

The Freight Shuttle System

A Private-Sector Freight Transportation Solution

Smart Border Coalition
Stakeholder Working Committee Meeting

May 8, 2019

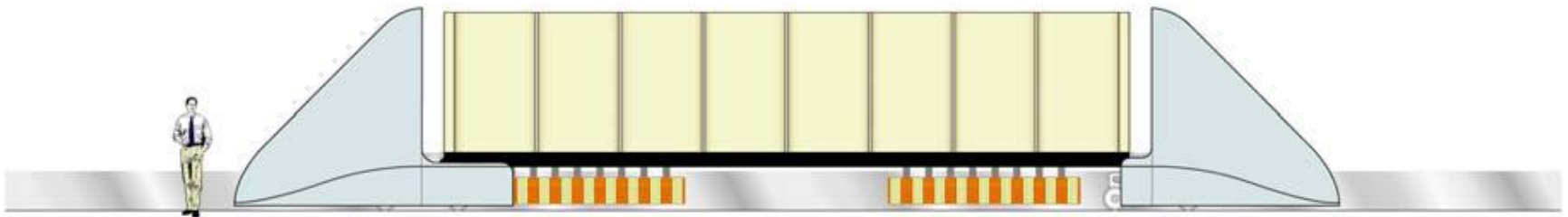


The Freight Shuttle System



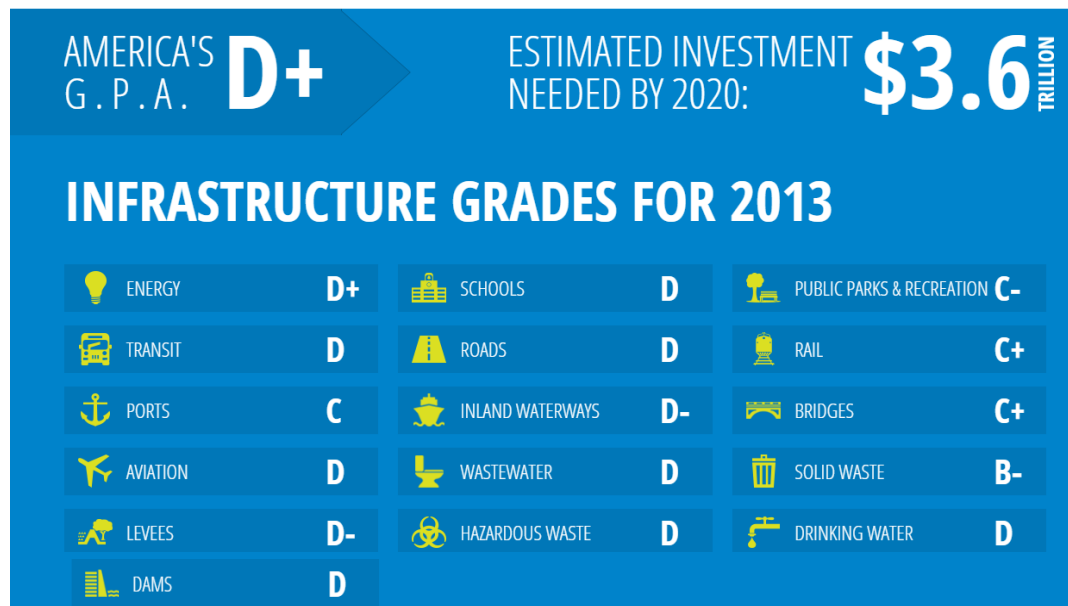
The Freight Shuttle System

- The Freight Shuttle - 2004



Why Now and Why This?

- Massive infrastructure spending shortfall.



Source: <http://www.infrastructurereportcard.org/>

ASCE 2017 Infrastructure Report Card calculates funding shortfall at \$4.59 Trillion

A Rolling Conveyor for Freight



The Freight Shuttle System

- **Autonomous Freight Shuttles**
 - **Hybrid system; best features of truck and rail**
 - Single-container transports
 - Steel-on-steel
 - **Linear induction motors (LIMs)**
 - **Dedicated, elevated guideway**
 - Non-divertible
 - Automated / driverless
 - **To be built within existing highway or other ROW**



24/7 operations offer an option that will overcome capacity, reliability and security issues affecting freight transportation

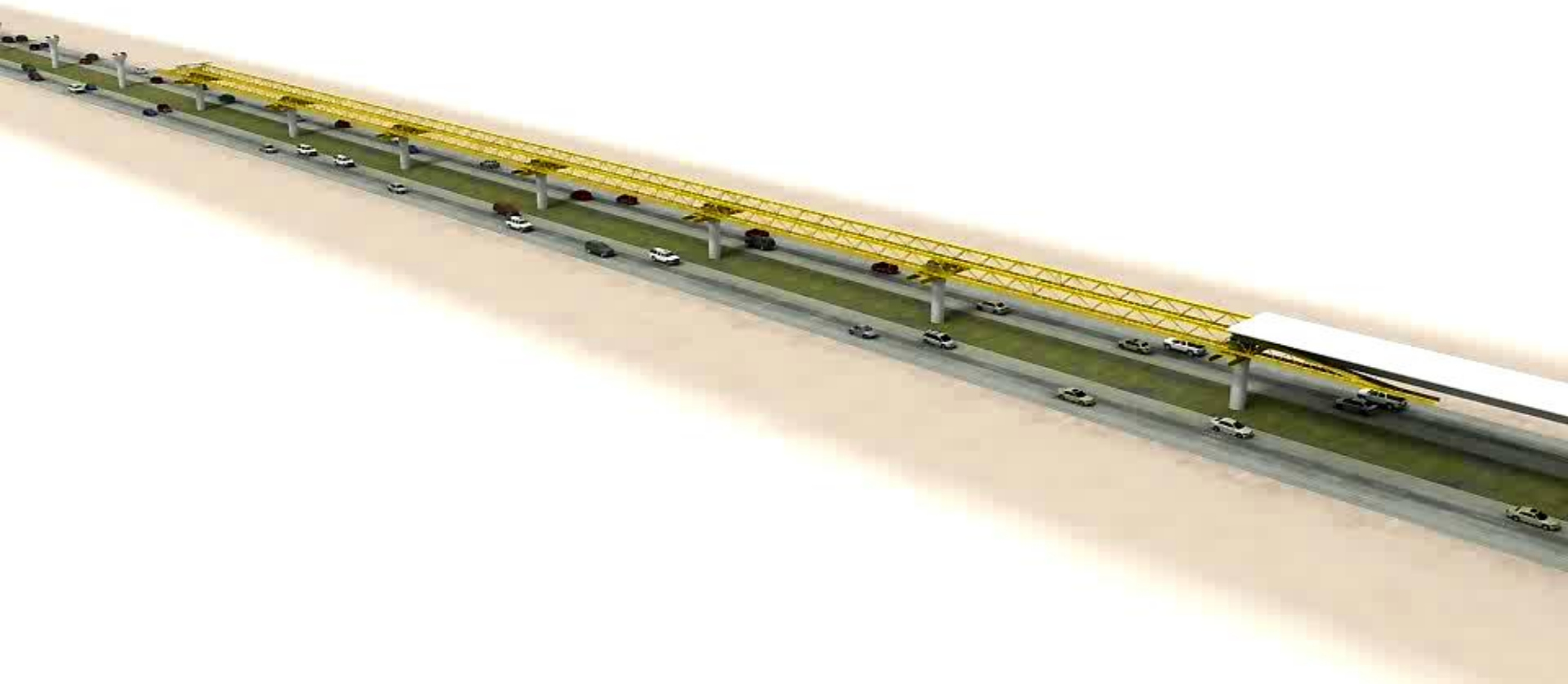
Single-container Transporters Interface with Existing Intermodal Cargo Systems



Segmental Bridge Design Offers Design Flexibility



Segmental Bridge Construction



FS Fabrication Facility



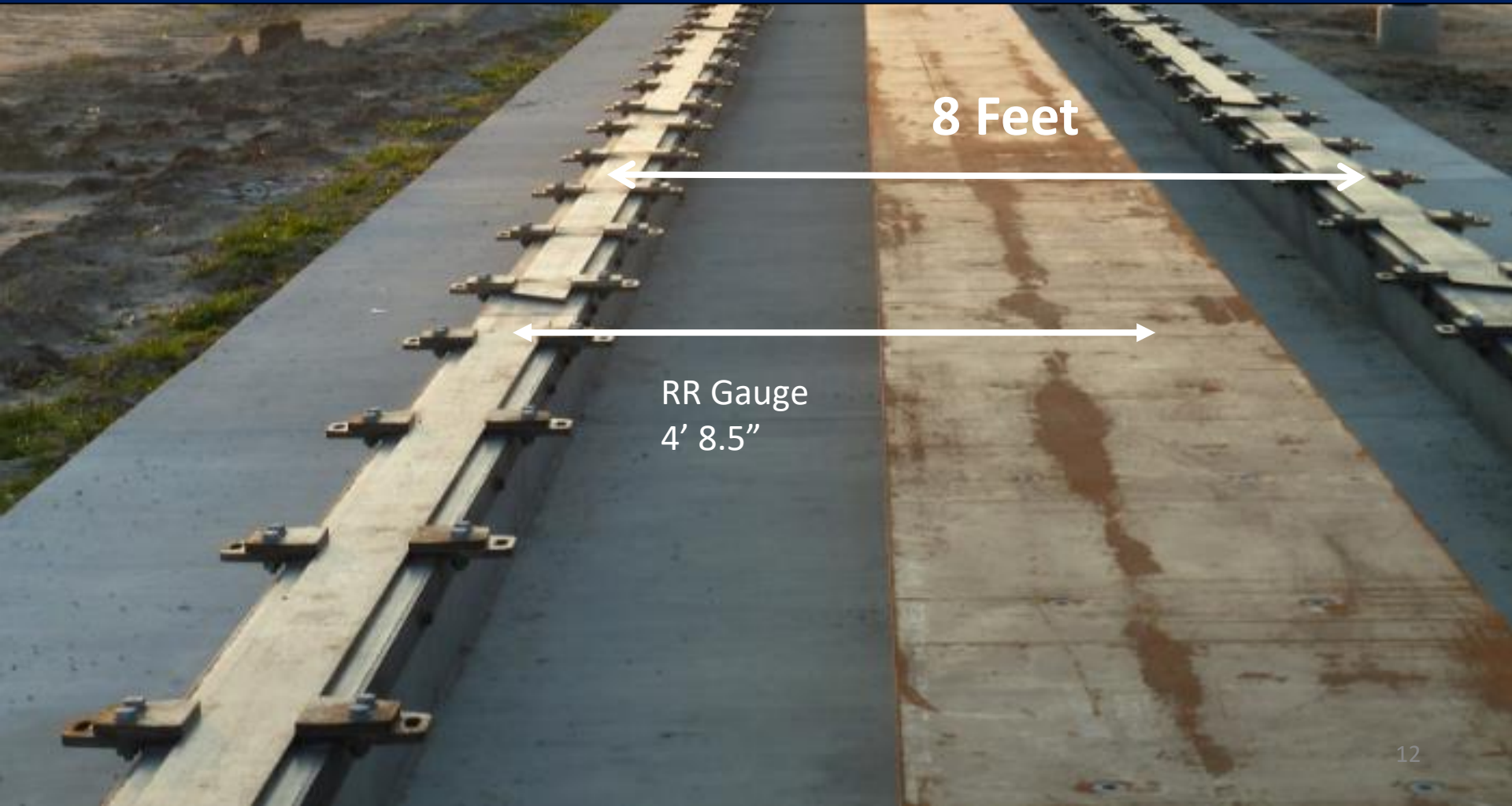
The Freight Shuttle System

Minimal Friction (Steel Wheels-on-Steel Running Surface) i.e. Low Energy Needs



The Freight Shuttle System

Dedicated, Small Footprint Segmental Guideway
Constructed and Operated Within Existing Highway ROW



FS Transporter Testing



The Freight Shuttle System

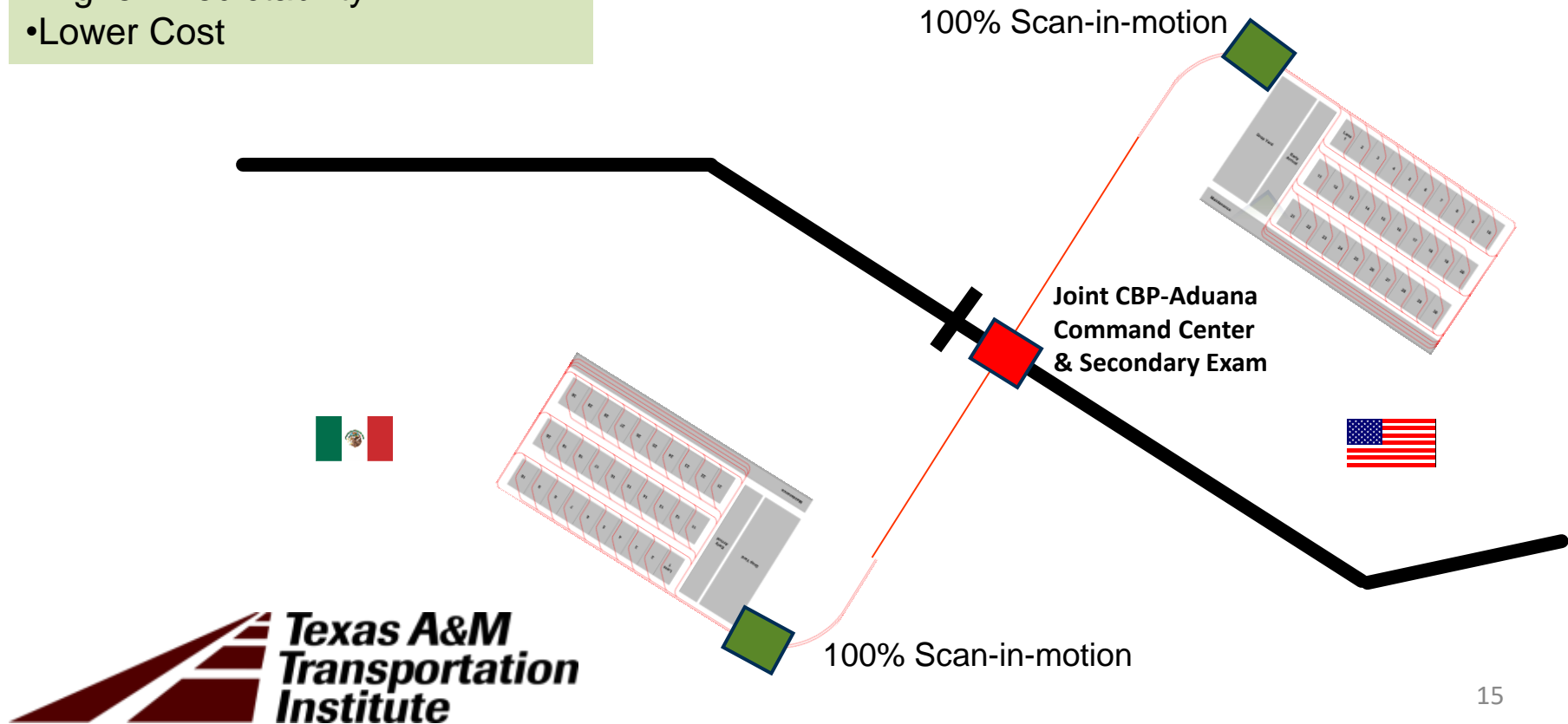


Cross-Border Express (CBE) Model

Secure Trade with the Freight Shuttle System

FEATURES:

- Sterile Corridor
- Serving Regional Manufacturing
- Eliminate Border Wait Times
- Higher Predictability
- Lower Cost



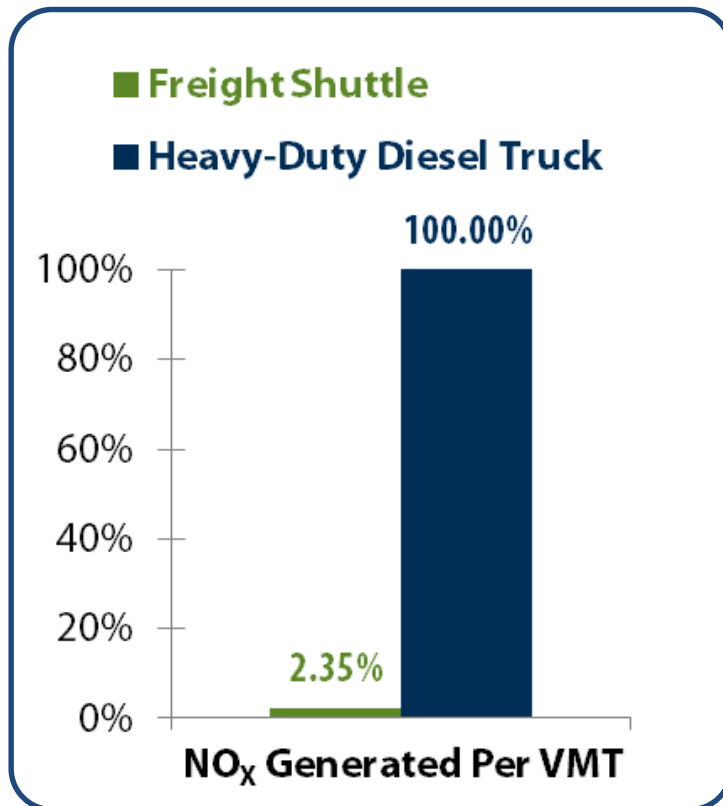
Freight Shuttle System in Service



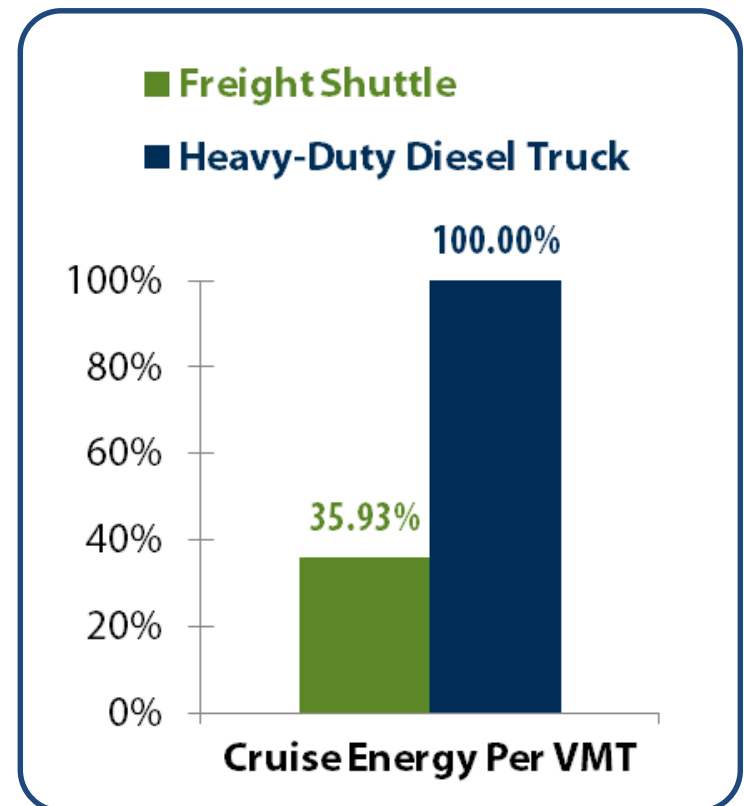
HDD Truck vs. FSS

(per VMT comparison)

NO_x



Cruise Energy



Note: NO_x emission factor of 11.89 g/VMT was used to estimate HDD truck emissions. An efficiency rating of 5.9 mpg was used to estimate HDD truck cruise energy.

HDD Truck vs. FSS

(NO_x required to service the same volume)

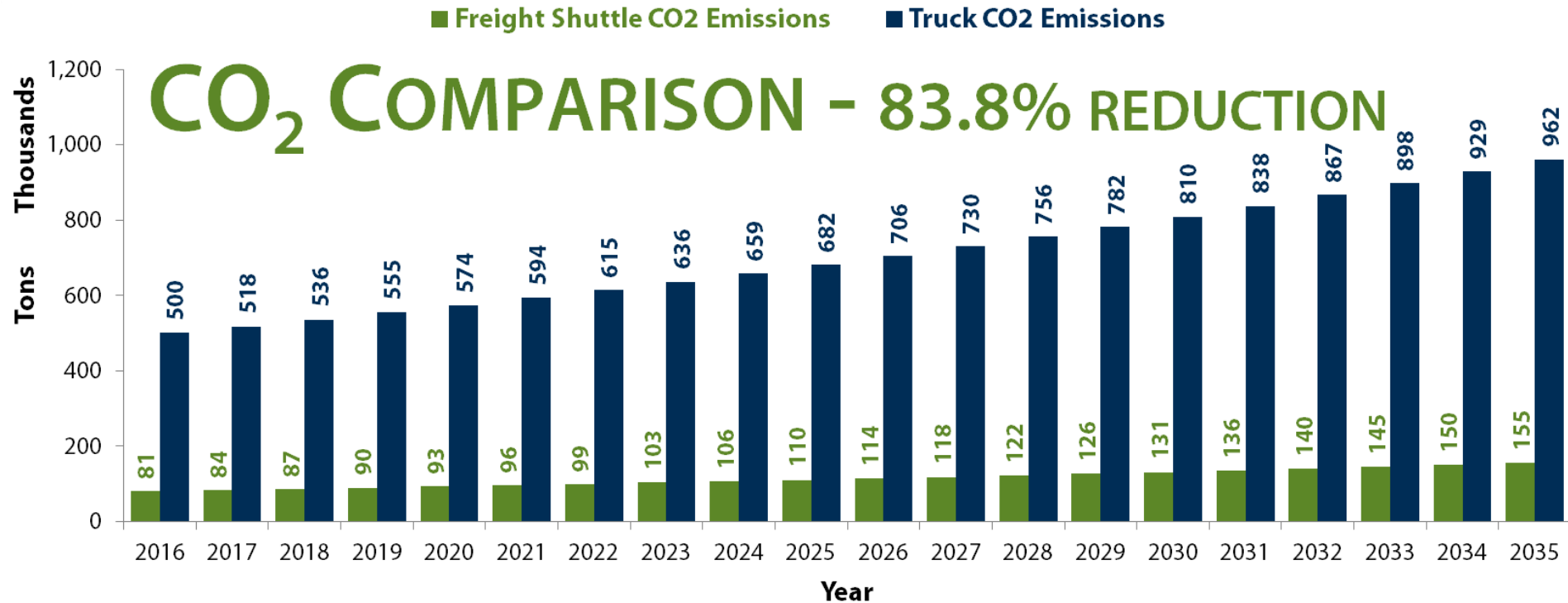
■ Freight Shuttle NO_x Emissions ■ Truck NO_x Emissions

NO_x COMPARISON - 97.5% REDUCTION

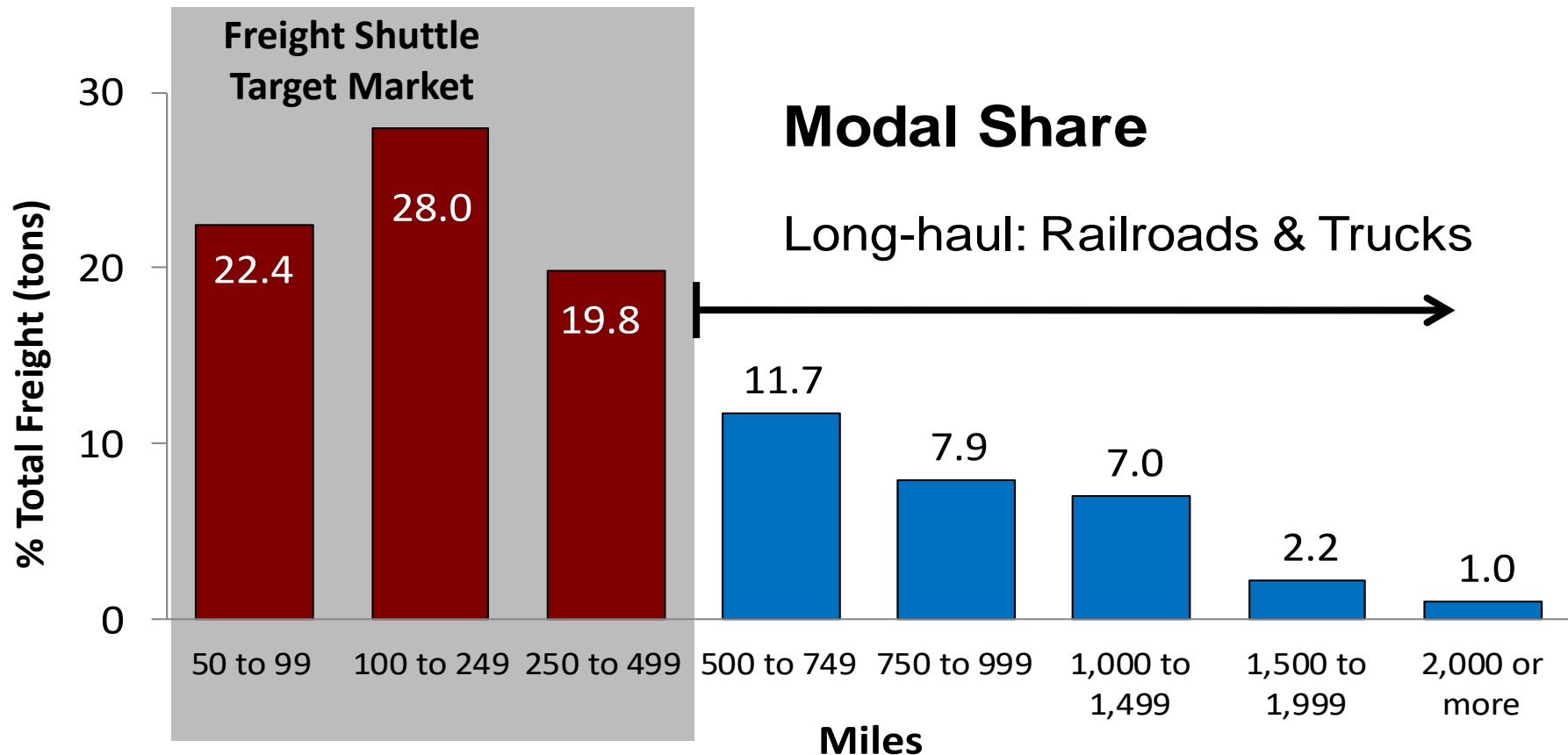


HDD Truck vs. FSS

(CO₂ required to service the same volume)



Freight Shuttle System Operating Radius



* 80% of the FREIGHT MOVES LESS THAN 750 MILES

Cracking the Transportation Nut

- Political / Policy / Statutory
- Economic / Financial / Operating & Life-cycle
- Technical / Reliability / Maintenance
- Operational
- Commercial / Price & Performance
- Environmental / Sustainability

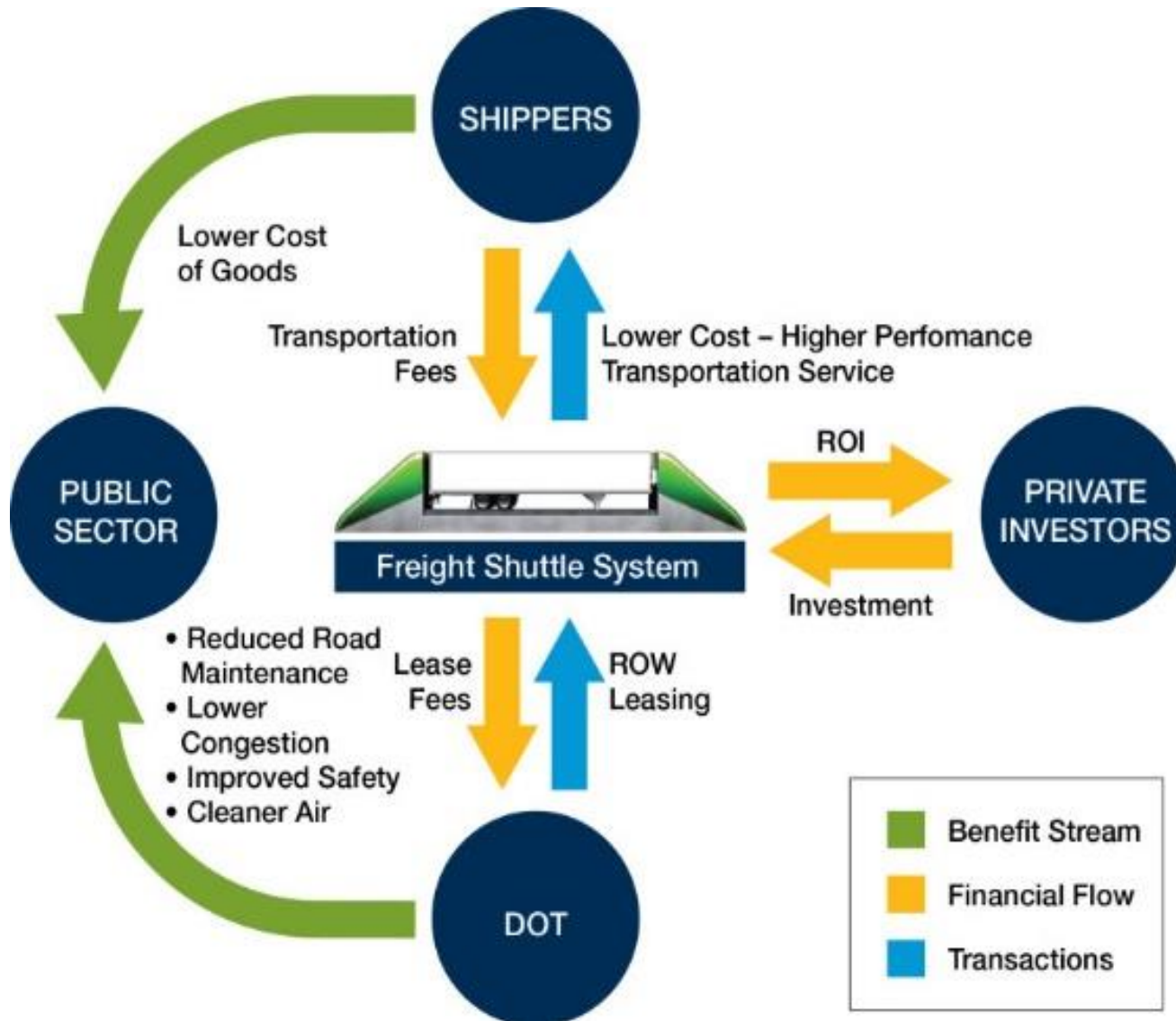
It's not just the gizmo...

Freight Shuttle's Economic Advantage

Mode	Operating Cost/mile	Percentages
Truck	\$1.59 per mile	
Freight Shuttle	\$0.75 per mile	47% of truck cost
Difference	\$0.84 per mile	53% lower

[U](#) 2017 ATRI Average Marginal Cost Per Mile

Freight Shuttle System Business Model



FAST Act

- DEFINITION OF INTELLIGENT FREIGHT TRANSPORTATION SYSTEM

“(A) an innovative or intelligent technological transportation system, infrastructure, or facilities, including electronic roads, driverless trucks, elevated freight transportation facilities, and other intelligent freight transportation systems;”

- LOCATION.

“An intelligent freight transportation system shall be located—(i) along existing Federal-aid highways; or (ii) in a manner that connects ports-of entry to existing Federal-aid highways; and in proximity to, or within, an existing right-of-way on a Federal-aid highway.”

- TREATMENT OF FREIGHT PROJECTS.

“Notwithstanding any other provision of law, a freight project carried out under this section shall be treated as if the project were on a Federal-aid highway.”

Freight movement redefined.



Clean. Safe. Smart.

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