IntelliDrive
Commercial Vehicle V2V Safety Program

IntelliDrive Safety Workshop

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IntelliDrive for Commercial Vehicles

Vehicle to Vehicle (V2V)

- Forward Collision Warning
- Blind spot Detection
- Emergency Brake Light
- Lane Change Warning
- Do Not Pass Warning
- Other Safety Applications

Vehicle to Infrastructure (V2I)

- Intersection Safety
- Run-off Road Prevention
- Smart Roadside
  - USDOT Truck Parking Programs
    - SmartPark
  - Automated Enforcement
    - Wireless Roadside Inspections
- Other Safety Applications

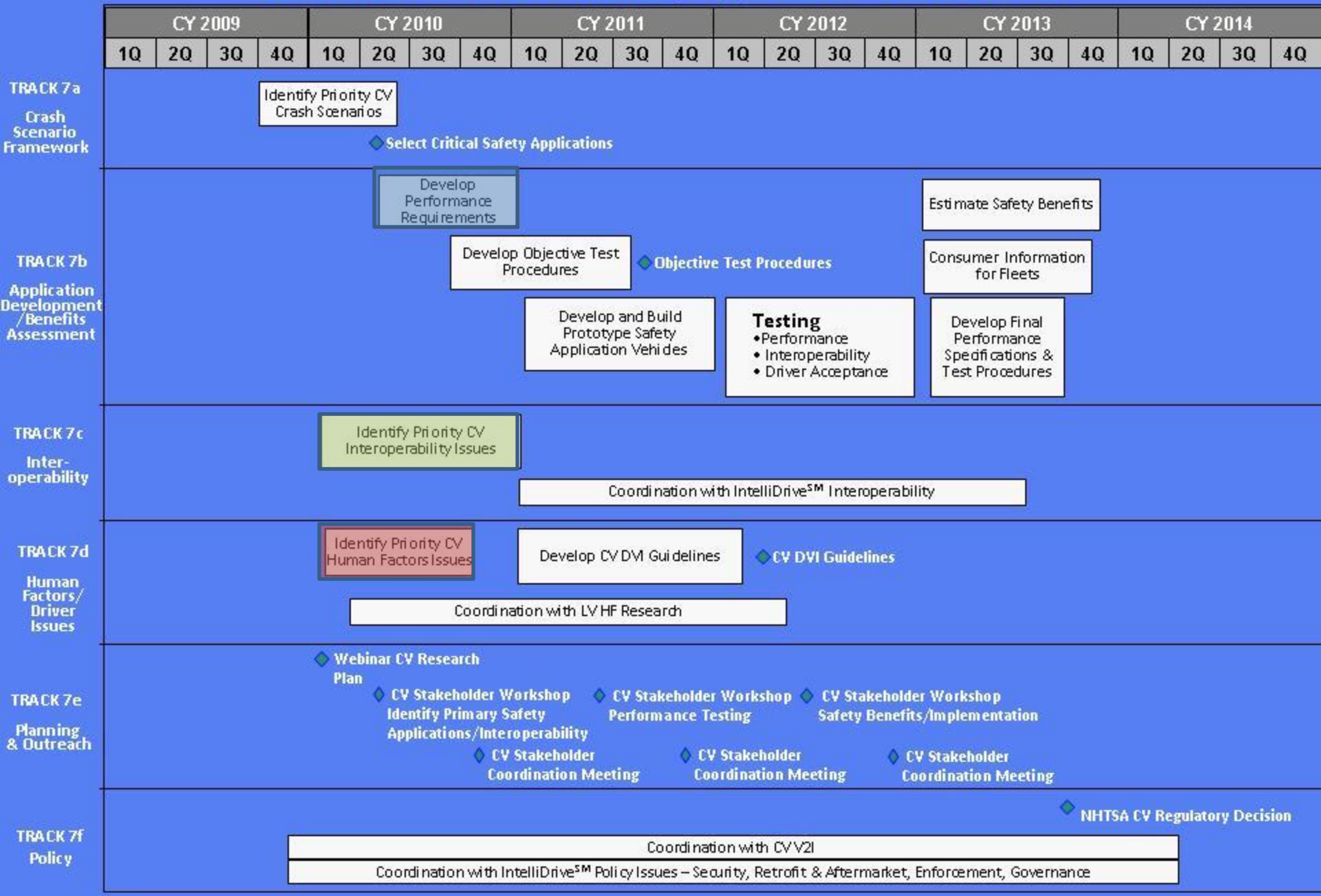
Track 7 – Commercial Vehicles

Objective - Resolve the technical and policy issues impeding the accelerated deployment of V2V systems for commercial vehicles.

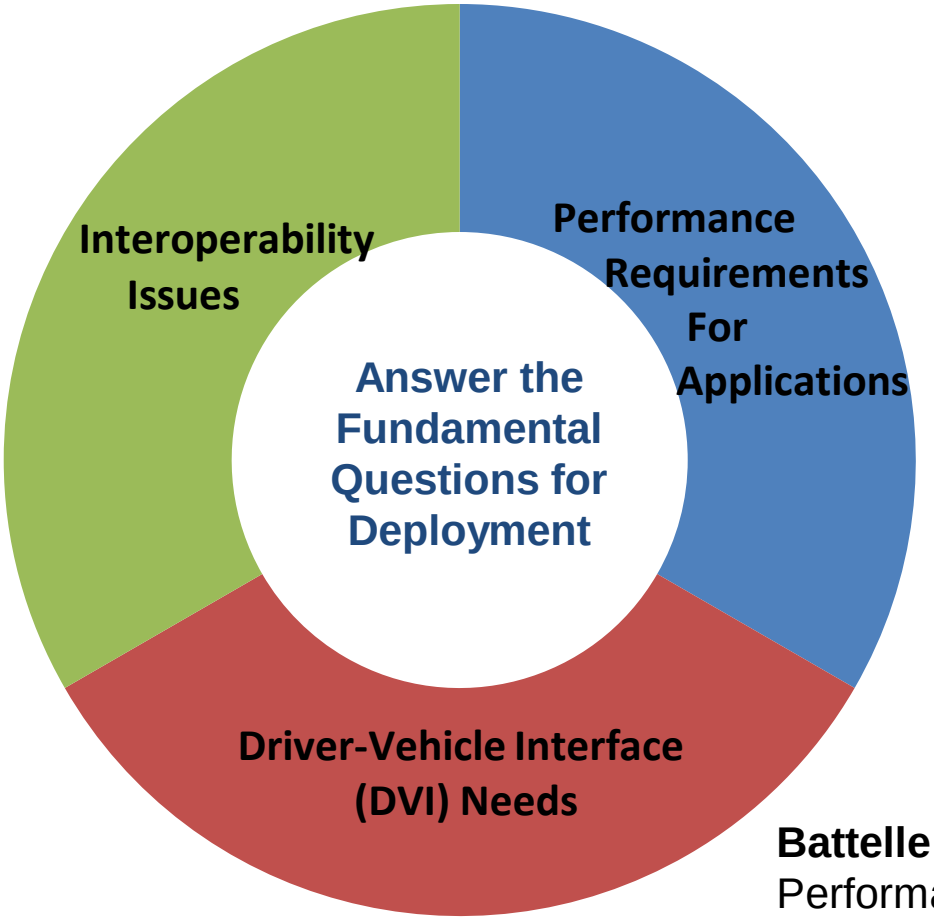
Key Tasks

- Identify priority CV crash scenarios.
- Select priority safety applications and determine performance requirements.
- Identify CV specific interoperability issues.
- Identify CV specific human factors / DVI issues.
- Build prototype vehicles and develop objective test procedures
- Vehicle testing for performance and DVI driver acceptance.
- Estimate safety benefits for CV applications.
- Identify CV policy issues and coordinate with overall program
- Support NHTSA regulatory decisions

Commercial Vehicle V2V Safety Application Research Plan



2010 Commercial Vehicle V2V Research



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CV Interoperability Issues

- Consider root causes and platform context to identify CV interoperability issues
  - Root cause - antenna placement limitations, multipath, density of vehicles, CAN bus performance, others?
  - Platform context - anticipated application requirement, vehicle factors, usage factors, operational patterns.
- CV Issues of concern to LV
- Issues considered by LV, but not of priority concern, where root causes or platform context differs in significant ways
  - e.g., Trailer configurations
- Issues arising from unique CV context
  - e.g., Effect of commercial vehicle's limited & load-dependent maneuvering levels

Performance Requirements

Minimum Performance
What is needed to ensure proper system function?

Sensors
Warning
Reliability

Functional Requirements

Lead Vehicle:
Position
Speed
Engine Brake

Trailing Vehicle:
Position
Speed
Range
Closing Distance

Crash Type: Rear End Collisions

Emergency Brake Light*

***Example application**

Driver Vehicle Interface (DVI) Specifications

- Develop DVI guidelines to address:
  - Message presentation characteristics
    - Auditory, visual, and haptic displays
  - Integration and prioritization of messages
    - Message conflicts
    - Arbitration of concurrent warnings
    - Nuisance / false warning mitigation
  - Driver overload and distraction
    - Minimize errors, workload, and confusion
    - Minimize eyes-off-road time
    - Specific strategies to identify and address distraction in real-time

CV Research Timeline

- Project kickoff meetings were held June 2010.
- Project durations are 7-8 months each.
- Final reports submitted at the end of 2010.
- Looking ahead to 2011:
  - CV Test Vehicle Builds
  - Safety Pilot
  - Driver Clinics
  - Model Deployment