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

Innovative Research Project 0-6837 for Texas Department of Transportation
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

<table>
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<tr>
<th>Name</th>
<th>Tasks and Responsibilities</th>
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<tr>
<td>Curtis Morgan</td>
<td>Project Leader/Evaluation Of Automated/Low Emission Fixed Guideway Freight Vehicle</td>
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<td>Robert Cuellar</td>
<td>Advisor and Liaison to the Accelerate Texas Center/AV-CV Efforts</td>
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<td>Jim Kruse</td>
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<td>Freight Villages and Additional Strategies from Europe And Other International Locations</td>
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<td>Leslie Olson</td>
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<td>Jolanda Prozzi</td>
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<td>Allan Rutter</td>
<td>Rail-Related Strategies/Implementation, ITS, and Policy Research</td>
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<td>David Schrank</td>
<td>Off-Peak Deliveries and Other Traffic Operations/Congestion Relief Based Strategies</td>
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<td>Juan Carlos Villa</td>
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<td>Jeff Warner</td>
<td>Lead Corridor and Truck-Based Freight Strategies/Evaluation Tools Analysis/Assist with</td>
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<td>Internal Project Management Tasks</td>
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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
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
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
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
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
QUESTIONS?