



# Automated Speed Enforcement Program Report

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2014–2019







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## Executive Summary

In 2013 the New York State Legislature and Governor Cuomo enacted Sec. 1180-b of New York State's Vehicle and Traffic Law (VTL), which granted New York City the authority to pilot an automated speed enforcement program to deter speeding in 20 school speed zones. The first speed camera violation was issued in January 2014. In June 2014, the pilot was expanded to a total of 140 school speed zones, in order to support the pursuit of the City's Vision Zero goal of eliminating traffic deaths and serious injuries.

Previous reports discussed the impact of automated speed enforcement on reducing injuries and deaths at locations in New York City where speed cameras had been deployed, and highlighted the potential for further deterrence of speeding if the program could gain legal authorization for expansion. Following the passage of S04331/A06449 and its enactment into law by Governor Cuomo in 2019, The New York City Department of Transportation (NYC DOT) is now authorized by the State to deploy speed cameras in 750 school speed zones on all weekdays between 6 AM and 10 PM. Cameras may be placed at any location within a quarter-mile radius of the school building. This change allows NYC DOT to use data to guide installations to where cameras are most needed, and to where deterrence of dangerous speeding can have the greatest impact on preventing injury and death. NYC DOT data specialists have prioritized installations to locations with the highest incidence of speeding and serious crashes involving pedestrians. NYC DOT completed installation of at least one camera in all 750 zones by June 2020.

Indeed, the expansion of the speed camera program has proven effective and efficient in its goal of reducing both dangerous speeding and its consequences.

**Speeding at the typical fixed camera location has dropped 71.5 percent, and injuries have dropped by 16.9 percent.** Two-thirds of vehicles receiving a speed camera violation in 2019 did not receive another within the calendar year.

Throughout 2020, new cameras will be installed at a rate of 60 per month. When fully implemented, New York City's speed camera program will be the largest in the United States, and possibly the largest in the world.

This report covers data from the program from its inception through December 2019, to the extent to which it is available. Data on crashes and their severity cover the program through December 2018, as official New York State figures for 2019 have not been finalized at the time of publication.

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## Dangerous Speeding is a Leading Cause of Serious Crashes

Excessive speed is one of the leading factors in serious crashes in New York City. The faster a vehicle is traveling, the more time and space a driver needs to react to circumstances to prevent a crash. A driver at 40 MPH needs 300 feet to perceive, react and brake to an unexpected event—twice as far as a driver at 25 MPH, who only needs 150 feet.

Not only does speeding make it more difficult to avoid a crash, but it also worsens the damage caused upon impact when a collision happens. Even a small difference in vehicle speed makes a big impact in terms of safety—a pedestrian who is struck by a vehicle traveling at 30 MPH is twice as likely to be killed as a pedestrian struck by a vehicle traveling at 25 MPH.

When New York City initiated its Vision Zero street safety program in 2014, speeding was one of the top

concerns raised by residents during Vision Zero town halls and workshops held by the New York City Department of Transportation and New York City Police Department (NYPD). It remains a concern of residents across the City today, despite the progress achieved through the speed camera program.

These facts inform the Vision Zero initiative's focus on speed management. The City uses a variety of approaches aside from speed cameras, including increased installation of speed bumps, focused NYPD enforcement, signal reprogramming, reduced speed limits and street redesigns to combat speeding. This effort has contributed to the fact that the six years of the Vision Zero program thus far have included the five safest years on New York City roadways since record-keeping began in 1910.

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## New York City's Speeding Solutions Toolkit

The City uses a variety of methods in addition to automated enforcement to encourage people to drive at safe speeds. DOT and NYPD frequently assess the speeding conditions in neighborhoods across the City, and identify the appropriate solutions for each context.

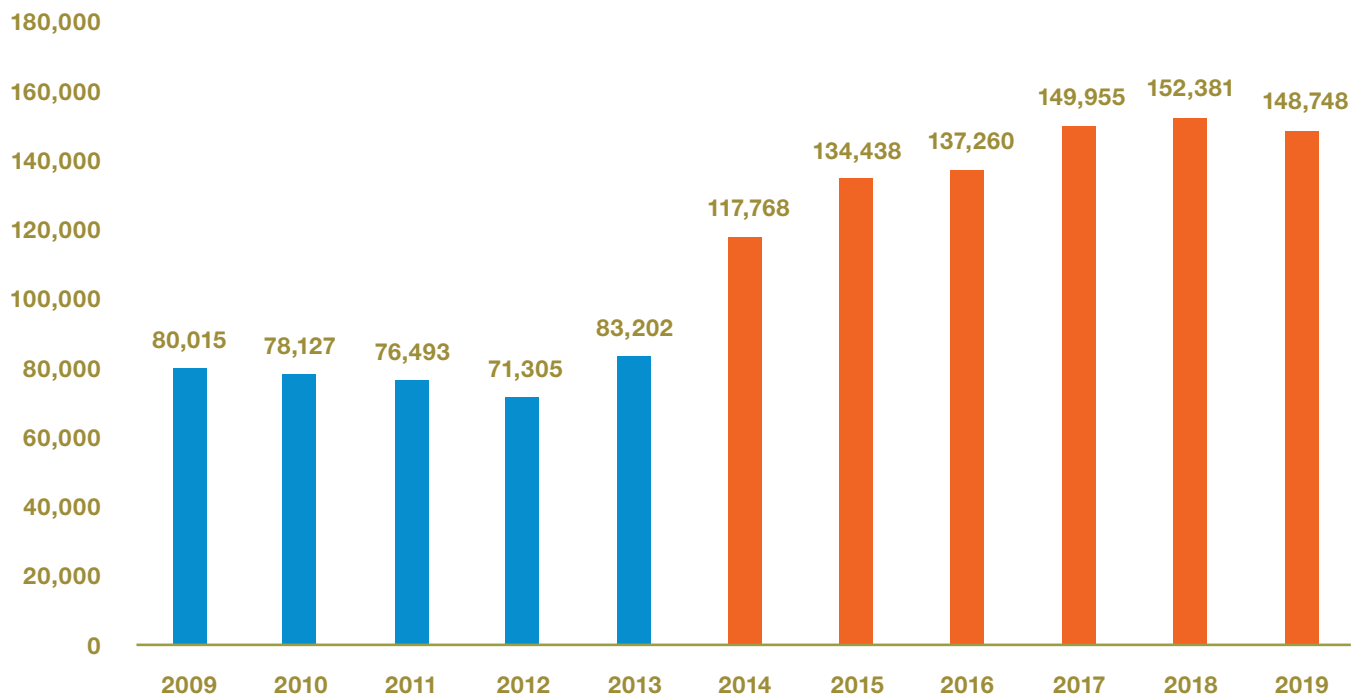
### Speed limits

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Speed limits promote road safety by establishing an upper limit on speed appropriate for the street's design, vehicle volume and pedestrian density. On November 7, 2014, New York City reduced the citywide default speed limit to 25 MPH, and has installed over 5,000 new speed limit signs, each with a rider alerting motorists to the use of Photo Enforcement.



## NYPD-Issued Speeding Summonses



New York City Police Department



### NYPD Enforcement

The officers of the NYPD enforce the speed limit in order to deter dangerous driving. In contrast to speed camera notices of liability, traditional speeding summonses carry significant financial penalties, along with points on the driver's license and significant consequences for the driver's insurance. In 2019 NYPD issued almost 150,000 speeding summonses, nearly double the pre-Vision Zero annual average.

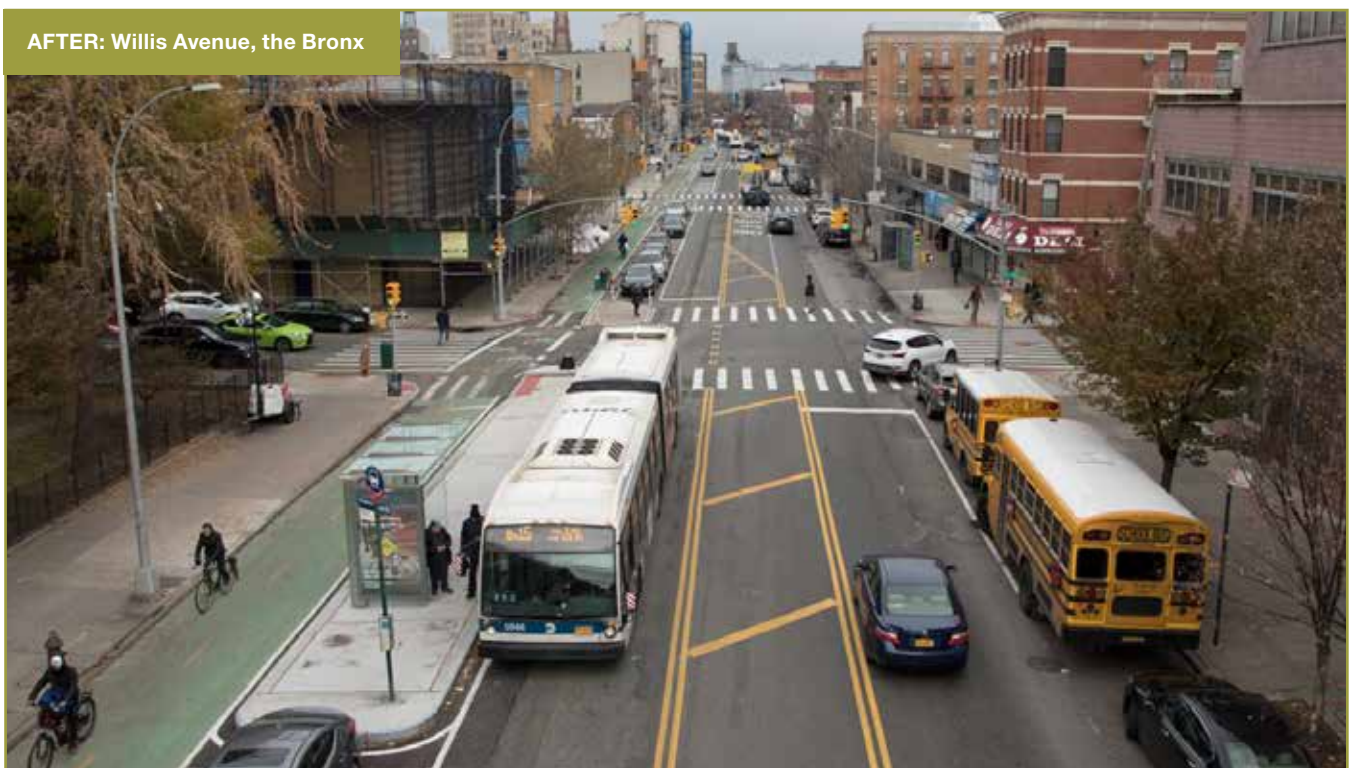
### Speed Humps and Cushions

Speed humps are a raised area of a roadway, typically 3 to 4 inches, which deflects the wheels and frame of a traversing vehicle to reduce vehicle speed. On bus routes, truck routes, and key emergency corridors, where a traditional speed hump is unsuitable, a speed cushion may be used instead. These raised sections have cutouts spaced for large vehicle tires, but still require passenger vehicles to slow down. From 2014 through 2019, the City has installed 2,076 standard speed humps. Speed cushion installations became part of DOT's toolkit in 2018 and currently number 38.



## Street Improvement Projects

Street redesign strategies which reduce speeding include removing excess width from existing traffic lanes or converting a lane to use for pedestrians or cyclists. This “traffic calming” is a context-dependent approach to reducing excessive speeding. The City has completed more than 650 total safety engineering projects since the start of Vision Zero, an increase of 259 percent compared to the pre-Vision Zero average. The majority of these projects have taken place at Vision Zero Priority Locations—the intersections, corridors, and areas with disproportionately high pedestrian deaths and serious injuries.





### Community Outreach

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Vision Zero Street Teams are a joint outreach project of NYPD and DOT that focus on the most crash-prone corridors of New York City. In 2019, these included Northern Boulevard and Jamaica Avenue in Queens, Grand Concourse in the Bronx, portions of Lexington Avenue and Second Avenue in Manhattan, Hylan Boulevard in Staten Island, and Linden Boulevard, Bedford Avenue, and Bay Parkway in Brooklyn. Street Teams hand out postcards focused on safety tips unique to each corridor while NYPD officers focus enforcement on dangerous driving behaviors including speeding.

### Education

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NYC DOT uses market research to guide its hard-hitting public education campaigns aimed at stopping dangerous driving behavior, with a particular emphasis on speeding. Advertisements on television, radio, billboards, bus stops and elsewhere alert aggressive drivers of the consequences of their behavior. These ads have proven effective: In 2019, 79 percent of drivers thought the ads encouraged them to be more responsible behind the wheel, 79 percent said they would give more thought to the speed at which they approached crosswalks and intersections, and 83 said they would pay more attention to pedestrians and cyclists while driving.



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## New York City's Speed Camera Program

In 2013, the New York State Legislature and Governor Cuomo granted New York City the authority to pilot an automated speed enforcement program to deter speeding in 20 school speed zones. In June 2014, the pilot was expanded to a total of 140 school speed zones as part of the Vision Zero program. And a 2019 law, S04331/A06449, expanded both the number of zones and the program's hours, which were previously limited to a period spanning from shortly before to shortly after school hours or activities. NYC DOT is now authorized to deploy speed cameras in 750 school speed zones on all weekdays between 6 am and 10 pm. NYC DOT completed the expansion of at least one camera in each of the 750 zones in June 2020.

NYC's speed camera program uses the same radar and laser technology relied upon by law enforcement to measure a vehicle's speed. If the system's radar finds that the vehicle is exceeding the speed limit by more than ten miles per hour, images of the vehicle are recorded, including the license plate. The violation is reviewed by a trained DOT staff technician for accuracy. If the technician verifies that the identified vehicle was exceeding the speed limit by more than ten miles per hour within a school speed zone between 6 AM and 10 PM on a weekday, the technician will issue a Notice of Liability (NOL) to the registered owner of the vehicle. Cameras do not capture an image of the individual driving the vehicle; the violation is the responsibility of the owner.

The fine associated with a speed camera NOL is \$50, regardless of the speed by which the vehicle was exceeding the speed limit, or whether it was a repeat offense. This is far less than the cost of a summons issued by a police officer for speeding in a school zone, which could range on the first offense from \$180–\$600, depending on the motorist's speed and prior record, plus an \$88 State surcharge. In addition, a conviction on a summons issued by a police officer will become part of the vehicle operator's driving record, adding points and influencing insurance rates.

State law prohibits the City from using the speed camera program to issue violations for law-breaking speeding unless it is observed within a quarter-mile radius of a school building between the hours of 6 AM and 10 PM on a weekday. Camera footage may not be used for any purpose other than speed enforcement.



## Results of Automated Speed Enforcement

State law requires the City to report on injuries in speed camera enforced school speed zones using State-issued data to the extent such data is available from the New York State Department of Motor Vehicles (NYS DMV). The crash data NYC DOT relies upon originates in motor vehicle collision reports compiled by New York City police officers at crash scenes. The individual crash reports are sent by NYPD to the DMV and State DOT, who enter the information into electronic databases, attribute

locations to the collisions, categorize traffic injuries by severity and identify errors—a process which typically takes well over a year.

The data table on this page shows the change in crashes and their outcomes occurring at all school speed zones with fixed speed cameras, where the camera was installed prior to Dec 31, 2017. This allows for at least one full year of data at each location.

### Before/After Change in Crashes and Injuries in School Speed Zone Camera Corridors During Hours of Operation Through 2018

	Before Period, Citywide	After Period, Citywide	Percent Change
<b>Crashes</b>			
Total Crashes	1,089	936	-14
Crashes with Injuries	839	748	-10.8
<b>Injuries</b>			
Motor Vehicle Occupant	1,013	821	-19
Pedestrian	182	172	-5.5
Cyclist	36	30	-16.7
Total Injuries	1,231	1,023	-16.9
<b>Killed or Severely Injured</b>			
	50	48	-

Source: NYS DOT Safety Information Management Systems (SIMS) Database

\* **Before:** an average of the 3 years prior to installation. **After:** one full year after installation. Data is drawn from 95 school speed zones that had cameras installed before 2018.

Note that for school speed zones with multiple cameras, if there was over a year between installations, then the analysis only looks at the effect of the first camera installed; that the hours of operation are assumed to be 7am to 5pm on weekdays in non-summer months. Also, what is considered to be a corridor here is the road the speed camera is on within the zone. Data includes only crashes reportable to the New York State Department of Transportation.

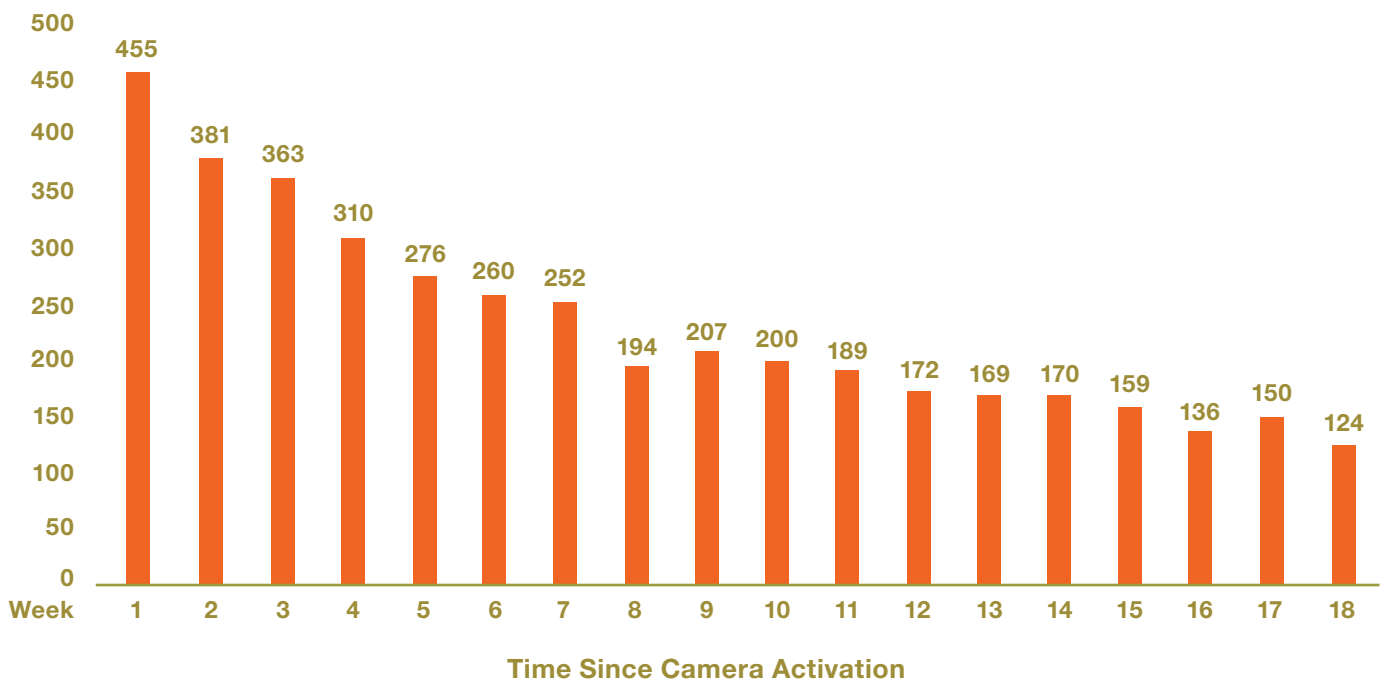


## Speeding Violations within Camera Enforced School Speed Zones

The consistent and predictable enforcement provided by speed cameras leads to drivers quickly learning to change their behavior, meaning that cameras issue fewer violations over time. The graph below shows the average weekly number of violations from all of the 91 fixed speed zone cameras installed after the law change in Summer 2019 for which there were at least 18

consecutive full weeks of data available by the end of the year. The average weekly number of violations issued for excessive speeding in these new school speed zones has declined by about 73 percent, from 455 in the camera's first week to 124 in the 18th week. This shows the cameras are having the desired effect of deterring dangerous speeding.

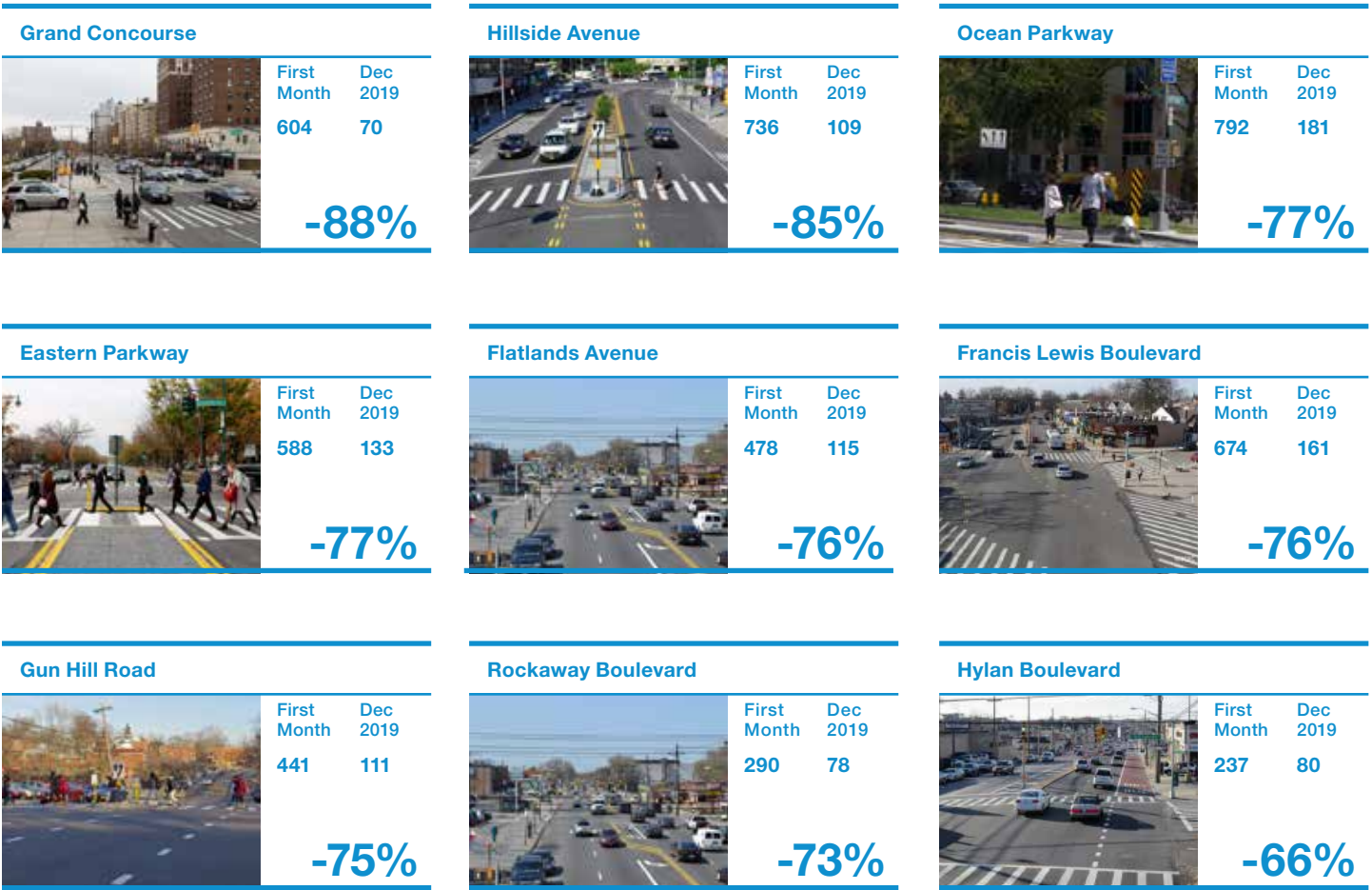
**Average Weekly Violations at New Speed Camera Locations, 2019**



Source: New York City Department of Transportation

This is the same pattern seen for camera activations in previous years.

## Decline in Average Daily Speeding Violations During Active Hours in Camera-Enforced School Speed Zones Along Key Corridors



Source: New York City Department of Transportation

All cameras located on or at an intersection with the specified corridor are included in the analysis so long as there is six months of data available. The number of violations issued in the first month of each camera's operation is compared to the number of violations issued at the end of 2019.

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## The Extent of Dangerous Speeding in School Speed Zones

New York City's speed cameras do not issue a violation unless the vehicle is traveling more than ten miles above the posted speed limit. Citywide, almost all notices of liability—98 percent—went to vehicles traveling more than ten but less than 20 miles per hour above that limit.

All zones with at least one camera active prior to the expansion of the number of locations in Summer 2019 had at least 96% of violations issued to vehicles traveling more than ten but no more than 20 miles per hour above the posted limit.

### Violations by Speed Over Limit, 2019

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Speed of Vehicle Over the Posted Limit	Number of Violations, 2019	Percentage of Violations, 2019
>10, but < or = 20 mph	2,304,541	98%
>20, but < or = 30 mph	44,248	1.9%
>30, but < or = 40 mph	1,977	0.08%
>40 mph	170	<0.01%
<b>TOTAL</b>	<b>2,350,936</b>	<b>100%</b>

Source: New York City Department of Transportation



## Changes to Hours and Days of Operation: A Retrospective

Official State data regarding crashes and their severity is not yet available for the period of time following the expansion of locations and hours that took place in Summer 2019, and so it is too soon to state the extent to which the law change specifically has impacted injuries at certain times of day and year. In the future, a more complete data set will allow for further analysis.

In the meantime, NYC DOT looked at the universe of 2018 crashes in school speed zones where cameras had previously been installed to see how many took place during a period of time when, if the provisions of the 2019 law had already been enacted, speed cameras would have been allowed to operate. At the time of day or year when these crashes happened, State law prohibited the use of speed cameras. Of particular interest are individuals killed or seriously injured, abbreviated KSI.

Crashes and injuries are organized into the following groups:

- 1) By the original rules from 2014 to 2019 that cameras could operate around school hours (and school activity hours) on weekdays, but not in the summer
- 2) By the expansion of hours to include 6AM to 10PM on all weekdays, including in the summer
- 3) Those that still would not be covered, as the crash and/or injury occurred at night or on the weekend.

Totals are also included for all of those now covered by cameras as well as all of those still not covered. To be included in this data, school cameras must have been installed prior to 2018.

### Times and Days of Crashes and Injuries in School Speed Zones, 2018

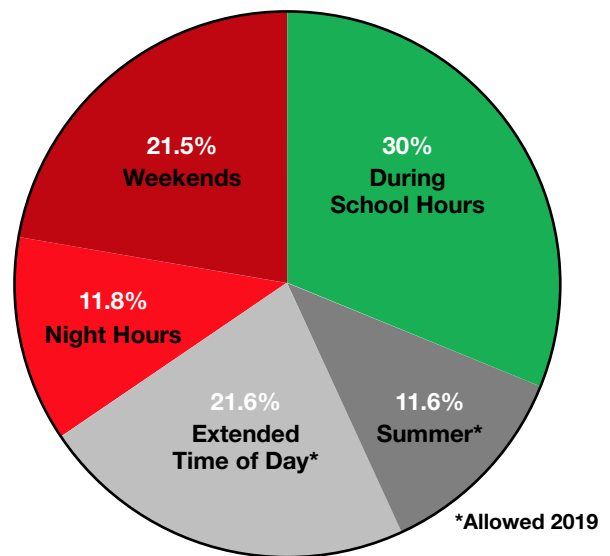
Camera Operation Allowed in 2018?	Description of Time Period	Injuries	% of Total Injuries	Fatalities	% of Total Fatalities	Crashes	% of Total Crashes	KSI	% of Total KSI
Allowed Under 2014–2019 Rules	School Hours (When in Season)	2,986	32	12	37.5	6,064	36.9	122	30
Not allowed until 2019 expansion	Summer Months	1,083	11.6	3	9.4	1,871	11.4	47	11.6
Not allowed until 2019 expansion	Extended Time of Day (6AM–10PM)	1,817	19.5	6	18.8	2,996	18.2	88	21.6
	<i>Total (Covered)</i>	<i>5,886</i>	<i>63</i>	<i>21</i>	<i>65.6</i>	<i>10,931</i>	<i>66.4</i>	<i>257</i>	<i>63.2</i>
Not Allowed	Night Hours	923	9.9	3	9.4	1,439	8.8	48	11.8
Not Allowed	Weekends	2,534	27.1	8	25	4,081	24.8	102	25.1
	<i>Total (Not Covered)</i>	<i>3,457</i>	<i>37</i>	<i>11</i>	<i>34.4</i>	<i>5,520</i>	<i>33.6</i>	<i>150</i>	<i>36.9</i>

Source: New York State Department of Transportation Safety Information Management Systems (SIMS) Database

These findings indicate that the expansion of the hours and seasons of camera operation, and the subsequent deterrent effects speed cameras provide, provide the opportunity to substantially reduce injuries and deaths on New York City streets. In 2018, 32 percent of injuries and 30 percent of KSI in these school speed zones took place when cameras were allowed to operate. However, another 31 percent of injuries and 33 percent of KSI happened at times when cameras would not be allowed to operate until the 2019 law change – weekends and extended hours.

Separating out the most vulnerable mode of transportation, pedestrians, shows that a large proportion of their injuries and fatalities in the zones in 2018 took place during the hours of day speed cameras could not operate at the time, but which the 2019 law change would cover:

## 2018 KSI in School Zones with Cameras



## Times and Days of Pedestrian Crashes and Injuries in School Speed Zones, 2018

Camera Operation Allowed in 2018?	Description of Time Period	Injuries	% of Total Injuries	Fatalities	% of Total Fatalities	Crashes	% of Total Crashes	KSI	% of Total KSI
Allowed Under 2014–2019 Rules	School Hours (When in Season)	614	36.7	8	40	588	36.7	68	40.5
Not allowed until 2019 expansion	Summer Months	163	9.8	0	0	151	9.4	11	6.6
Not allowed until 2019 expansion	Extended Time of Day (6AM–10PM)	437	26.1	5	25	419	26.2	31	18.5
	<i>Total (Covered)</i>	<i>1214</i>	<i>72.6</i>	<i>13</i>	<i>65</i>	<i>1158</i>	<i>72.3</i>	<i>110</i>	<i>65.5</i>
Not Allowed	Night Hours	111	6.6	2	10	110	6.9	20	11.9
Not Allowed	Weekends	347	20.8	5	25	333	20.8	38	22.6
	<i>Total (Not Covered)</i>	<i>458</i>	<i>27.4</i>	<i>7</i>	<i>35</i>	<i>443</i>	<i>27.7</i>	<i>58</i>	<i>34.5</i>

Looking specifically at injury crashes involving pedestrians and bicyclists under age 18, where the age of the victim is known, fatality and KSI statistics are too small to analyze. However, data indicate that three-quarters of injuries to this age group would have happened during hours of camera operation if the 2019 law had been active in 2018, up from about 43 percent.

### Times and Days of Injuries to Pedestrians and Cyclists Under 18, 2018

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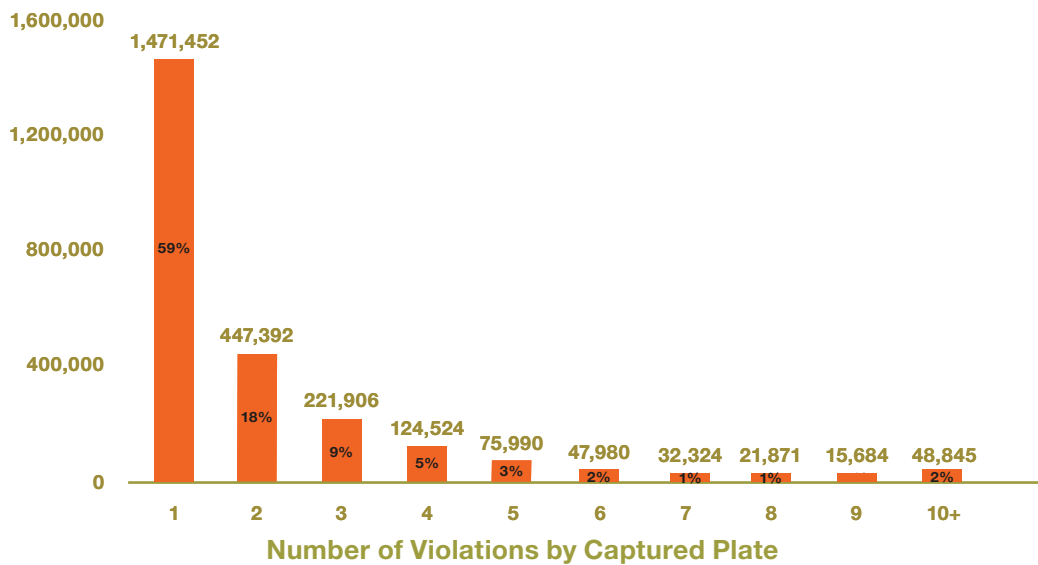
Camera Operation Allowed in 2018?	Description of Time Period	Injuries	Percent of Total Injuries
Allowed Under 2014–2019 Rules	School Hours (When in Session)	114	42.7
Not Allowed Until 2019 Expansion	Summer Months	30	11.2
Not Allowed Until 2019 Expansion	Extended Time of Day (6AM–10PM)	60	22.5
	<i>(Total Covered)</i>	<b>204</b>	<b>76.4</b>
Not Allowed	Night Hours	4	1.5
Not Allowed	Weekends	59	22.1
	<i>Total (Not Covered)</i>	<b>63</b>	<b>23.6</b>



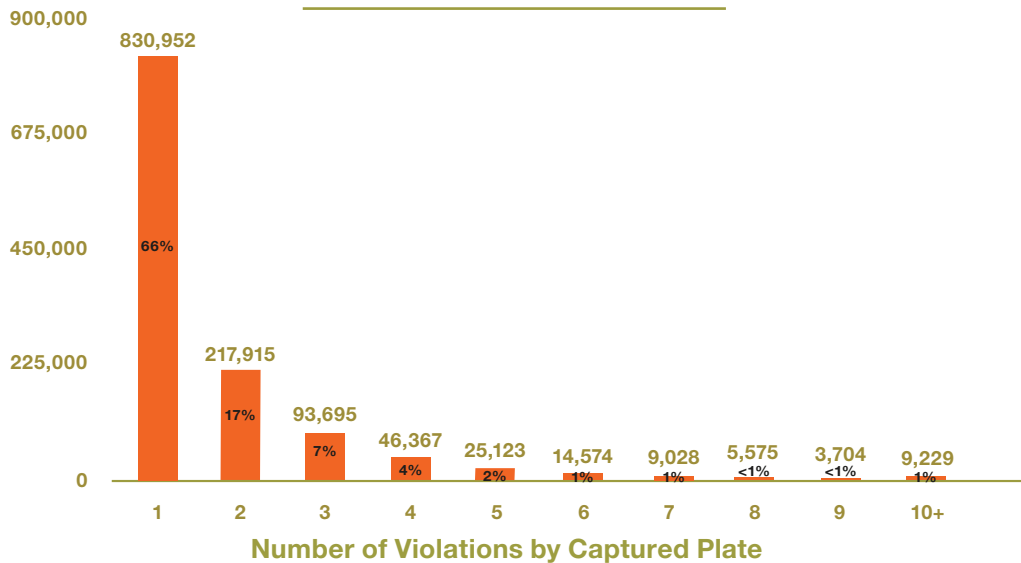
## Repeat Violators

Throughout the six-year period 2014–2019 in which New York City had a speed camera program, the majority of vehicles receiving a Notice of Liability have not received a second. This has held even after the expansion of hours and locations in 2019, though the overall number of vehicles receiving NOLs has increased due to this expanded coverage of the New York City street network for a greater period of the day. In other words, any speeding driver in New York City now has a greater chance of being captured on camera.

**Repeat Violators, 2014-2019**



**Repeat Violators, 2019 Only**



## Adjudication of Speed Camera Violations

All individuals receiving a Notice of Liability are entitled to request a hearing by mail or in person to contest a violation believed to be issued in error. The Notice itself provides instructions as to how to request a hearing. From 2014–2019, 2.3 percent of NOLs led to requests for a hearing, and the other 97.7 percent were issued to drivers who declined the opportunity and accepted the violation after the NOL was issued.

Pursuant to Section 1180-B of the New York State Vehicle and Traffic Law and through its Parking Violations Bureau, the New York City Department of Finance (NYC DOF) is authorized to conduct hearings, either by mail or in person, in any of its five Borough Business Centers. When and if the Administrative Law Judge (ALJ) determines the NOL presents a prima facie case, the

ALJ will conduct a hearing on the merits of any defense presented. The ALJ reviews witness statements as well as other types of documentary evidence to afford the recipient of the NOL the opportunity to refute the prima facie case and establish a meritorious defense. An ALJ is permitted to consider hearsay evidence, and other evidence which may not be admissible in a traditional court of law, in order to provide the individual with an opportunity to refute the NOL.

At hearing, 95.4 percent of contested NOLs have been upheld. In other words, considering how few NOLs are contested, this means only about one-tenth of one percent of total speed camera violations issued between 2014 and 2019 were overturned by an ALJ.

### Adjudication Results

	Total	Percent of Total Violations Issued
Speed Camera NOL Issued, 2014–2019	7,518,018	100%
Hearings Requested, 2014–2019	174,788	2.3%
NOL Upheld at Hearing	166,717	95.4%
NOL Overturned at Hearing	8,071	4.6%

Source: New York City Department of Finance

The goal of the speed camera program is to deter and reduce speeding. As the program continues to expand, the overall number of notices of liability will increase as well, though experience at established sites indicates these locations will swiftly see a decline in the number of violations they issue as drivers change their behavior.

Preliminary data indicates the increase in hours of operation beginning Summer 2019 and the subsequent expansion of camera locations led to an accompanying increase in violations at individual locations, which have begun to decrease over time.

## Revenue and Expenses

### Speed Camera Program Summary (Fiscal Year 2014–2019)

Operating Costs	\$104,865,758
Capital Costs	\$60,098,548
<b>Total Costs</b>	<b>\$164,964,306</b>
Speed Camera Revenue	\$254,598,549
<b>Net Revenue</b>	<b>\$89,634,243</b>

Revenues from speed cameras go into the General Fund, which is the main operating fund of the City of New York.

Vision Zero expenditures include funding for engineering, enforcement, and education initiatives specifically related to reducing deaths and serious injuries on New York City streets. This includes not only the automated enforcement programs run by the New York City Department of Transportation, but also its Street Improvement Projects, the Vision Zero Great

### Vision Zero Program Summary, City of New York (Fiscal Year 2014–2019)

Expense Costs	\$322,657,203
Capital Costs	\$920,566,981
<b>Total Costs</b>	<b>\$1,243,224,184</b>

Streets, NYPD and TLC public outreach, technological enhancements to City fleets, public health research, and much more. A complete record of all Vision Zero initiatives, past and present, can be found within the most recent Vision Zero progress report, available at <https://www1.nyc.gov/content/visionzero/pages/library>.

From Fiscal Year 2014 through Fiscal Year 2029, the City of New York has spent or committed to spend in the future roughly \$3 billion in capital and expense funds in furtherance of Vision Zero.



## Appendix

### Before and After: Breakdown of Crashes, Fatalities, Injuries, and Property Damage in School Speed Zones

Type	Before Speed Camera	With Speed Camera	Percentage Difference
Injuries	1231	1023	-16.9
Fatalities	3	1	-66.7
Bike/Pedestrian Crashes with Children	39	30	-23.1
Injury Crashes	839	748	-10.8
Property Damage Crashes	250	188	-24.8
Pedestrian Injuries	182	172	-5.5
Bicycle Injuries	36	30	-16.7
MV Occupant Injuries	1013	821	-19
Severity A Injuries	47	47	0
Severity B Injuries	77	60	-22.1
Severity C Injuries	1068	902	-15.5

Source: NYS DOT Safety Information Management Systems (SIMS) Database

## Aggregate Numbers in School Speed Zones (All zones throughout the City, defined as ¼ of a mile from a school)

Year	Injuries	Fatalities	Injury Crashes	Property Damage Crashes	Pedestrian Injuries	Bicycle Injuries	MV Occupant Injuries	Severity A Injuries	Severity B Injuries	Severity C Injuries
2011	53,671	182	37,284	14,221	9,993	3,359	40,319	2,969	5,137	44,497
2012	50,223	202	35,418	13,093	10,041	3,326	36,856	2,965	5,218	41,038
2013	51,917	226	36,733	12,938	10,493	3,615	37,809	2,920	5,305	42,695
2014	48,324	197	34,280	13,013	9,333	3,323	35,668	2,564	4,890	39,933
2015	47,431	179	33,594	12,581	8,801	3,341	35,289	2,605	4,489	39,377
2016	47,922	169	35,267	12,581	9,119	3,676	35,127	2,383	4,712	39,977
2017	51,549	149	38,114	19,903	10,174	3,831	37,544	2,325	4,954	43,517
2018	51,448	164	38,302	61,507*	10,190	3,688	37,570	2,282	4,565	43,922

## Aggregate Numbers in School Speed Zones (Zones, defined above, with cameras installed prior to 2018)

Year	Injuries	Fatalities	Injury Crashes	Property Damage Crashes	Pedestrian Injuries	Bicycle Injuries	MV Occupant Injuries	Severity A Injuries	Severity B Injuries	Severity C Injuries
2011	10,533	31	7,083	2,363	1,760	523	8,250	530	850	8,964
2012	9,564	30	6,563	2,163	1,669	510	7,385	518	947	7,901
2013	9,577	41	6,683	2,094	1,799	529	7,249	473	861	8,084
2014	9,472	31	6,448	2,121	1,623	544	7,305	462	823	7,980
2015	8,794	41	6,153	2,018	1,488	471	6,835	433	665	7,510
2016	9,045	33	6,489	1,978	1,535	534	6,976	420	786	7,668
2017	9,479	27	6,866	3,276	1,798	551	7,130	396	819	8,150
2018	9,567	32	6,908	10,016*	1,708	562	7,297	388	757	8,291

Source: NYS DOT Safety Information Management Systems (SIMS) Database

**Class A severe injuries** include skull fractures, internal injuries, broken or distorted limbs, unconsciousness when taken from the crash scene, severe lacerations, and inability to leave the scene without assistance.

**Class B moderate injuries** include visible injuries such as a lump on the head, abrasions, and minor lacerations.

**Class C slight injuries** include complaints of pain without visible signs injury, momentary loss of consciousness, limping, and nausea.

\* Higher number reflects change in measurement of property damage crashes between NYPD and NYS DOT