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.