Connected and Autonomous Vehicle Summit

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Topics

- Active Research
- Relevant Research Initiatives
- Upcoming Significant Projects
- What If …..
Active Research

- Joint Transportation Research Program (J TRP) - active partnership with Purdue University since 1937

- 30 to 40 projects initiated annually across multiple disciplines
- $5 to $6M allocated to projects
- Project durations from 6 months to 36 months
Autonomous Vehicle Projects

- SPR 4123: Strategic and Tactical Guidance for the Connected & Autonomous Vehicle Future
- SPR 4167: Synthesis of Autonomous Vehicle Legislation
- Autonomous Vehicle Test Track Feasibility Study (planned)
- Connected Corridor Implementation (planned)
SPR 4123

- Strategic and Tactical Guidance for the Connected & Autonomous Vehicle Future
  - PI – Dr. Satish Ukkusuri; BO – Dave Boruff; PA Shuo Li
  - Duration – 18 months – complete June, 2018
  - Objectives
    - Synthesize best practices of other agencies
    - Estimate impacts of AV/CV on traffic operations
    - Provide roadmap for INDOT in preparing for and responding to potential issues
Synthesis of Autonomous Vehicle Legislation

- PI – Dr. Sarah Hubbard; BO – Jim Sturdevant; PA – Tim Wells
- Duration – 8 months – complete December, 2017

Objectives
- Identify and synthesize current state legislation related to AV and facilitate engagement with BMV and other stakeholders
CV/ AV Test Track Feasibility

- **PI** - Dr. Darcy Bullock; **BO** - Mike Smith; **PA** - Tim Wells
- **Duration**: 24 months - complete July, 2019
- **Objectives**: Collaboration with Discovery Park and IEDC to study feasibility of a test track to stimulate technology and economic development opportunities related to AV
Connected Corridor Implementation

- PI - Dr. Darcy Bullock; BO - Jim Sturdevant; PA - Tim Wells
- Duration - 24 months - complete July, 2019
- Objectives:
  - Deploy Upgraded controllers with connected vehicle technology on US 31 near Greenwood and US 30 in Lake County and develop series of CV experiments and demonstrations - first milestones this summer
Related Research

- **Center for Road Safety (Dr. Andrew Tarko)** - projects that will allow safety analysis during/after CV/AV
  - SPR 4102 – Building, Evaluating, and Improving LiDAR-based Traffic Scanner Prototypes for Implementation to INDOT Practice
  - SPR 4103 – Developing the Collision Diagram Builder
Relevant Initiatives

- Expansion of Shared Use Agreement on vertical cell structures
- ITS initiatives (remote signal management and performance management) (travel time boards give options)
- Truck Parking Information Management System (TPI MS)
- Numerous studies and documents related to CV/AV available nationally
Upcoming Significant Projects

- I-70 Ronald Reagan to SR 39
- I-65/I-70 North Split
- I-69 Section 6
- I-65 and I-70 corridors for ATL
- US 31
- US 30
- I-69 Ohio River Crossing
What If ……
What If

- Lane widths can be reduced from the current standard of 12 feet
  - Reduced cost of pavement
  - Reduced need for R/W
  - Reduced cost of maintenance
Capacities of lanes can be increased to 3000 vph/lane (or more)

- Delayed or eliminated need for capacity improvements
- Conversion of existing routes to add capacity
- Reduced cost of maintenance
- Improved reliability
What If

- Reliability of travel and arrival times can be greatly increased
  - Cost of Business is reduced
  - Trips can be reliably planned
  - Less missed appointments and connections
  - Drivers can optimize route selection
What If

- Pedestrians and bicycles can be more safely accommodated
  - Would encourage more ped/bike activity
  - Provide a safer environment for shared use facilities
What If

- 1,000,000 fatalities on our roadways projected over the next 30 years can be significantly reduced?
  - Great impact on public health
  - Some safety money diverted to other projects
Summary

- On-going and future research initiatives
- Need for coordination with other active initiatives
- Decision points for active projects in development
- Many future scenarios that will be impacted by deployment of CV/AV
Questions

Thank You