



# **Proposed Heavy-Duty Inspection and Maintenance Regulation**

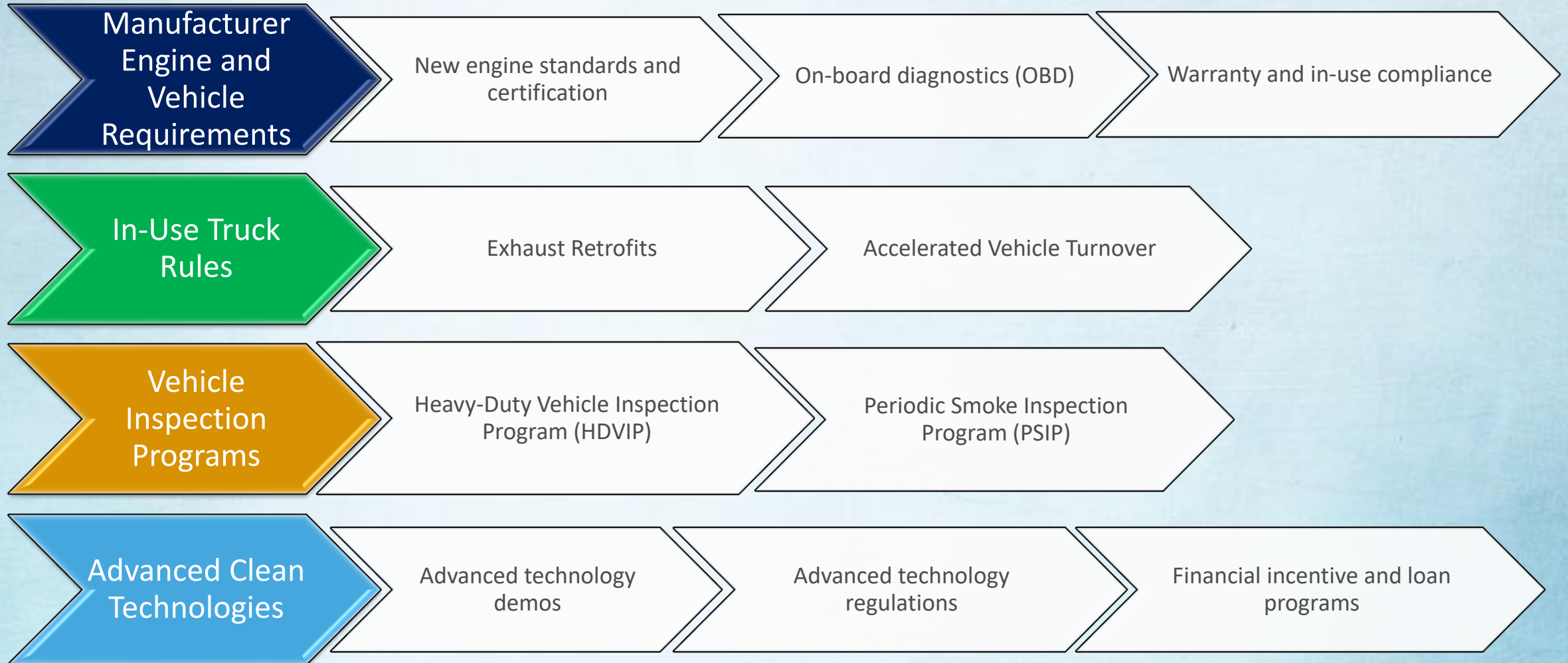
**NCTCOG Hosting: Heavy-Duty Diesel Vehicle Inspection and Maintenance  
Working Group Teams Meeting  
Thursday, November 18, 2021**

# HD I/M is Critical for SIP Attainment

- State Implementation Plan (SIP) statewide strategy: largest near-term NO<sub>x</sub> reduction measure
- San Joaquin Valley region: 6.8 tpd NO<sub>x</sub> reduction from HD I/M included in 2024 SIP commitment
- South Coast region: 60% NO<sub>x</sub> reduction beyond current programs by 2031

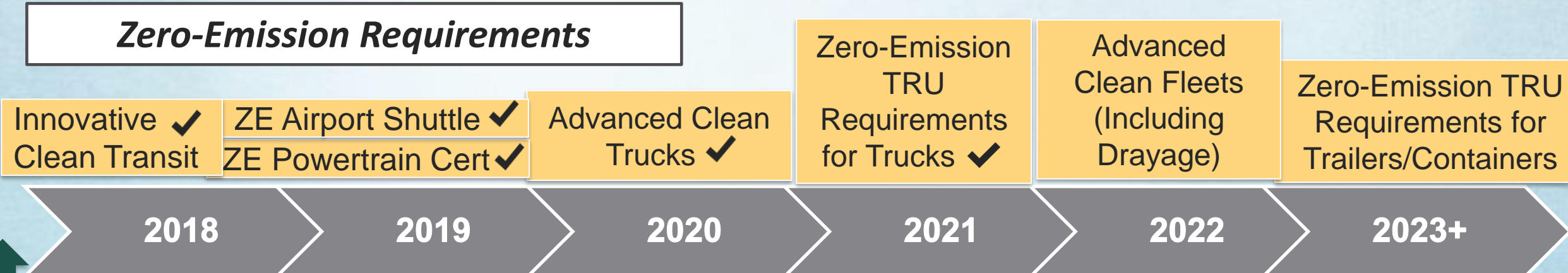


# CARB's Heavy-Duty Vehicle Program



# Recent Heavy-Duty Vehicle Regulations

## Zero-Emission Requirements



Innovative Clean Transit ✓

ZE Airport Shuttle ✓  
ZE Powertrain Cert ✓

Advanced Clean Trucks ✓

Zero-Emission TRU Requirements for Trucks ✓

Advanced Clean Fleets (Including Drayage)

Zero-Emission TRU Requirements for Trailers/Containers

2018

2019

2020

2021

2022

2023+

CA GHG Phase 2 ✓

HD OBD Amendments ✓

HVDIP/PSIP Amendments ✓

Truck Omnibus ✓

HD OBD Amendments ✓

**Heavy-Duty I/M**

**2008, 2010: Truck and Bus Regulation**

## Cleaner Combustion Requirements

# CARB's Existing Inspection Programs

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- HDVIP: Heavy-Duty Vehicle Inspection Program
  - Roadside inspections for excessive smoke, tampering, and emission control labels
- PSIP: Periodic Smoke Inspection Program
  - Annual self-testing for California fleets of 2+ vehicles
- 5% opacity limit for vehicles equipped with diesel particulate filters (DPFs)



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# Senate Bill 210

- 2019: Senate Bill (SB) 210 authored by Senator and Board Member Leyva
- Directs CARB to develop and implement a new, comprehensive HD I/M program
  - Target malfunctioning vehicles with high emissions
  - Require vehicles operating in California to comply
  - Maintain compliance certificate with vehicle
  - Assess compliance fees to support program administration
  - Link HD I/M compliance to California DMV registration
  - Authorize CHP to enforce HD I/M requirements

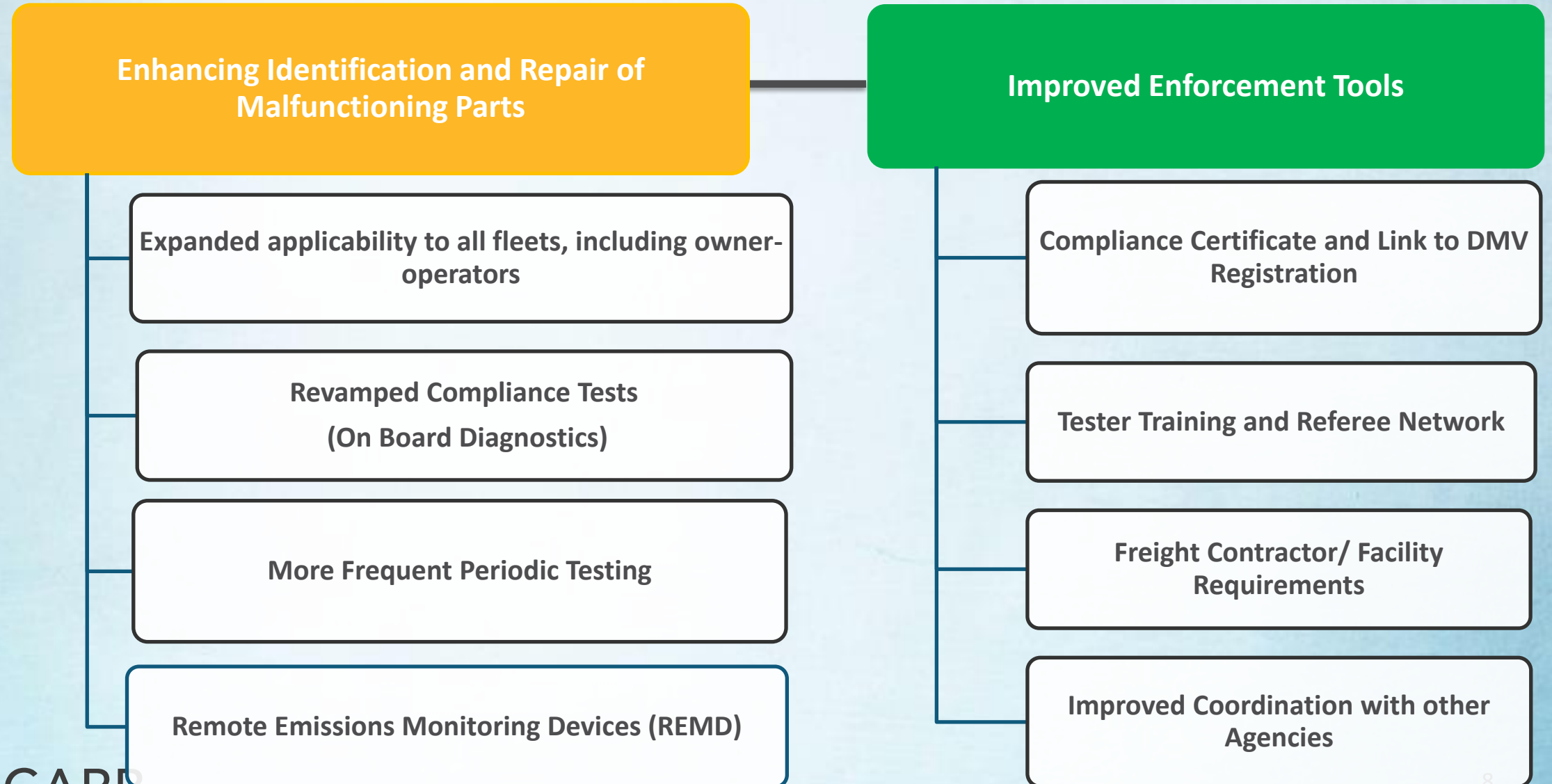


# HD I/M Purpose

- Revamp existing inspection programs
- Ensure emissions control systems are functioning properly
- Ensure quick repair of malfunctioning parts
- Ensure high compliance rates and a level playing field



# Major HD I/M Program Elements





# Vehicle Applicability

- Non-gasoline HDVs operating in California > 14,000 lbs.
  - In-state, out-of-state/country
  - Including owner-operators
- Limited exemptions in SB 210
- Gasoline HDVs > 14,000 lbs. in BAR's Smog Check program



# Revamped Vehicle Compliance Tests for HD I/M

- OBD-equipped vehicles:
  - OBD data scan
  - Identifies emissions-related component malfunctions that can lead to emissions increases
  - Identifies NOx-related malfunctions that current inspection programs cannot
- Non-OBD vehicles:
  - Smoke opacity test procedure (SAE J1667)
  - New vehicle emissions control equipment inspection



# Compliance Certificate Requirements

- All vehicles must have a valid compliance certificate to legally operate in California
- Criteria to obtain a compliance certificate:
  - Compliant with testing requirements
  - No outstanding enforcement actions
  - Pay annual compliance fee
- DMV registration block placed on California-based vehicles that have not demonstrated compliance
- CHP checking for compliance certificates

# Compliance Testing for OBD Vehicles

- Applicable to vehicles with 2013 and newer model year engines
- Testing technology options
  - Telematics service providers
    - Original equipment manufacturers or third-parties
    - Utilization of existing equipment on the vehicle
    - “Set it and forget it”
  - Hand-held OBD data scan tools



# Periodic Vehicle Compliance Testing

- Frequency
  - 2x per year compliance testing for most vehicles
  - 1x per year for California-registered motor homes and agricultural vehicles
- Compliance deadlines based on:
  - DMV registration date for California-registered vehicles
  - Last number of VIN for out-of-state registered vehicles
- Submit passing compliance test within 90 days of deadline

# Remote Emissions Monitoring Devices

- Identify high-emitting vehicles and pursue follow-up compliance testing
  - High emitters conduct OBD or opacity testing and repairs
- Mobile and stationary platforms
- Benefits
  - Out-of-state vehicle enforcement
  - Identifying regions of non-compliance



# Benefits in Disadvantaged Communities

- Mobile REMD to be deployed in communities where air quality attainment goals are most urgent
- Opportunities to establish locations for use of free testing devices in AB 617 communities
  - Consistent with CARB's equity goals



# Ensuring Enforceable Requirements

- Compliance certificates linked to DMV registration
- Improve accountability and accuracy of reporting
- Freight contractor/facility requirements
- Enhanced field inspection coordination





# Improving Accountability and Accuracy of Reporting

## Tester Training

- Training required to perform HD I/M compliance tests
- Online training course on HD I/M requirements and testing

## Referee Network

- Third-party inspection and verification
- Flexibility to handle novel compliance scenarios

# Freight Contractors and Applicable Freight Facilities

- Supply chain verifies compliance and keeps records
  - Freight Contractors
  - Brokers
  - Applicable Freight Facilities
- Encourages compliance



# Improved Coordination with other State Agencies

- California Highway Patrol
  - Ensure vehicles have compliance certificate
  - Perform inspections
- DMV
  - Registration tied to compliance
- Establishing inspection locations with:
  - CDFA
  - Caltrans
  - CHP



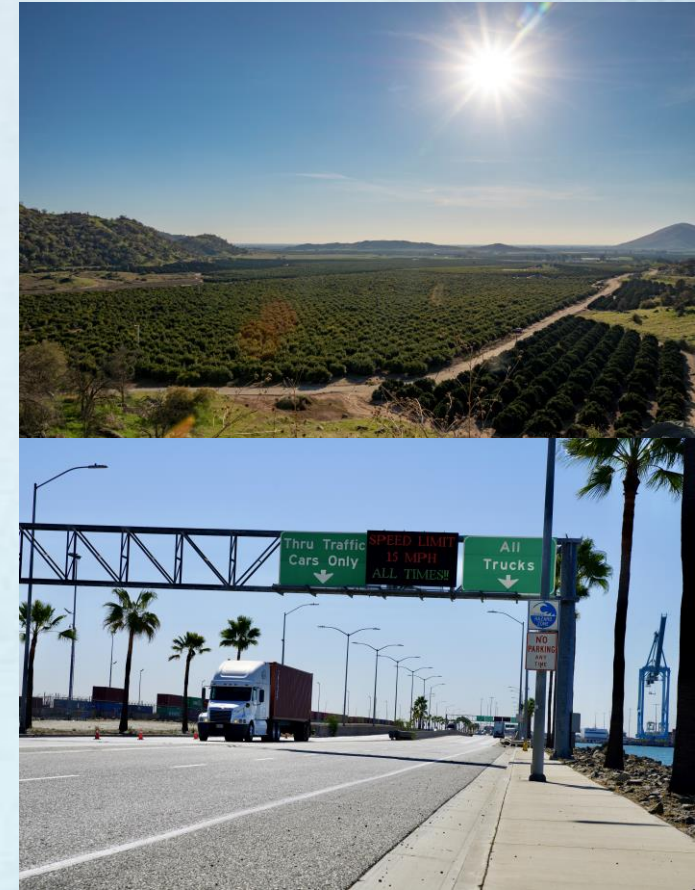
# HD I/M Implementation: Proposed Phase-In

- **First Phase – Begins January 1, 2023**
  - High-emitter vehicle screening and follow up compliance testing
- **Second Phase – Begins no earlier than July 1, 2023\***
  - Link to California DMV registration
  - Compliance certificate enforcement
  - Freight contractor/facility verifications start
- **Third Phase Full Implementation – Begins no earlier than January 1, 2024\***
  - Periodic compliance testing

\*These dates are estimates and may shift based on procurement, database implementation, etc.

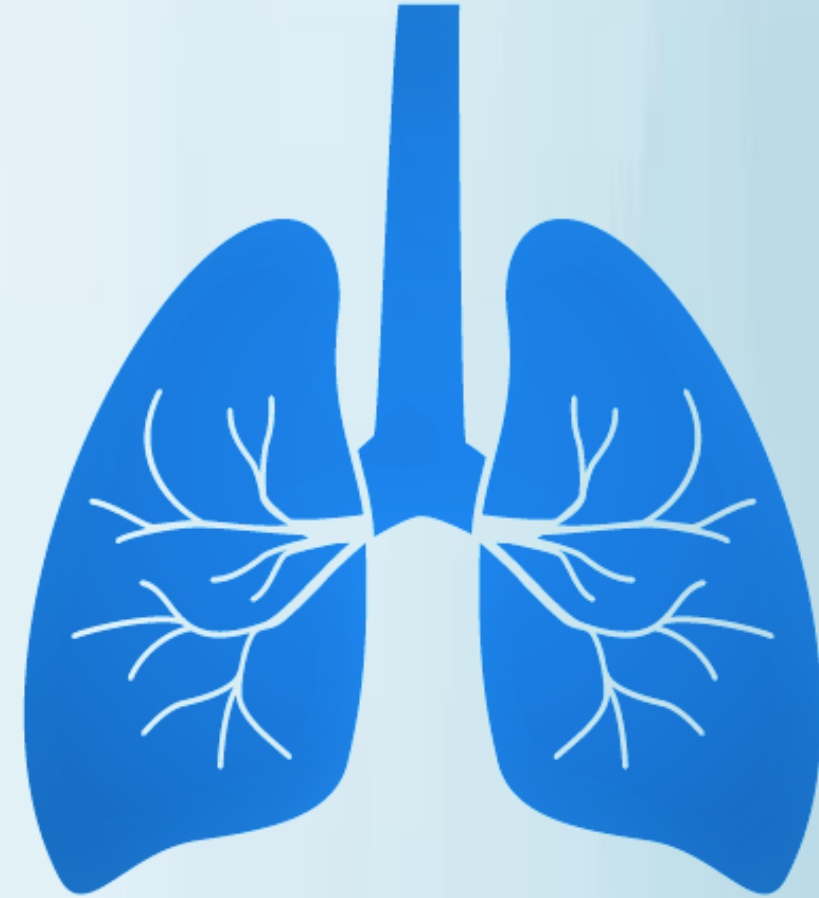
# Estimated Emission Reductions (tons/day)

- Statewide reductions in key SIP years
  - 2023
    - NOx: 6.4 tons/day
    - PM: 0.07 tons/day
  - 2031
    - NOx: 71.6 tons/day
    - PM: 0.66 tons/day
  - 2037
    - NOx: 81.3 tons/day
    - PM: 0.70 tons/day
- Largest NOx emission reduction measure since the Board first approved the Truck and Bus Regulation in 2008



# Statewide Lifetime Health Benefits

Outcome	Avoided Incidents (2023-2050)
Cardiopulmonary Mortality	7,545
Cardiovascular Hospitalizations	1,154
Respiratory Illness Hospitalizations	1,378
Emergency Room Visits	3,483



- HD I/M benefits value (2020\$): \$75.8 billion

# Cost of the Proposed Regulation (2020\$)

- HD I/M regulation estimated to cost \$4.12 billion from 2023 through 2050
  - \$1.84/pound NO<sub>x</sub> reduced
  - \$62.3/pound of PM reduced
- Health benefits valuation of \$75.8 billion is > 18 times expected costs

