

## MoDOT Research Needs List by Division

### Design/Environmental:

- Design strategies to bring current facilities into ADA compliance as well as national inspection and testing standards for contract administration.
- Expanded opportunities to utilize innovative contracting.
- Address the problem of limited work hours due to high impact work zones on high volume routes.
- Meet Storm Water MS4 requirements.

### Maintenance:

- Evaluate the effectiveness of sealers.
- Develop a tool to establish a winter severity index that inputs data from the climatology center and other sources.
- Evaluate the effectiveness of snow and ice treatment products.
- Video of innovation challenge processes and products as well as completed research.
- Predictive analytics for pavement condition.
- High friction demand for roadways.
- UAV roadway and bridge inspection.
- Best practices for mobile data collection.

## **Multimodal:**

- Develop an economic impact study for the Missouri River Runner (MRR) modeled after the recently completed study on public ports.
- Compile applicable land use ordinance and zoning information at airports across the state to be used as a guide for airport managers.
- Update the state rail/state freight plan.
- Examine statewide mobility management and coordination in the state of Missouri.
- Examine transportation coordination on a statewide level and develop a statewide plan to improve the matching of people with the transportation service they need.
- Develop an interactive web based platform for freight data integration.
- Farm related freight demand.
- Develop a manufacturer and shippers survey to determine needs of target industries in each area of the state.

## **Pavements:**

- Concrete paving that is constructed with lower traffic impact on high volume roadways.
- Concrete overlays which are economical and can compete as a pavement preservation option.
- Performance engineered concrete pavements.
- Efficient contract administration.

- Risk based construction inspection
- UAV technology for inspection and testing

### **Planning:**

- System capacity requirements for a future with autonomous vehicles.

### **Structures:**

- Fiber reinforced super workable concrete.
- Repair methods for prestressed girders damaged from overweight loads.
- Recommendations for bike friendly bridge expansion joint covers.

### **Traffic:**

- Determine the right mix of automation and law enforcement to impact driver behavior in work zones.
- Most effective sign configuration for work zones containing a flagger.
- Safety study for the Intersection safety plan counter measure evaluation including an Empirical Bayes analysis.
- Develop a balanced scoring and grading process for selecting and distributing NTSSA, FMCSA, and Blueprint funds.
- Implementation and construction plan required for reaching a vision of consistent speed limit posting across the state.
- Assessing our infrastructure and standards to interface with autonomous and connected vehicles
- Build customer trust in bypass routes that are put in place for work zones or incidents