

Connected and Autonomous Vehicle Summit

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June 15, 2017



Topics

- **Active Research**
- **Relevant Research Initiatives**
- **Upcoming Significant Projects**
- **What If**



Active Research

- **Joint Transportation Research Program (JTRP) – 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



SPR 4167

■ **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 (TPIMS)**
- **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



What If

- **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

