Fostering Innovation in Pedestrian and Bicycle Transportation Pooled Fund Study TPF-5(370)

A Transportation Pooled Fund study that focuses on bicycle and pedestrian network planning, safety design issues, traffic control devices, and other relevant issues.

WHAT IS THE NEED?

Transportation agencies across the country are seeking ways to improve safety and mobility for pedestrian and bicyclist. The research team has seen a rapid rise in the demand for research, on a wide variety of pedestrian and bicycle issues, in many different settings and situations. However, the existing research programs that advance innovation, such as the National Cooperative Highway Research Program, cannot meet the growing needs.

This Transportation Pooled Fund (TPF) study will supplement the existing research, by emphasizing short turnaround, practical research on safety and road design. The research team will address national goals and priorities, and focus on bicycle and pedestrian network planning, safety, design (e.g. design flexibility, crash modification factors, network connectivity), traffic control devices (e.g. experimenting on innovative markings, signals, and signs), and other relevant issues (e.g. equity, trip data).

WHAT ARE WE DOING?

The Federal Highway Administration (FHWA) office are collaborating with numerous research members, to ensure that the TPF study addresses all issues, recognizes research underway, and no duplicated efforts. Research members include the Office of Planning, Environment, and Realty; Office of Operations; Office of Operations Research and Development; Office of Safety; Office of Safety Research and Development; Office of Infrastructure; Office of Highway Policy Information; and Office of Transportation Policy Studies.

Furthermore, the research supports testing innovations on the ground, and evaluating them for broader application. In the first one to two years of operation, the study may include the following steps:
• Conduct research that will contribute to the Manual on Uniform Traffic Control Devices (MUTCD) experimentation process. For example, researches on bicyclist compliance and stopping placement in Two-Stage Turn Queue Boxes, bicycle symbols on signs (turning vehicles yield to pedestrians and bikes), bicycle markings through intersections (chevrons), and green-back shared lane markings. Bicycle signal applications (protected vs. permitted phasing strategies) will also be considered.

• Evaluate the pedestrian lane facility type, as identified in the Small Town and Rural Multimodal Networks report.

• Evaluate multimodal safety issues relating to clear zones on rural, suburban, and urban streets.

• Test directional tiles or blocks, to aid in wayfinding for people with visual disabilities. (e.g. what surfaces are consistently detectable, proper and consistent directional tiles placement).

• Research on the economic benefits brought by investing and improving transportation network for pedestrian and bicyclist.

Additional steps may include:

• Identify crash prevention factors, and develop validate countermeasures for pedestrian and bicycle transportation facilities.

• Incorporate multimodal network connectivity analysis, and non-motorized data in the metropolitan and statewide transportation planning processes; and evaluate equity and economic impacts of pedestrian and bicycle investments.

• Support performance evaluation of infrastructure-related applications for design flexibility.

• Support efforts to document and maintain national data on pedestrian and bicycle activity and infrastructure.

• Conduct operations and safety analysis for two-way separated bike lanes at intersections.

WHAT IS OUR GOAL?

The overall goals are:

• Provide answers to emerging questions about innovative facility design, planning, and implementation to improve safety and mobility for pedestrians and bicyclists.

• Conduct effective and efficient research on innovative traffic control devices, to accelerate their incorporation into the Manual on Uniform Traffic Control Devices (MUTCD).

• Facilitate the collection and reporting of the robust transportation facility data, which allows updating the Federal, State, local, and other design guidelines, such as the American Association of State Highway and Transportation Officials (AASHTO) design guides.

• Support research on addressing rural multimodal transportation needs, regulatory streamlining, opportunities to improve cost effectiveness and efficiencies in the transportation system, and multimodal investment analysis.

WHAT IS THE BENEFIT?

Since the information gathered from this study will improve Caltrans' ability to answer, conduct, facilitate, and support any research demands on a wide variety of pedestrian and bicycle issues, the benefits are a new or improved technical standard, plan, or specification; and a new or improved business practice, procedure, or process.

WHAT IS THE PROGRESS TO DATE?

First meeting was conducted among representatives from transportation agencies on November 7, 2017. The research team presented and discussed “calls for topics”, and identified upper-tier project.

Second meeting was conducted on December 12, 2017. The research team confirmed funding availability, presented detailed assessments, and selected research topics.