MoDOT Benefit-Cost and Freight Market Analysis and INFRA Grant Application



Client

Missouri Department of Transportation (MoDOT)

Facts

Period 2018

Project Country United States

For the Missouri Department of Transportation (MoDOT), EBP (formerly EDR Group) conducted a benefit-cost and economic impact analysis of proposed projects on Interstates 70, 44, and 270. The firm also prepared an Infrastructure For Rebuilding America (INFRA) grant application for MoDOT consisting of eight projects, including incident management, modernization, widening, interchange, and bridge replacement projects. Within the grant, EBP articulated the national significance of the highway system, based on a freight market assessment conducted as part of the project. The freight market assessment used TREDIS and TRANSEARCH data and produced maps, tables, and charts to show markets by trading partner, industry and commodity.

The benefit-cost and economic impact analysis modeled the travel time and reliability impacts of each project estimated a wide range of benefits, including safety, mobility, and productivity benefits. To evaluate the impact of MoDOT's proposed Incident Management Systems on I-70 and I-44, EBP US conducted an analysis of the existing patterns and costs of incidents along the highways. To do so, vehicle speed data from HERE was used. EBP developed a method to filter and cluster these records to identify incidents. This allowed the firm to evaluate incident durations, the spatial extent of incidents, the distribution of speeds during incidents, and the frequency of incidents occurring at different locations along the highway. EBP then linked this information to annual average daily traffic (AADT) data along the highways to estimate the impacts of incidents in terms of vehicle-hours of delay, by location. This detailed understanding of the "base" case informed reasonable assumptions for how incident durations and speed durations during incidents would change with the implementation of the Incident Management System. Based on this analysis EBP estimated the vehicle hours traveled (VHT), vehicle miles traveled (VMT), and crash rate impacts of the system for the project benefit-cost analysis.

Contact Persons