



# UNIVERSITY TRANSPORTATION CENTER RESEARCH BRIEF

**PROJECT TITLE:** Safe from Crime at Location-Specific Transit Facilities

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**INSTITUTION:** SINGLE-INSTITUTION PROJECT

**ESTIMATED COMPLETION DATE:** JANUARY 2018

**SPONSORS:** THE PACIFIC NORTHWEST TRANSPORTATION CONSORTIUM, WSDOT



## Background

Transit agencies address exposure to crime and related victimization by identifying two types of issues: the safety of riders, which involves reducing exposure to crime on the way to, while waiting for, and while traveling in transit vehicles; and security, which involves cooperation

with law enforcement to protect transit riders. Transit operators have long monitored crime and are cognizant of high incident locations. However, they lack data-driven tools to readily match crime events (1) spatially with the locations of individual transit facilities, and (2) temporally with transit service periods and their associated transit ridership characteristics (e.g., commuters, night riders, etc.).

In their 2014 Data-Driven Approaches to Crime and Traffic Safety (DDACTS), the National Highway Safety Administration showed that the data revolution presents a unique opportunity to provide transit operators the tools to track, prevent, and clearly communicate the risk of all types of transit crimes.

## Research Project

The proposed research will integrate four data sets in order to provide a state-of-the-art system for monitoring crime in both space and time, and for developing and testing countermeasures for crime prevention. First, we will use location-specific crime data, which several of the region's cities are now making available to the public. These data enable matching crime events with specific transit facilities locations. Second, we will use ORCA card transaction records, which for the first time provide

detailed times and locations when transit riders access transit facilities and vehicles, along with the locations and durations of transit transfers. Both crime and ridership data are geolocated and time-stamped, which allow for precise spatial and temporal matching. Third, land use data will bring complementary information on development patterns (residential and employment densities, socioeconomic characteristics of the areas) and activities surrounding transit facilities. Fourth, we will use data on transit stop or station characteristics (shelters, benches, lighting, etc.) to complement land use with micro environment data.

The present project will develop and pilot data-driven tools to (1) identify hotspots of criminal activity near and around each transit facility, and (2) assist decision-making regarding the selection of countermeasures and the allocation of future safety investments, using the results of models estimating environmental and socioeconomic predictors of crime near transit facilities.

