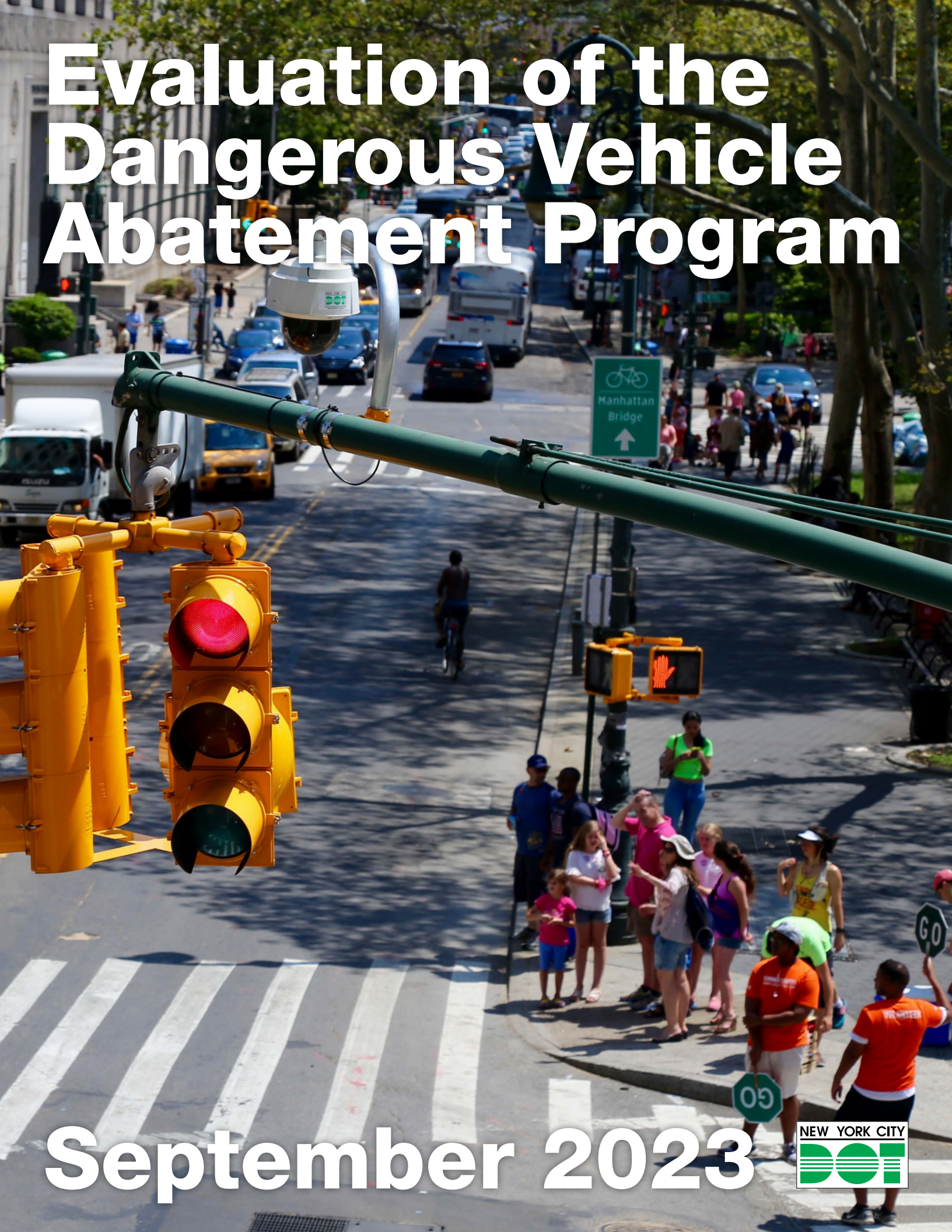


Evaluation of the Dangerous Vehicle Abatement Program



September 2023





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Executive Summary

This report evaluates the pilot of the Dangerous Vehicle Abatement Program (DVAP) as set forth in Local Law 36 of 2020 as codified in Subchapter 4 of Chapter 1 of Title 19 of the New York City Administrative Code (“DVAP Law”). This program, which required the New York City Department of Transportation (DOT) to create and administer an educational course (“DVAP Course”) for a subset of owners whose vehicles (“covered vehicles”) obtained a high number of speed and red light camera violations, reached hundreds of motorists in its first year with a curriculum focused on the human impacts of reckless driving decisions. The agency dedicated significant staff and financial resources to the program, which it created under challenging circumstances in the immediate aftermath of the height of the Covid-19 pandemic. This report fulfills the requirements of the DVAP Law in evaluating, to the extent data is available, the effectiveness of the DVAP Course, and the subsequent violations obtained by the license plates whose owners or designated representatives took the DVAP Course.

Under the DVAP Law, registered owners of vehicles that had obtained fifteen or more finally-adjudicated speed camera violations or five or more finally-adjudicated red light camera violations within twelve months were eligible for selection to take an educational class administered by DOT. Failure to take the class initiated a process in which the vehicle could potentially be seized until the owner complied with the notice to take the DVAP Course. As of March 31st, 2023, 1,605 DVAP Course notices had been sent to covered vehicle owners, and 885 individuals had completed the DVAP Course. Participants whose plates remained valid in the State of New York were then monitored for a period of six or twelve months to see whether those plates continued to accrue camera violations for speeding or running red lights, and the pool of participants was broken down by severity of qualifying violation record, owners versus designated attendees, and those who complied on time with the notice to take the DVAP Course versus those who moved through the process leading towards vehicular seizure.

Summary Statistics through March 31, 2023

Total DVAP Course Notices Mailed	1,605
Total DVAP Course Participants	885
OATH Petitions Filed	532
OATH Trials Held	231
Favorable OATH Decisions	224
Warrants of Seizure Issued	159
Vehicles Seized	12

Determining the effect of the program on driver behavior was complicated by two key factors: the overall trend in camera violations during the pilot period and the difficulty of determining *driver* behavior using data linked to a *vehicle*. Between 2021 and 2022, the overall number of camera violations during the established hours of the program declined by five percent, even as the number of speed enforcement cameras in New York City increased. This indicates there were factors other than the course impacting violator behavior. Furthermore, because violations are issued to a vehicle but education focuses on an individual, there are limits on the conclusions that can be drawn about the effect of the program: an individual may drive multiple vehicles, multiple drivers may use and accrue violations on the DVAP-eligible vehicle, and many license plates could not be tracked post-DVAP course because the registered owners surrendered them and had no other valid New York plates in their name. Where possible, this evaluation examines the violation records associated with all vehicles registered to the same individual as the vehicle that triggered DVAP qualification. However, there are unavoidable gaps in the City’s knowledge of who, exactly, is driving a vehicle at the time of a violation, or how individual drivers may be behaving at any particular time.

To evaluate the effect of the DVAP Course, DOT analyzed speed camera and red light camera data trends overall and for a program group and control group during the pilot evaluation period, spanning from October 26, 2020 through March 31, 2023.¹ This analysis shows that both the program group and the control group lowered their frequency of incurring speed camera violations. Vehicles belonging to DVAP Course participants showed a 55 percent overall drop in their violations over the year following their completion of the DVAP Course compared to the year prior to receiving notice to take the class, while the control group showed a 37 percent decrease in violations. Few program group vehicles had zero subsequent violations, and there were still many vehicles belonging to DVAP Course participants that continued to accrue speed and red-light camera violations in excess of the DVAP qualification threshold, including some that even increased their frequency. Due to the differences between plates and individual drivers and

¹ As per statute, on October 26, 2020, DOT began issuing warnings on mailed notices of liability for speed and red-light camera violations that 15 or more school speed camera or 5 or more red light camera violations in 12 months could result in the vehicle’s registered owner being required to take the DVAP course. Approximately 12 months later, on November 1, 2021, the first notices to take the DVAP course were mailed.

other factors that make it challenging to measure program effects (including program respondents who could not be tracked due to plate surrenders), the difference in the rates of violation reduction between the program and control groups cannot be definitively attributed to the DVAP class.

During the pilot, DVAP was sometimes misconstrued as a program to seize vehicles from dangerous drivers and to prevent these drivers from getting behind the wheel. This was not the main purpose of the program: DVAP was first and foremost an educational program, with the possibility of vehicular seizure used to compel covered vehicle owners to take the class. Legal and resource constraints limited the extent to which the DVAP program could provide a meaningful sanction to vehicle owners who did not take the course when ordered to do so. The City of New York lacks significant authority to regulate both drivers and vehicles; responsibility for vehicle registration and driver licensing lies with the New York State Department of Motor Vehicles (DMV). As a result, linking impoundment of a vehicle to violations of speed and red-light cameras was a complex and lengthy process. Many eligible owners who did not take the course could not be pursued for further action due to the surrender of the license plate, a change in vehicle ownership or inability to locate the owner. Even in cases where a vehicle was seized, owners typically were able to get their cars back quickly by simply taking the class. In addition to being labor-intensive, the cost to DOT per DVAP participant was high, at over one thousand dollars.

Overall, Given the uncertain effects of the program, its high cost per participant, and the complexity of its implementation, DOT recommends DVAP should not continue after the end of the pilot. Rather, the agency will pursue a two-pronged strategy that would focus on (1) expanding tools at the state level to get the most dangerous drivers off the road and (2) targeting driver education to those populations that are most likely to benefit. Moving forward, DOT will:

Advocate at the State level for new laws that remove the most dangerous drivers from our streets. For example, the City of New York supports Senate Bill 451/Assembly Bill 7621, legislation that would allow the DMV to suspend the registration of any vehicle with five or more finally-adjudicated red light camera violations within 12 months.

Explore opportunities to expand driver education to driver populations more likely to benefit, including inexperienced new and young drivers. This could include a classroom length version of the DVAP curriculum in high schools and colleges; an expansion of the agency's adjunct presentation addressing speed as part of local driving school curriculums; and an expansion of the National Safety Council's Alive and 25 program, which has been successfully implemented at twenty high schools annually.

I. Introduction

Local Law 36 of 2020 as codified in Subchapter 4 of Chapter 1 of Title 19 of the New York City Administrative Code (“DVAP Law”) was passed by the New York City Council with the belief that “vehicles which have been involved in multiple red light camera and school speed camera violations would be less dangerous if their registered owners were educated regarding the dangers of exceeding speed limits and failing to comply with traffic signals.”² The law tasked the New York City Department of Transportation (DOT) with establishing the Dangerous Vehicle Abatement Program (DVAP).

The DVAP Law stated that the registered owner of any motor vehicle that has accumulated five or more finally adjudicated³ red light camera violations or fifteen or more finally adjudicated school speed camera violations within a twelve-month period (“covered vehicle”) may be required to take a safe vehicle operation course (“DVAP Course”).⁴ Failure to enroll in and complete the DVAP Course led to vehicle owners being petitioned to the Office of Administrative Trials and Hearings (OATH) Trials Division, which could potentially result in a warrant authorizing the seizure and impoundment of the vehicle by the New York City Sheriff’s Office, a division of the New York City Department of Finance (DOF). DOT was tasked with designing and administering the DVAP Course.

The DVAP Course is a 90-minute in-person class intended to educate vehicle owners and is not punitive in nature. The curriculum emphasizes the human impact of dangerous driving and includes information about Vision Zero, automated enforcement camera programs, real-life consequences of reckless driving, and actionable best practice skills to improve driving behavior. Traffic safety statistics are shared with the participants to establish the true dangers of speeding and red light-running to vulnerable road users and to show the circumstances in which pedestrians are injured and killed in New York City. Each DVAP Course also includes a viewing of the video, “Drive Like Your Family Lives Here,” in which the relatives of New Yorkers killed in crashes describe the effects on their lives. Participants are also encouraged to complete a post-class survey with eight questions reviewing their knowledge of the course materials and asking how their behaviors have changed.

Delayed by the Covid-19 pandemic, DVAP Courses began in November of 2021, held in-person at DOT offices and taught by DOT trained safety educators as well as one contracted educator. DOT sent an average of 80 to 100 notices per month to qualifying covered vehicle owners. When issuing automated enforcement violations, DOT cameras record no images of the individual, only of the vehicle and its license plate. Thus, violations are the responsibility of the state-registered owner, as is completion of the DVAP Course. Participants were randomly selected from within parameters specifically chosen for the purposes of evaluating this pilot program: a mix of extremely high violators and those who were just over the threshold for eligibility; and plates qualifying on the basis of speed violations, red light violations, or both. No personal characteristics (e.g. sex, age, race) were factored into selection for DVAP, as this data is not collected by DOT at any point in the administration of its speed or red light camera programs.

The violation records for the covered vehicles that qualify for DVAP are extreme outliers for dangerous driving behaviors. In calendar year 2021, 75 percent of vehicles that obtained speed camera violations received no more than two. Less than one percent of violating vehicles received enough to qualify for DVAP.⁵ Likewise, less than one percent of vehicles obtaining any red-light camera violations received enough to qualify for DVAP. Many of these drivers have also received moving violations or license suspensions, indicating that the owners and drivers associated with these plates are not deterred by existing penalties.

Covered vehicle owners selected for the program are notified by mail and informed in writing that failure to register for and attend a DVAP Course within 45 days of their notice being mailed could result in the seizure and impoundment of their vehicle. If a participant does not respond or does not complete the scheduled DVAP Course, they are sent a subsequent notice allowing them an additional 45 days to take the course or to appear at a hearing before the Office of Administrative Trials and Hearings (OATH), the City’s administrative tribunal. OATH can issue fines and judgments, but it is not a criminal court. If the vehicle owner still does not act on this second notice, then their case is adjudicated at OATH, which can lead to the issuance of a warrant of seizure allowing the New York City Sheriff to impound the vehicle after twenty days has elapsed.

2 Local Law 36 of 2020. [Online] available: <https://nyc.legistar1.com/nyc/attachments/7551f432-6556-4fd1-9e27-74fd3cb20699.pdf>

3 A “finally adjudicated” violation is one where the respondent paid the fine without contesting the violation, the respondent was found guilty following a hearing, or the respondent failed to pay the fine or appear in court and a default judgment was entered into the Department of Finance’s systems.

4 The DVAP Law does not require every registered owner of every qualifying vehicle to take the DVAP Course. Qualifying simply makes the registered owner eligible for selection to take the DVAP Course.

5 See *New York City Automated Speed Enforcement Program 2022 Report*, <https://www.nyc.gov/html/dot/downloads/pdf/speed-camera-report.pdf>

Because New York City’s speed and red-light cameras only capture images of license plates, and not of actual drivers, responsibility for violations lies with the registered owner of the vehicle. Likewise, for DVAP qualification and participation, the registered owner of the covered vehicle is considered to be the person responsible for completing the course. In the interest of both fairness and effective behavior change, registered owners were given the opportunity to sign an affidavit claiming that another individual was using the covered vehicle at the time the violations were obtained, and therefore that person should attend the DVAP Course in their place. These individuals are referred to in this report as “affidavit-designated drivers.” They include family members of the registered owner and employees driving covered vehicles owned by their employers. Approximately 15 percent of DVAP Course attendees were such drivers.

Between November 1, 2021 and March 31, 2023, 1,605 vehicle owners received a notice to attend the DVAP Course. As of March 31, 2023, 885 individuals had completed the DVAP Course or were scheduled to take a course, a response rate of 55 percent. As of March 31, 2023, a total of 12 vehicles have been seized by the New York City Sheriff as a result of DVAP; 10 were returned to their owners after completion of the DVAP Course. This is a small fraction of the total number of vehicles for which a favorable decision was issued by OATH. As discussed in the *Procedural Considerations* section of this report, there are many reasons why a covered vehicle for which a warrant was issued could not be seized; most common were mismatches between the vehicle identification number (VIN) and the license plate at the time of warrant issuance and expiration of the warrants before the vehicles could be located.

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The structure of the program requires this evaluation to use data on *vehicles* to infer changes in the behavior of *drivers*. As a result, there are limits on the conclusions that can be drawn about the effect of the program: an individual may drive multiple vehicles, multiple drivers may use and accrue violations on the DVAP-eligible vehicle, and many license plates could not be tracked post-DVAP course because the registered owners surrendered them and had no other valid New York plates in their name. Where possible, this evaluation examines the violation records associated with all vehicles registered to the same individual as the vehicle that triggered DVAP qualification. However, there are unavoidable gaps in the City’s knowledge of who, exactly, is driving a vehicle at the time of a violation, or how individual drivers may be behaving at any particular time.

II. Methodology

The DVAP Law, is intended “to prevent vehicles from becoming dangerous instruments by educating owners about responsible vehicle ownership.”⁶ The DVAP Course is meant to change dangerous driving behavior by reducing speeding and red light running among the population of drivers who frequently commit these violations. NYC DOT therefore sought to determine how attendance of the DVAP Course affected future red light or speed camera violation numbers compared to the population of similar vehicles that were not selected for participation in the pilot. NYC DOT also wanted to explore the effect of a warrant of seizure or an actual vehicle seizure on these types of violations, and whether there were any meaningful differences between the very highest offenders and those with lower qualifying numbers.

To determine DVAP Course eligibility, camera violation data was obtained via DOF records of finally-adjudicated⁷ violations, transmitted monthly to DOT. Registration and owner information was obtained from the New York State Department of Motor Vehicles (NYS DMV) Common Portal to Search Services, or COMPASS. This electronic record search application allows government users to search license, registration, title, inspection, and insurance records within the strict parameters of the Federal Drivers Privacy Protection Act (DPPA). The DPPA sets regulations as to how this data can be accessed, used, and shared. All use of COMPASS for the administration and evaluation of DVAP has been limited to a small number of individuals at DOT in compliance with the DPPA, in order to determine the validity of license plates at the time of DVAP Course selection, verify the mailing addresses of registered owners, obtain the details of other plates owned by the same individual for evaluation purposes, and record any subsequent surrenders of plates.

Initially, the pool of eligible participants included owners registered in the five boroughs of New York City; Westchester, Nassau, and Suffolk Counties in New York State; Fairfield County in Connecticut; and portions of Bergen, Passaic, Essex, Hudson, Union, Middlesex, and Monmouth Counties in New Jersey. However, starting in June 2022, this was narrowed to solely New York City registrations in order to eliminate frequent obstacles in seizing vehicles of non-respondents who live outside the five boroughs. Therefore, while the vast majority of plates included in this evaluation are New York State registrations to owners residing in New York City, there are a small number of New Jersey and Connecticut plates. Plates belonging to rental car companies – a significant proportion of eligible vehicles – were also excluded.

Plates were assigned a designation of the severity of their violation records: Group A plates were those that had received at least 28 finally adjudicated school speed camera and/or eight finally adjudicated red light camera violations within the previous 12 months. Group B plates were those with a lesser number of violations, but meeting the threshold of either 15 or more speed camera or 5 or more red light camera violations within the previous 12 months. The means by which the plate qualified for DVAP was also noted: speed camera violations, red light camera violations, or both. With approximately ten times more speed cameras in operation than red light cameras, a much larger pool of speeders than red light runners was eligible for the program, and thus the majority of notices were sent to speed violators. Participants were randomly selected from within their severity and violation type category in order to ensure a sufficient mix of typologies.

6 Local Law 36 of 2020. [Online] available: <https://nyc.legistar1.com/nyc/attachments/7551f432-6556-4fd1-9e27-74fd3cb20699.pdf>

7 The time it takes for a violation to become finally adjudicated varies: If the fine is promptly paid upon receipt of the notice of liability, it can take as little as a few days; if a notice of liability is ignored, it may take in excess of 70 days.

Program Composition (DVAP Program Through 3/31/2023)

Total DVAP Course Notices Mailed	1,605
Group A (very high violators)	65%
Group B (high violators)	35%
Qualified on Speed Only	78%
Qualified on Red Light Only	3%
Qualified on Both	19%
Total DVAP Course Participants	885
Group A (very high violators)	64%
Group B (high violators)	36%
Qualified on Speed Only	79%
Qualified on Red Light Only	8%
Qualified on Both	13%

In order to compare DVAP covered vehicles' subsequent violations to those of vehicles that were eligible but not selected, control groups were selected that resembled the participant vehicles in all ways except that the registered owners of these vehicles did not receive any notification from NYC DOT that they needed to take a DVAP Course. The proportions of Group A and Group B violators and selection on the basis of speed camera violations, red light camera violations, or both types were proportional to those of the DVAP attendee population.

To evaluate the effect of the DVAP Course on drivers' future violations, DOT looked at subsequent speed and red light camera violations for both the program and control groups.

For plates whose owners or designees took the DVAP Course between November 20, 2021, and February 28, 2022, the full number of violations obtained by vehicles in the twelve months following DVAP Course completion was obtained from DOT's own administration of the speed and red light camera programs via the camera vendor, which performs data processing on behalf of DOT.⁸

For DVAP Course participants from March 2022 onward, DOT used violation data for the period of six months following completion of the DVAP Course, rather than a full year, in order to allow for a larger sample for analysis.⁹ All valid plates associated with DVAP completion prior to October 1, 2022 are included in this analysis. In total, DOT analyzed 410 attendees, including 88 attendees for which the agency had 12 months of post-DVAP Course violations data and 322 for which the agency had six months of post-DVAP Course violations data. Of the remaining 475 attendees, 90 had no license plates after taking the class and therefore could not be evaluated. DOT had insufficient post-class violation data for the remaining 385, i.e. six months had not yet passed since they had taken the class.

Where relevant, any additional New York plates registered to the same owner were also examined for their violation record within the post-class period. For ease of analysis of cases involving affidavit-designated drivers, it was assumed that the driver also had access to any other vehicle registered to the same owner as the one selected for DVAP. It cannot be determined whether the owners of surrendered plates continued to obtain violations using vehicles registered to other individuals. The loss of data due to plate surrenders introduces *survivorship bias* to this analysis – simply put, because a specific subset of DVAP Course participants cannot be traced, and their subsequent driving behaviors are unknown, it is unclear what effects DVAP had on them, and whether these participants differ in meaningful ways from those whose post-Course driving records could be analyzed. In addition, the small number of owners of out-of-state plates who participated in DVAP could not have any additional registrations traced.

8 These violations are the total number *issued*, not the number that were eventually *finally adjudicated*, though there is not likely to be a significant difference between the two, because very few violations are successfully challenged.

9 For example, if an individual took the DVAP class on June 15th, 2022, then their violations from between that day and December 14th, 2022 would be counted.

Size of Program and Control Groups

	Full Year Class Group	Full Year Control Group	Six Month Class Group	Six Month Control Group
Total Class Participants	124	Not Applicable	376	Not Applicable
Individuals with Valid Plates for Analysis	88	30	322	100
Total Number of Plates Analyzed	125	51	495	138

One-Year Evaluation Group

One hundred twenty-four individuals took the DVAP Course during a time period in which a full twelve-month record of subsequent violations was available. Of them, 36 could not be evaluated because the plates that obtained the DVAP-qualifying violations had been surrendered during those months and the registered owner had no other active New York registrations for that time period. The remaining 88 were subject to a before-and-after analysis in which the performance of all plates registered to the same person as the DVAP-eligible vehicle was taken into account. For example, if the plate SAMPLE1 was selected for DVAP but the registered owner also had another vehicle with the plate SAMPLE2, a count was taken of all violations obtained by both plates for both the twelve-month DVAP eligibility determination period and the twelve-month post-class period. This ensures the most comprehensive view possible of the presumed driver's behavior. In total, 125 plates belonging to 88 individuals were reviewed.

For comparison purposes, a control group of 30 plates eligible for DVAP, but not contacted to take the DVAP Course, was evaluated for the period of calendar year 2022. This group was selected to have the same ratio of highest offenders to just-qualified plates, and of those qualifying for speed versus red light versus both, as the group that completed the course between November 20, 2021 and February 28, 2022. Selection of a larger control group was precluded by the fact that over the course of the DVAP pilot, the vast majority of the highest offenders ended up receiving a course notice, and a true control group can only include those vehicle owners who received no intervention related to DVAP but who are otherwise as similar as possible to program participants. The control group was evaluated in the same manner as the main group with regard to other plates in the name of the registered owner for a total of 51 plates belonging to 30 owners.

Six-Month Evaluation Group

An additional 376 people took the DVAP Course between March 1 and September 30, 2022, and of these people, 322 had at least one plate in their name remaining valid and thus could be evaluated six months post-course. When additional plates belonging to these 322 registered owners were taken into account, the total sample came to 495 plates. For consistency, comparisons were made to the six-month period prior to their selection for the DVAP Course, rather than the previous twelve months.

The control group consisted of 138 valid plates belonging to 100 owners. These individuals were chosen to have profiles proportionate to the DVAP group with regard to the severity of their violation totals and the type of violation on which they qualified to take the DVAP Course. For the purposes of selection, their qualifying totals were taken from data transmittals sent in February, April, or June of 2022. Because these individuals did not take a DVAP Course, their "six month post-class" periods began two months following the month from which they were selected, in line with the median period of time it took actual DVAP Course participants to attend a class after the mailout of their notice.

Note that on August 1, 2022, New York City's speed camera program switched to 24 hours a day, seven days a week operation, after having been active only on weekdays between 6 AM and 10 PM. In order to make fair comparisons, speed camera violations received after August 1, 2022, between the hours of 10 PM and 6 AM, or on weekends, were not included in the analysis. No red-light camera violations were excluded, as this program already ran 24 hours a day, seven days a week.

III. Findings

DVAP was implemented over the course of the Covid-19 pandemic recovery, when New York City’s speed camera program was simultaneously undergoing dramatic expansion. Both factors likely influenced the number of violations received by program participants both before their involvement with DVAP (the 12-month qualifying period) and afterward, making it challenging to isolate the effect of the DVAP Course on drivers. Detailed information about post-class violations should be considered in this context.

The number of camera violations dropped significantly for both the program and the control group, although the drop was slightly higher for the program group (55% vs 37%).

Of the 88 registered owners who maintained valid New York plates over the subsequent twelve months following DVAP attendance, 76 reduced their violations, one obtained the same number, and eleven increased. Notably, three participants had no further violations on any known plates registered in their name. Among those who reduced but did not eliminate violations, reductions ranged from 4 to 97 percent. In total, the DVAP Course participants had a total of 3,120 speed and 105 red light camera violations on their valid plates in the 12 months prior to their qualification for DVAP; in the twelve months following DVAP Course attendance, they amassed a total of 1,333 speed and 111 red light camera violations.¹⁰ This represents a fall of about 55 percent in total violations. These results should be interpreted with the appropriate caveats: it is not possible to know whether the course participant was driving the vehicle at the time violations were accrued, either before or after the DVAP Course, or whether the participant had access to vehicles registered in the name of another person. Additionally, a record of no or low camera violations after taking the class does not necessarily indicate safe driving in other areas: one course participant whose covered vehicle had no violations for twelve months post-course still obtained multiple suspensions for failure to answer traffic summonses. Another owner had no speed camera tickets on the covered vehicle, but was personally ticketed by an NYPD officer for speeding.

For the control group, the 30 owners amassed 969 speed and 61 red light camera violations in the twelve months prior to the first DVAP mailout, and 574 speed and 77 red light camera violations between January 1, 2022 and December 31, 2022.¹¹ Overall violations dropped by 37 percent, and four owners maintained zero violations. While this drop is not as large as that of the DVAP attendee group, and caution must be taken when interpreting results from a relatively small group of people, it is notable because it indicates that substantial decreases in violations happened in the absence of any educational intervention.

Twelve-Month Before and After Analysis

	DVAP Course Participants (n=88)		Control Group (n=30)	
	Before	After	Before	After
Total Speed Violations	3120	1333	969	574
Avg. speed violations per person	35.5	15.1	32.3	19.1
Total red light violations	105	111	61	77
Avg. red light violations per person	1.2	1.3	2	2.6

Results were similar for the six-month post-class evaluation group. Overall aggregate violations among DVAP Course participants fell 66 percent from the totals in the sixth months prior to selection for the program. Meanwhile, the control group’s violations fell 43 percent. Of the 322 course participants who had at least one plate in their name remaining valid, 50 of these participants (16 percent) had zero violations on any plates registered to the same owner over the subsequent six months, compared to ten percent of the control group. Again, this does not necessarily mean that all these individuals never sped or ran red lights; rather, they avoided obtaining camera violations on any plates registered in their name.¹² It is impossible to determine whether DVAP Course participants may have accrued violations while driving cars owned by other individuals, or whether they may have exceeded the speed limit or run red lights at locations without cameras.

10 While the number of red-light camera tickets increased overall, the difference is not statistically significant.

11 The increase in red light camera violations is attributable largely to one plate that had no red-light violations during the qualifying period but obtained ten in the year 2022.

12 Some of these license plates obtained violations at times that were excluded from analysis (overnight and on weekends after August 1, 2022)

Six-Month Before and After Analysis

	DVAP Course Participants (n=322)		Control Group (n=100)	
	Before	After	Before	After
Total Speed Violations	7722	2464	1639	948
Avg. speed violations per person	24	7.7	16.4	9.5
Total red light violations	418	268	166	72
Avg. red light violations per person	1.3	0.8	1.7	0.7

Despite this overall trend in decreasing violations, unfortunately, in some cases, records showed continued patterns of dangerous speeding and/or red light running in the six months following attendance. Thirty-one plates obtained 20 or more violations within this period, though it is impossible to know whether the driver was the DVAP Course attendee or somebody else. Several attendees also obtained license or registration suspensions for various reasons during this period, including insurance lapses, failure to pay tolls, and excessive outstanding parking violations.

Nonetheless, there are indications that many drivers may have reduced their speeding and red light running based on the relatively low number of violations obtained after the course – e.g. a plate that accrues five speed violations in the year following the DVAP Course shows clear and meaningful improvement over a record of 15+ violations in the previous twelve months. This is a benefit, as any reduction in speeding or red light running indicates progress towards safer behavior. However, as the profound decreases for the control group illustrate, these improvements are not necessarily attributable to DVAP, and with increasing passage of time after the class, any effects could potentially diminish as drivers return to their previous habit.

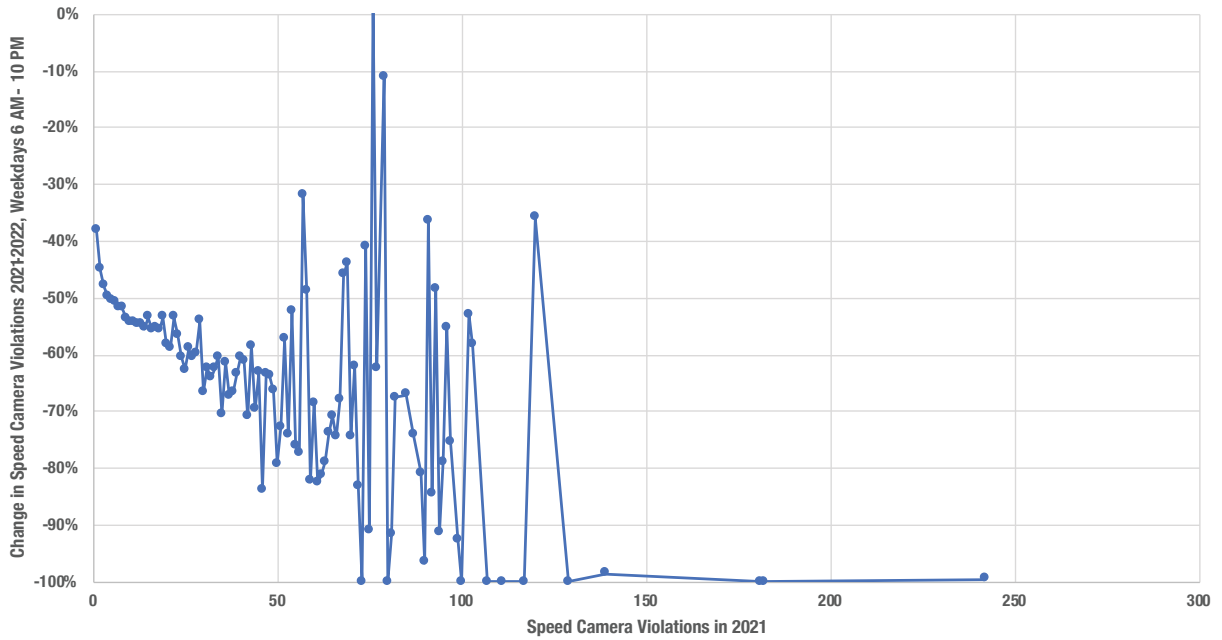
It is not possible to estimate the effect of the DVAP Course on crash risk. While measurable changes could be found in the number of speed and red light camera violations attributed to the vehicle owned or operated by the person who took the Course, and speeding and red light running are dangerous driving behaviors, the relative rarity of crashes, as well as the inability to assign fault for a crash using the data available to DOT, preclude any conclusions about whether participants in the DVAP Course were significantly less likely to be involved in a crash than similar drivers who did not take the class.

DVAP was implemented during a period when speed camera violations were dropping significantly across the board, including for frequent offenders.

The vast majority of violations obtained through New York City’s automated enforcement camera programs are speed camera violations. The improvements observed for both the DVAP and control group must be situated within the wider context of declining speed camera violations during the study period. Moving beyond solely DVAP-eligible plates, which by definition are the high-offending minority of vehicles, a preliminary analysis of all New York City speed camera violations from 2021 indicates that plates with high violations in 2021 generally show larger percentage drops in 2022 compared to those that had fewer violations in 2021:

Decline in Speed Camera Violations By Frequency of Violations

Plates with more violations in 2021 saw a larger percent drop in violations in 2022

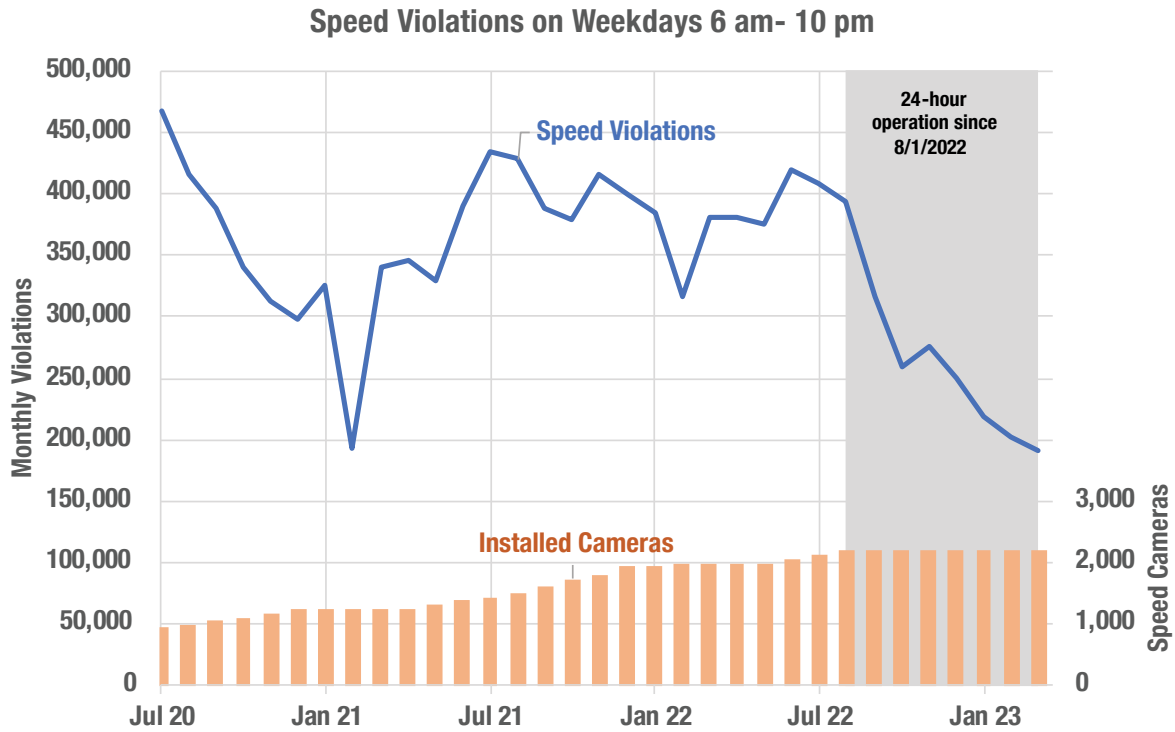


At the high outlier values of 2021 speed camera violations, the 100% reductions in violations are explained by the documented surrender of license plates to the DMV. It is not possible to know how much of the decreases in violations for both the treatment and control group can be attributed to actual improvements in driver safety, to other enforcement actions outside DVAP such as registration suspension, or by evasion of enforcement mechanisms such as license plate obstruction or defacement, which has been well-documented in New York City during the study period. Regression to the mean may also be an element in the driving records of both the treatment and control groups, where a period of high violations is followed by a reduction.

Changes in personal circumstances (such as moving outside the City of New York) and vehicle usage (such as a switch to a different means of commuting) may also factor into changes in violations. Still, there is a clear trend of greater percentage decreases in violations in 2022 as the number of speed camera violations obtained in 2021 increases – even as the total number of speed cameras installed in New York City continued to increase through the summer of 2022.

Also notable is the fact that, after the change to 24/7 operations on August 1st, 2022, violations committed during the long-established 6 AM – 10 PM hours also dropped dramatically:

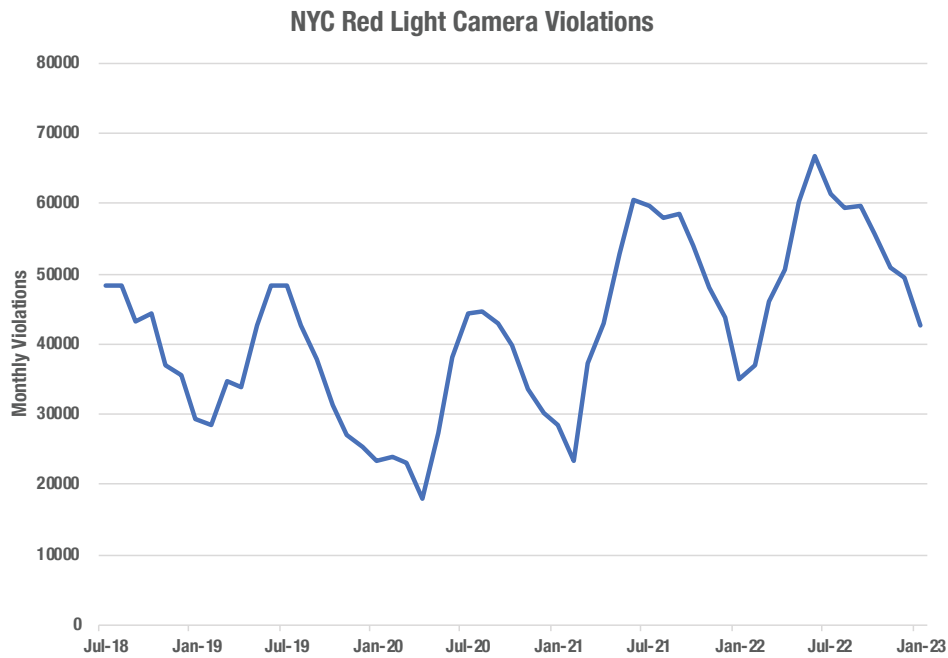
Speed Camera Violations: Trend from 2020 to 2023



Again, why this may have happened is unclear, although the history of the New York City speed and red light camera programs has been that violations generally fall over time.¹³ Since 2021, the red light camera program has seen an increase in violations without a corresponding increase in number of active cameras, but as there are far fewer red light cameras than speed cameras in New York City, the overall trend in automated safety enforcement continues downward.

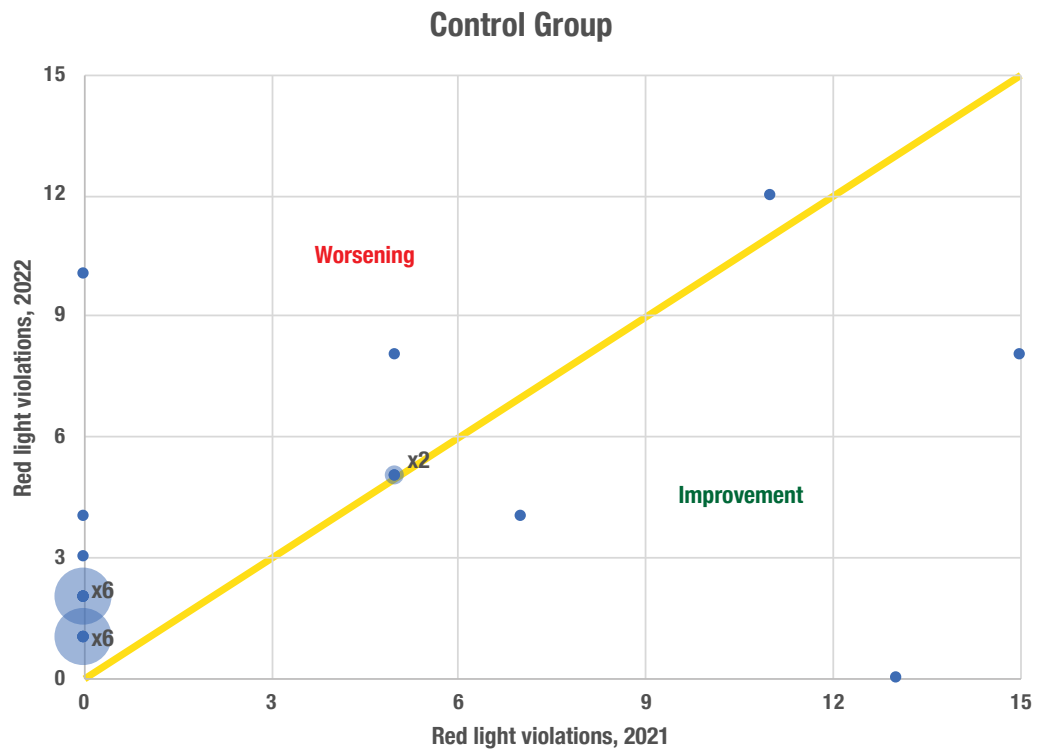
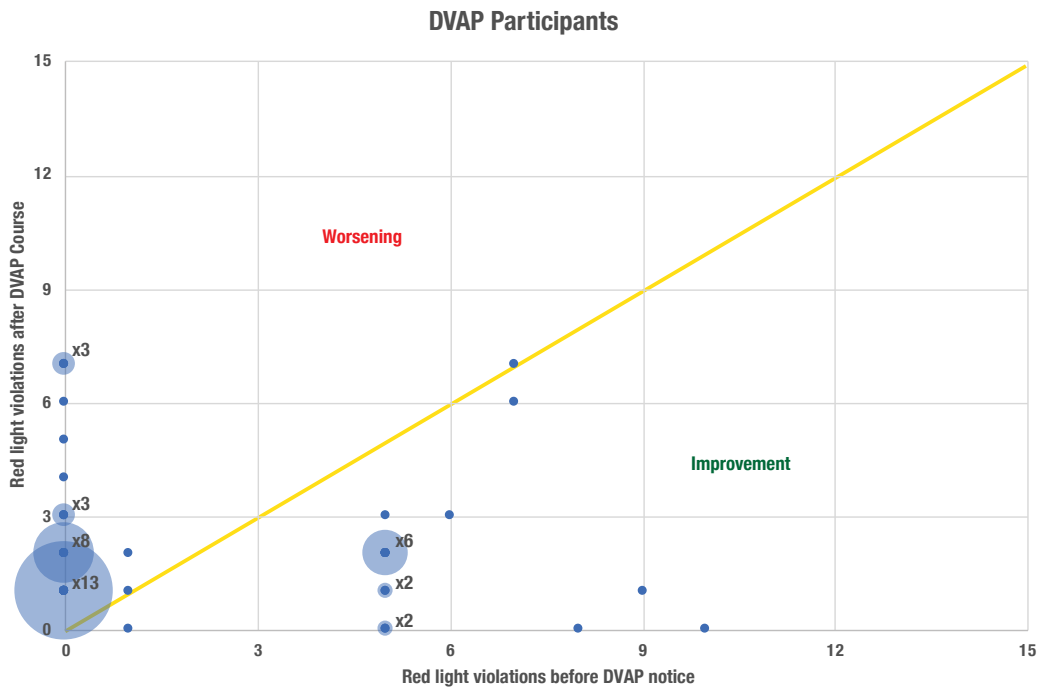
13 See <https://www.nyc.gov/html/dot/downloads/pdf/speed-camera-report.pdf>, <https://www.nyc.gov/html/dot/downloads/pdf/nyc-red-light-camera-program.pdf>

Red Light Camera Violations: Trend from 2018 to 2023



Notably, when all participants from the 12-month evaluation group who obtained any red-light camera violations after taking the Course are examined, along with the control group, an interesting finding appears: in both groups, several plates that registered zero red light camera violations in 2021 began to receive these violations in 2022. Unlike the speed camera program, the red-light camera program did not expand during this time.

Red Light Camera Violations, 12-Month Evaluation Group and Control



All who qualified on the basis on red light camera violations are pictured, as well as all who qualified only on speed but then accumulated red light violations after the class (DVAP group) or in 2022 (control group)

What the above findings indicate is that, even in the absence of DVAP – as illustrated by the control group – drops in total violations and speed camera violations would still be expected throughout the evaluation period, and larger trends unrelated to DVAP, such as an increase in traffic congestion in 2022, may indeed explain the trajectory of violations for course participants. The trajectory of red-light camera violations is more complicated, as the vehicles of people who took the DVAP Course *and* their similar counterparts who were not contacted for the program both showed new violations that their previous records did not predict. DVAP Course participation did not prevent these new violations from occurring.

Several plates with no post-class violations, remaining validly registered, also showed no violations obtained for a period of several months *prior* to the DVAP Course. In these cases, it is unclear what caused the cessation of violations, in particular if the registered owner had no other vehicles in his or her name. In some cases, registered owner addresses indicate they have moved away from New York City, and their absence of violations can thus be attributed to the fact that they no longer drive on roads with cameras, not necessarily that their behavior behind the wheel has changed.

Affidavit-Designated Drivers vs Registered Owners

Affidavit-designated drivers tended to be the family members of the registered owners or, in a few cases, employees of the commercial entity to which the plate was registered. Fourteen of the 88 course attendees for whom a full year of subsequent violations were available were affidavit-designated drivers.

While caution must be taken when drawing conclusions based on such a small subgroup of participants, it is notable that thirteen of the fourteen were in Group A, indicating a very high number of violations. Affidavit-designated drivers had an average of 50 violations when they qualified to take the DVAP Course, which fell to 17 in the year following the course – a decrease of 69 percent. Thirteen of the fourteen decreased their violations over the year following the course, with declines ranging from 24 percent to 100 percent. One maintained a zero-violation record for the subsequent twelve months.

Differing Effects by Severity of Violation Record

For the first three months that DVAP Courses were held, the sample was weighted more heavily towards Group A (very high offenders), as the agency decided to focus first on the most extreme speeders and red light-runners. The agency then shifted to a more balanced sample of very high (Group A) and high offenders (Group B), so that it could explore whether these groups responded differently to the DVAP class. A greater proportion of Group A (33%) than Group B (14%) members could not be evaluated after the DVAP Course due to surrender of their DVAP-qualifying plates and lack of any traceable proxies.

Of the 88 participants whose subsequent twelve-month records could be evaluated, 63 were from Group A (highest violations; 28 or more speed camera violations and/or 8 or more red light camera violations) and 25 were from Group B (those just over the threshold for qualification).

The 63 Group A violators with traceable records had a total of 2,903 violations in the twelve months pre-qualification, or an average of 46 per vehicle; in the twelve months following their Courses, they accrued a total of 1,212 violations, or an average of 19 per vehicle. This represents a drop of 58 percent. The 25 Group B violators with traceable records had a total of 322 violations, or an average of 13 per vehicle; in the twelve months following their DVAP Courses, they accrued a total of 232 violations, or an average of 9 per vehicle, for a decrease of 28 percent. Therefore, while the change in violation post-class was more dramatic for Group A, the huge numbers of violations they had at their starting point means that even with this improvement, registered owners are still accruing an average of more than one violation per month.

Note that the thresholds for designating Group A or Group B members were drawn not based on any known qualitative differences between owners obtaining 28+ speed or 8+ red light camera violations, but rather on points in the file of eligible violators where large pools of potential attendees could be found. Therefore, these differences merely indicate on a general level that owners with higher numbers of violations saw greater percentage drops than those with lower violations.

The Effect of Warrants of Seizure and Vehicle Impoundment

A total of 159 vehicles advanced to the stage of DVAP where OATH issued a favorable decision stating the City would be eligible to seize a covered vehicle. An OATH decision authorizes DOT to issue a warrant of seizure for a covered vehicle, but does not require the City to actually seize it. Reasons a warrant of seizure may not be issued after a favorable OATH decision include the respondent taking the course after the trial date but before the end of the 20-day waiting period after which the warrant becomes active, the VIN and license plate no longer match, a mailed notice being returned to sender in the period between the trial and the activation of the warrant, and an inability to obtain VIN information for out-of-state vehicles.

Thirteen owners subsequently took the DVAP Course before their vehicle could be seized, and a further ten did so after their vehicle had already been seized in order to retrieve it from the Sheriff. No definitive conclusions about the effect of a warrant of seizure can be drawn from a subgroup of 23 participants, but an examination of subsequent records can be illuminating nonetheless: while some reduced their violating after receiving the imminent threat of seizure or actual seizure, none maintained completely clean records in the six months after the DVAP Course.

None of the owners who received a warrant of seizure were part of the group for which a full year of data was available, owing to the fact that the procedures for obtaining a warrant of seizure took a very long time to complete (see more detail in the *Procedural Considerations* chapter). Those who took the DVAP Course often did so in excess of eight months after their initial notice was mailed.

Eight of the 10 seized vehicles had plates that could be evaluated for six-month post-course violations. These vehicle owners showed significant reductions in violations, going from an average of 43 in the twelve months prior to receiving their notice to an average of ten violations in the six months post-course, which, if driving behavior remained constant, would be equivalent to 20 in one year. Considering the small sample size, this change is not meaningfully different from that of the initial group of DVAP attendees.

Only three of the 13 plates associated with owners who took the course after receiving a warrant of seizure, but before the vehicle could actually be seized, could be tracked for six months after the DVAP Course. All decreased their violations. All were Group A qualifiers with between 47 and 51 speed camera violations in the year prior to when they received notice to take the DVAP Course.

Attendee's Self-Perceptions of Driving Behavior

DVAP Course attendees were asked to complete an optional eight-question follow-up survey that questioned them regarding some of the course materials and asked them to reflect on how their behaviors changed after taking the course. A total of 81 out of 1,605 DVAP Course participants returned their post-class survey by March 31st, 2023, typically between four and six months after the completion of the DVAP Course. This included 45 of the initial 124 attendees. While the full twelve-month post-course violation record could not be obtained for all of them, respondents did include some drivers who maintained low or zero violations, as well as some who had more than 30 violations.

Overwhelmingly, respondents to the follow-up survey mentioned that the stories from the “Drive Like Your Family Lives Here” video were powerful and memorable. Emotional aspects of the course stuck with them and made them realize that reckless driving behaviors can cause serious injury and death:

“The video regarding how many people actually die from simple mistakes stuck with me. It has given me a reminder that driving slow to your destination is important for my safety as well as others.”

January 2022 DVAP Course attendee, female, Bronx; reduced from 15 to 6 speed camera violations

“What stuck with me was the safety of pedestrians. And how something that could have been prevented cost someone their life. Now I am much more aware of the way I drive and I think ahead of time.”

January 2022 DVAP Course attendee, female, Brooklyn; twelve-month record could not be evaluated.

“The instructor was very informative. I was shown videos and given information to make me think twice when driving. To make me think, what if that was your family? Where are you going that is that important to speed? Do you want to be responsible for taking someone's life?”

February 2022 DVAP Course attendee, female, Brooklyn; twelve-month record could not be evaluated.

“Definitely seeing the victim's family and the pain it caused them.”

February 2022 DVAP Course attendee, male, Staten Island; reduced from 71 to 11 speed camera violations.

“Life can change in a second if you don’t pay attention.”

December 2021 DVAP Course attendee, male, Nassau County; reduced from 60 to 8 speed camera violations

“I think the class was successful in highlighting the dangers that come with speeding and erratic driving. What made the most impact on me was seeing how families were impacted.”

March 2022 DVAP Course attendee, female, Queens; reduced from 93 speed violations in 12 months to six in six months.

When prompted to explain specifically how they had changed their driving behavior, respondents frequently mentioned that they had slowed down to drive below the speed limit, planned ahead and left early to avoid feeling like they needed to rush to their destination, slowed while turning, and paid more attention to their surroundings in general while driving. Several mentioned learning important safer driving behaviors that were unrelated to their speed and red-light violations, such as stopping for a pedestrian in a crosswalk and not using a phone while driving.

“I change completely the way I drive. I’m more conscious now.”

January 2022 DVAP Course attendee, male, Queens; reduced from 5 to 1 red light camera violation

“I think it was very eye-opening with all the stats that were provided.”

January 2022 DVAP Course attendee, male, Queens; reduced from 41 to 21 speed camera violations.

“I am recognizing my speeding triggers. I do not drive when I am stressed or angry.”

January 2022 DVAP Course attendee, male, Nassau County; reduced from 58 to 10 speed camera violations.

When asked to rate themselves, all respondents said they were “very confident” or “somewhat confident” that they are safe drivers. Unfortunately, these perceptions were not always in line with reality, as several people who consider themselves to be very safe drivers actually accrued double-digit speed camera violations on their plates in the year following their DVAP Course attendance. Again, because the camera program identifies license plates and not drivers, it may be that another driver is responsible for the violations, that some course attendees did not truly internalize that speeding is a serious danger to themselves and others on the road, or another unknown reason.

The DVAP Course curriculum clearly had an impact on attendees to the point where respondents remembered its practical content and felt deeply moved by victim stories four or more months later. Notably, these surveys were free from aggressive comments or negative feedback. But despite most participants showing improvements in their violation numbers, many owned vehicles that continued to accrue violations. The Council postulated, in its rationale for passing the DVAP Law, that the problem is that dangerous drivers lack education about the dangers of speeding and disobeying red lights. The DVAP Course rectifies that deficiency by clearly showing the consequences of these driving decisions. Unfortunately, what the subsequent violation records of many participants then indicate is that lack of education must not be the actual root cause of their speeding and red light-running.

IV. Procedural Considerations

There are Numerous Legal Impediments to Seizing Vehicles Through the DVAP Program

As of March 31, 2023, a total of 12 vehicles had been seized by the New York City Sheriff as part of DVAP. This is a small fraction of the total number of vehicles for which a favorable decision was issued by OATH authorizing DOT to issue a warrant of seizure to the Sheriff's Office following non-participation in DVAP. Just as there are numerous reasons why a favorable OATH decision may not result in a warrant of seizure being issued, there are also many reasons why a covered vehicle for which a warrant was issued would not be seized; most common were mismatches between the vehicle identification number (VIN) and the license plate at the time of warrant issuance, and expiration of the warrants before the vehicles could be located. A full breakdown can be found in the table below.

Vehicle Seizure Summary

OATH Petitions Filed	532
OATH Hearings Held	231
Warrants of Seizure Issued	159
Warrants pending	9
Warrants withdrawn	1
Owners attending course after warrant issued	13
Warrants that expired before vehicle could be located	63
Vehicles unable to be seized due to plate or VIN issues	67
Vehicles seized	12
Vehicles returned following DVAP Course completion	10

Based on Sheriff's Office procedures, a vehicle can only be seized if both the license plate and VIN indicated on the vehicle's state registration are the same as what appears on the qualifying violations. If either the vehicle or the plate have changed in the interim, then the warrant of seizure is not valid and the Sheriff cannot impound the vehicle. For example, if New York State plate SAMPLE accrued 15 finally adjudicated speed camera violations within 12 months, then the registered owner would be eligible for DVAP and could be sent a notice to take the DVAP Course or else face potential seizure. However, if the owner then sells the vehicle or obtains a new vehicle at any time after obtaining the fifteenth violation, a warrant of seizure could not be issued because the vehicle now attached to the plate SAMPLE is different from the vehicle that was being driven at the time the violations were received. The same would apply if SAMPLE's speed camera violations one through ten had been obtained when the plate was legally affixed to a 2015 Nissan, but violations eleven through fifteen took place after it had been moved to the owner's new 2022 Toyota. The total number of violations attributed to the plate allows for DVAP qualification, but a seizure for non-compliance would be unenforceable, as the specific plate and VIN combination does not meet the violation threshold.

Likewise, if a vehicle owner surrenders his or her plates at any time after receiving the qualifying violations, or obtains a new license plate (e.g. replacing SAMPLE with a vanity plate) for the vehicle involved in the violations, then a warrant of seizure cannot be issued and the vehicle cannot be impounded. In addition, owners re-registering their cars in New York and trading in older-style blue-and-white or blue-and-yellow "Empire" plates for the new "Excelsior" design effective in 2020 automatically receive new plate numbers unless they request and pay for the ability to keep their old numbers. *If the exact plate and VIN pairing seen on the violations no longer exists, then no further action can be taken by the Sheriff.* Sixty-seven out of 159 warrants of seizure, or 42 percent of all warrants, were unenforceable for this reason.

Owners surrendering their plates, getting new plates, or moving plates to different cars are typically not bad actors. Purchasing a vehicle is a normal occurrence that may have been planned for quite some time. However, the long period of time between the accrual of qualifying violations and the issuance of the warrant of seizure – which is to an extent, required by the specifics of Local Law 36 – makes it more likely that a pitfall will be encountered, thus making seizure impossible. Because the finally-adjudicated violations necessary to qualify for DVAP occur within a 12-month lookback period as specified by law, it is possible that by the time a case reaches the seizure phase, some of those violations may be more than 18 months old. Because of the need to ensure due process for adjudication at OATH, the process cannot be significantly sped up, as will be explained in the next subsection.

The DVAP Program is designed to compel risky drivers to undergo additional education on safe driving, but the program alone does not prevent these drivers from getting behind the wheel.

The City Council's declaration of legislative intent and findings that accompanied the DVAP Law stated that the purpose of this law is to educate in order to change behavior:

The council believes that vehicles which have been involved in multiple red light camera and school speed camera violations would be less dangerous if their registered owners were educated regarding the dangers of exceeding speed limits and failing to comply with traffic signals. The council therefore finds it necessary and appropriate to establish a program to require such education for the registered owners of such vehicles to the extent practicable.¹⁴

The possibility of vehicular seizure is written into the law as a means of holding owners accountable if they fail to take the DVAP Course. Much public attention has been given to the matter of vehicular seizures, with some press outlets misinterpreting the law as *requiring* the seizure of vehicles after a certain number of violations are obtained. This is not the case: the intention of DVAP is not to prevent dangerous drivers from *using* their vehicles, it is to compel those drivers to take a safety course by threatening vehicle seizure if they fail to do so. Making drivers with a high number of speed camera or red light violations subject to automatic vehicle registration suspension (or other sanction) requires state legislation, as the state, and not the city, has legal authority over the regulation of drivers and vehicles.

The DVAP Law requires that due process is afforded to vehicle owners and as a result that cases be heard at OATH before a warrant of seizure can be issued by DOT to the Sheriff's Office. Specifically, cases are adjudicated in the Trials Division, which operates in a manner akin to civil trials without a jury. OATH, the City's administrative law court, has a wide range of responsibilities, relying on the rules of evidence and civil procedure to ensure a fair trial afforded to all litigants who are facing the potential seizure of a vehicle. They must ensure fair opportunity to all people appearing before their judges, as well as a timely resolution of cases. Once the initial expected level of non-response to DVAP notifications could be estimated, DOT then calibrated the number of monthly DVAP notices sent out to the available capacity of both DOT's Legal Department and OATH's Trials Division, to avoid backlogs. In most cases, warrants of seizure are issued between six and eight months after the initial mailing of the DVAP notice. This gap likely lessens the effectiveness of a sanction, as the consequence happens so long after the speed or red light camera tickets are issued.

Each DVAP respondent has an initial 45-day period to register and attend the DVAP Course. If this period passes without response, DOT's attorneys serve the respondent with a petition and order, and file a new case request with OATH. OATH then schedules a settlement conference and trial which must be conducted any time after an additional 45-day period and is dependent on the availability of administrative law judges and available capacity in the Trials Division. After the OATH trial proceeds and a favorable decision is rendered, the 20-day countdown period before DOT attorneys can send a warrant of seizure to the Sheriff's Office begins. After that period, the vehicle needs to be located and verified as the same plate and vehicle combination as that which obtained the relevant violations before it can be impounded.

Even after the warrant of seizure is active, the vehicle owner can avoid seizure simply by taking the DVAP Course. Thirteen individuals took the DVAP Course after receiving notification that their vehicle could be seized. Unfortunately, many of the plates are associated with drivers who took the DVAP Course after receiving a warrant of seizure, or after actual seizure, continued to accrue relatively high numbers of violations once the vehicles were returned to their owners.

In addition to the aforementioned VIN-plate mismatch problem, vehicles were often difficult to locate. The Sheriff's Office uses automated license plate readers mounted on vehicles; as they move throughout the city passing parked vehicles, the system flags those plates that are eligible for seizure for any reason. If a vehicle is concealed inside a garage, or is kept outside the City of New York, then it cannot be detected by the license plate readers. Warrants of seizure are valid for 60 days. Once they expire, the vehicle cannot be seized for DVAP-related reasons. (If the plate is associated with outstanding judgment debt of \$350 or more, then it can still be impounded by the Sheriff, but will not be considered a DVAP-related seizure.) Sixty-four warrants expired before a seizure could be made, or 40 percent of total warrants.

Even after a vehicle is seized by the Sheriff, an owner does not permanently forfeit it. When the owner of the covered vehicle takes the DVAP Course, and pays all outstanding fines unrelated to DVAP to DOF, the vehicle is then released. As of March 31, 2023, ten out of twelve seized vehicles had been returned to their owners upon completion of the DVAP Course, indicating that seizure was an effective motivator to get the registered owners to take a safety class. One vehicle that was not returned, and was later auctioned off, was an older-model sedan with several thousand

14 Local Law 36. [Online] available: <https://legistar.council.nyc.gov/View.ashx?M=F&ID=8244582&GUID=F070B831-B1CD-4C4D-9718-CF785441690E>

dollars of judgment debt outweighing the current market value of the vehicle. An additional vehicle was not returned to its owner because it was held by NYPD as evidence of a crime unrelated to the owner's camera violation record.

The Use of Multiple Database Systems by the Numerous Government Entities Involved in DVAP Administration Complicates Program Management

The long period between initial DVAP Course notification and the point at which a covered vehicle is eligible for seizure is in many ways the unavoidable consequence of a program in which multiple government agencies use different systems for data management and program administration, while also ensuring due process is respected and no stone is left unturned in the attempt to contact covered vehicle owners.

During the DVAP pilot, no single database management system could be used by all parties involved in the program's administration. DOF uses a computer program called the Summons Tracking and Accounts Receivable System, or STARS, which was developed in the 1980s. While NYC DOT employees working on the DVAP program had access to STARS through a desktop emulator, its interface was such that in order to determine which vehicles were eligible for the DVAP Course, data from DOF needed to be converted to text files of several million rows and then processed into Excel files of eligible covered vehicles. Certain quirks of STARS, such as the elimination of hyphens from street addresses in Queens, required manual correction of addresses to ensure compliance with notification protocols.

Because some information, such as the registered owner's address, differed between City and State systems, multiple mailings had to be sent to several participants to ensure DOT had documented that it had made every feasible attempt to reach the owner. In many cases, DVAP Course notices were returned to sender, and while some forwarded addresses could be obtained and the notices re-sent, others had no other known address in any of the above City or State databases. With no reasonable way to contact the owners of these covered vehicles, these cases had to be closed despite significant time and effort being expended in an attempt to reach them.

V. Recommendations

A sanction, whether issued for dangerous driving or for any other breach of legal or social codes, works best when it is swift and certain. Bad actors quickly come to understand that not only will they definitely receive negative consequences for harmful behavior, but it is in their best interest to change that behavior to avoid a repeat or more severe penalty. Automated enforcement programs, which instantly capture speeding or red light running and issue a violation to the registered owner of a vehicle, have succeeded in changing behavior precisely because they record the dangerous behavior every time it occurs at a certain location, without bias, and promptly enforce a penalty. For the vast majority of vehicle owners whose cars or trucks have been recorded speeding or running red lights in New York City, just one or two of these violations is enough to change behavior in the long term.

The results of the DVAP pilot indicate that it is likely not a lack of education that explains the unsafe behaviors of the small number of drivers who accrue many speed or red light camera violations. Despite attending a safety course, most continued to accumulate multiple violations. This finding is supported by scientific literature: a nationwide survey of drivers found that while nearly all of them believed and understood that red light running was dangerous, approximately one in five said they had recently run a red light.¹⁵ A review of studies found strong evidence that post-license remedial driver education does not prevent crashes or injuries, though there may be small reductions in traffic violations.¹⁶ Extensive evidence also links dangerous drivers with other markers of aggression, lack of self-control, and risk-taking behaviors.¹⁷ It may be that some DVAP-eligible vehicle owners respond to intervention with defiance and anger, leading to worse outcomes after interventions meant to improve the behavior of problem drivers.¹⁸

It may be that a more effective means of reducing the danger posed by repeat offenders is to remove or restrict their access to a vehicle. In order to effectively remove vehicles from the road, the state DMV – which regulates driver licensing and vehicle registration – could be empowered to suspend vehicle registrations or impound license plates for drivers who accrue a large number of speed and red light camera violations. Such an approach would be more effective than attempting to use local law and significant resources from a patchwork of City agencies with limited legal powers over individuals and their cars.

Given the uncertain effect of the program, its high cost per participant, and the complexity of its implementation, NYC DOT recommends that the DVAP Course should not continue after the end of the pilot. Instead, the City of New York recommends that the State pass Senate Bill 451/Assembly Bill 7621, which would authorize the DMV to suspend the registration of any vehicle that accrues five or more finally adjudicated red light camera violations within twelve months – the same standard as qualification for DVAP on the basis of red light running.

Analysis by the University of Chicago for NYC DOT shows that obtaining five or more red light camera violations is predictive of being in a crash, making this an appropriate response and sanction. Vehicles with suspended registrations that continue to be used in public are subject to seizure by the New York City Sheriff. Under this law, it would not matter whether violations are paid – all vehicle owners obtaining the violations would be treated equally based simply on dangerous driving behavior, making this an equitable solution. This sanction would likely be more effective in preventing dangerous drivers from using their vehicles, as it would be administered centrally and work faster than the DVAP process.

There is an important role for education to play in improving driver behavior, and mindful of the lasting emotional impact that participants said the DVAP Course had on them, DOT is also exploring the potential of a driver course that utilizes the DVAP curriculum, but focuses on a population more likely to benefit, including inexperienced new and young drivers. DOT's Office of Safety Education and Outreach, the unit responsible for teaching the DVAP Course has a long history of conducting these kinds of interventions, particularly with younger drivers, who are over-

15 Porter, BE and Berry, TD. "A nationwide survey of self-reported red light running: measuring prevalence, predictors, and perceived consequences." *Accident Analysis and Prevention*, vol. 33 no. 6 (2001).

16 Ker K, Roberts IG, Collier T, Beyer FR, Bunn F, Frost C. "Post licence driver education for the prevention of road traffic crashes." *Cochrane Database of Systematic Reviews* 2003, Issue 3. Ker K, Roberts IG, Collier T, Beyer FR, Bunn F, Frost C. "Post licence driver education for the prevention of road traffic crashes: a systematic review of randomized controlled trials." *Accident Analysis & Prevention*, Volume 37, Issue 2, March 2005.

17 See Deffenbacher JL, Deffenbacher DM, Lynch RS, Richards TL. "Anger, aggression, and risk behavior: a comparison of high and low anger drivers." *Behaviour Research and Therapy* vol. 41 (2003); BA Jonah "Sensation seeking and risky driving: a review and synthesis of the literature." *Accident Analysis and Prevention*, vol. 29 no. 5 (1997); Hemenway D & Solnick SJ, "Fuzzy dice, dream cars, and indecent gestures: Correlates of driver behavior." *Accident Analysis and Prevention*, vol. 25 no. 2 (1993)

18 For example, a randomized and controlled evaluation of an Oregon program that sent warning letters to drivers who had high levels of moving violations found worsened crash numbers for drivers under age 25 that likely cancelled out the improvements seen for older drivers, thus making the overall impact worse than if no action had been taken at all. See Jones, "Age Differences in Response to High and Low-Threat Driver Improvement Warning Letters," *Journal of Safety Research*, Vol. 28, No. 1, 1997.

represented in serious crashes. Such expanded driver education could include a classroom length version of the tested DVAP curriculum in high schools and colleges for new drivers and those new to the area and an expansion of the four-session National Safety Council's Alive and 25 program, which has successfully been implemented at twenty high schools annually. DOT's could also expand its existing adjunct presentation designed for local driving schools to add an emphasis on speed limits and turning speeds and how to understand the changing safety treatments on NYC roads to create safer driving around pedestrians and cyclists.

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