



*UNITED STATES*  
**DEPARTMENT OF TRANSPORTATION**

# Vehicle to Infrastructure Communications: Transform Surface Transportation Safety, Mobility and Environmental Performance

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# RESEARCH TOWARDS IMPLEMENTATION

## *Connected Vehicle Research*

- *Multi-modal, transformational applications*
- *Requires a robust, underlying technological platform:*
  - *well-defined technologies,*
  - *interfaces,*
  - *and processes*
- *Goal to deploy stable, interoperable, reliable systems*

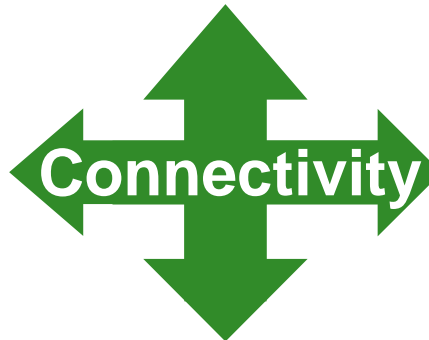


# RESEARCH TOWARDS IMPLEMENTATION

## Drivers/Operators



Infrastructure



Vehicles and Fleets



## Wireless Devices



# Vehicle to Infrastructure Communications

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## **Vision**

Transform surface transportation safety, mobility, and environmental performance through a connected vehicle environment.

## **Mission**

Develop and evaluate the systems requirements for transfer of information between vehicles and infrastructure that will enable applications to improve safety, mobility, and management of surface transportation, while reducing environmental impacts. Establish guidance to assist public agencies in making investment decisions for successful deployment, operations and maintenance of V2I infrastructure and applications.

## **Goals**

The goals of the V2I Communications research program are to develop the infrastructure components of a connected vehicle environment and to document the benefits, installation specifications, and the processes and tools that will result in the deployment of an interoperable system.



# V2I Communications

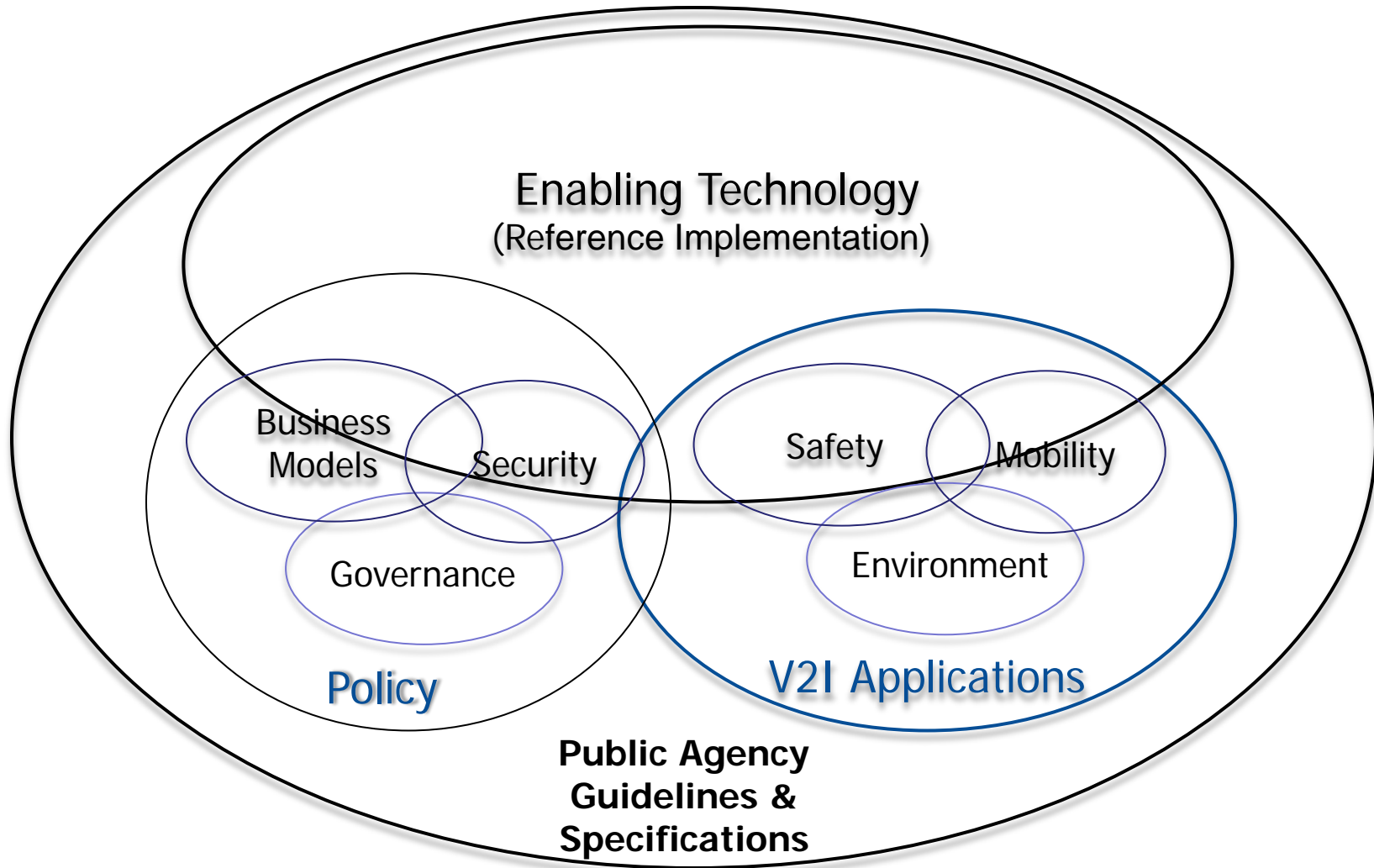
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- Enabling Technologies
  - Integrated V2I Prototype is step along the way to the Reference Implementation
    - Signal Phase and Timing
    - Positioning
    - Communications
    - Mapping
- Applications Selection, Development and Evaluation
  - V2I Safety Applications
  - Mobility Applications
  - Applications for the Environment: Real-Time Information Synthesis (AERIS) Applications
- Infrastructure Planning and Policy
  - Final Products are Public Agency Guidelines and Specifications



# V2I Communications – Major Activities

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# V2I Communications – Updates

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- Technology: Ben McKeever
- Applications:
  - Safety, mobility, and environment: Carl K. Andersen
  - Weather: Ram Kandarpa

## Break

- Smart Roadside Initiative: Kate Hartman
- Systems Analysis: Volker Fessmann

