



# MEASURING THE COSTS AND BENEFITS ASSOCIATED WITH VEHICLE PURSUIT POLICIES IN ROANOKE CITY AND ROANOKE COUNTY, VA

Prepared by the Policing Project at New York University School of Law

PRACTITIONER VERSION

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## ABOUT THE POLICING PROJECT

We partner with communities and police to promote public safety through transparency, equity and democratic engagement.

Our work focuses on front-end, or democratic, accountability—meaning the public has a voice in setting transparent, ethical, and effective policing policies and practices before the police or government act. The goal is to achieve public safety in a manner that is equitable, non-discriminatory, and respectful of public values.

For more information, visit [www.PolicingProject.org](http://www.PolicingProject.org).

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# Introduction

Whenever a motorist refuses to pull over—or flees in the course of a stop—a police officer must make a decision of whether or not to pursue. Although a vehicle pursuit increases the likelihood of apprehending the suspect (and potentially preventing the person from committing further crimes), it also puts officers and other drivers and pedestrians at serious risk of injury or death and can result in damage to both public and private property. In light of these concerns, a number of agencies restrict pursuits in various ways. Many others, however, encourage officers to chase any car that flees.

To assess the costs and benefits to policing agencies of adopting more restrictive vehicle pursuit policies, the Policing Project partnered with two neighboring Virginia policing agencies: the Roanoke City Police Department (“City”) and the Roanoke County Police Department (“County”). The City and County pursuit policies evolved differently over time. We compared how outcomes changed in the two jurisdictions before and after their policies went into effect.

Prior to 2013, the County operated under a discretionary vehicle pursuit policy that left pursuit decisions up to individual officers. On December 15, 2013, the County adopted a restrictive vehicle pursuit policy matrix that limited the circumstances under which officers may engage in a pursuit (and prohibited pursuits outright if the person fleeing had only committed a minor infraction).

The City followed a different policy trajectory. Between 2012 and 2014, the City operated under a discretionary vehicle pursuit policy. On March 10, 2014, the City adopted a more restrictive vehicle pursuit policy that directed officers to abstain from pursuits over non-hazardous traffic infractions. On February 10, 2016, the City then added further restrictions to their vehicle pursuit policy directing that pursuits over non-violent property felonies and misdemeanors could only be initiated under low-risk conditions. On January 20, 2017, the City removed these additional restrictions and returned to their more permissive March 10, 2014 policy directive.

Below we present key findings for both Roanoke County and Roanoke City across each of their distinct policy periods. For more detailed analyses please refer to the **full-length report on our website**.

# Key Findings

## Pursuits Got Shorter Under Restrictive Pursuit Policies in the County

The Policing Project measured the average duration (in minutes) of pursuits under each policy. Pursuit duration is an outcome of interest because the risk of injury typically increases the longer a pursuit lasts.<sup>1</sup> **Table 1** presents the average duration of all pursuits, as well as those that officers and supervisors terminated (or did not).

In Roanoke County, pursuits under the “restrictive” policy tended to be objectively safer than under the “discretionary” policy because they were shorter—generally, the longer a pursuit goes on the greater risk it poses to passengers and pedestrians. The average duration of pursuits decreased from 5.2 minutes under the discretionary policy to 2.9 minutes under the restrictive period. This decrease appears to be driven in large part by supervisors and officers terminating pursuits faster under the restrictive policy than under the discretionary policy. The average terminated pursuit duration declined from 6.2 minutes to 2.5 minutes. This change suggests that the decision matrix provides critical information to help quickly terminate pursuits that fall outside the policy criteria.

In contrast, Roanoke City pursuits were longer under the “bounded” and “restrictive” policies than under the “discretionary” policy. The average duration of all pursuits increased from 2.8 minutes to 6.3 minutes. The policy did, however, drastically reduce the number of pursuits, especially for traffic related offenses. The increase in pursuit duration in the City likely reflects a change in pursuit composition away from traffic offenses and towards other more serious offenses, which are more prevalent in the City.

**Table 1: Average Duration of Pursuit (In Minutes)**

**Panel A. Roanoke County**

	“Discretionary” (Jan. 2007 - Dec. 2013)	“Restrictive” (Dec. 2013 - Dec 2019)
All Pursuits	5.2	2.9
Terminated	6.2	2.5
Not Terminated	5	3.5

<sup>1</sup> Wade, L. M. (2015). High-Risk Pursuit Classification: A Categorical Analysis of Variables From Georgia Police Pursuits. *Criminal Justice Policy Review*, 26(3), 278–292.

**Panel B. Roanoke City**

	“Discretionary” (Mar. 2012 - Mar. 2014)	“Bounded” (Mar. 2014 - Feb. 2016 and Jan. 2017 - Oct 2019)	“Restrictive” (Feb. 2016- Jan. 2017)
All Pursuits	2.8	3.3	6.3
Terminated	2.9	3.3	2.6
Not Terminated	2.7	3.3	7.3

**Expected Costs to the County and City Decreased Under Restrictive Pursuit Policies**

To take into account the physical costs associated with pursuits, we estimated the cost of an officer’s decision to pursue a fleeing suspect based on the probabilistic fatality risk for the driver and passengers in the pursued vehicle, the probabilistic risk of a fatal pedestrian accident, and the probabilistic fatality risk for the officers in pursuit. The equations to calculate average pedestrian, passenger, and officer risk are described in the footnote below.<sup>2</sup>

**Table 2** reports the change in number of pursuits between each policy period and the accompanying change in expected risk to passengers and pedestrians. In the County, the number of total pursuits fell by more than half. The average expected passenger, pedestrian, and officer costs similarly fell. When taking into account the costs associated with potential loss of life, we find that total expected costs per year decreased from \$1,841 to \$383 as the policy became more restrictive. This represents an expected savings of about \$1,400 per year to the County by avoiding potential injury and loss of life. The savings does not necessarily translate into additional dollars for the County, but into the avoidance of potential costs that could come from engaging in risky vehicle pursuits. In the City, we find that the total number of pursuits declined by more than half under the “restrictive” period, but the average annual external cost of pursuits only decreased by about \$400 per year from under the discretionary period to the most restrictive policy.

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<sup>2</sup> Using the recorded distance traveled in the pursuit and average speed by the officer as an estimate of the distance traveled and speed of the pursued vehicle, we calculated the expected passenger cost.  $\text{Accidents per Mile Traveled} \times \text{Miles Traveled} \times P(\text{Fatality in Accident} \mid \text{Average Speed}) \times E(\text{Value of Statistical Life of Passengers})$ . We also calculated the cost imposed on pedestrians as follows:  $\text{Number of Pedestrian Accidents per Vehicle Mile Traveled} \times \text{Miles Traveled} \times P(\text{Fatality in Accident} \mid \text{Average Speed}) \times E(\text{Value of Pedestrian})$ . Lastly, we calculated the cost imposed on officers as follows:  $\text{Accidents per Mile Traveled} \times \text{Miles Traveled} \times P(\text{Fatality in Accident} \mid \text{Average Speed}) \times E(\text{Value of Statistical Life of Passengers} + \$200,000 \text{ in combined local and state survivor benefits})$

**Table 2: Expected Costs Based on Risk to Passengers and Pedestrians**

**Panel A. Roanoke County**

	“Discretionary” (Jan. 2007 - Dec. 2013)	“Restrictive” (Dec. 2013 - Dec 2019)
Average Expected Passenger Risk	\$55.50	\$24.00
Average Expected Pedestrian Risk	\$61.50	\$30.00
Average Expected Officer Risk	\$85.63	\$41.78
Total Pursuits	109	48
Total Expected Costs / Year	\$1,841	\$383

**Panel B. Roanoke City**

	“Discretionary” (Mar. 2012 - Mar. 2014)	“Bounded” (Mar. 2014 - Feb. 2016 and Jan. 2017 - Oct 2019)	“Restrictive” (Feb. 2016 - Jan. 2017)
Average Expected Passenger Risk	\$13.53	\$16.43	\$15.81
Average Expected Pedestrian Risk	\$19.16	\$22.43	\$32.72
Average Expected Officer Risk	\$14.75	\$17.08	\$23.74
Total Pursuits	167	437	40
Total Expected Costs / Year	\$660	\$2,037	\$241

**Notes:** Comparisons across the City and County are complicated by how the data sets are structured. In the County, the pursuit data captures information on the fleeing vehicle (82 percent of which have *one* person in them). In the City, the pursuit data captures information on the police vehicle which typically contains *two* officers. All dollar estimates are in 2021 dollars.

## No Changes in Crime Under Restrictive Pursuit Policies; Slight Decreases in Arrest Rates

It could be the case that by limiting costly pursuits, police were losing a tool that had helped them apprehend, and deter, serious offenses. We evaluated this by examining criminal incidents and arrests reported by the County and City police to the FBI. When compared to other police departments in Virginia, the overall level of criminal activity did not change in response to the adoption of vehicle pursuit policies.

We do find, however, that in the case of the County and City, there is a roughly 2 percentage point decline in arrest rates immediately following the adoption of the more restrictive pursuit policy. We find that the declines in arrest rates primarily are concentrated in non-part 1 offenses, which include both less serious offenses and DUIs. In Roanoke County, this finding is consistent with the reduction in the fraction of pursuits that were initiated because of suspected DUIs. Declines in less serious non-part 1 offenses, apart from DUIs, are consistent with the aim of the vehicle pursuit policies to limit officer discretion for pursuing low risk offenses, as they are potentially the least costly offenses to go unpursued and un-arrested.

We also observe an increase in arrest rates for both Part 1 Violent and Part 1 Property offenses, which suggests that restrictive pursuit policies may help law enforcement focus their energy and resources on more serious criminal activity that generally is more costly to society.

**Our results suggest that constraining police discretion through policy directives enhances the overall effectiveness and productivity of the police.**