

**Combating Auto Theft in Arizona: A Randomized Experiment with License Plate
Recognition Technology***

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Bruce Taylor**

Christopher Koper***

Daniel Woods***

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** NORC at the University of Chicago: 4350 East-West Highway, Bethesda, MD 20814

*** Police Executive Research Forum: 1120 Connecticut Avenue NW, Suite 930, WDC 20036

EXECUTIVE SUMMARY / ABSTRACT

License Plate Recognition Technology (LPR) is a relatively new tool for law enforcement that reads license plates on vehicles using a system of algorithms, optical character recognition, cameras, and databases. Through high-speed camera systems mounted on police cars or at fixed locations, LPR systems scan license plates in real time, and compare them against databases of stolen vehicles, as well as vehicles connected to fugitives or other persons of interest, and alert police personnel to any matches. Although the use of LPR technology is extensive in the United Kingdom and becoming more prevalent in the United States, research on LPR effectiveness is very limited, particularly with respect to how LPR use affects crime.

This report presents results from a randomized field experiment with LPRs conducted by the Police Executive Research Forum and the Mesa, Arizona Police Department (MPD) to target the problem of auto theft. The experiment sought to determine whether and to what extent LPR use improves the ability of police to recover stolen cars, apprehend auto thieves, and deter auto theft. We did this by examining the operations of a specialized 4-car MPD auto theft unit that worked in auto theft hot spots over a period of time both with and without LPR devices.

The experiment was conducted in two phases. Phase 1 of the study, which lasted 30 weeks, involved operations focused on “hot routes”—high risk road segments, averaging 0.5 miles in length, that we believed auto thieves were likely to use based on analysis of auto theft and recovery locations and the input of detectives. At randomly selected times over this 30-week period, officers worked 45 randomly assigned routes using the LPR equipment (each police car was equipped with an LPR system) and another 45 randomly selected routes doing extensive manual checks of license plates. An additional 27 routes were randomly assigned to serve as a control group for the analysis of trends in auto theft. (These routes received only normal patrol operations.)

