

# Aerodynamic Improvements for Vocational Vehicles



# Outline

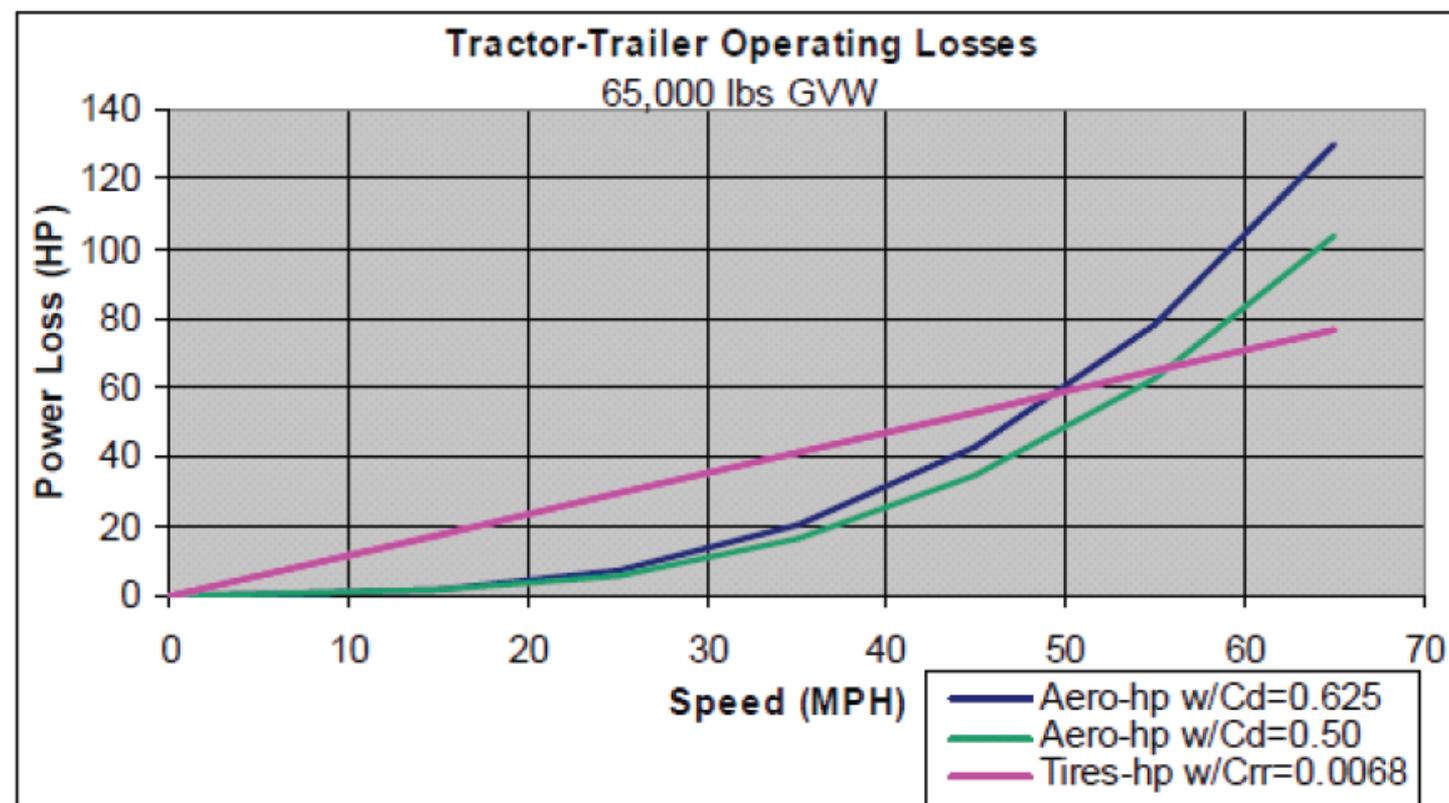
- Aerodynamic Device Potential
- Effectiveness of Aerodynamic Devices on Vocational Vehicles
- US Phase 2 Vocational Aerodynamic Credits
- Next Steps to Gather More Data
- Voluntary Fleet/Truck Participation in Survey

# Aerodynamic Device Potential

- Aerodynamic devices shown to reduce GHG emissions in heavy-duty trucks
- ARB Tractor-Trailer Greenhouse Gas and US EPA Phase 2 rules are integrating aerodynamic features into Class 7-8 heavy-duty trucks
- Between 20-25% of new trailers are equipped with skirts today



# Aerodynamic Drag Increases at High Speeds



# Effectiveness of Aerodynamic Devices on Vocational Vehicles

- ARB contracted with National Renewable Energy Laboratory (NREL) to assess emissions benefit of aerodynamic devices on vocational vehicles
- Side skirts, front and rear fairings, and wheel covers were studied



# Aerodynamic Devices on Vocational Vehicles Can Cut Fuel Consumption

| <b>Aerodynamic Device(s)</b>       | <b>Fuel Consumption Reduction (%)<br/>Speeds above 45 mph</b> |
|------------------------------------|---|
| <b>Side Skirts</b>                 | <b>5.2 - 6.1</b>  |
| <b>Front Fairing</b>               | <b>5 - 6.9</b>  |
| <b>Side Skirts + Front Fairing</b> | <b>10.3 - 10.4</b>  |
| <b>Rear Fairing</b>                | <b>2.7 - 3.8</b>  |

# US Phase 2 Vocational Aerodynamic Credits

- Based on the ARB/NREL Study
  - US EPA recognized the GHG benefit of aerodynamic devices on vocational box trucks
- US EPA Phase 2 rule offers credits for the use of aerodynamic devices on some vocational box-type trucks
- Only applicable for regional vocational vehicles with a 36 ft total chassis length/frontal area at least 9 m<sup>2</sup> and 23 ft chassis length/frontal area at least 8 m<sup>2</sup>

# Next Steps

- ARB is working with NREL and UC Irvine establish a contract to study the characteristics of vocational vehicles and fleets
- Determining which vehicles could benefit from the use of aerodynamic devices



# Study Methodology and Aims

- Utilize surveying techniques to study vocational heavy-duty trucks
- Determine characteristics of fleets, types of vocations, vehicle types and driving patterns of vehicles
- Identify vehicles/fleet types that travel at high speeds and could benefit from aerodynamic improvements

# Timeline

- In process of establishing interagency agreement with NREL/UCI
- Work with Contractor to build study parameters
- Contractor will begin surveying fleets
- Representative vehicles will be data logged
- Final report will be completed by Early 2018

# Voluntary Fleet/Truck Participation

- Staff is looking for fleet participation in a survey of vocational vehicles (ie box trucks)
- Survey will be conducted by contractor and will used to determine the speed and use of these trucks
- Information will help to craft policies for the potential use of aerodynamic devices
- Vehicles will also be data logged to determine drive cycle information

# Staff Contact

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