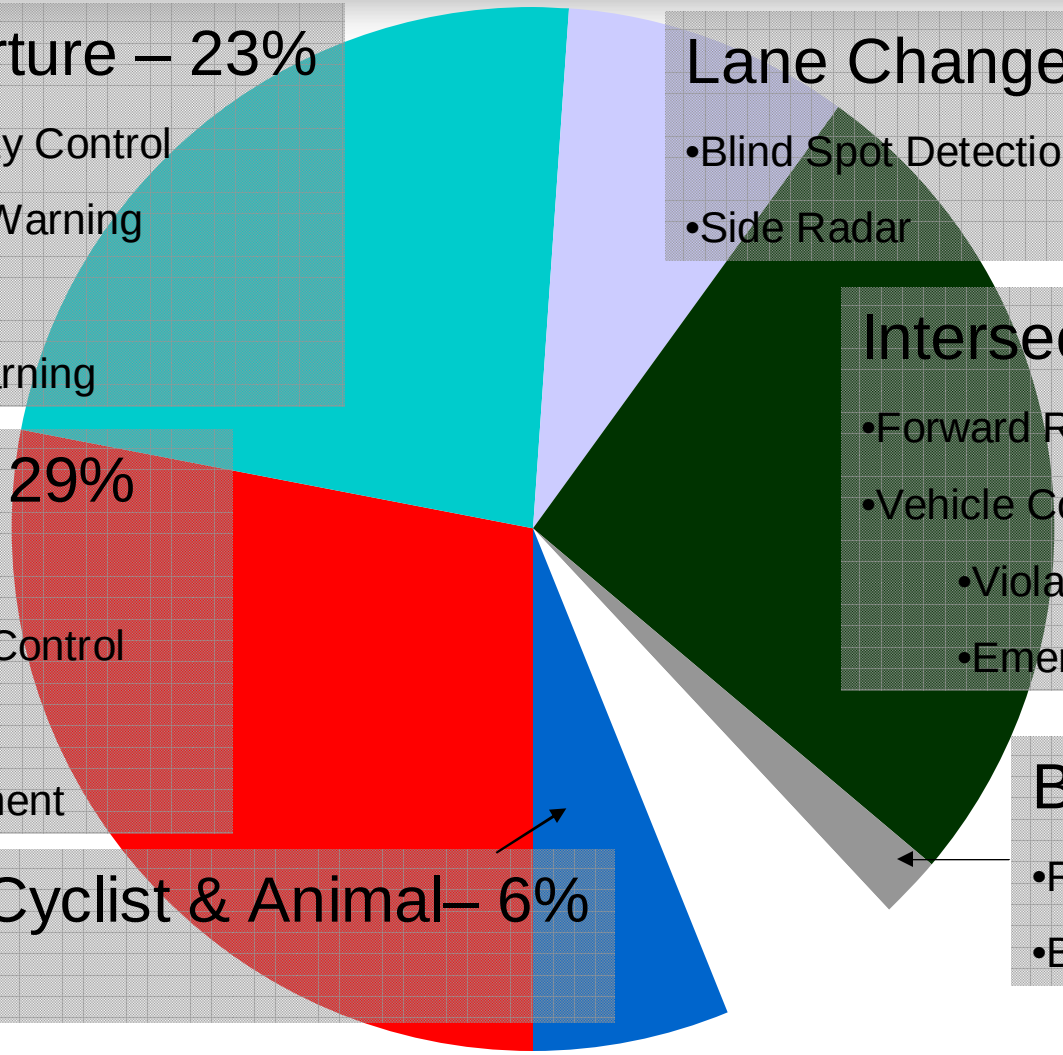
Overview of NHTSA ITS Research

Ray Resendes
Intelligent Technologies Research Division
National Highway Traffic Safety Administration

Relevant Technologies that may Help Avoid a Crash



Road Departure – 23%

- Electronic Stability Control
- Lane Departure Warning
- Lane Keeping
- Curve Speed Warning

Lane Change/Merge – 9%

- Blind Spot Detection
- Side Radar

Intersection – 26%

- Forward Radar
- Vehicle Communications
  - Violation Warning
  - Emergency Brake Light

Rear-End – 29%

- Forward Radar
- Adaptive Cruise Control
- Brake Assist
- Vision Enhancement

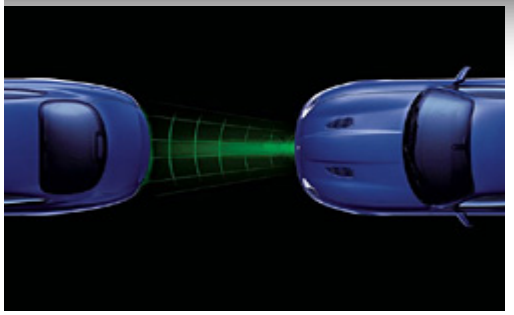
Backing – 2%

- Rear-View Camera
- Backing Sensor

Pedestrian/Cyclist & Animal– 6%

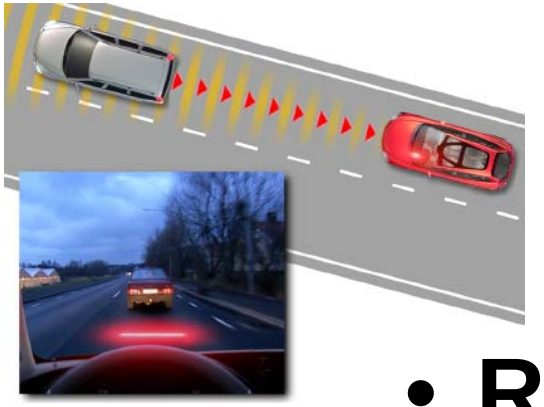
- Night Vision

Measuring the Safety Impact



- **Adaptive Cruise Control**

  17% Reduction



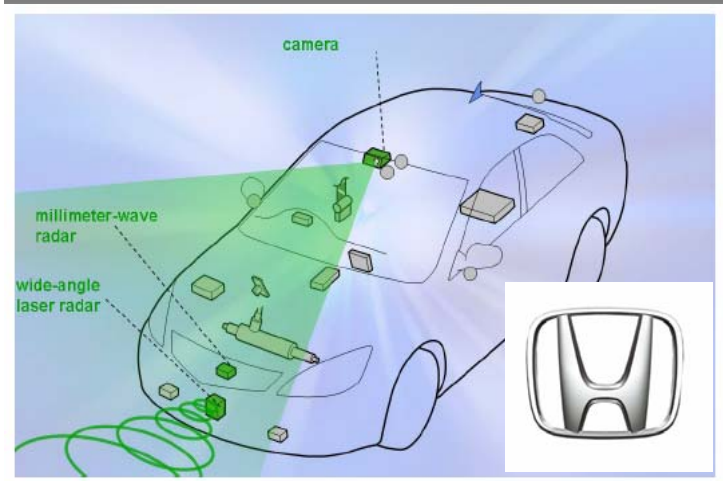
- **Rear-End Crash Warning**

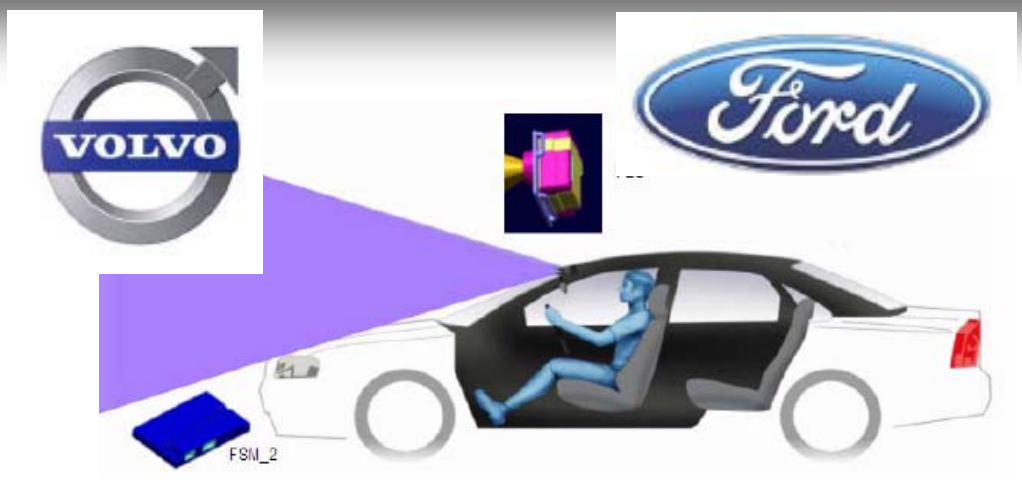
  26% Reduction

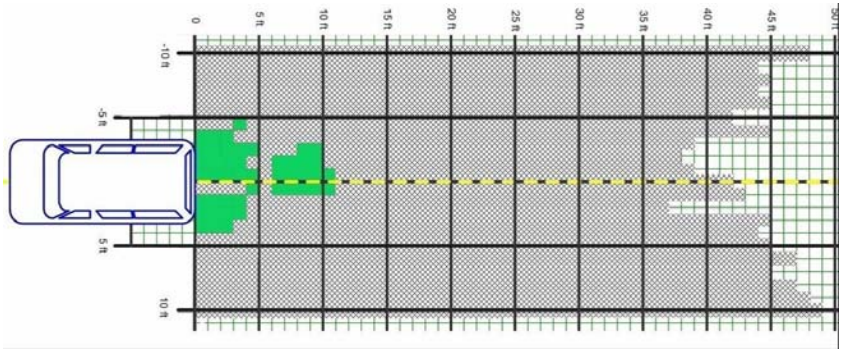
- **Road Departure Crash Warning**

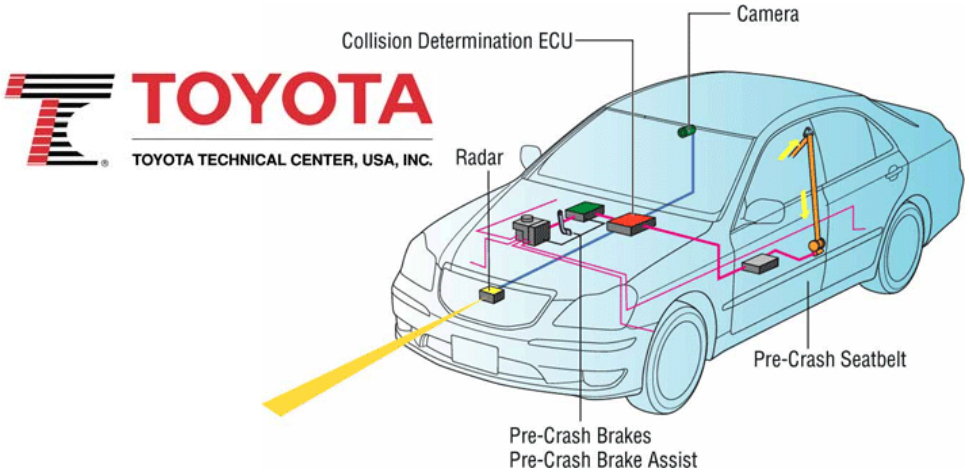
  32%Reduction

Advanced Collision Avoidance Technologies (ACAT)









GM

Virginia Tech

Major Initiatives

Safety

Integrated Vehicle-Based Safety Systems

Cooperative Intersection Collision Avoidance Systems

Next Generation 911

Mobility

Integrated Corridor Management Systems

Mobility Services for All Americans

Clarus

Emergency Transportation Operations

Global Connectivity

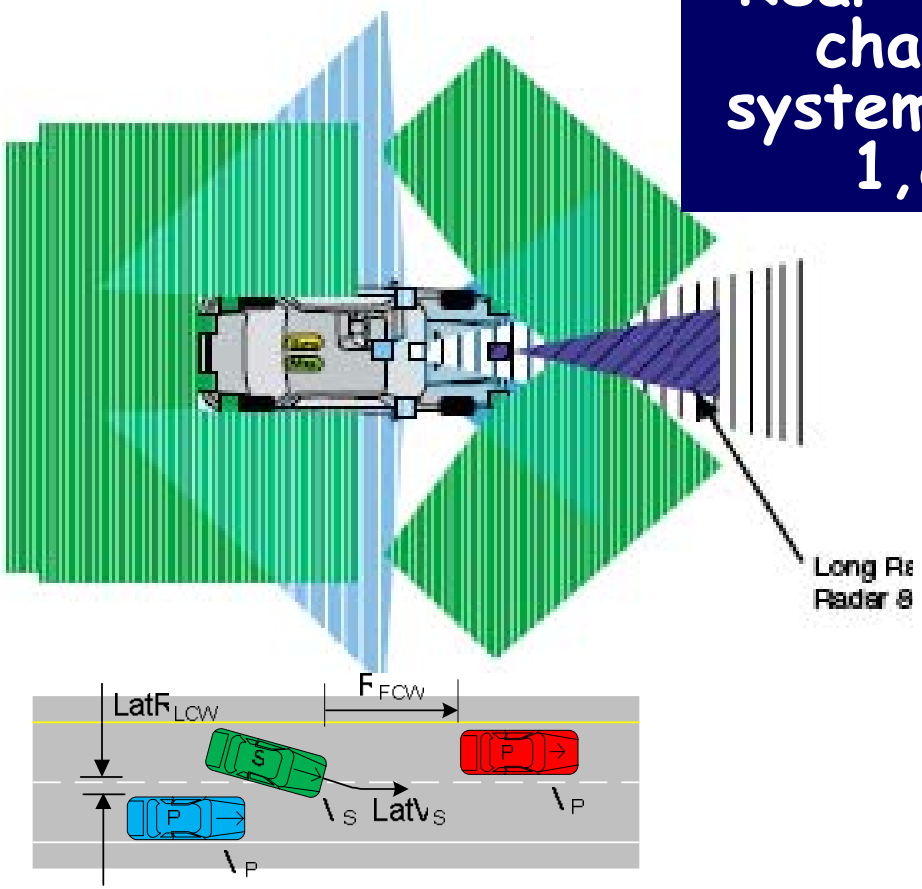
Universal Electronic Freight Manifest

Crosscutting:

Vehicle Infrastructure Integration

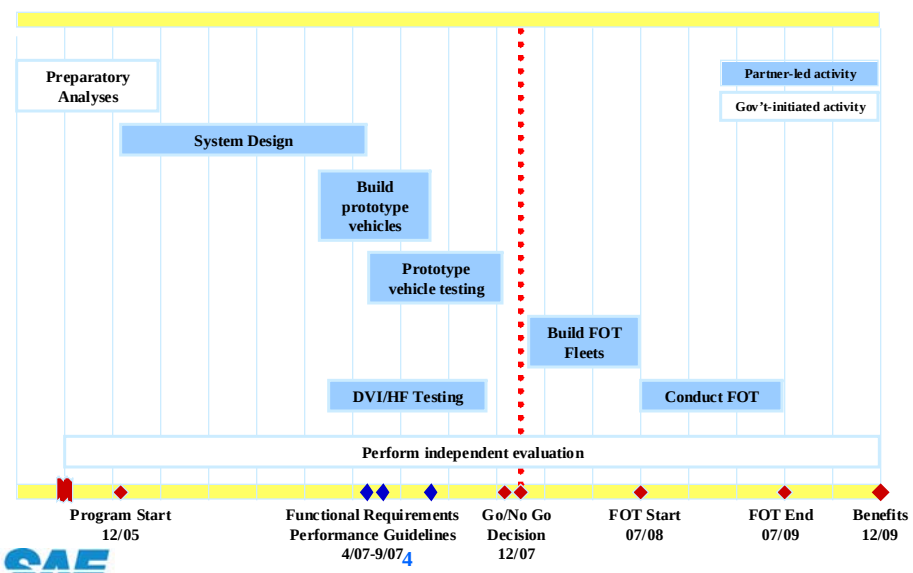
Integrated Vehicle-Based Safety Systems

Rear-end, run-off-road, and lane change crash countermeasure systems could prevent over 48% or 1,836,000 target crashes.

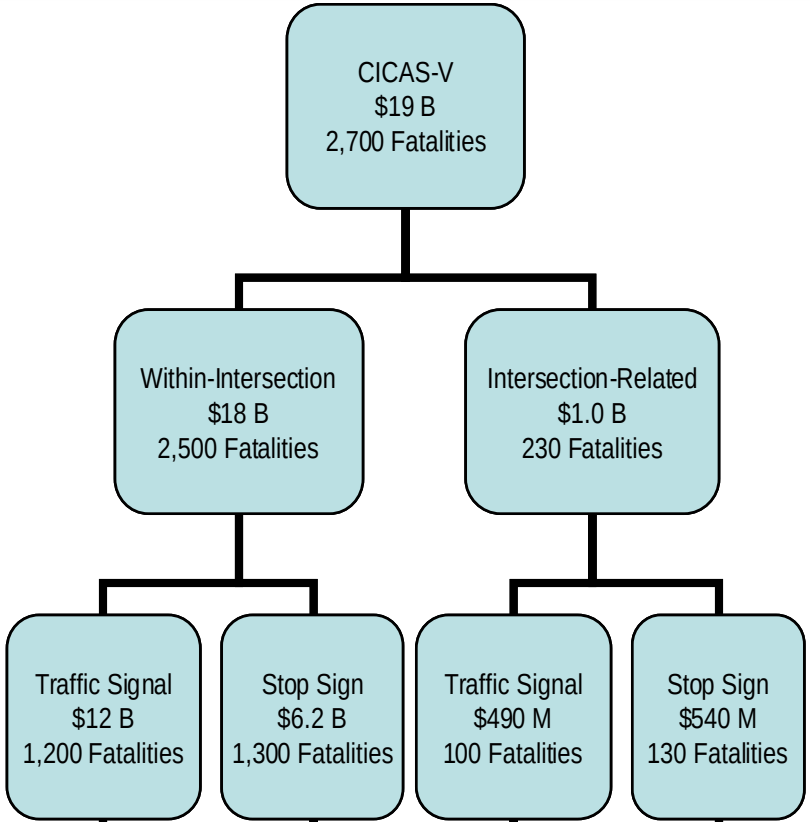


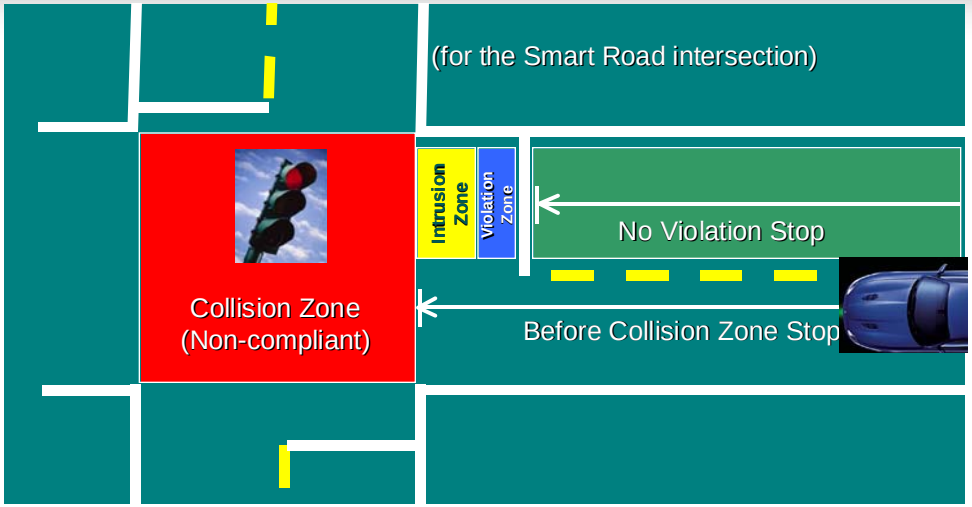
Avoid RE with slower POV1, then encounter LC with adjacent POV2

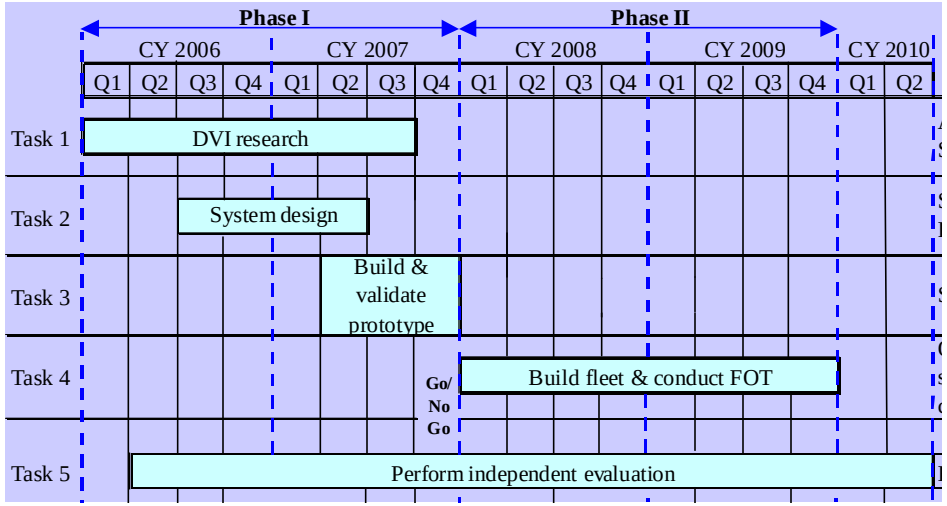
IVBSS Program Schedule



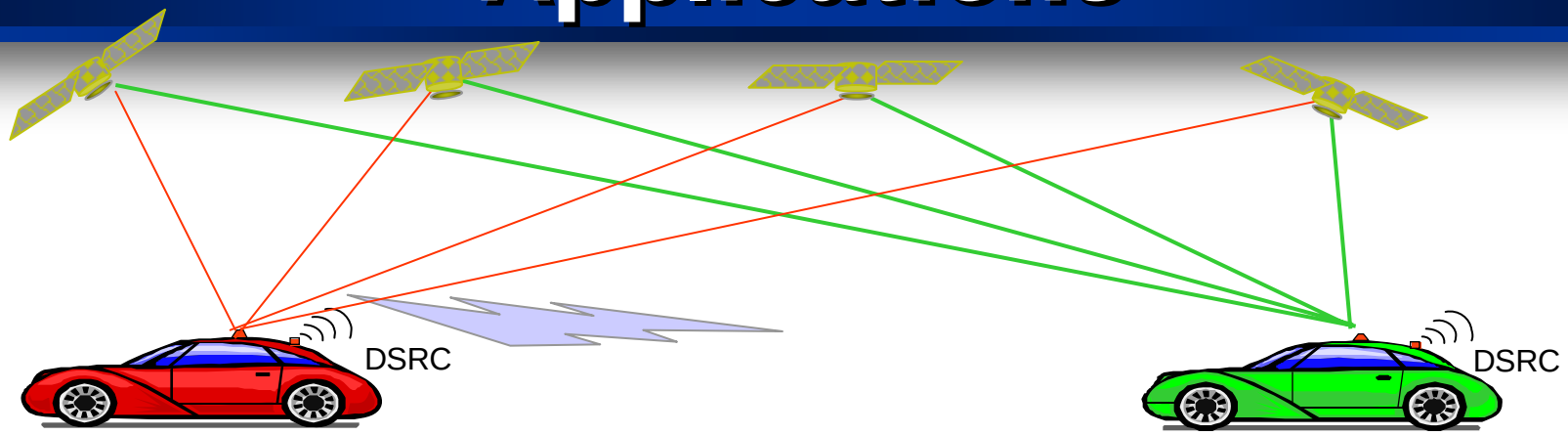
Cooperative Intersection Collision Avoidance System (CICAS-V)







Vehicle Safety Communication Applications

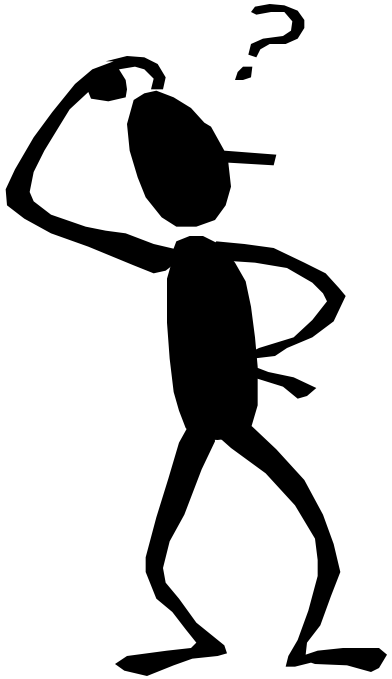


Candidate Safety Applications

- **Emergency Electronic Brake Lights (EEBL)**
- **Forward Collision Warning (FCW)**
- **Intersection Movement Assist (IMA)**
- **Blind Spot Warning + Lane Change Warning (BSW + LCW)**
- **Do Not Pass Warning (DNPW)**

VSC-A Schedule

Standards and Other DOT Programs	**3/07**
	11/07
	11/08
VSC and Autonomous Safety Systems	**8/07**
VSC System Definition	**10/07**
DSRC+Positioning and Autonomous Sensing Safety System Analysis - Paper Study	**5/08**
DSRC+Positioning only Safety System	**11/07**
	11/08
VSC System Test Bed	**7/08**
Objective Test Procedures	**11/08**
System testing and Objective Test Validation	**7/09**
Overall VSC-A Project Activities	**11/09**

Thank You!

Questions