Overview of Assessment of Innovative and Automated Freight Systems and Development of Evaluation Tools

Innovative Research Project 0-6837

for Texas Department of Transportation

Texas A&M Transportation Institute

August 20, 2015

0-6837 Overview- Designed for Three Planned Phases

- Phase I- Project 0-6837
  - Assessment and Selection of Potential Innovative and Automated Freight Systems
  - Develop Initial Evaluative Tools
- Phase II- Potential 2016/17
  - Evaluate Tools/Test Strategies/Technologies at Texas sites
- Phase III- TBD
  - Finalize Tools and Implement Recommendations

0-6837 Phase I Research Objectives

- Identify potential freight movement strategies and technologies for three major freight movement categories:
  - Intercity or Long-distance Freight Corridors
  - Urban Freight Delivery
  - Major Freight Generators/Intermodal Exchange Areas
- Identify/Further Develop/Modify Existing Freight Movement Evaluation Tools
- Evaluate Candidate Freight Movement Strategies Related to the Needs of Texas

Key Research Team Members

Name	Tasks and Responsibilities
Curtis Morgan	Project Leader/Evaluation Of Automated/Low Emission Fixed Guideway Freight Vehicle Strategies/ Technologies
Jeff Borowiec	Aviation and Airport-Related Freight Strategies
Arturo Bujanda	Border and Other Freight Technologies
Robert Cuellar	Advisor and Liaison to the Accelerate Texas Center/AV-CV Efforts
Jim Kruse	Port and Waterway
Mario Monsreal	Freight Villages and Additional Strategies from Europe And Other International Locations
Leslie Olson	Evaluation of Alternative Fuel Vehicle Freight Technologies/Strategies
Jolanda Prozzi	Urban Freight Delivery Strategies, Technologies, and Policies
Steve Roop	Advisor and Liaison to Freight Shuttle Project
Allan Rutter	Rail-Related Strategies/Implementation, ITS, and Policy Research
David Schrank	Off-Peak Deliveries and Other Traffic Operations/Congestion Relief Based Strategies
Juan Carlos Villa	Border and International Freight Movement Strategies/Technologies
Jeff Warner	Lead Corridor and Truck-Based Freight Strategies/Evaluation Tools Analysis/Assist with Internal Project Management Tasks

Project Tasks

- Task 1: Identify/Define Innovative and Automated Freight Strategies and Technologies
  - Discover/Document
- Task 2: Establish Initial Freight Concept Evaluation Tools for Use, Further Development, or Modification
  - Evaluate/Measure
- Task 3: Comparison of Candidate Strategies and Evaluation Methods with TxDOT Freight Infrastructure Needs/Freight Plan Recommendations
  - Reflect/Review
- Task 4: Project Management/Phase II Planning
  - Select/Implement

Task 1: Identify/Define Innovative and Automated Freight Strategies and Technologies

- Initial worldwide scan of Innovative/Automated Freight Strategies and Technologies
- Early Task 1 efforts produced 57 broad strategies/ technologies to move to next stage of evaluation
- Currently working to reduce to a smaller set of about 20 for TxDOT panel review
- Expect to advance approximately 6 to Phase II review and/or pilot implementation

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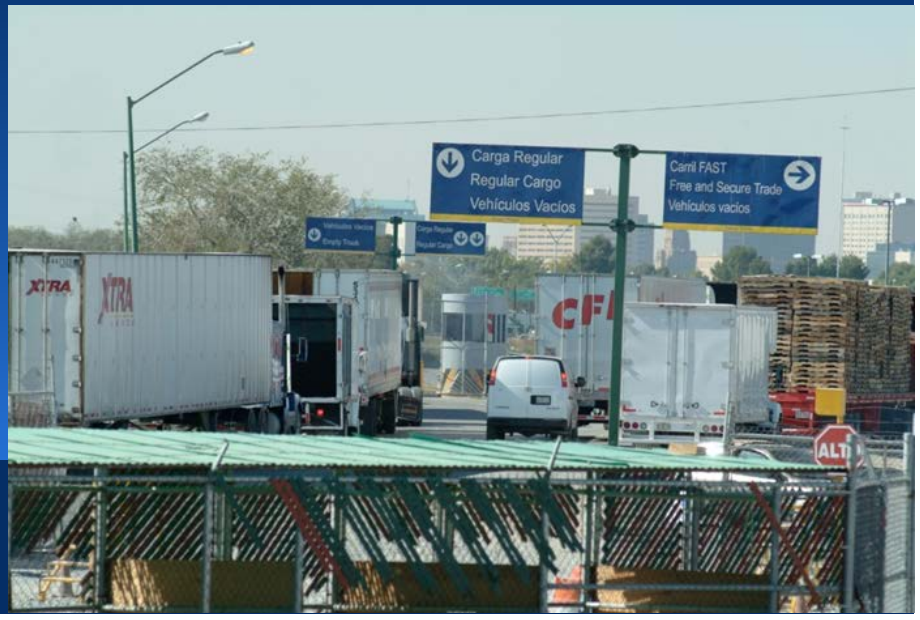
AV/CV and Related Strategies and Technologies Currently Under Review

- FRATIS and other information-based highway traffic control
- Signal Control/Priority/Timing for Freight
- Truck Platooning
- Truck Parking/Marshalling in Urban Areas
- Off-hours delivery/Truck Scheduling
- Automated/Driverless Trucks & Fixed Guideway Systems
- Automated Truck Docking Systems at Freight Terminals
- Freight Loading/Unloading Equipment and Practices

Task 2: Establish Initial Freight Concept Evaluation Tools for Use, Further Development, or Modification

- Subtask 2.1: Literature Review
  - Document state of the practice
  - Determine geographic locations where Task 1 strategies/technologies may have been implemented
- Subtask 2.2: Engage Academic, Industry, Professional Association Experts
  - TRB
  - IANA IFTWG
  - AASHTO TIG



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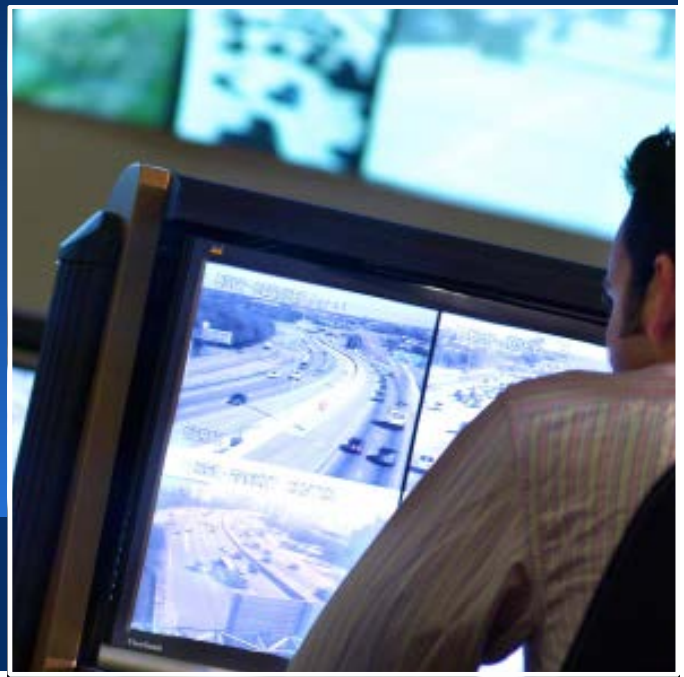
Task 3: Compare Candidate Strategies/Evaluation Methods with TxDOT Freight Infrastructure Needs/Freight Plan Recommendations

- Review completed/most current:
  - TxDOT Freight/Modal/Long-Range Plans
  - MPO/RMA Freight Planning Documents
- Map identified Strategies and Technologies to infrastructure needs outlined in planning documents
- Evaluate combinations of Strategies/Technologies
- Determine Potential Application Areas/Locations



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Task 4: Project Management/Phase II Planning

- Project Team Meetings:
  - Subtask 4.1: Conduct Project Kick-off Meeting
  - Subtask 4.2: Review Freight Strategies and Technologies
  - Subtask 4.3: Select Strategies and Technologies for Phase II In-depth Analysis

- Monthly Reports
- Development of Phase II Test and Demonstration Plan

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Deliverables Schedule

- Task 1 Technical Memo: 06/30/2015
- Task 2 Technical Memo: 07/31/2015
- Task 3 Technical Memo: 11/30/2015
- R1 Research Report: 01/31/2016

Phase II Plan may be requested in late 2015 or early 2016 by TxDOT based upon progress and results

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QUESTIONS?

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