Drayage Truck Study

Andrew DeCandis
October 17, 2018
Project Background

- **Project Goal**
- **Project Activities**
  - Data Collection
  - Data Analysis
Data Collection

- **Project Data Collection**
  - 39 vehicles tracked
  - Portable Activity Measurement System (PAMS)
  - Nearly 23,000 hours of operation logged
  - Over 410,000 miles of operation
Analysis Overview

- Origins and Destinations
- Idling
- Emissions Controls
Analysis: Origins/Destinations
Analysis: Idling
Analysis: Idling
Analysis: Idling

Idle Events By Day

- All Events
  - Average Daily Idle Duration (s)
  - Average Number of Idle Events Per Vehicle

Graph showing:
- Average Daily Idle Duration (s)
- Average Number of Idle Events Per Vehicle

Days of the Week:
- Sunday
- Monday
- Tuesday
- Wednesday
- Thursday
- Friday
- Saturday

Regional Collaboration • Transportation Planning • Multimodal Mobility
Analysis: Idling
Analysis: Emissions Control Impact

NOx Reduction Curve

Conversion Efficiency, %

Temperature, °C

Nitrogen Oxides
Analysis: Emissions Control Impact

Exhaust Temperature

- 59%
- 41%
Analysis: Emissions Control Impact

Speeds Lower Than 5 MPH

- 83%
- 17%
Analysis: Emissions Control Impact

Daily Average Idle Emissions Per Vehicle

- CO₂ (kg/day)
- CO (g/day)
- NO₅ (g/day)
- THC (g/day)
- PM (mg/day)

Galveston, Ft. Bend, Montgomery, Waller, Brazoria, Chambers, Liberty, Harris

Regional Collaboration • Transportation Planning • Multimodal Mobility
Next Steps

- Conclusions

- Next Steps
  - Additional vehicles
  - Port activities
  - Engine temperature