CALIFORNIA NEVADA ARIZONA UTAH

I-15 MOBILITY ALLIANCE

WORKSHOP #4: COLLABORATIVE TECHNOLOGY IMPLEMENTATION

December 7, 2022

TODAY'S AGENDA

- Welcome and Introductory Remarks
- I-15 Mobility Alliance Background
  - Alliance Overview
  - Recap of Focus Groups/Workshops
  - Immediate Projects of Interregional Significance (IPIRS)
  - Performance Measures Adopted in 2017
- USDOT SMART Grant Program
  - USDOT Office of Research & Technology – Tara Lanigan
- Emerging Technologies
  - Aligning SMART Focus Areas with I-15 Technology Opportunities
- Interactive Discussion
  - Self Introductions by States' SMEs
  - Types of Relevant Technologies that States are Currently Working On
  - What Multi-state Technology Project(s) Does the Alliance Wish to Pursue in 2023?
- Next Steps

I-15 MOBILITY ALLIANCE OVERVIEW

- Began in 2007 with a coalition of western state DOTs (AZ, CA, NV, UT)
- Developing long-range plan to address current and future mobility needs

I-15 MOBILITY ALLIANCE OVERVIEW

- Partners include:
  - State DOTs
  - MPOs/Transportation Agencies
  - Transit Agencies
  - Cities and Counties
  - Resource Agencies
  - Private Industry
  - Non-Profit Organizations
  - Academics
  - Economic Development/ Commerce

Caltrans

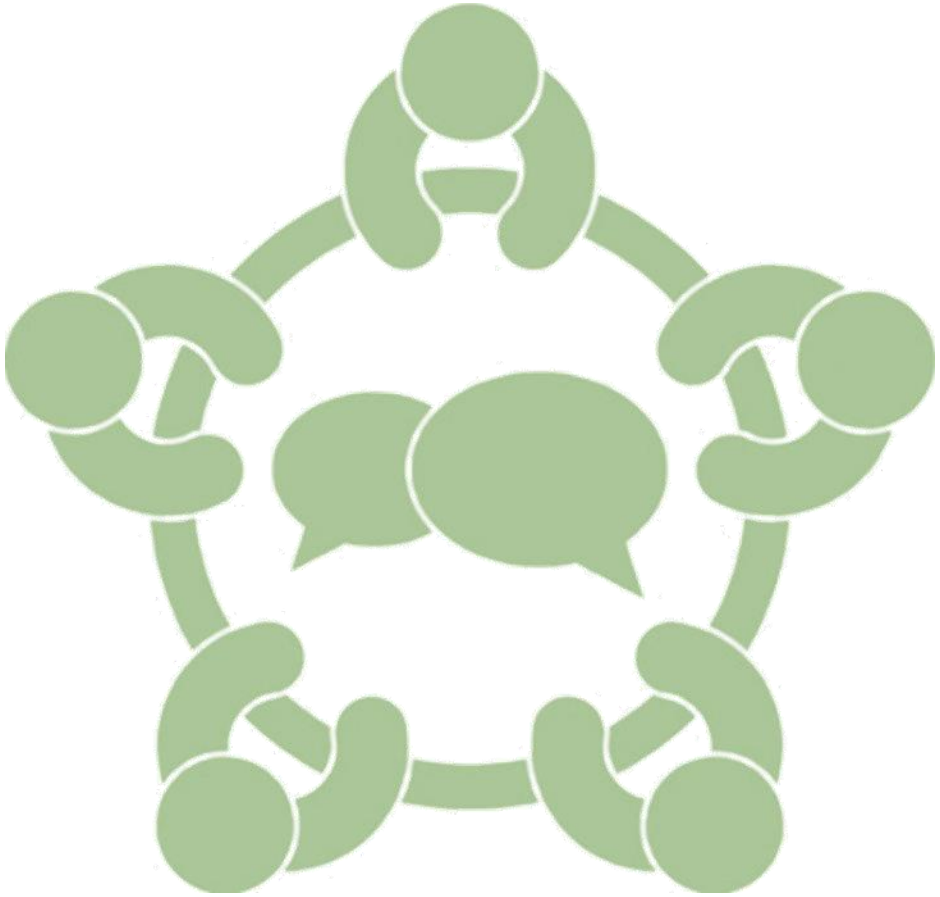
NEVADA DOT
SAFE AND CONNECTED

UDOT
Keeping Utah Moving

ADOT

I-15 MOBILITY ALLIANCE FOCUS GROUPS/WORKSHOPS

Purpose: Gather agency and stakeholder input about needs and priorities



- High-Speed Rail & High-Capacity Transit (March 2022)
- Major Infrastructure Projects (May 2022)
- Freight Mobility (August 2022)
- Collaborative Technology Implementation (December 2022)

IMMEDIATE PROJECTS OF INTERREGIONAL SIGNIFICANCE (IPIRS)

- Projects along I-15 or systemically connected to I-15
- Projects that have significant interregional benefits for moving people and goods on I-15
- Projects with:
  - Community support
  - Environmental clearance activities complete or underway
  - Substantial commitment of state and local funding

IPIRS (Cont.)

Highway/Bridge Projects of Regional and National Significance (HB)

1. I-15: Virgin River Gorge Bridges ..... AZ
2. I-15/French Valley Parkway Interchange ..... CA
3. I-10 Express Lanes ..... CA
4. I-15 HOV Improvements, Blue Diamond Rd to I-515 ..... NV
5. I-15 Improvements: Utah MP 0 to 16 ..... UT
6. I-15/Provo 820 North Interchange ..... UT

Tolling and Congestion Pricing (TCP)

1. I-15: Toll Express Lanes from Cajalco Rd to State Route 210 ..... CA
2. I-15: HOV/HOT Lanes, Layton to Riverdale ..... UT

Intermodal Freight Distribution (IFD)

1. Port of San Diego Freeway Access Improvements ..... CA
2. SR-11/Otay Mesa East Port of Entry Project ..... CA
3. I-15 Improvements from Apex Economic Development District to CC-215 ..... NV
4. I-15 Truck Climbing Lanes (various locations) ..... UT
5. 5600 W. Access to Intermodal Facility ..... UT

Transit and Rail (TR)

1. XpressWest High-Speed Rail Connection between Las Vegas, NV and Victorville, CA ..... CA/NV
2. Front Runner System Improvements ..... UT
3. Front Runner System First/Last Mile Connections ..... UT

Intelligent Transportation/Active Traffic Management Systems (ITS/ATMS)

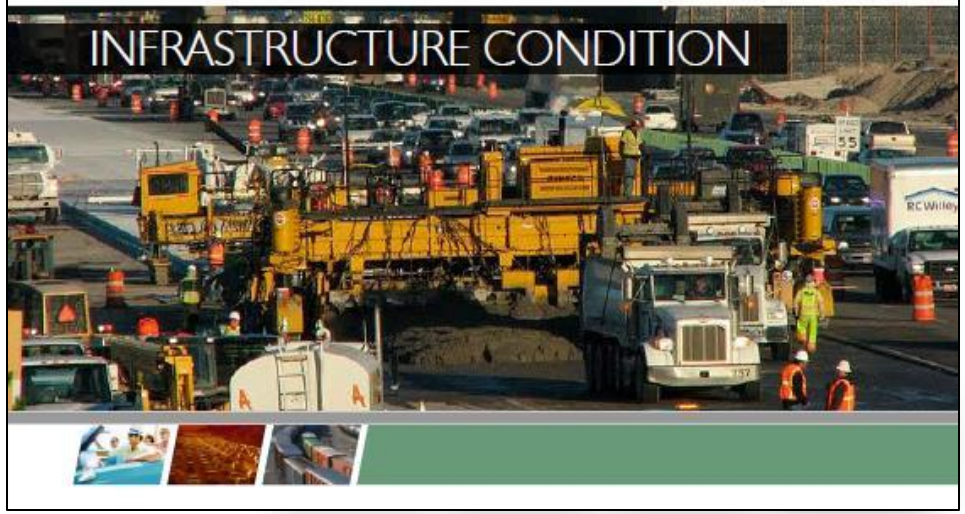
1. I-15 Integrated Corridor Management; SR 163 to SR 78 ..... CA
2. I-15 from Las Vegas Valley to Mesquite, FAST Package H ..... NV
3. Expansion of ITS Digital Backbone on I-15 ..... UT
4. Managed Motorways ..... UT
5. I-15 Dynamic Mobility Project: Multi-State ITS Architecture ..... AZ/CA/NV/UT

Interstate Strategic Corridor Investments

1. Southwest Passenger Rail Planning ..... CA/NV/UT
2. I-15 Mobility Alliance Planning ..... CA/NV/AZ/UT
3. I-11 Corridor, Arizona & Nevada ..... AZ/NV
4. I-15 Alternative Route Implementation ..... CA/NV/UT
5. Smart Truck Parking Study ..... CA/NV/UT
6. Alternative Fuel Corridor Implementation ..... CA/NV/AZ/UT
7. Hyperloop, Las Vegas to Ports of LA/LB ..... CA/NV

PERFORMANCE MEASURES ADOPTED IN 2017

- **Reliability**
  - Goal: Maintain travel speeds of 40 mph (minimum) throughout the day
- **Safety**
  - Goal: Maintain fatal crash rate per MVMT below 0.003
- **Infrastructure Condition**
  - Goal: Eliminate bridges in poor condition along I-15



EMERGING TECHNOLOGIES FOR I-15

- USDOT Funding - SMART Discretionary Grant Program Featured Speaker
- Potential Projects / Concepts for I-15
- Technology Subject Matter Experts – Discussion and Insights
- ***Concepts and Ideas – link issues to technology solutions and operations needs***

FEATURED SPEAKER

Tara Lanigan

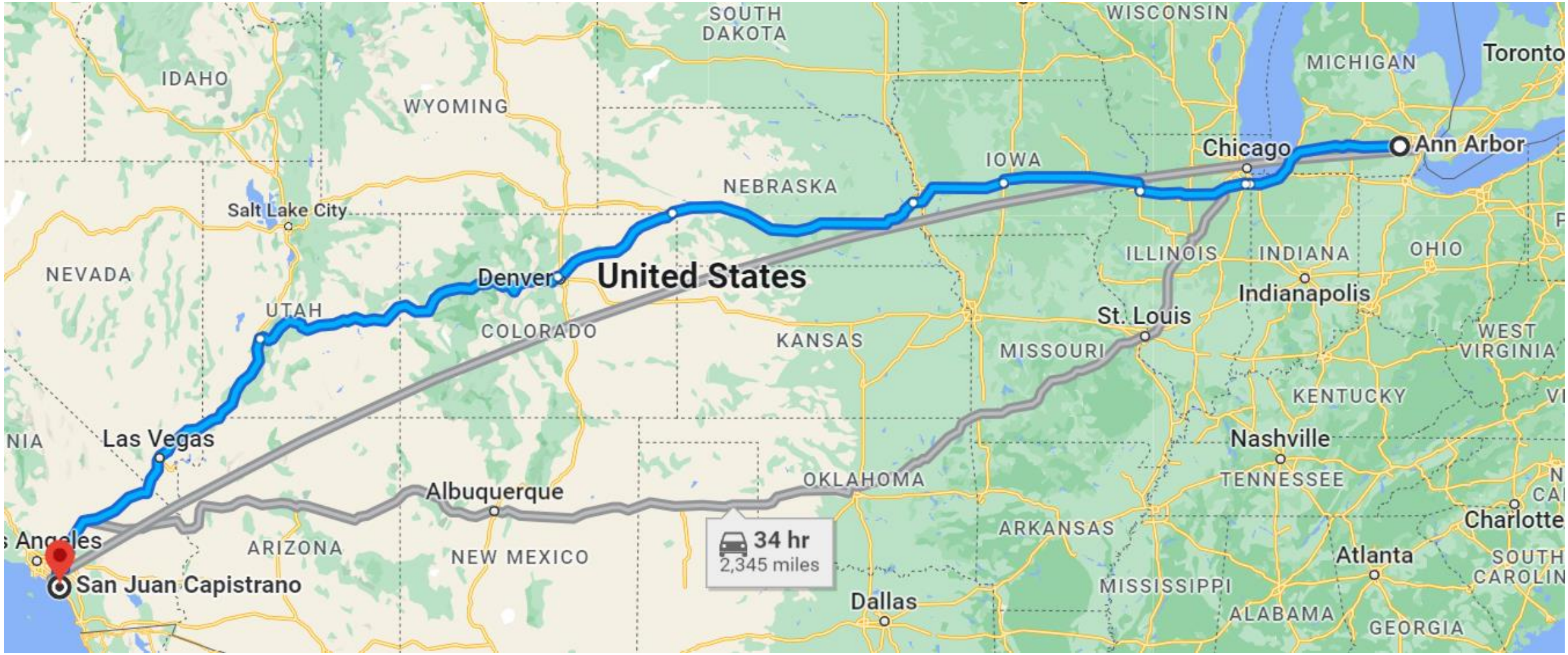
Program Analyst, Office of the Assistant Secretary for Research and Technology

U.S. Department of Transportation

U.S. Department of Transportation

Strengthening Mobility and Revolutionizing Transportation (SMART) Grant Program

Tara Lanigan
Presidential Management Fellow
Office of the Assistant Secretary for Research and Technology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United States
Indianapolis
UTAH
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COLORADO
KANSAS
MISSOURI
WEST VIRGINIA
KENTUCKY
Las Vegas
Nashville
Albuquerque
OKLAHOMA
TENNESSEE
Charlotte
ARKANSAS
ARIZONA
NEW MEXICO
34 hr
2,345 miles
Atlanta
San Juan Capistrano
MISSISSIPPI
Dallas
ALABAMA
GEORGIA

DOT's Strategic Priorities

U.S. Department of Transportation

https://www.transportation.gov/dot-strategic-plan

USDOT Transformation Strategic Priority

U.S. Department of Transportation

Design for the future. Invest in purpose-driven research and innovation.

New Technologies, Methods, Approaches in Physical Infrastructure

- $7.5 billion to build out vehicle charging network
- $5 billion for safe streets and roads
- $1 billion to reconnect communities
- $8.7 billion for resilient infrastructure
- $2 billion for low carbon materials (IRA)
- Billions for clean buses

Core Investments in Research, Technology, and Innovation

- $500 million SMART Grants
- $500 million University Transportation Centers
- $300 million Advanced Transportation Technologies and Innovative Mobility Deployment
- Part of $4.5 billion portfolio of research and technology

USDOT Innovation Principles

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- Serve our policy priorities
- Help America win the 21st century
- Support workers
- Allow for experimentation and learn from failure
- Provide opportunities to collaborate
- Be flexible and adapt as technology changes

Strengthening Mobility and Revolutionizing Transportation

U.S. Department of Transportation

- New grant program to fund demonstration projects focused on **advanced smart city or community technologies and systems.**
- Provides **$100M annually** from FY22 – 26 to eligible projects in States, political subdivisions of a State, Tribal governments, transit agencies, toll authorities, MPOs, and groups of eligible recipients.

SMART Grants Program Overview

U.S. Department of Transportation

SMART was established by the Bipartisan Infrastructure Law to "conduct demonstration projects focused on **advanced smart city or community technologies and systems** in a variety of communities to improve transportation efficiency and safety."

The SMART Grants Program:

- **Funds Demonstration Projects**
- **Addresses Real World Challenges**
- **Aims for Purpose Driven Innovation**
- **Builds Local Technology Capacity**

Technology Areas

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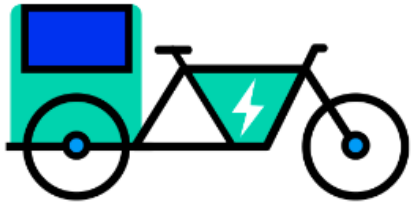
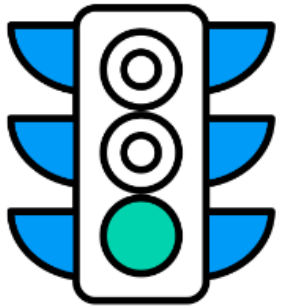
Smart Grid

Sensor-Based Infrastructure

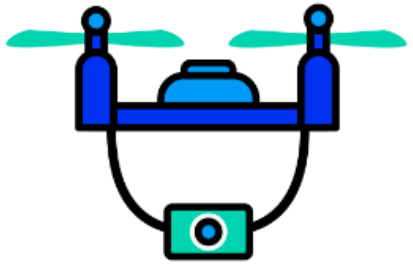


Commerce Delivery & Logistics



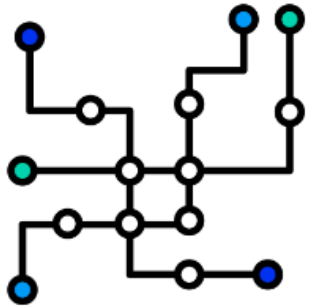
Smart Traffic Signals

Coordinated Automation



Innovative Aviation

Connected Vehicles



Systems Integration

Start with the Problem

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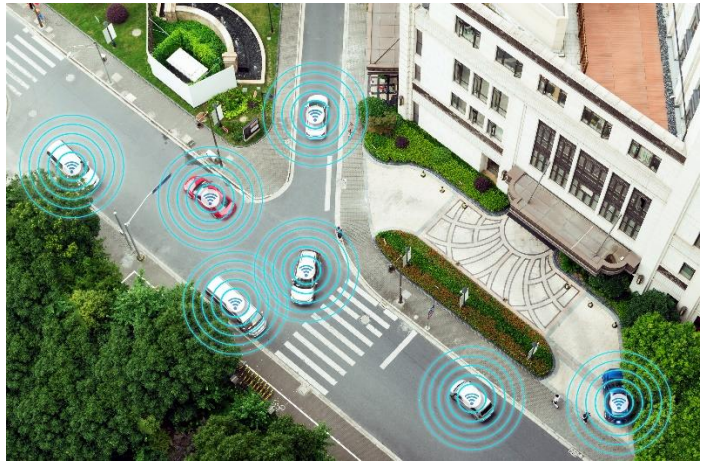

Program Structure

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The SMART Grants Program consists of two stages.

- Stage 1: Planning and Prototyping Grant: up to $2 million over 18 months
- Stage 2: Implementation Grant: up to $15 million over 36 months

STAGE ONE:

- Proof-of-concept
- Build & Strengthen partnerships
- Move quickly and demonstrate capacity

STAGE TWO:

- Scale prototypes to demonstrate benefits to community
- Capture lessons learned
- Evaluate benefits
- Work towards key performance indicators

BEYOND:

- Plan for widespread deployment of successful demonstrations

Eligible Entities

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Eligible entities include:

A. a State;

B. a political subdivision of a State;

C. a Tribal government;

D. a public transit agency or authority;

E. a public toll authority;

F. a metropolitan planning organization; and

G. a group of 2 or more eligible entities described above

*The FY22 NOFO included a **Collaborative Application** option in which eligible entities may choose to collaborate across different regions or geographies on projects with similar characteristics, addressing similar problems and with similar technologies, potentially sharing common resources such as partnerships with industry, nonprofits, academic institutions, or community foundations.*

Questions to Think About

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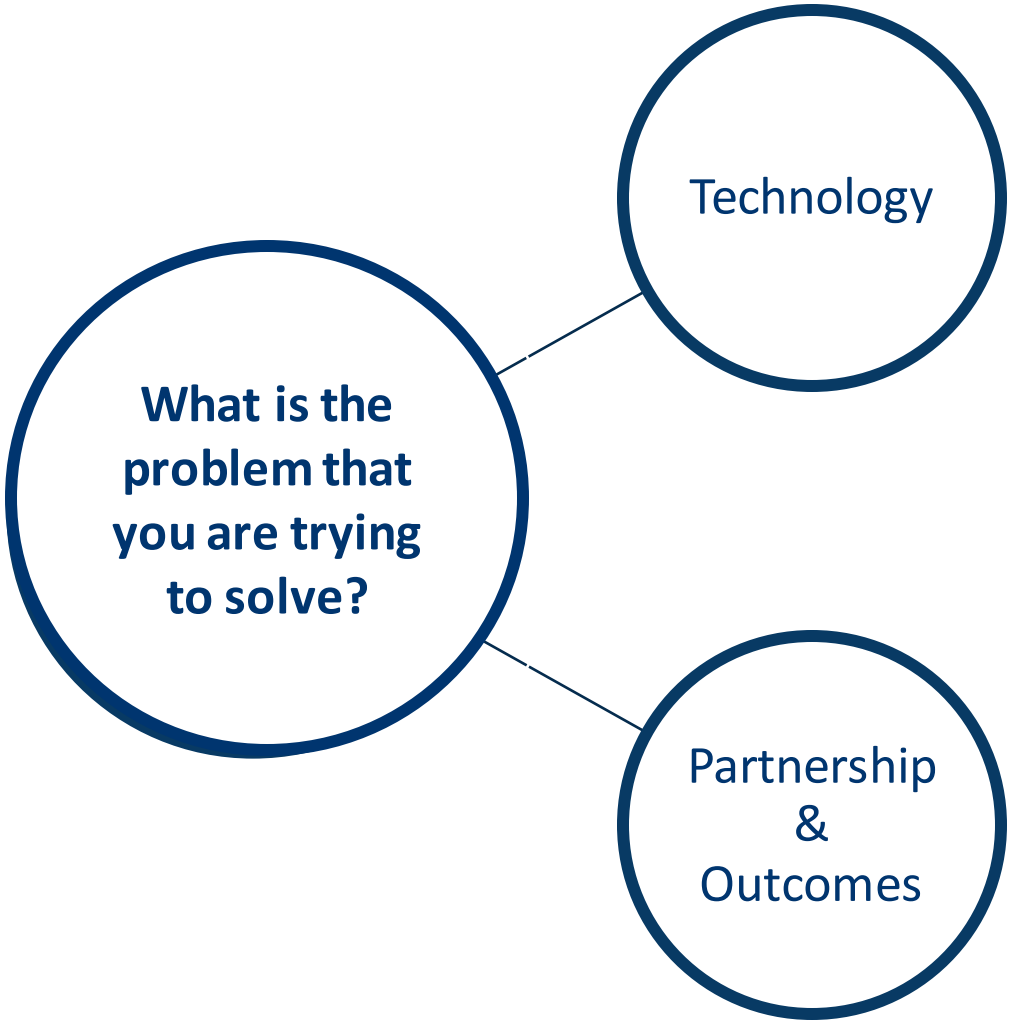


- Is this technology an effective solution for an issue that your community faces?
- Will the technology deployment address a known problem?
- Will the technology deployment lead to a significant improvement over existing conditions?
- What obstacles existed in the past to implement these technologies?

- What partnerships exist or could exist?
- Will this project generate significant public benefits, and who will benefit from this project?
- How does your project address climate, equity, and safety priorities?

2023 is around the corner

U.S. Department of Transportation

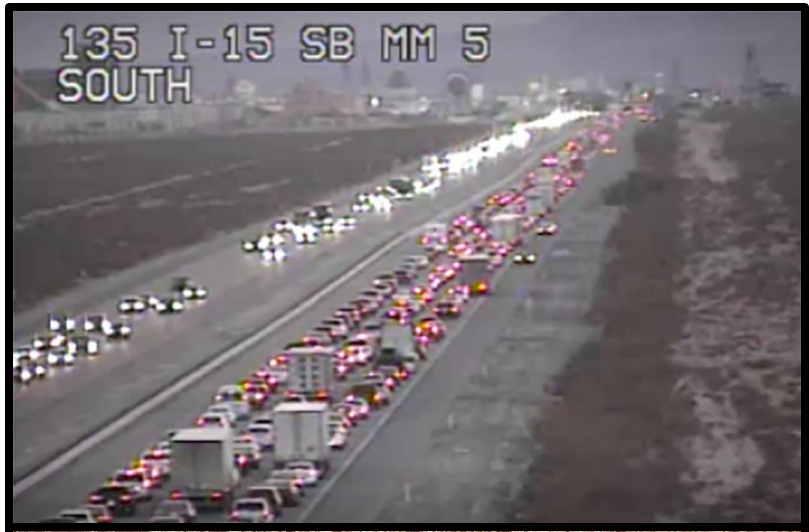
- First half of 2023: First SMART cohort announced
- Second half of 2023: Second SMART NOFO anticipated

U.S. Department of Transportation

For more information on the SMART Grants:
www.transportation.gov/grants/SMART
smart@dot.gov

TECHNOLOGY OPPORTUNITIES TO ADDRESS I-15 NEEDS

- Address multi-state mobility and safety priorities
- Expand options for alternate routing
- Freight mobility – parking, long-haul travel
- Advance public-private partnerships for innovative pilots
- Leverage broadband availability and implementation across the Alliance



SMART FOCUS AREAS

Category	I-15 Mobility Alliance Alignment
Coordinated Automation	Autonomous agency fleet vehicles Multi-state autonomous trucking pilot
Connected Vehicles	V2X for real-time information, expand data sources for real-time operations, expand coverage of operations impact
Intelligent Sensor-based Infrastructure	Remote monitoring on rural segments, including alternate routes
Systems Integration	Coordinate work zone (WZDx) data across state lines Integrate urban/rural data for alternate routing Data sharing partnerships with private sector
Commerce Delivery and Logistics	Truck parking situational awareness Multi-state information for freight safety and mobility
Innovative Aviation	UAS for real-time traffic monitoring (rural, state lines, large events, emergencies) Expand UAS to agency maintenance and response fleets
Smart Grid	Potential to coordinate on NEVI implementation
Traffic Signals	Likely a local implementation

POTENTIAL CONCEPT: AV TRUCK PILOT

- Multi-state AV Pilot
  - Build on C/AV programs in NV, UT
  - Tackle unique issues:
    - Cross-state conditions information
    - Coordinate truck parking information
    - Alternate routing
  - Engage new AV partners

POTENTIAL CONCEPT: DYNAMIC ROUTING CAPABILITIES

- Address gaps on I-15 alternates
  - Long, remote, not instrumented
  - Use emerging technology for real-time monitoring (UAS, third party data)
  - Engage I-15 operations teams
- Build on I-15 Corridor Alternate Route Study

POTENTIAL CONCEPT: UNMANNED AERIAL SYSTEMS

- Expand use of UAS to include:
  - Monitor alternate routes during closures
  - Real-time views from incidents, special events, work zones
  - Integrate video with TMC operations
  - Tethering strategies (TIM responders, agency fleet vehicles)
- Leverage recent UAS policy and pilot programs at I-15 partner agencies

TODAY'S PANELISTS

- Caltrans
  - Thomas Ainsworth, District 8 Traffic Operations
  - Kevin Riley, Div. Traffic Operations (C/AV)
  - Melissa Clark, Div. of Research, Innovation and System Information
- Utah Department of Transportation
  - Blaine Leonard, Transportation Technology Engineer (C/AV)
  - Jared Esselman, Aeronautics Director

INTERACTIVE DISCUSSIONS

- Types of relevant technologies that states are currently working on
- What multi-state technology project(s) does the alliance want to consider in 2023?
- Future discussions

NEXT STEPS

- Summary report for all workshops
- IPIRS – including technology-focused projects
- Develop technology concepts for future grant opportunities
- Follow up with I-15 Alliance stakeholders

THANK YOU

I-15 MOBILITY ALLIANCE

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http://www.i15alliance.org/