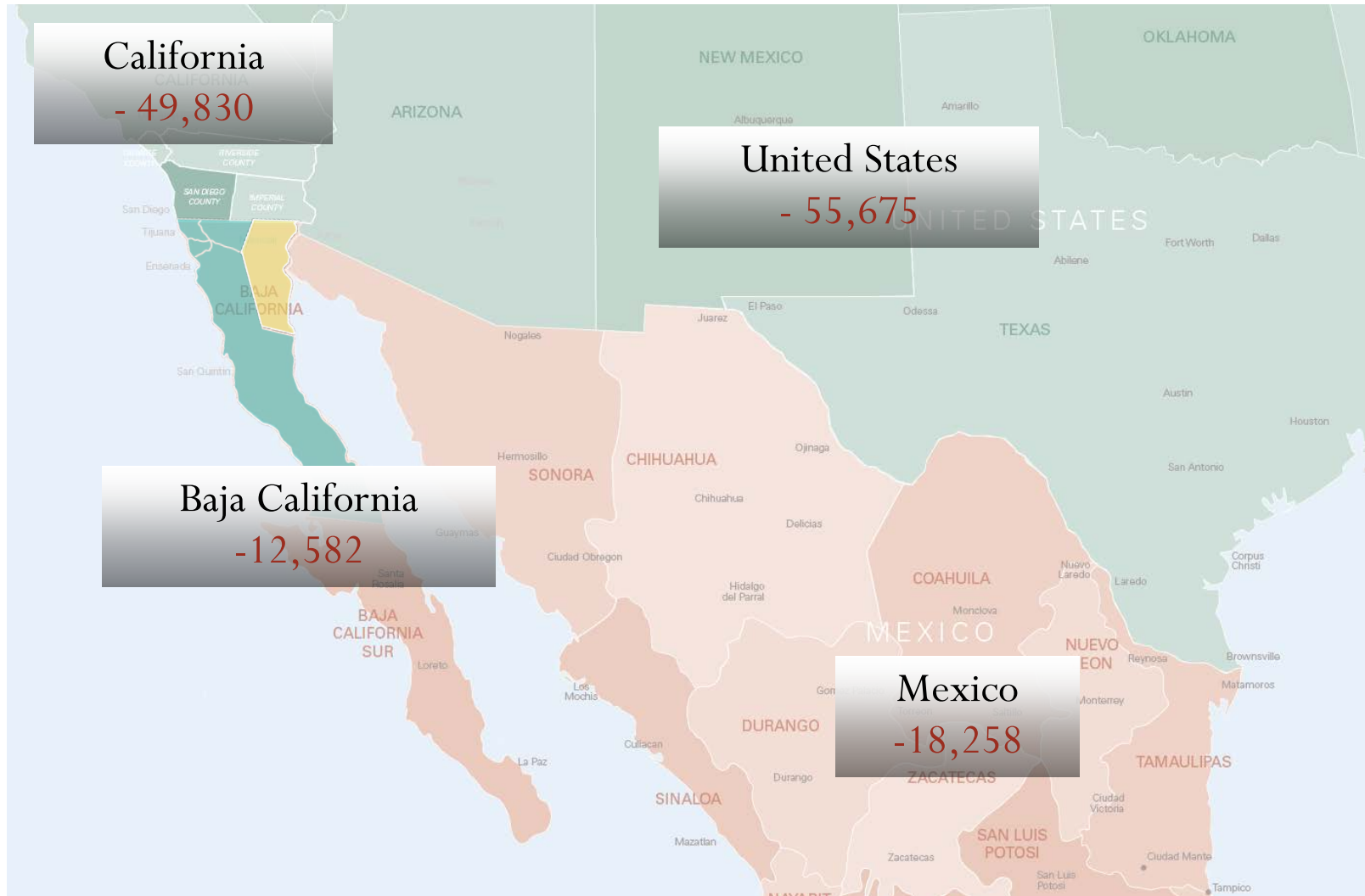
Economic Opportunity



Economic Challenge: Combined Annual Output Impact Due to Delays at the Border (*Personal Travel + Freight Movements*)



Economic Challenge: Combined Annual Jobs Lost Due to Delays at the Border (*Personal Travel + Freight Movements*)



Long Delays = Suppressed Economic Activity

Economic impacts of long border wait times

- \$7.2 billion in output lost in both countries =

18
Super Bowls



- 62,000 jobs lost =

5 Qualcomm (SD)
companies



(2007 Personal Travel and Freight Movements)

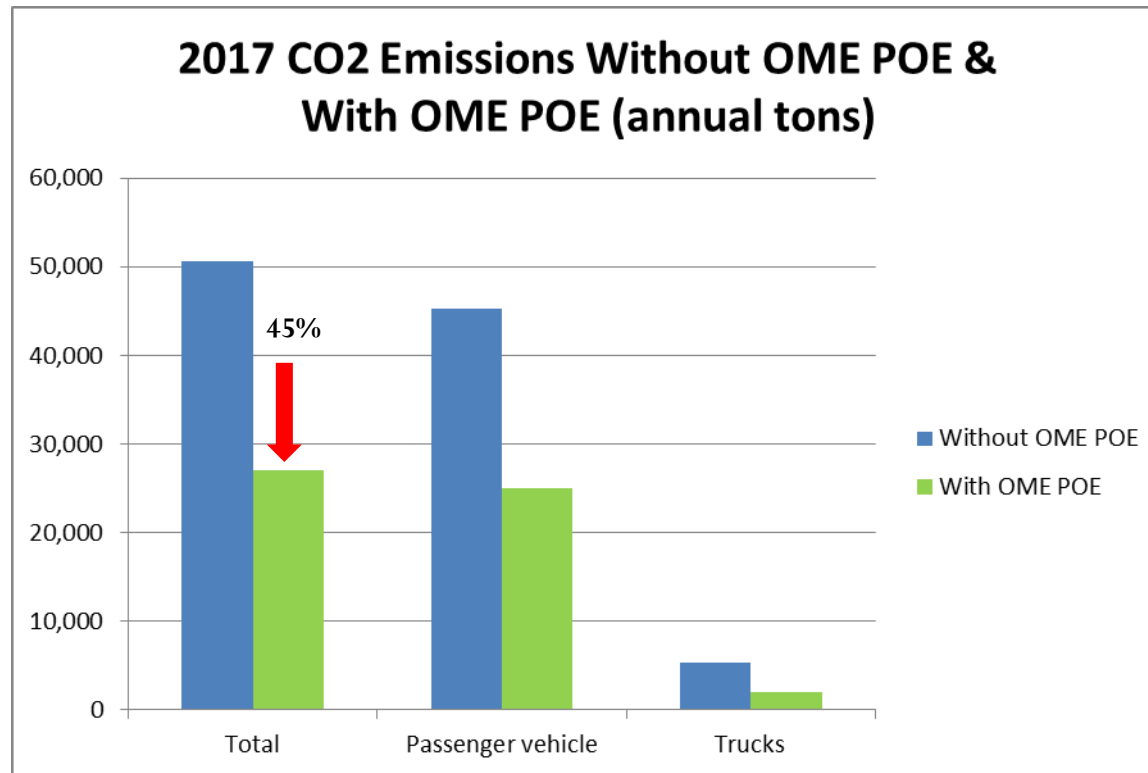
New Economic Impact Study 2017

- Wait Time Monitoring
 - Static wait times
 - Dynamic wait times
 - Integrating emissions data with wait time monitoring
- Strategy Assessment
- Methodology Documentation

Physical Bottlenecks = Environmental Impacts

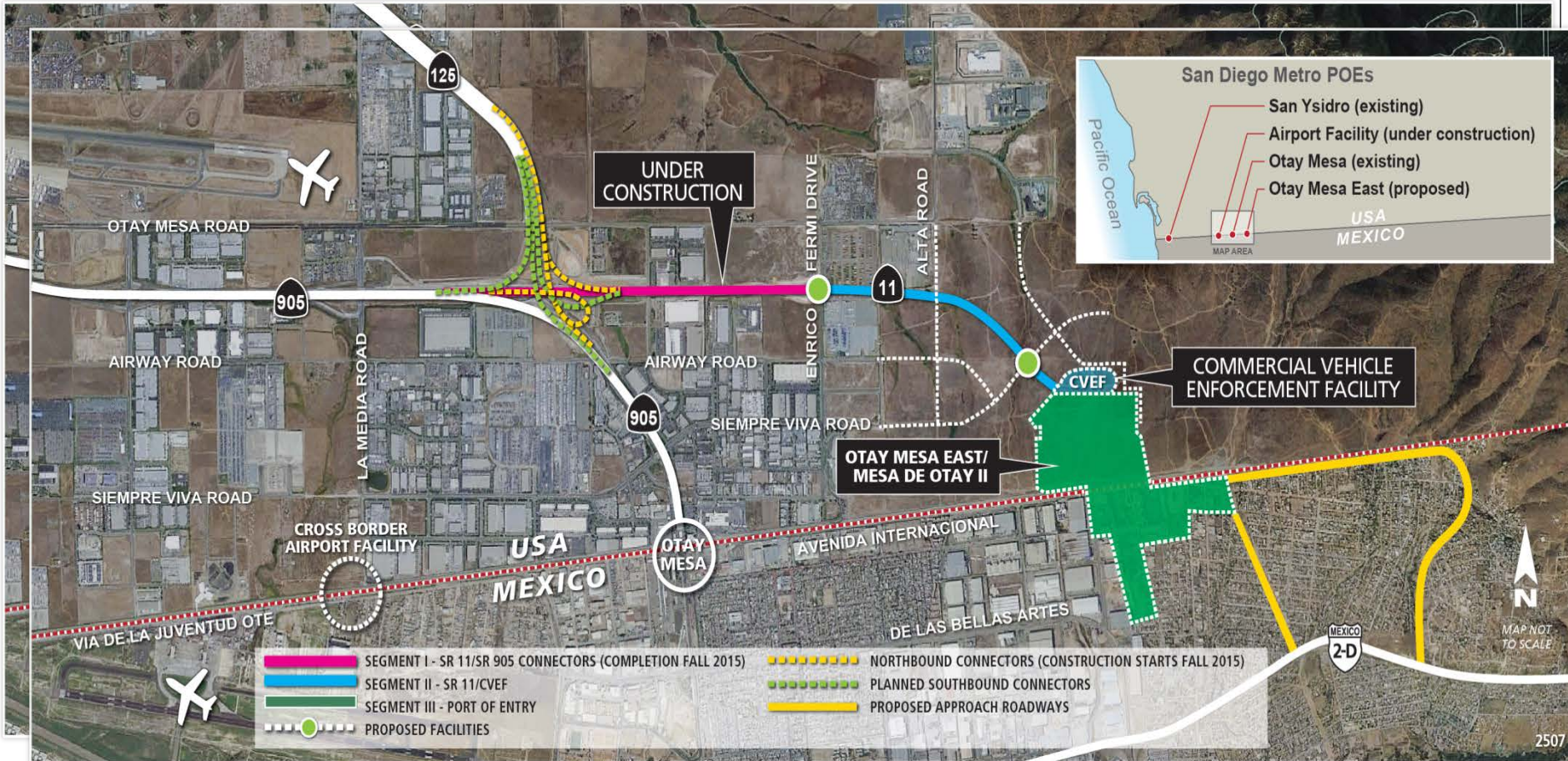


Reducing Border Emissions with New POE



Is there a Better Way?

Overview of Otay Mesa East POE

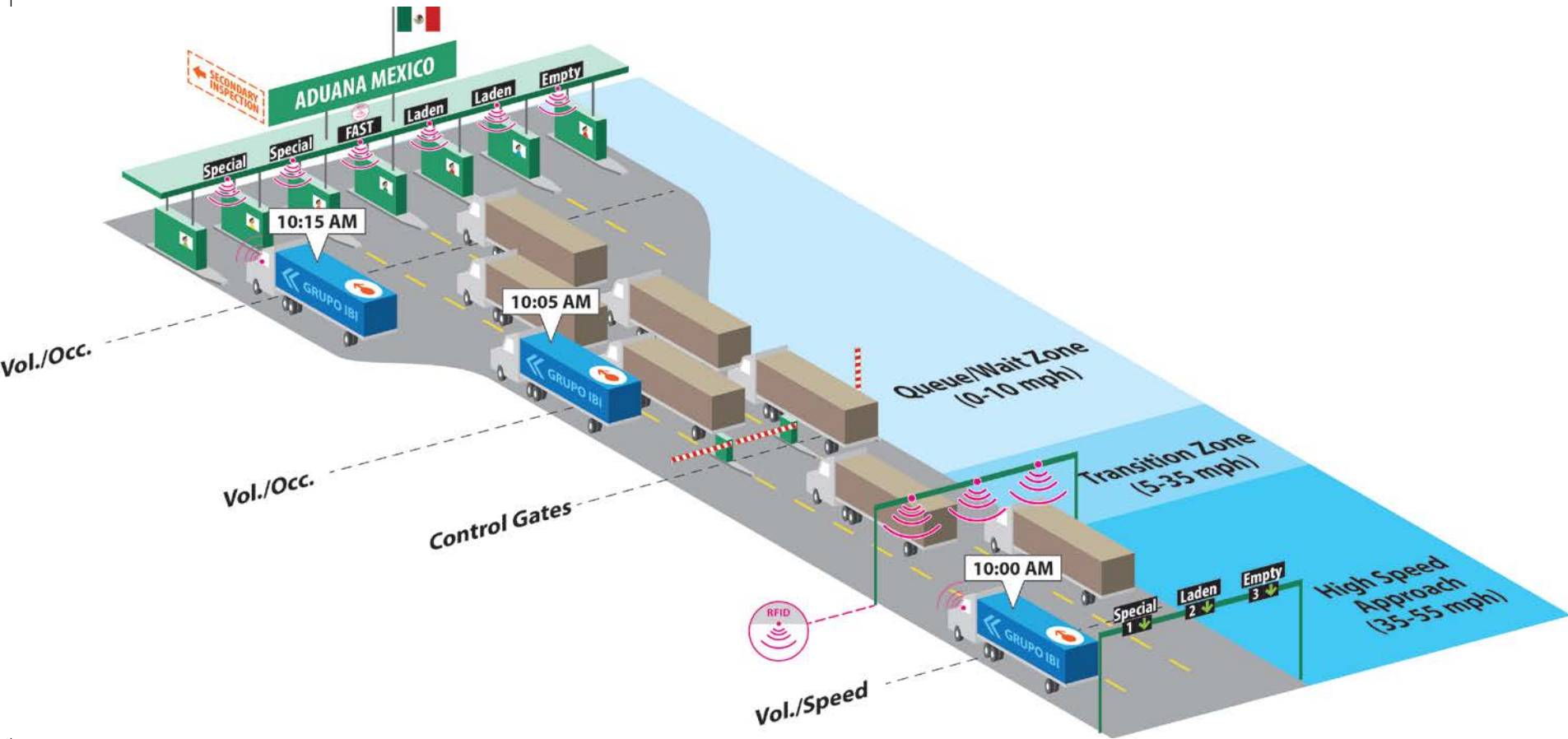


Binational Concept of Operations

- Focused on ensuring a common understanding among users of the systems and related operations:
 - What will the systems do?
 - How will the systems be used?
 - Who will be using the systems?
- Allows implementers to visualize the expected operations and environments
- Tool for developing agreements
- Reflects a common understanding between stakeholders on operational roles, responsibilities, and commitments

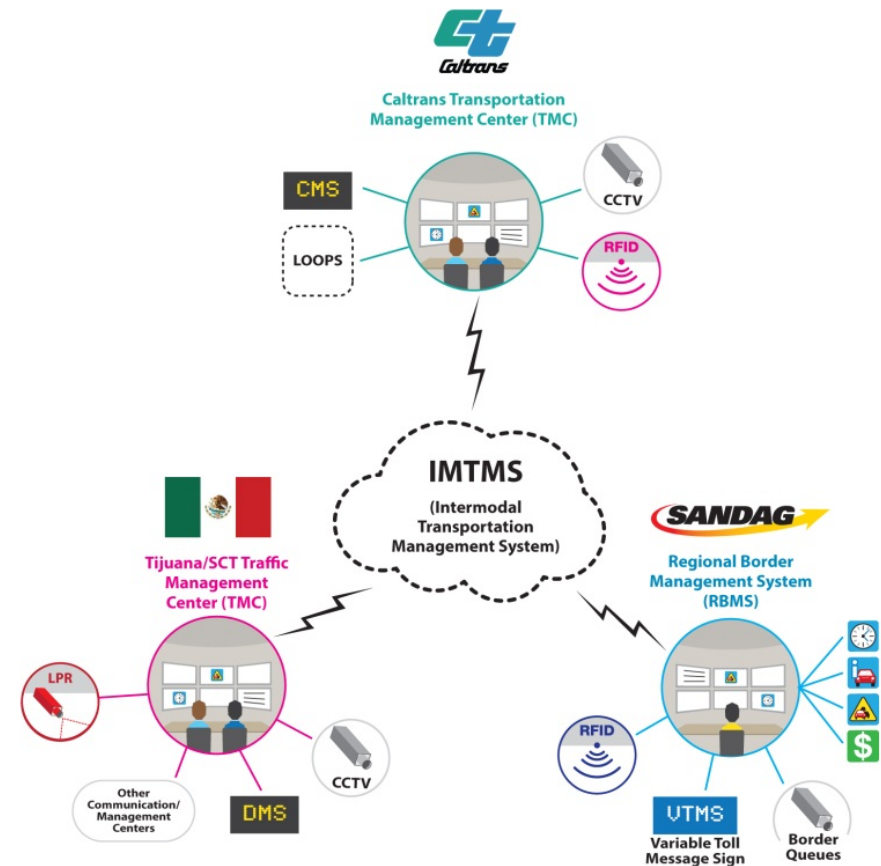


Integrated & Operational Binational Benefits

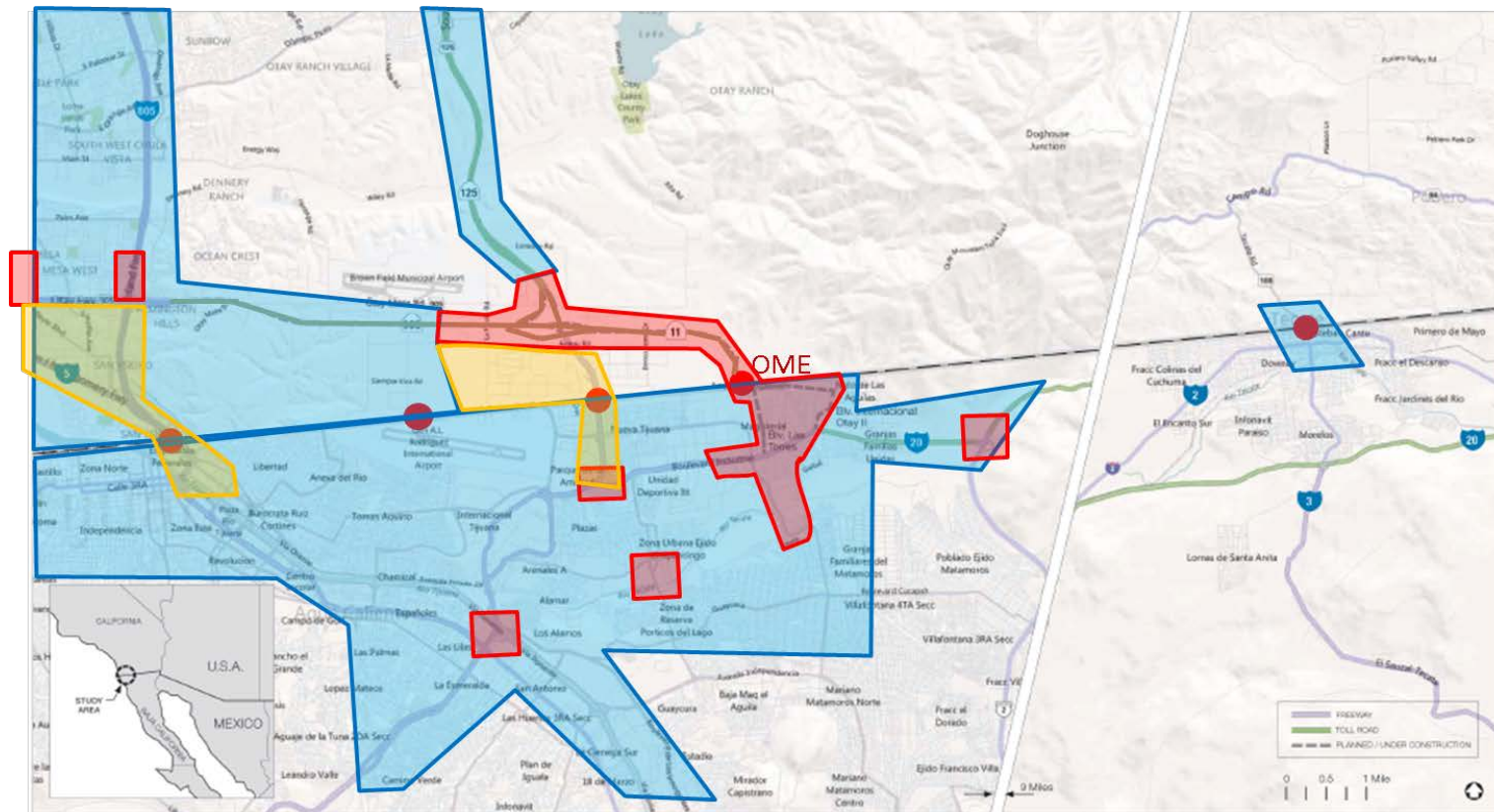


Binational Operations & Data Sharing

- Effective Project Implementation & Operations Relies on Binational Collaboration
- Monitoring of Border Traffic & Operations
- Sharing of Transportation, Toll, and Ports of Entry (POE) Data
- Coordinated Traffic & Incident Management on Approaches to POEs
- Operational Communications and Coordination between Border Crossing Agencies
- Providing Improved Data to Border Travelers



Traffic Management Zones



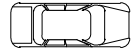
Zone 1
OME, approaches,
& decision points

Zone 2
Other POEs & approaches

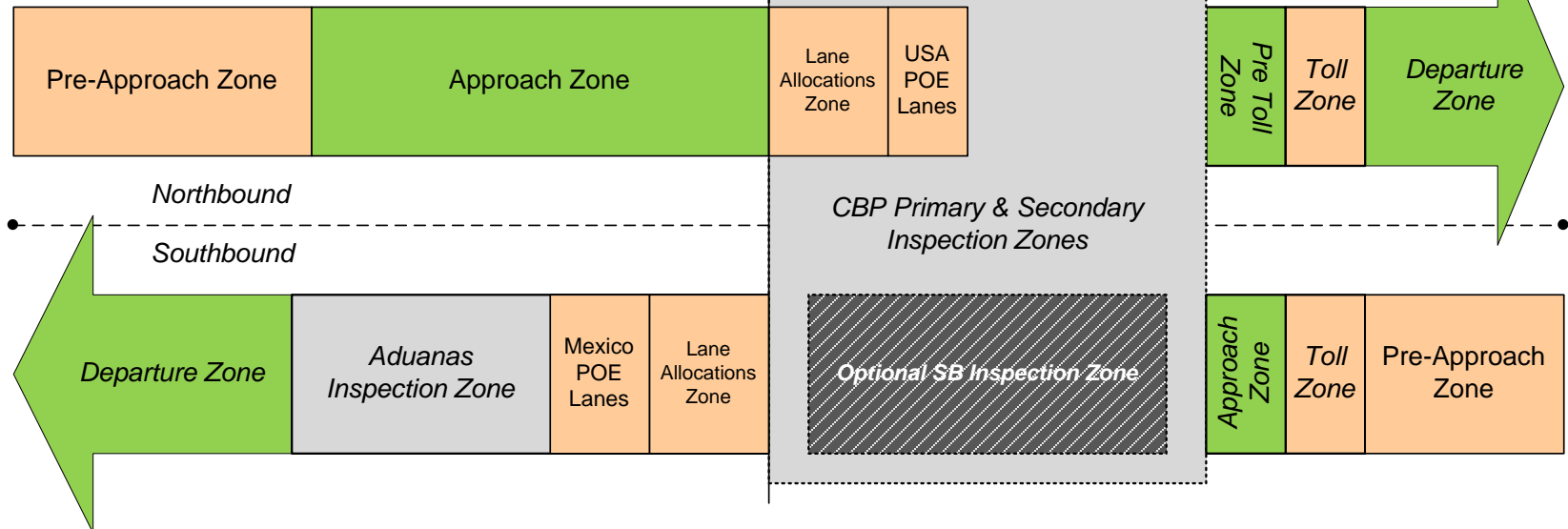
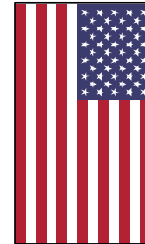
Zone 3
Major routes to POEs

Traffic Management Zones















Regional Border Traffic Management Zones (Passenger Vehicle)



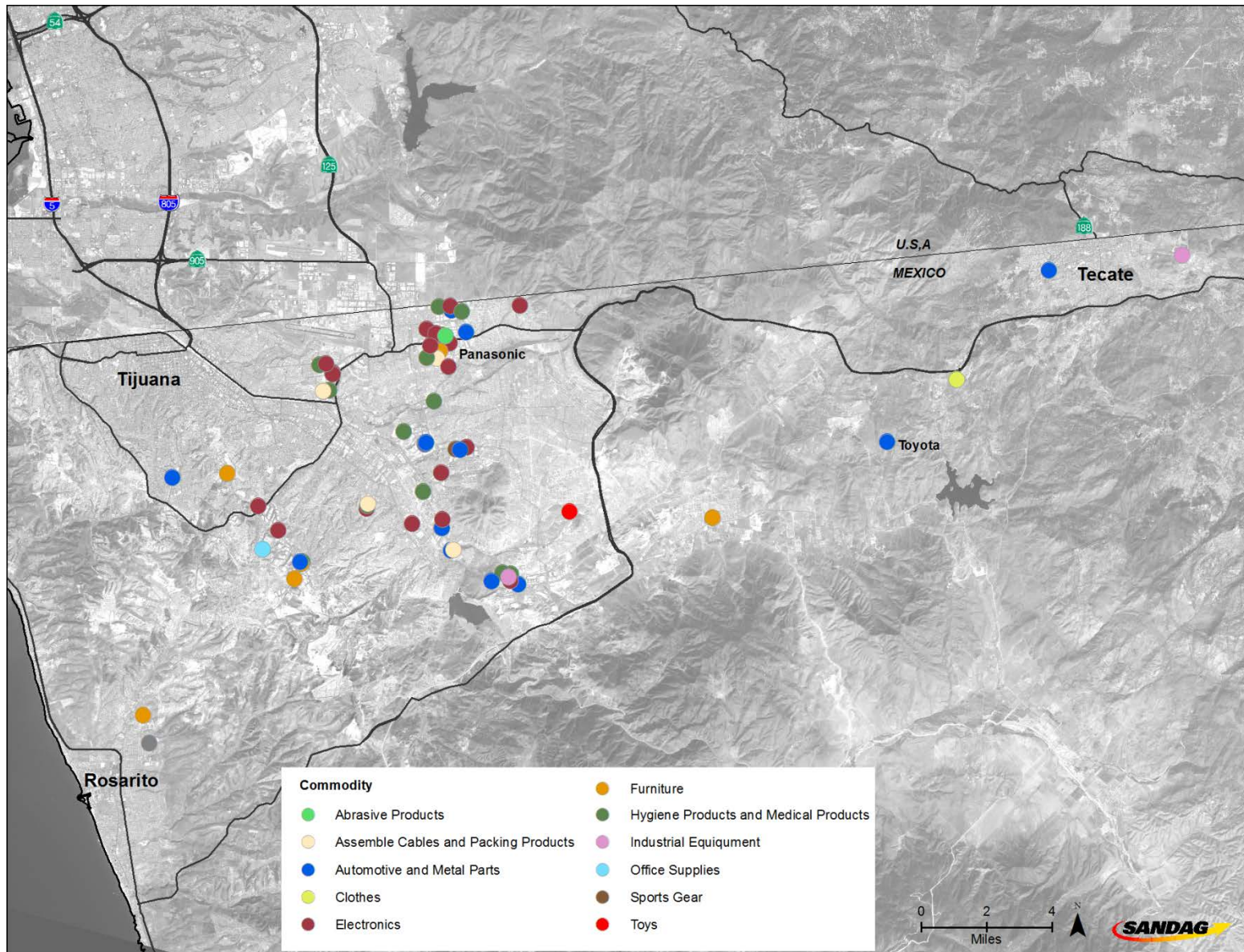
- Monitored & managed by RBMS Central System
- Monitored but not managed by RBMS-CS
- Neither monitored nor managed by RBMS-CS
- Neither monitored nor managed by RBMS-CS



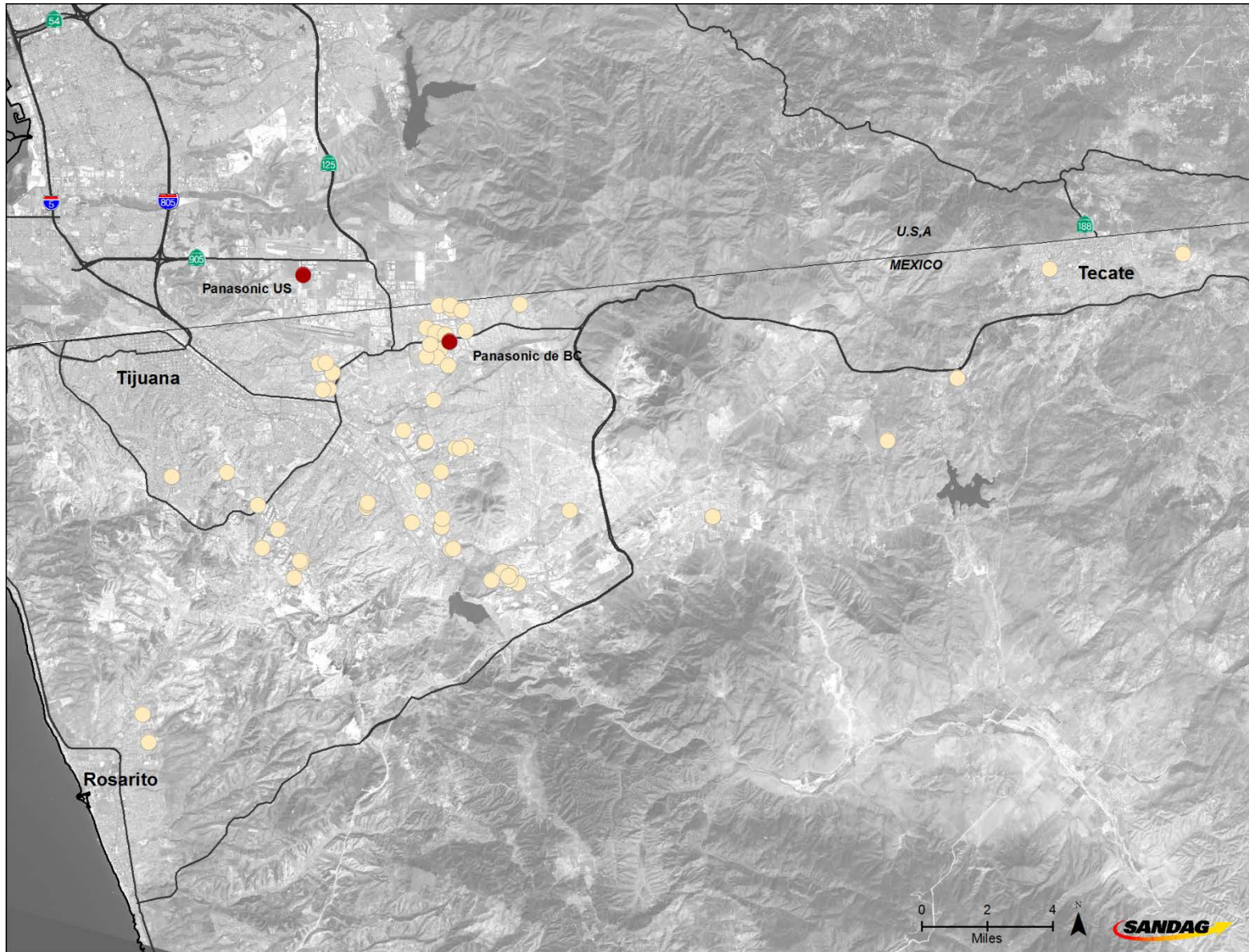
Intelligent Devices

ITS Devices	Importance/Direction/Location	Functional Areas & Ops Agencies
Border Wait & Queue Detection – Passenger	CRITICAL - Northbound & Southbound on Approaches to POE	 Caltrans, SANDAG, SCT
Border Wait & Queue Detection – Cargo	CRITICAL - Northbound & Southbound on Approaches to POE	 Caltrans, SANDAG, SCT
Vehicle Detection Sites - Passenger	CRITICAL - Northbound & Southbound on Approaches to POE	 Caltrans, SANDAG, SCT
Vehicle Detection Sites - Cargo	CRITICAL - Northbound & Southbound on Approaches to POE	 Caltrans, SANDAG, SCT
Traffic Surveillance	CRITICAL - Northbound & Southbound on Approaches to POE	 Caltrans, SANDAG, SCT
Approach Lane Management – Passenger	CRITICAL - Northbound & Southbound on Final Approaches to Primary	 CBP, Aduanas
Approach Lane Management – Cargo	CRITICAL - Northbound & Southbound on Final Approaches to Primary	 CBP, Aduanas
Displays to Watch Commanders	CRITICAL - CBP & Aduanas management facilities	 CBP, Aduanas
Changeable Message Signs/Dynamic Message Signs (CMS/DMS)	CRITICAL – Northbound & Southbound at Key Decision Points	  Caltrans, SCT
Variable Toll Message Signs (VTMS) – Passenger & Cargo	CRITICAL – Northbound & Southbound at Key Decision Points	 Toll System – SANDAG
POE Entry (Open/Closed)	CRITICAL - Northbound & Southbound at POE Gates	 CBP, Aduanas
Tolling Pre-read Passenger & Cargo	CRITICAL – Northbound Approaches	 Toll System - SANDAG
Electronic & APT Tolling	CRITICAL - Northbound & Southbound at SR-11 Near	 Toll System - SANDAG

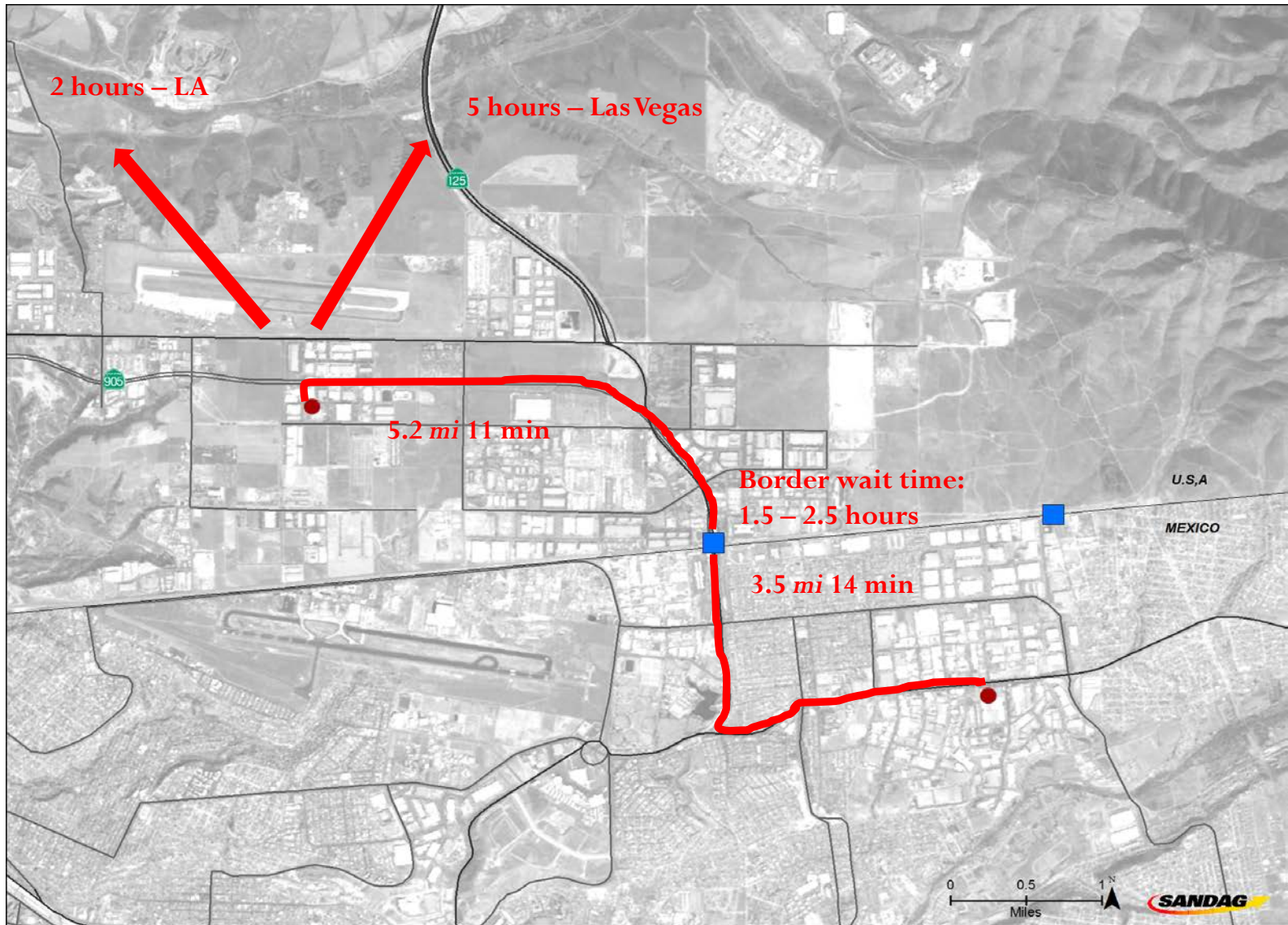
San Diego/Tijuana Maquiladora Region by Business Type



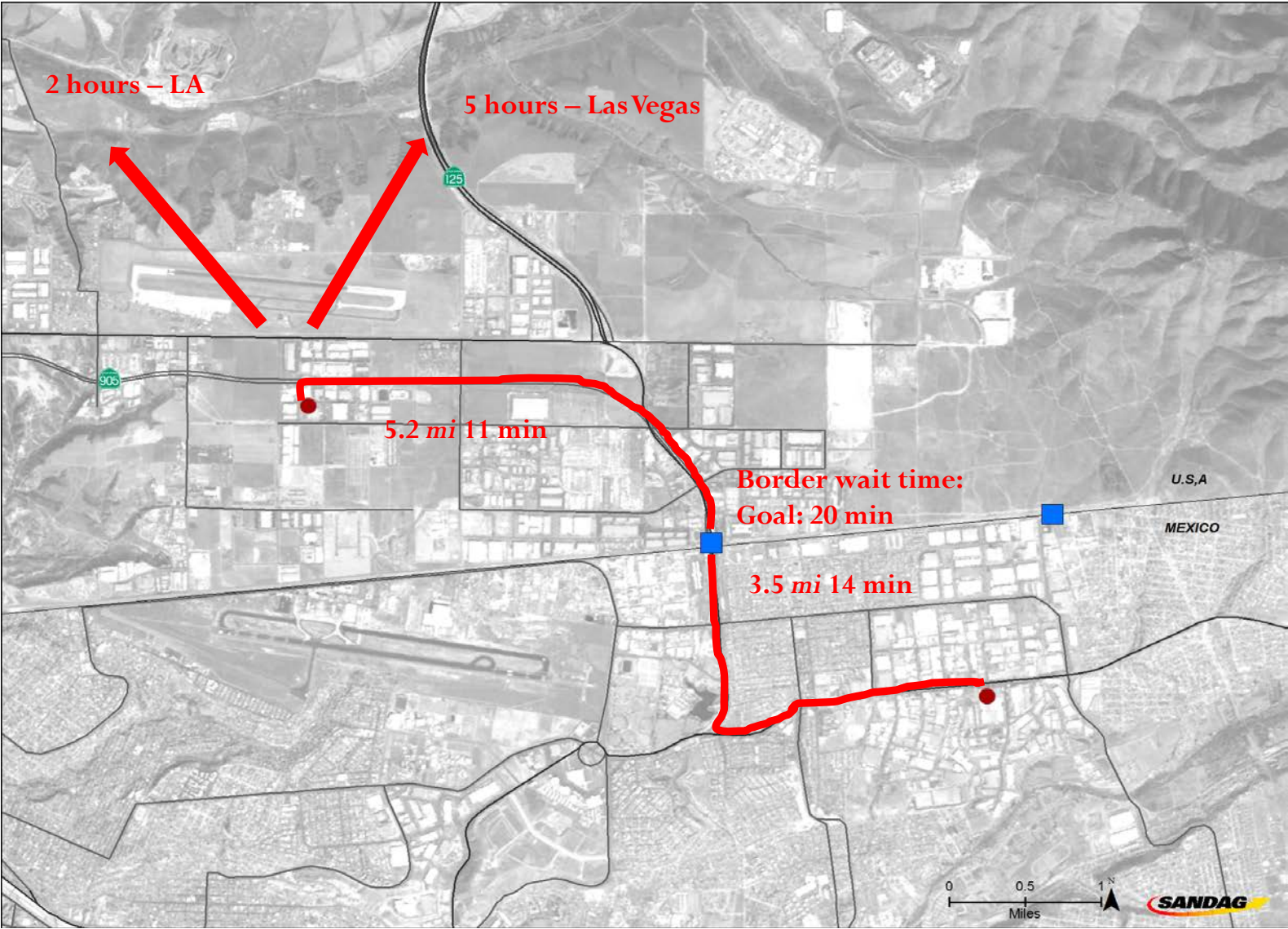
Panasonic's Twin Maquiladora Plants on Both Sides of the Border



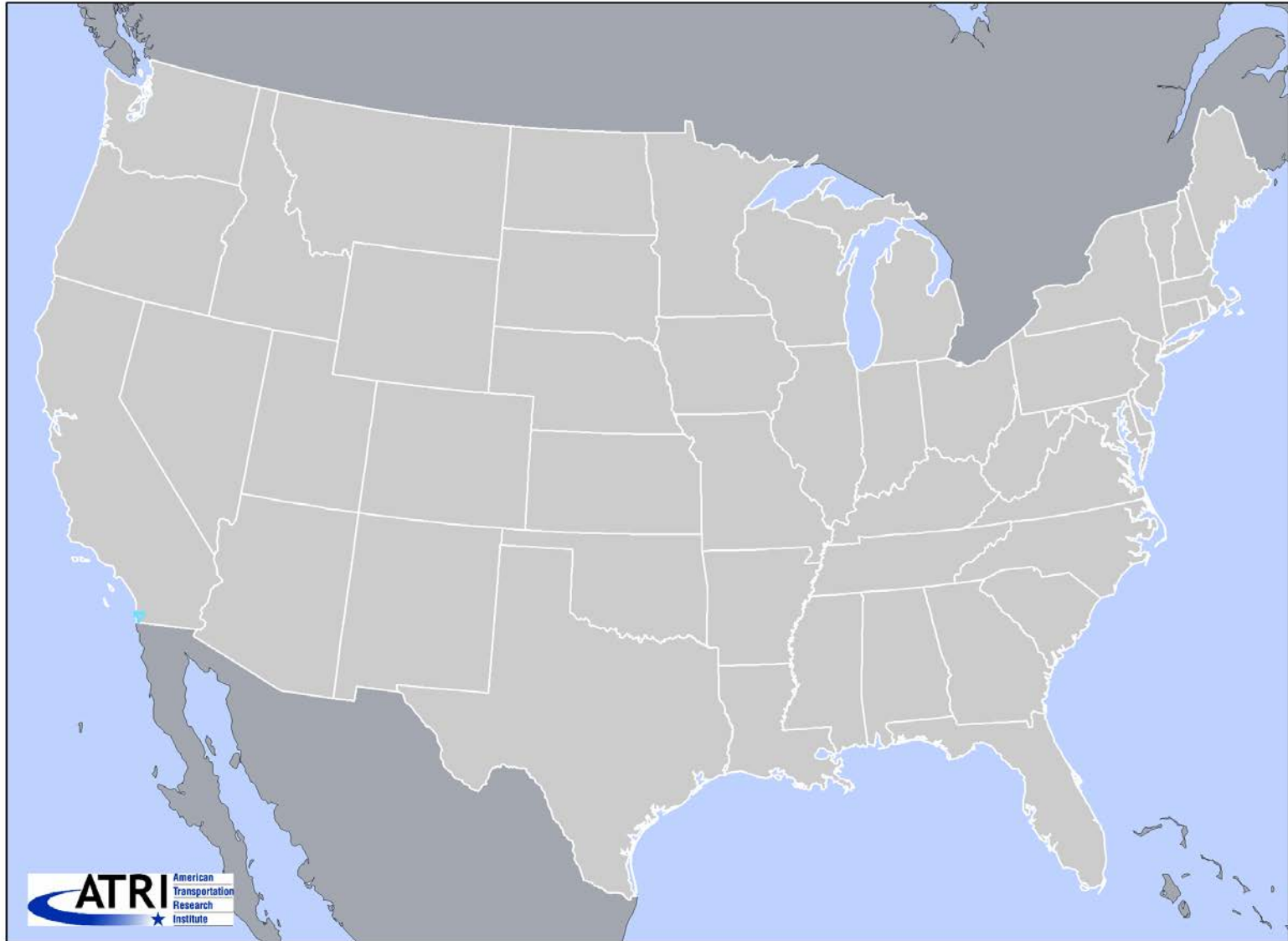
Existing 1.5 to 2.5 Hour Supply Chain Interruption at the Otay Mesa Border Crossing



Future: Improved Supply Chain Fluidity at the Otay Mesa Border Crossing



Visualizing Fluidity: San Diego 2,000 Truck Sample



Same 2,000 Trucks After 24 Hours



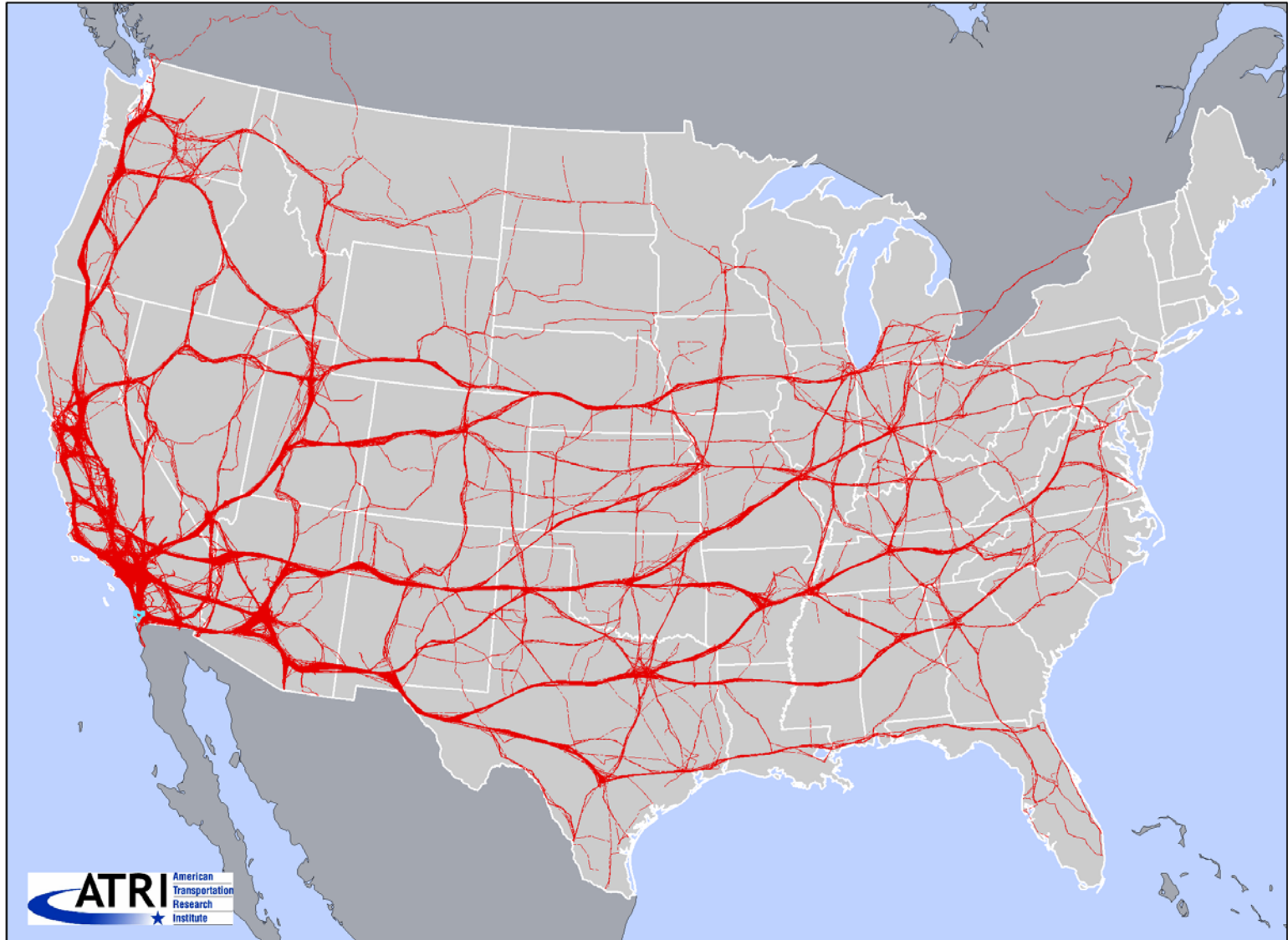
Same 2,000 Trucks After 48 Hours



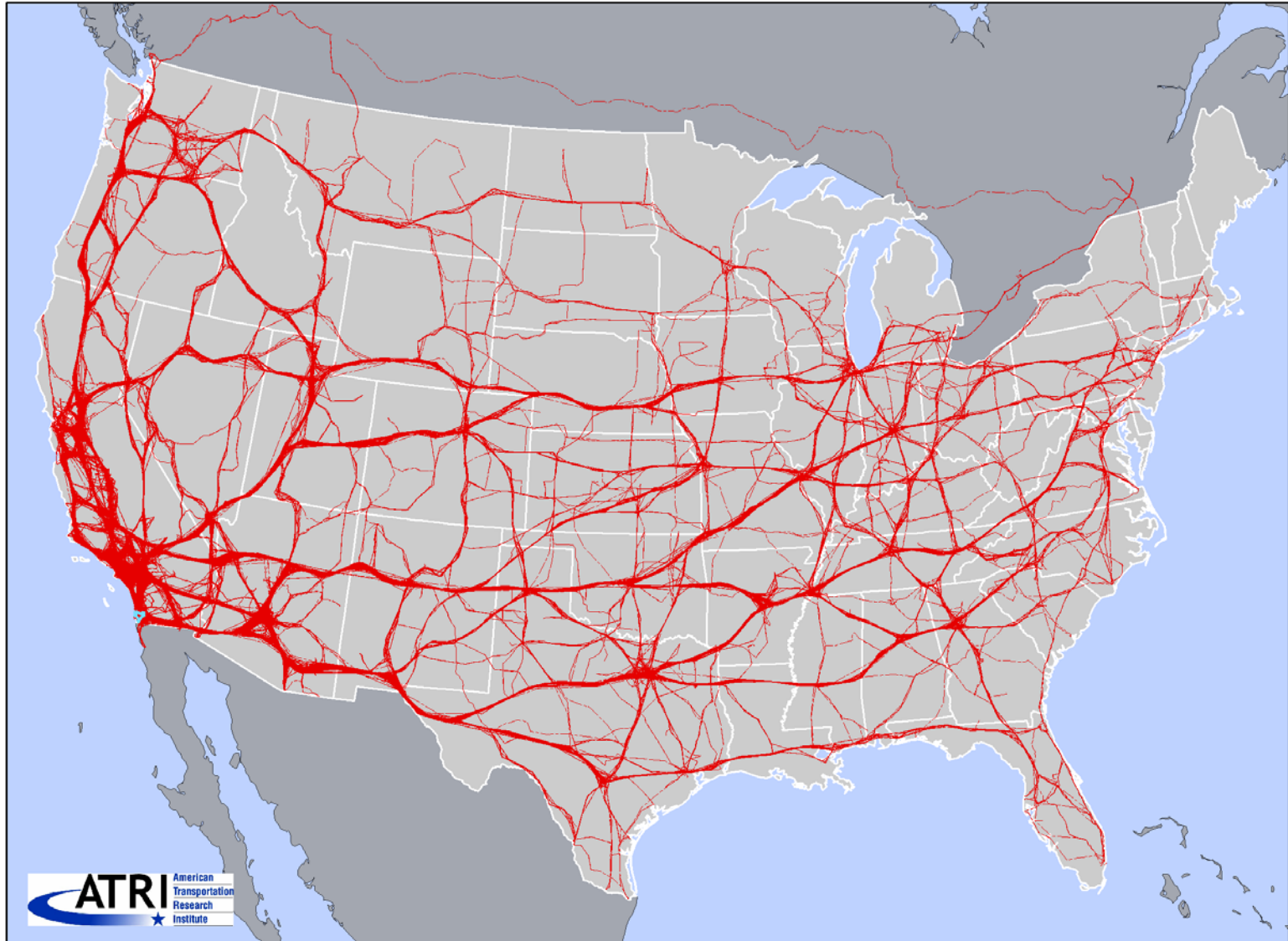
Same 2,000 Trucks After 72 Hours



Same 2,000 Trucks After 5 Days



Same 2,000 Trucks After 7 Days



Thank You and Questions

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