

Seattle Department of Transportation

2021 SCHOOL SPEED ZONE CAMERA ANNUAL REPORT



Seattle
Department of
Transportation

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EXECUTIVE SUMMARY

Seattle has deployed 35 automated enforcement speed cameras in school zones. The goal of the program is to keep kids safe while traveling to and from school by reducing the number of drivers who exceed the 20 MPH school zone speed limit.

To measure performance of the program, we look at the number of citations issued and the number of collisions in school zones.

- The number of citations decreases each year after cameras are installed.
- There was a 54% reduction in the number of citations between 2016-2019.
- Cameras were turned off when schools were closed for COVID in 2020. When they were turned back on in 2021, the number of citations initially increased and eventually returned to near pre-COVID levels by the end of the year.
- The number of collisions in school zones with cameras has remained low.

After paying the vendor and Seattle Police for running the program, all funding is dedicated to projects that make it safer and easier for kids to walk, bike, and scoot to school.

- Annual program appropriations in 2019 through 2021 was approximately \$10 million.
- In 2021 we used the funding to complete capital projects at 21 schools.
- In 2021 and 2022 we installed nine new cameras at five schools.

The program has been a success. After cameras are installed:

- The number of people exceeding the speed limit decreases
- Collisions, which are low to begin with, remain low
- There is typically one collision per month in school zones with speed cameras

We will use data to prioritize new locations where speeding remains high after other countermeasures are used.

In 2022, Seattle received the national Vizion Zero for Youth Leadership Award. “Seattle is working hard to prioritize safe walking and biking for the city’s youth,” said Nancy Pullen-Seufert, Director, National Center for Safe Routes to School, UNC Highway Safety Research Center. “This Award recognizes the commitment of Seattle’s local government, its transportation department and public school system to lead community-engaged, equity-focused efforts geared toward making a great impact on walking and biking safety for its youngest residents.”

BACKGROUND

PURPOSE OF THIS REPORT

When Seattle City Council authorized the use of school zone speed cameras they created the School Safety Traffic and Pedestrian Improvement (SSTPI) fund to account for the revenues generated by the cameras. Revenues generated from camera fines are used for school traffic safety infrastructure projects and student pedestrian and bicyclist education campaigns. The legislation also requires an annual report to Council including camera revenues, appropriations, and expenditures for the prior year. In addition to the required items, this report details the metrics by which SDOT measures the program's performance, outlines the locations of existing cameras, describes our approach for future deployments, and provides a list of school safety improvements made with the revenue.

PROGRAM SUMMARY

Creating a safe environment for pedestrians is the first goal of our [Pedestrian Master Plan](#). It is also critical to the City's commitment to [Vision Zero](#) – Seattle's goal of ending traffic deaths and serious injuries on city streets by 2030. As part of that mission, SDOT and the Seattle Police Department (SPD) have partnered to install and operate speed cameras in school zones with 20 mph flashing beacons to encourage drivers to slow down in school zones while children are arriving and departing school.

Every year more than 4,000 collisions are caused by speeding in our city and photo enforcement of the school zone speed limit is just one approach to addressing this problem on Seattle streets.

Vision Zero

At the core of the worldwide Vision Zero movement is the belief that death and injury on city streets is preventable; that humans make mistakes and are vulnerable to harm; and that success does not hinge on individual behavior, but on the design of a safe system.

Through street design, we're working to reduce vehicle speeds, reduce conflict points between travelers, and center the safety of the most vulnerable– people walking, rolling (using a wheelchair or other mobility device), biking, scooting, or riding a motorcycle – so we can enhance safety for everyone.

People walking and biking are involved in vehicular collisions daily. Each year, more than 160 people sustain life-changing serious injuries and more than 25 people die on our streets. Studies done by [AAA Foundation for Traffic Safety](#) found a 90% survival rate if a pedestrian is hit by a vehicle traveling at 23 miles per hour, compared to a 50% survival rate if a pedestrian is hit at 42 miles per hour. Speed is the critical factor in the frequency and severity of crashes, with severity increasing greatly for people not protected by the shell of a vehicle. School zone cameras are intended to reduce the speed of vehicles to reduce the possibility of a collision, as well as the severity of injury if there is a collision. Driving at or below 20 mph also gives people driving and children walking more time to see one another and react.



Bailey Gatzert Elementary Walking School Bus

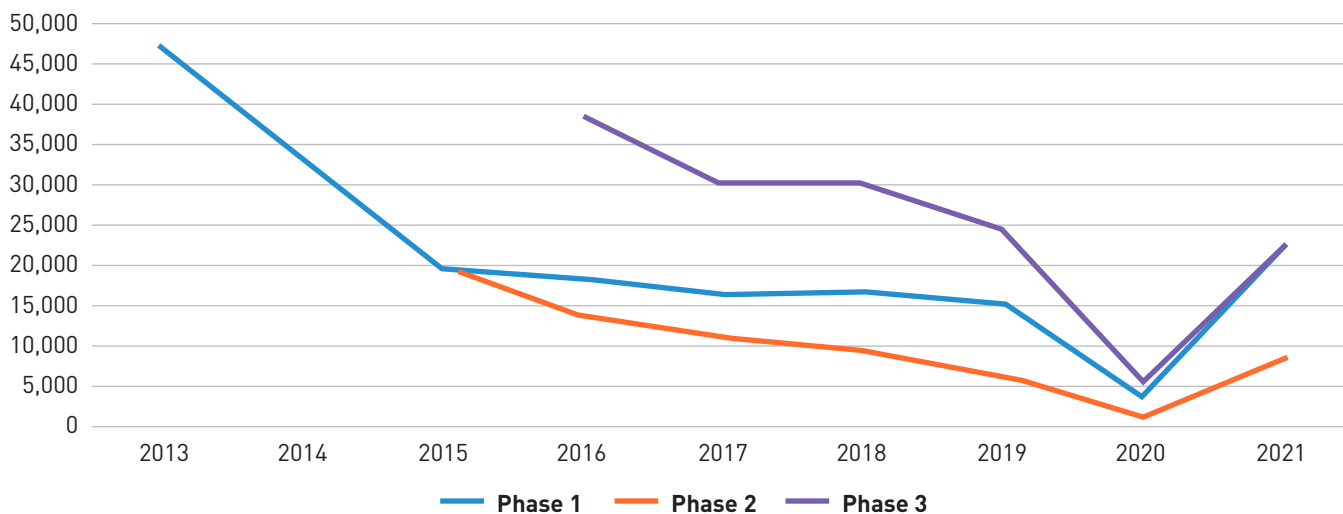
PERFORMANCE METRICS

Citation trends help us understand and measure the performance of the program. The goal of the program is to see a downward trend in citations over time, demonstrating fewer people speeding and safer conditions for children on their way to and from school.

Seattle has deployed school zone safety cameras in several phases: phase 1 in 2013, phase 2 in 2015, phase 3 in 2016, and phase 4 in 2021-22. In each phase, the number of citations decreased year over year until 2020 (Figure 1). We saw a 54% reduction (24,717 fewer citations) between 2016 to 2019. The school flashing beacons and cameras were turned off when in-person learning was suspended at Seattle Public Schools in mid-March 2020 due to the COVID-19 pandemic. During 2020, 3,869 citations were issued during the first three months of the year before school buildings were closed.

In-person learning resumed on April 5, 2021, and the school beacons and cameras resumed operation. A total of 54,260 citations were issued in 2021. Each of the three phases recorded an increase in the monthly number of citations issued compared with 2019. The increase in the monthly number of citations issued (Table 1 and Figure 2) suggests that drivers became accustomed to the cameras and beacons being off during 2020 and early 2021. When the beacons and the cameras were turned on, there was a period of adjustment where drivers adapted to driving slow in school zones again. While the number of citations issued in April and May of 2021 was dramatically higher than 2018 or 2019, by the end of the year the number of monthly citations declined. The month of December was only 8% higher than previous years, indicating that drivers changed their behavior based on the operation of the cameras.

FIGURE 1 – CUMULATIVE CITATIONS ISSUED

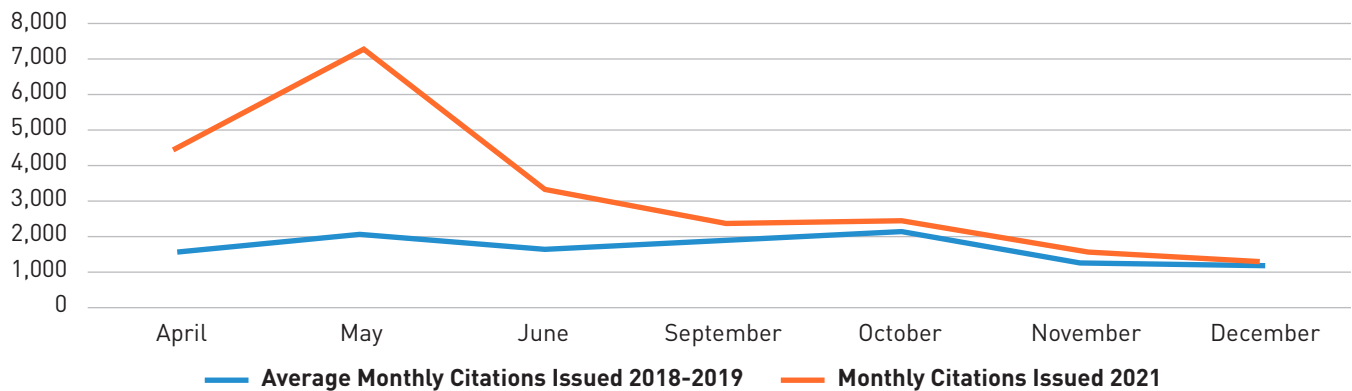


Provided by Seattle Police Department

TABLE 1 – CHANGE IN NUMBER OF CITATIONS ISSUED APRIL – DECEMBER 2021

	Average Monthly Citations Issued 2018-2019	Monthly Citations Issued 2021	Change from 2018-19 to 2021
April	1,571	4,504	187%
May	2,015	7,251	260%
June	1,537	3,357	118%
September	1,807	2,366	31%
October	2,074	2,355	14%
November	1,323	1,592	20%
December	1,150	1,247	8%

FIGURE 2 – NUMBER OF CITATIONS ISSUED MONTHLY 2018-19 AND 2021



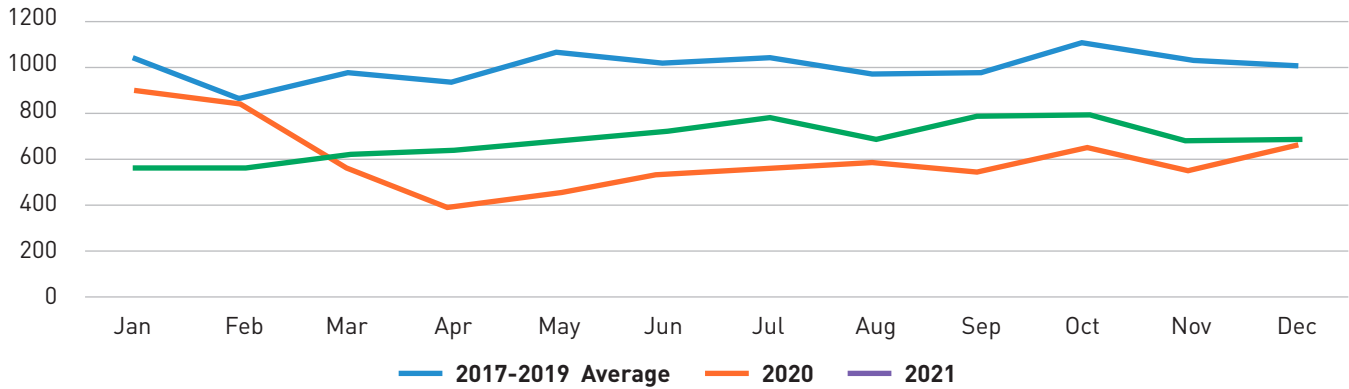
There are few collisions in the photo-enforced school speed zones. Looking at the number of collisions during the time when the beacons and cameras were operational from September through December 2021, there were 11 collisions in photo enforced school zones (Table 2), 3 fewer than 2020 when the beacons and cameras were not operational, and a 34% reduction from the previous two-year average. This is roughly consistent with citywide trends in collisions which decreased from 2017-19 to 2020 and 2021. (Figure 3)

Since 2014, there have been no deaths among children under 18 walking and biking on Seattle's streets.

TABLE 2 – NUMBER OF COLLISIONS IN SCHOOL CAMERA LOCATIONS SEPTEMBER - DECEMBER

School Camera Locations	September 1 – December 31 Collisions			
	2018	2019	2020	2021
EB NE 75th St @ Eckstein School	1	0	0	0
EB S Orcas St @ Dearborn Park Elementary	0	0	1	0
EB SW Roxbury St @ Holy Family Elementary	1	1	3	0
NB 24th Ave E @ Montlake Elementary	0	1	1	0
NB 5th Ave NE @ Olympic View Elementary	1	0	0	0
NB Beacon Ave S @ Rainier View Elementary	0	0	0	0
NB Boren Ave S @ Bailey Gatzert Elementary	0	0	0	2
NB Delridge Way SW @ STEM at Boren	0	0	1	0
NB Fauntleroy Way SW @ Gatewood Elementary	0	1	0	0
NB Greenwood Ave N @ Broadview-Thomson K-8	4	2	2	1
NB MLK Jr Way S @ Thurgood Marshall Elementary	2	3	1	0
SB 15th Ave S @ Mercer Middle School	0	1	2	1
SB 1st Ave NE @ Northgate Elementary	0	1	0	0
SB 24th Ave E @ Montlake Elementary	0	0	0	1
SB 5th Ave NE @ Olympic View Elementary	0	1	1	0
SB Beacon Ave S @ Rainier View Elementary	0	1	0	0
SB Boren Ave @ Bailey Gatzert Elementary	2	2	0	0
SB Delridge Way SW @ STEM at Boren	0	3	1	0
SB Fauntleroy Way SW @ Gatewood Elementary	0	1	0	0
SB Greenwood Ave N @ Broadview-Thomson K-8	1	1	0	1
SB MLK Jr Way S @ Thurgood Marshall Elementary	0	1	1	0
WB E Yesler Way @ Bailey Gatzert Elementary	1	1	0	1
WB NE 75th St @ Eckstein School	0	0	0	1
WB S Orcas St @ Dearborn Park Elementary	0	2	0	1
WB S Columbian Way @ Mercer Middle School	0	0	0	0
WB SW Roxbury St @ Holy Family Elementary	0	0	0	2
TOTALS	13	23	14	11

FIGURE 3 – MONTHLY NUMBER OF COLLISIONS CITYWIDE 2017-2021



CONCLUSIONS

The number of school zone speeding violations decreased year over year until 2021. In 2021, when the cameras were turned back on after having been off for more than a year, there was a substantial increase in the number of violations that were issued in the first few months. The number of violations gradually declined in 2021 and by the end of the year they were roughly in line with the number of citations that had been issued in 2018 and 2019. While there are many factors in play, this indicates that when the speed zone cameras are active, they change driver behavior and result in less speeding in school zones. Automated speed enforcement in school zones has been shown to be effective at reducing vehicle speeds on busy arterial streets as measured by the reductions in speeding citations issued over time and the effects of automated photo enforcement had been sustained until 2021.

Since speed is the critical factor in the frequency and severity of crashes, reducing speeds in school zones makes crashes less likely to happen and lessens the severity of injury if a collision does happen. The school zone camera program is having the intended effect of reducing traffic speeds, and thereby improving safety, in school zones where they are being used.

DEPLOYMENT HISTORY

Seattle has 35 automated school zone speed cameras at 19 Seattle schools (Table 3). Seattle has deployed school zone safety cameras in four phases (Table 4). In phase one, eight cameras were installed at four schools in 2012. For phase two, nine cameras were installed at five schools at the beginning of the 2014-2015 school

year. Phase three included the installation of 11 cameras at six schools at the beginning of the 2015-2016 school year. An additional nine cameras at five new schools were installed in 2021-2022. Two cameras installed in 2014 were removed when the school relocated in 2018.

TABLE 3 – LOCATION OF CAMERAS

Phase	School	Location	Number of cameras	Camera installation
Phase 1	Olympic View Elementary	5th Ave NE at NE 94th St and NE 95th St	2	Nov 2012
	Broadview-Thompson K-8	Greenwood Ave N at N 130th St and N 133rd St	2	Nov 2012
	Thurgood Marshal Elementary	MLK Jr Way at S Elmwood Pl and Mountains to Sound Trail	2	Nov 2012
	Gatewood Elementary	Fauntleroy Way SW at SW Frontenac St and SW Myrtle St	2	Nov 2012
Phase 2	Eckstein Middle School	NE 7th St at 30th Ave NE and 33rd Ave NE	2	Sept 2014
	Bailey Gatzert Elementary	E Yesler Way at 15th Ave	1	Sept 2014
	Dearborn Elementary	S Orcas St at 26th Ave S and 28th Ave S	2	Sept 2014
	Holy Family Elementary	SW Roxbury St at 18th Ave SW and 21st Ave SW	2	Sept 2014
Phase 3	Bailey Gatzert Elementary	E Yesler Way and S. Main St	2	Sept 2015
	Northgate Elementary	1st Ave NE at N 120th St and N 117th St	1	Sept 2015
	Montlake Elementary	24th Ave at E Calhoun St & E Lynn St	2	Sept 2015
	Mercer Middle School	15th Ave S and S Nevada St & S Columbian Way & S Snoqualmie St	2	Sept 2015

Phase	School	Location	Number of cameras	Camera installation
	K-5 STEM & Arbor Heights Elementary	Delridge Way SW at SW Juneau St and 22nd Ave SW	2	Sept 2015
	Rainier View Elementary	Beacon Ave S at S Moore St and 56th Ave S	2	Sept 2015
Phase 4	Whittier Elementary School	NW 80 St and 13th Ave NW	2	Oct 2021
	Our Lady of Guadalupe School	35th Ave SW and SW Myrtle St	2	Oct 2021
	Fairmount Park Elementary School	Fauntleroy Way SW and SW Findlay St	2	Mar 2022
	Garfield High School	23rd Ave and E Terrace St	1	Sept 2022
	South Shore K-8 School	Rainier Ave S and S Henderson St	2	Sept 2022

TABLE 4 – NUMBER OF CAMERAS DEPLOYED

	Phase 1	Phase 2	Phase 3	Phase 4
	Q4 2012	Q3 2014	Q3 2015	2021-22
Cumulative # of Cameras	8	17	28	35*
Cumulative # of School Zones	4	9	15	19*

*Two cameras at Roxhill Elementary that were installed in 2014 were removed from service when the school relocated in 2018.

New speed camera locations are prioritized based on the traffic speed and volume in the 20 mph signed school zones on arterial streets. Each spring SDOT monitors speed in arterials school zones, including those where cameras are already present. The speed monitoring effort is ongoing, and we are using the data to drive decisions about traffic calming in school zones, including the placement of new cameras. Based on the results of these traffic studies, SDOT prioritizes traffic calming in the locations with the highest speed of vehicle traffic during school arrival and dismissal times.

SDOT employs an incremental approach to traffic calming in school zones based on data. We explore other traffic calming measures first, to see if we can reduce speeds without installing cameras. This can include speed cushions, lane narrowing, lane reductions, and radar speed signs. After the traffic calming devices have been installed, we then evaluate speed and volume again. If speeds are still high, we consider speed cameras at those locations. Speed zone cameras are a tool we turn to after other engineering interventions have not resulted in slower speeds.

Equity

As part of Seattle's [Transportation Equity Framework](#) implementation efforts, staff are evaluating the City's automated enforcement programs (school zone speed and red-light cameras) using the City's Racial Equity Toolkit (RET). Our is to better understand intended and unintended consequences and to find opportunities to minimize burdens to BIPOC community members and advance racial equity. As we move through the RET, we will share findings and updates through our Vision Zero program. As we continue to evaluate the program using the City's RET, we will consider not only the financial impacts of the cameras but also the safety benefits of the cameras to better understand intended and unintended consequences.

During the 2021-2022 school year, the City began construction of nine new photo speed enforcement cameras and warning signage in five school zones (Table 5). These locations were selected due to the number of people speeding in the school zones during school arrival and dismissal. At each location, countermeasures to reduce speeding (lane reductions and flashing beacons) had already been implemented and speeding was still high.

Two locations were completed in October 2021, and one was completed in March 2022. Although we had planned to have all locations activated during the 2021-22 school year, several locations required concrete restoration that was affected by the concrete delivery worker's strike and materials availability, which started in December 2021. All nine new cameras were operational by September 2022.

Citation issuance does not begin immediately. For the first month, drivers who exceed the speed limit receive a warning notice. After the warning period is over, the cameras begin issuing citations for vehicles that are traveling more than 6 mph over the posted speed limit.

TABLE 5 – 2021-22 NEW CAMERA LOCATIONS

School	Location	Date of Activation	Number of Cameras
Our Lady of Guadalupe School	35th Ave SW and SW Myrtle St	October 2021	2
Whittier Elementary School	NW 80 St and 13th Ave NW	October 2021	2
Fairmount Park Elementary School	Fauntleroy Way SW and SW Findlay St	March 2022	2
Garfield High School	23rd Ave and E Terrace St	September 2022	1
South Shore K-8 School	Rainier Ave S and S Henderson St	September 2022	2

2021 SAFETY AND MOBILITY IMPROVEMENTS

In 2021, the SSTPI funded traffic safety projects on walking and biking routes to 21 different schools (Table 6). These included new sidewalks, crosswalks, signals, speed humps, speed cushions, and flashing beacons.

Additionally, since 2015 we have funded the Let's Go safety education program at Seattle Public Schools. This program delivers walking and biking safety curriculum through PE classes for every 3rd, 4th, and 5th grade public school student. We're working with our partners, Seattle Public Schools and Cascade Bicycle Club, to expand the program to middle school students in order to provide six consecutive years of safety education for every public-school student. Let's Go also provides special training for children with disabilities by partnering with the Outdoors for All Foundation, a nonprofit that offers adaptive cycles with three or four wheels as well as hand-crank cycles for those with limited or no leg movement.

Project Selection

SDOT prioritizes Safe Routes to School capital investments using data from the Pedestrian Master Plan, collisions, and equity. We work with school staff, parents, students and neighbors to identify top safety concerns on the walking and biking routes to school and we use proven safety countermeasures to make it safer and more comfortable for kids and families to choose to walk and bike to school.



Student patrol at Maple Elementary funded by an SDOT Safe Routes to School Mini Grant

The SSTPI also funds a program that provides grants up to \$1,000 for schools, PTAs and community groups to support and encourage kids to walk and bike to school. Grants typically fund equipment for student patrol, walk and bike to school day events, bicycle rodeos, and walking school buses.

TABLE 6 – PROJECTS FUNDED BY SSTPI APPROPRIATIONS IN 2021

School	Safety Improvement
Arbor Heights Elementary School	Traffic calming
Catharine Blaine K-8	Crossing improvement
Chief Sealth High School	Traffic calming
Daniel Bagley Elementary School	Crossing improvement
Decatur Elementary School	20mph school zone flashing beacons
Eckstein Middle School	Crossing improvement
Garfield High School	Crossing improvement
Genesee Hill Elementary School	Crossing improvement
Ingraham High School	New sidewalk
Laurel Academy	20mph school zone flashing beacons
Laurelhurst Elementary School	20mph school zone flashing beacons
Leschi Elementary School	Crossing improvement
Loyal Heights Elementary School	Crossing improvement
Mercer Middle School	Crossing improvement
Queen Anne Elementary School	Crossing improvement
Rainier Beach High School	Crossing improvement and pedestrian lighting
Salish Sea Elementary School	School zone signage and crossing improvement
St. Matthew School	20mph school zone flashing beacons
Thornton Creek Elementary School	20mph school zone flashing beacons
Webster Building/Licton Springs K-8	School zone signage
Westside School	Traffic calming



Students at Eckstein Middle School use a new raised crosswalk at NE 75th Street and 30th Avenue NE

FINANCIAL INFORMATION

The SSTPI Fund accounts for revenues generated by the school zone fixed automated cameras. These cameras are installed to encourage reduced vehicle speeds and improved safety for school children and other pedestrians in school zones. Specific financial policies govern the use of revenues generated from either camera fines or civil penalties, as follows:

- School traffic and pedestrian safety and directly related infrastructure projects;
- Pedestrian, bicyclist, and driver education campaigns; and
- Installation, administrative, enforcement, operations and maintenance costs associated with the fixed automated cameras in and around school zones.

The City also utilizes automated red light safety cameras to issue traffic citations. An amount equal to 20 percent of the revenue generated will be spent for school traffic and pedestrian safety and directly related infrastructure projects; and pedestrian, bicyclist, and driver education campaigns; and installation, administrative, enforcement operations and maintenance costs associated with the automated red light safety cameras.

The table below outlines program revenue budgets, revised estimates and actual collections. Due to the coronavirus pandemic and closures of in-person school operations in 2020 there was a sharp downturn in revenues as school zone cameras were not turned on when schools

were not operating in-person. To mitigate this revenue reduction's effect on the SSTPI program delivery plans, Council adopted a Council Budget Action for fiscal year 2021 which transferred \$9.0M of General Fund to the SSTPI Fund. The General Fund transfer backfilled the revised 2021 SSTPI revenue forecast to maintain service levels. This action along with the use of \$200,000 of unreserved fund balance, fully offset the projected 2021 SSTPI revenue reduction due to in-person school closures.

In November 2015, the Seattle City Council passed [Ordinance 124907](#), which changed the name of the fund from the School Zone Fixed Automated Cameras Fund to the School Safety Traffic and Pedestrian Improvement Fund and required that the fund also receive 10% of the revenue generated from automated traffic safety cameras (also known as red light cameras) in addition to revenue from the school zone cameras.

In November 2016, the Seattle City Council passed [Ordinance 125207](#), which increased the percent of revenue generated from automated traffic safety cameras (also known as red light cameras), which is directed to the SSTPI, from 10% to 20% (G.S. 44-1-B-3). As part of the 2019 Budget Adoption (Ordinance 125724), the Council suspended the 20% transfer of red-light camera revenues to the SSTPI. (G.S. 1-9-A-2), which was restored in 2021.

TABLE 7 – TOTAL REVENUES

Description	2019 (Dollars in millions)	2020 (Dollars in millions)	2021 (Dollars in millions)	2022 (Dollars in millions)
Adopted Budget Revenues	\$9.8	\$10.6	\$13.7	\$15.2
Revised Budget Revenue Estimates	\$9.9	\$2.9	\$13.1	\$13.4
Actual Revenues	\$9.7	\$3.1	\$17.1	In Progress

TABLE 8 – EXPENDITURES AND FINANCIAL PLAN

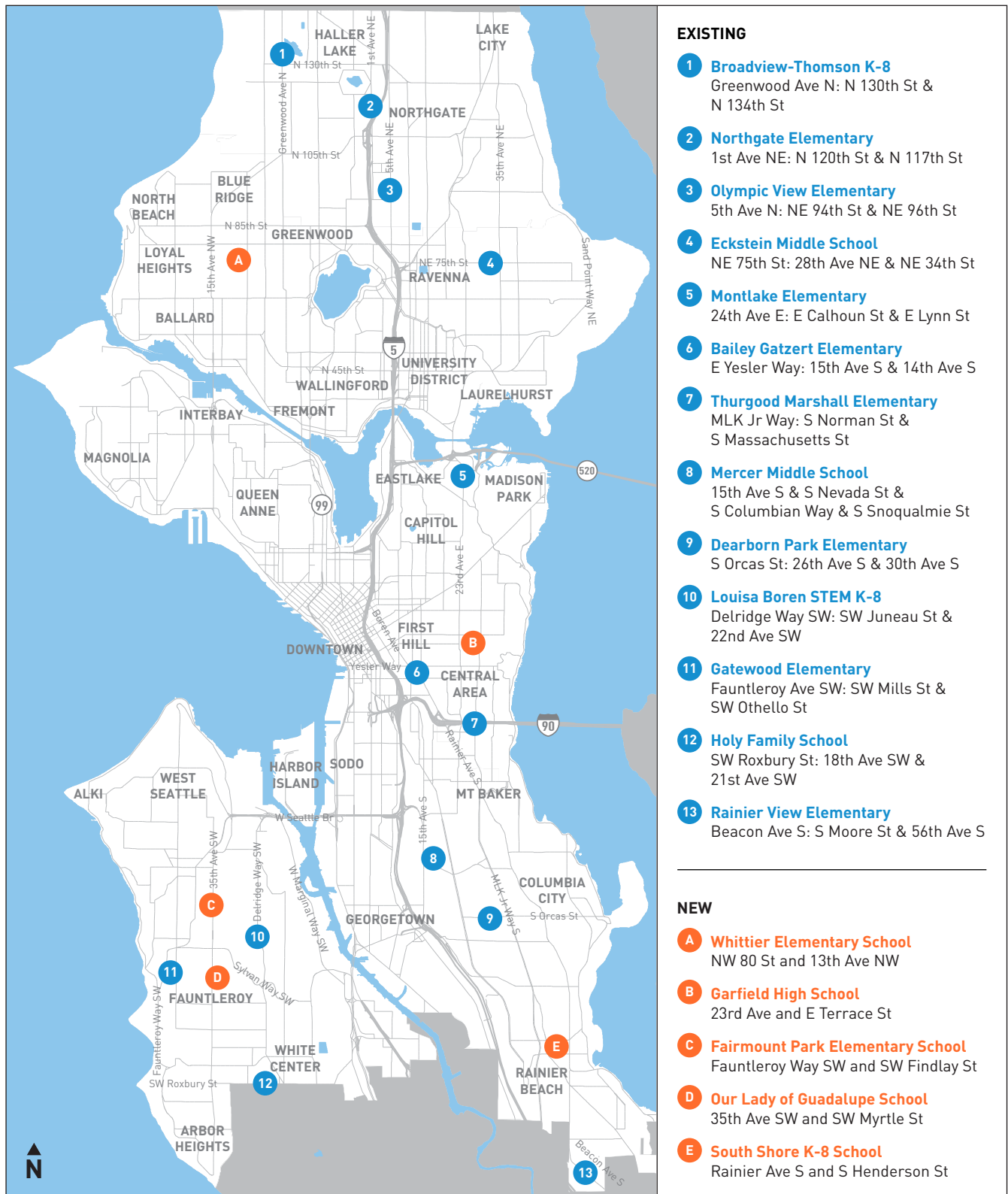
Description	2021 Adopted (Dollars in millions)	2021 Revised (Dollars in millions)	2021 Actuals (Dollars in millions)	2022 Adopted (Dollars in millions)
Revenues	\$13.7	\$16.9	\$17.1	\$15.2
Expenditures				
SDOT Capital	\$7.0	\$11.9	\$9.3	\$8.0
SDOT Operations & Maintenance	\$0.9	\$0.9	\$0.6	\$0.9
SPD and SMC Camera Operations, Administration, and Enforcement	\$2.1	\$2.1	\$1.1	\$2.1
Total Expenditures	\$10.0	\$14.9	\$11.0	\$11.0

Factors influencing the revenue budgets and actuals:

- Citation volumes vary by location, based on traffic speed and volume. As locations are installed, the revenue forecast is adjusted to build in a more accurate expectation.
- Driver behavior changes over time in response to the cameras; therefore, the number of citations where new cameras are installed are expected to decrease over time.
- As part of the 2019 Budget Adoption the Council issued Green Sheet GS-1-9-A-2 which suspended the 20% transfer of red-light camera revenues effective with 2018 – 2020 to the SSTPI. The 20% transfer was restored in fiscal year 2021.

Due to the steps taken by SDOT to reduce costs during 2020 and 2021 when revenues were reduced due to the pandemic, and the Council's action to support the SSTPI program with an infusion of \$9 million from the general fund in 2021, the program finances remain healthy. Due to these steps in 2021 and 2022 revenues have exceeded expenditures from the SSTPI resulting in a growing fund balance of cash available to direct toward additional SSTPI investments now that the program has weathered the coronavirus pandemic's most direct impacts. The 2023 Budget Proposal will invest this fund balance in an \$8 million package of safety improvements near schools including new sidewalks, neighborhood greenways, and crossing improvements.

APPENDIX A – MAP OF CAMERAS LOCATIONS





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