

UTC Project Information	
Project Title	Bicycle Safety Analysis: Crowdsourcing Bicycle Travel Data to Estimate Risk Exposure and Create Safety Performance Functions
University	Oregon State University
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Funding Source(s) and Amounts Provided (by each agency or organization)	University of Washington PacTrans \$180,000 Oregon Department of Transportation \$ 60,000 University of Washington \$ 60,000 University of Idaho \$ 60,000
Total Project Cost	\$360,000
Agency ID or Contract Number	DTRT13-G-UTC40
Start and End Dates	January 15, 2015– September 16, 2016
Brief Description of Research Project	<p>In the recent years, non-motorized transportation, specifically cycling, has been promoted by authorities in the Pacific Northwest, Seattle, WA and Portland, OR in particular, as an alternative healthy mode of travel. One useful tool to understand the correlation of critical factors and predict crashes is Safety Performance Functions (SPFs). The major challenges for developing bicycle-specific SPFs are twofold: insufficient bicycle crash data and bicycle volume data on a wide range of bicycle facility types (Nordback et al., 2014). Even if bicycle SPFs are developed from other locations, all associated SPFs for these facility types should be calibrated when applying them to a different location, so engineers or planner face difficulties when adopt or rebuild bicycle SPFs due to method and data inconsistency. To overcome those challenges, this project created tools, guidelines, and repeatable processes of building bicycle specific SPFs based on case study from Seattle and Portland that engineers and planners can use to:</p> <ul style="list-style-type: none"> • Analyze crowdsourced bicycle data, • Calculate bicycle exposure to dangerous situations, and • Create and analyze safety performance functions for bicyclists.

Describe Implementation of Research Outcomes (or why not implemented)

Place Any Photos Here

The guidelines and procedure of building bicycle SPFs have been implemented in Seattle, WA and Portland, OR as two case studies in this research. City of Seattle and City of Portland can use it as a useful tool to evaluate bicycle safety and prioritize safety related projects. They can also expand the scale to state of Washington and state of Oregon (if additional resources can be provided). Other local jurisdiction can use the same procedure to explore and build SPFs by crowdsourcing data.

Beside the tool implementation, researchers have been communicated and spread the products from this project to many places and conferences, such as 2017 International Cycling Safety Conference in U.C. Davis, California; 2017 TRB conference and 2018 Pactrans Region 10 Conference, etc. The researchers received the Best Poster reward in 2017 International Cycling Safety Conference, figure shown below.

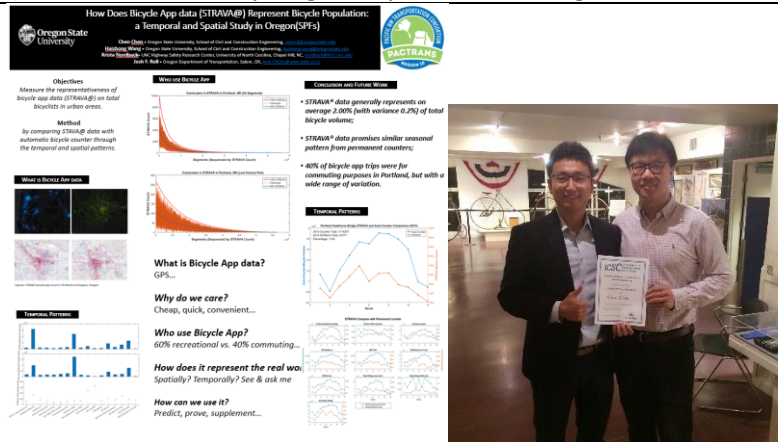


Figure 1, the Best Poster in 2017 International Cycling Safety Conference (left) and picture of researchers receiving the reward (right).

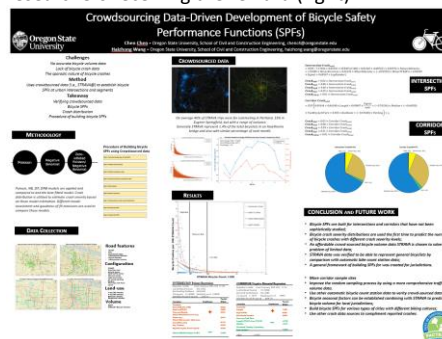


Figure 2, the poster in 2018 Pactrans Region 10 Conference.

<p>Impacts/Benefits of Implementation (actual, or anticipated)</p>	<p>The City of Seattle and the City of Portland can use the products as useful tools to evaluate bicycle safety for road intersections and segments and prioritize safety related projects. Other local authorities can also transform the procedure to build their own SPFs.</p> <p>Using crowdsourcing data to supplement or replace traditional labor consuming data has caught much attention from other researchers in conferences, meetings, and activities related to this project.</p> <p>Implementing those tools and procedures can help cities' or states' decision-making process based on scientific evidence with lower resource inputs.</p>
<p>Web Links</p> <ul style="list-style-type: none">• Reports• Project Website	<p>https://depts.washington.edu/pactrans/research/projects/bicycle-safety-analysis-crowdsourcing-bicycle-travel-data-to-estimate-risk-exposure-and-create-safety-performance-functions-year-3-2015-16/</p>