Connected Vehicles in the United States

2nd Workshop on Connected and Automated Driving Systems

October 27, 2015

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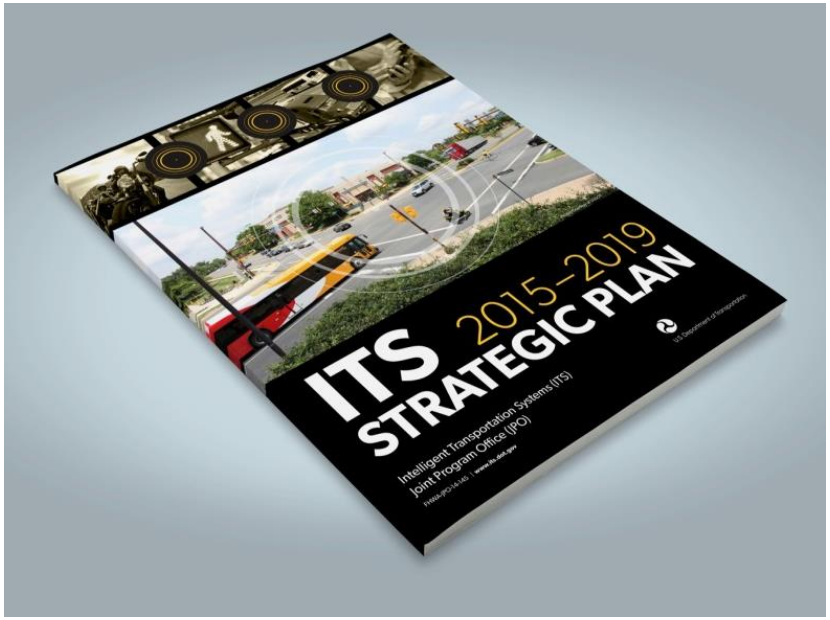
ITS Strategic Plan 2015-19 Strategic Priorities

- **Two Strategic Priorities:**

- **Realizing Connected Vehicle Implementation** – Builds on the substantial progress made in recent years around design, testing, and planning for connected vehicles to be deployed across the nation.
- **Advancing Automation** – Shapes the ITS Program around research, development, and adoption of automation related technologies as they emerge.



Major Connected Vehicle Activities Underway

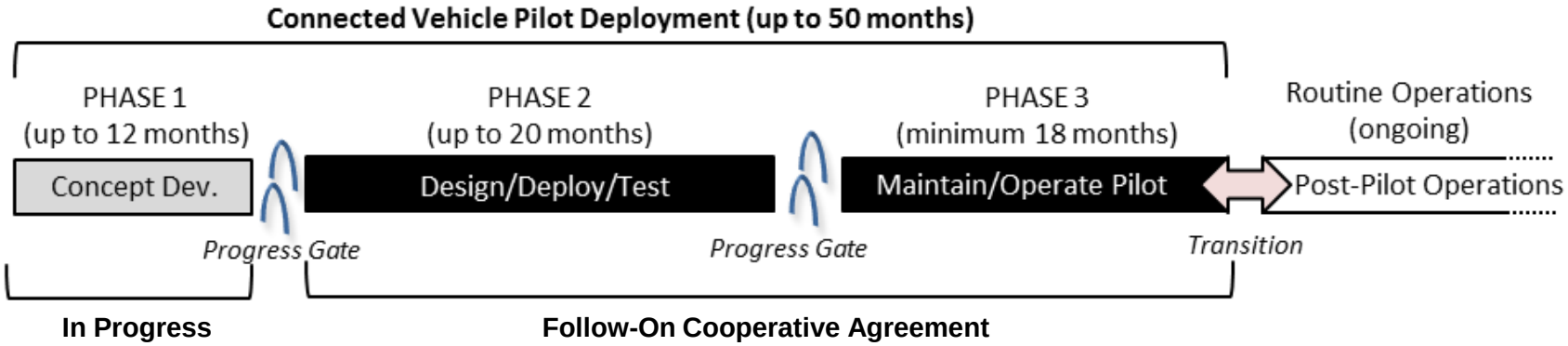
- Connected Vehicle Pilots
- Rulemaking and Guidance
- Connected Automation Research

CONNECTED VEHICLE PILOT
Deployment Program

http://www.its.dot.gov/pilots

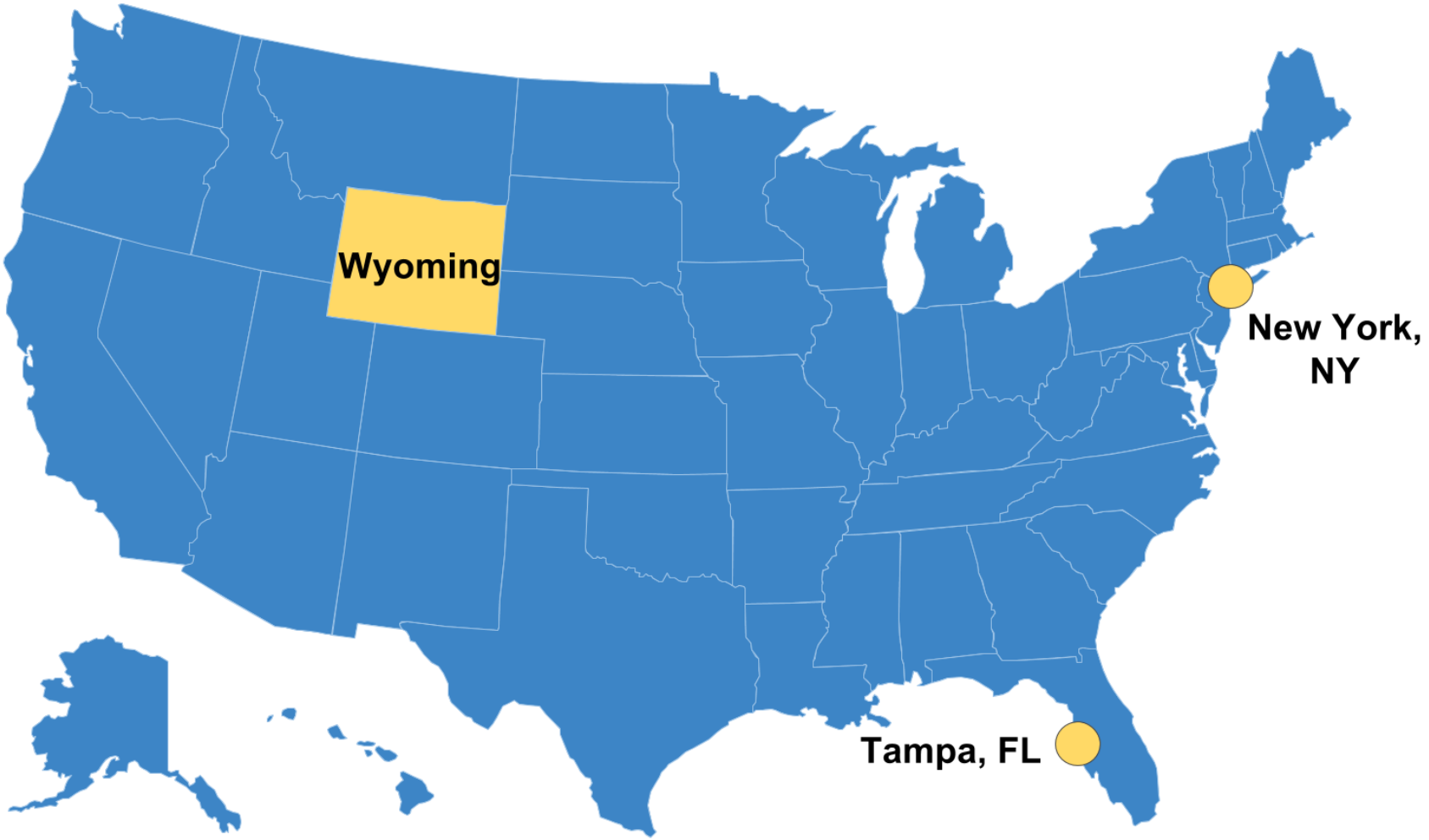
ITS Joint Program Office

Three Pilots Awarded Phase 1 Contracts



- Tampa, Florida
- New York City, New York
- State of Wyoming

Connected Vehicle Pilot Locations



Tampa, Florida

- Who
  - Tampa Hillsborough Expressway Authority, City of Tampa, Hillsborough Regional Transit Authority, Florida DOT
- Where
  - Expressway and downtown streets
- Why
  - Peak-hour congestion mitigation; pedestrian & bicycle safety; emissions reduction

New York City

- Who
  - New York City DOT
- What
  - 10,000 city-owned and commercial vehicles; downtown streets and expressway segment
- Why
  - Speed harmonization, intersection safety, pedestrian safety, work zone safety

Wyoming

- Who
  - Wyoming DOT, ICF International
- What
  - Commercial freight movement on I-80 highway corridor
- Why
  - Adverse weather incident reduction through advisories, spot warnings, and road treatment
  - Speed harmonization; traveler information

RULEMAKING AND GUIDANCE

USDOT/NHTSA Decision on V2V

- NHTSA published the Advance Notice of Proposed Rulemaking on V2V technology for light vehicles; along with the "Vehicle-to-Vehicle Communications: Readiness of V2V Technology for Application" report
- Primary purpose is to enable collision warnings to drivers
- Based on several years of research including the safety pilot model deployment in Ann Arbor, Michigan
- Security and privacy protections built in:
  - No exchanging or recording of personal information
  - No tracking of vehicle movements
- Notice of Proposed Rulemaking (NPRM) expected to be issued in 2016

2015 FHWA Guidance Will Help Communities Prepare for Connected Vehicles

- The FHWA is developing policy positions, guidance, guidelines, whitepapers, and practitioner tools to promote the smooth deployment of V2I technology by transportation system owners/ operators.
- The FHWA will issue initial guidance in late 2015. This initial guidance is intended to assist in planning for future investments and deployment of V2I systems.
- The guidance does not impose any new requirements on local governments.
- This work will be harmonized with related efforts by other USDOT modal agencies.
- Subsequent guidance updates will also incorporate ITS research findings.

CONNECTED AUTOMATION

Example Systems at Each Automation Level

Level	Example Systems	Driver Roles
1	Adaptive Cruise Control OR Lane Keeping Assistance	Must drive other functions and monitor driving environment
2	Adaptive Cruise Control AND Lane Keeping Assistance Traffic Jam Assist	Must monitor driving environment (system nags driver to try to ensure it)
3	Traffic Jam Pilot Automated parking Highway Autopilot	May read a book, text, or web surf, but be prepared to intervene when needed
4a	Closed campus driverless shuttle Valet parking in garage 'Fully automated' in certain conditions	May sleep, and system can revert to minimum risk condition if needed
4b	Automated taxi Car-share repositioning system	No driver needed

Source: California PATH

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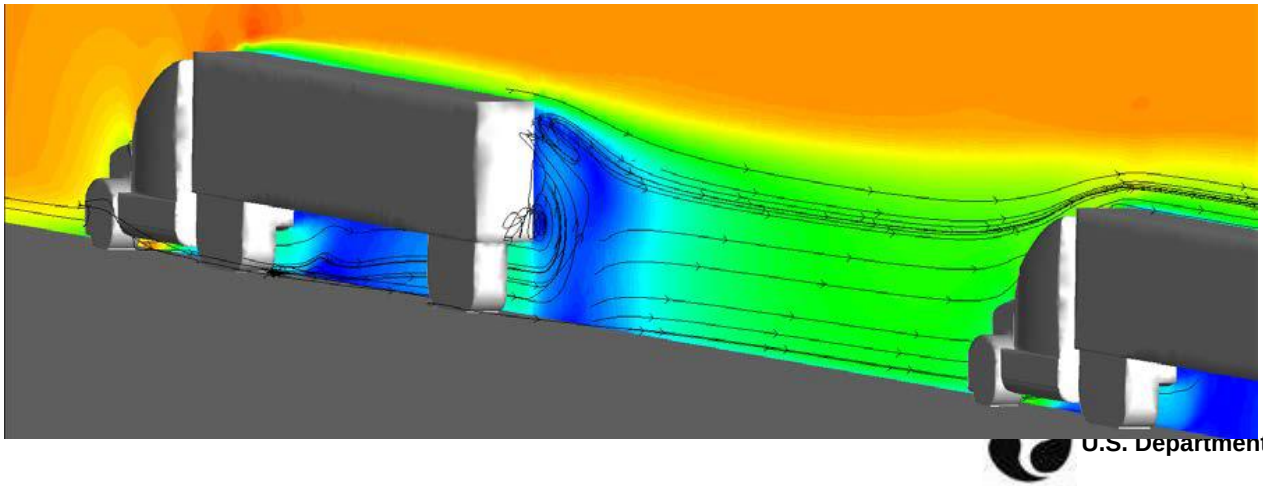
Connected automation R&D underway at USDOT

Source: California PATH

Current L1 Connected Automation R&D

- Cooperative Adaptive Cruise Control development with OEMs
- Truck Platooning (2 projects)
- Freeway Speed Harmonization
- Lane Change/Merge
- Eco-Approach and Departure from Signals
- CACC Human Factors in Driving Simulator



For More Information

http://www.dot.gov/

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