

SPEED LIMIT CASE STUDIES



EXECUTIVE SUMMARY

The Seattle Department of Transportation (SDOT) has committed to eliminating all traffic fatalities and serious injuries through our Vision Zero program and capital investments to the City's street network. Vehicular speed is a major factor in the severity of collisions. Speed management is an important component of SDOT's Vision Zero approach and these Case Studies present an evaluation of recent changes in SDOT's approach to speed management. When SDOT signed streets for 25 mph, the data showed total crashes decline, injury crashes decline, 50th percentile speeds decline, 85th percentile speeds decline, and high-end speeding decline for every location reviewed. The largest changes were in the reduction of high-end speeders and in number of total crashes.

This was true for streets that were previously signed for 30 mph as well as streets that were previously unsigned for speed limits (25 mph default speed limit).

SDOT has found lowering speed limits and increasing sign density alone - absent any marketing campaigns, additional enforcement, retimed signal progressions, or engineering changes to the street geometry - resulted in lower speeds and fewer crashes.

The results of these case studies led SDOT staff and Mayor Jenny Durkan to embark on a citywide speed limit reduction program in 2020. Additional speed and crash data will be collected citywide and will contribute to additional case study locations.



COMPILED LOCATION DATA

Crashes	All Crashes	Injury Crashes
Before	517	193
After	403	158
% Change	-22%	-18%

*Source: Seattle GIS Collisions (<http://data-seattlecitygis.opendata.arcgis.com/>)

Speeds	50th Percentile	85th Percentile	40+ MPH Speeders
Before	25.6 MPH	31.2 MPH	1119
After	23.1 MPH	29.0 MPH	513
% Change	-9.9%	-7.1%	-54.1%

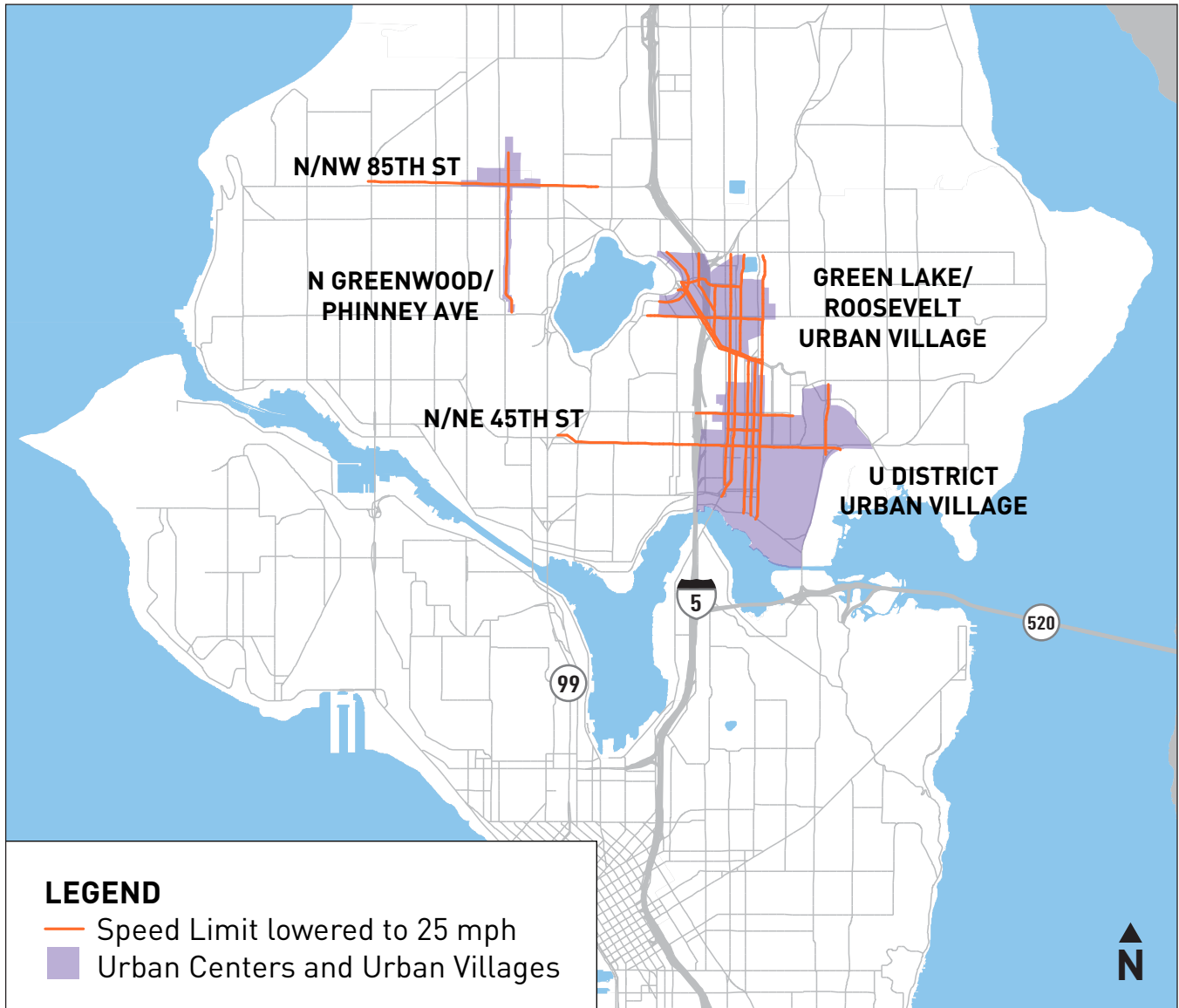


For each of the case study locations in this report, SDOT only modified signage. SDOT did not market the changes via a communications campaign, nor did the agency retime signals, increase enforcement, or make any other engineering adjustments to the street design or geometry for any of the following case studies. By removing these variables SDOT was able to review the safety and speed impacts of two specific changes: speed limit signs with a new reduced speed and increased speed limit sign density.

Prior to speed limit reductions, most locations included 30 mph signs with sign spacing ranging from 1 to 1 ½ miles in each direction or they were unsigned (default 25 mph speed limit). All locations included new 25 mph signs spaced at ¼ mile intervals in each direction.

The estimated cost to install reduced speed limit signs in Seattle is \$4,000 to \$5,000 per mile and includes design, materials and labor.

CASE STUDY LOCATIONS



Locations included for the following case studies are broken into two groups: individual corridors and urban centers/villages. Urban center/village locations contain multiple arterial streets and the speed and collision data is compiled from those various arterial streets.

GREENWOOD/PHINNEY AVE N



Limits: N 65th St to N 90th St (1.3 miles)

Average Daily Traffic: 13,000 vehicles

Previous Speed Limit: 30 mph (1-mile sign spacing)

Action: Replaced existing 30 mph speed limit signs with 25 mph signs and installed new 25 mph signs at ¼ mile spacing

Installed: February 2018

	All Crashes	Injury Crashes	50th Percentile Speed	85th Percentile Speed	# of 40+ MPH (high end speeders)
Before	27.4	10.8	28.7 MPH	33.5 MPH	1,023 vehicles
After	17.7	8.6	26.7 MPH	31.2 MPH	373 vehicles
% Change	-35%	-21%	-7%	-7%	-64%

*Before data: 5 years annualized (Feb 2013 – Jan 2018)

*After data: 1.8 years annualized (Mar 2018 – Nov 2019)

*Injury Crashes include injury, serious injury, and fatal collisions

NW/N 85TH ST



Limits: 18th Ave NW to Interlake Ave N (1.9 miles)

Average Daily Traffic: 19,000 vehicles

Previous Speed Limit: 25 mph (unsigned default speed limit)

Action: Installed new 25 mph signs at ¼ mile spacing

Installed: February 2018

	All Crashes	Injury Crashes	50th Percentile Speed	85th Percentile Speed	# of 40+ MPH (high end speeders)
Before	71.4	27.4	27.3 MPH	32.6 MPH	2,115 vehicles
After	43.4	18.9	26.4 MPH	32.3 MPH	1,156 vehicles
% Change	-39%	-31%	-3%	-1%	-45%

*Before data: 5 years annualized (Feb 2013 – Jan 2018)

*After data: 1.8 years annualized (Mar 2018 – Nov 2019)

*Injury Crashes include injury, serious injury, and fatal collisions

N/NE 45TH ST



Limits: N 46th St & Whitman Ave to Montlake Blvd NE (2.2 miles)

Average Daily Traffic: 22,500 vehicles

Previous Speed Limit: 25 mph (unsigned default speed limit)

Action: Installed new 25 mph signs at ¼ mile spacing

Installed: November 2018

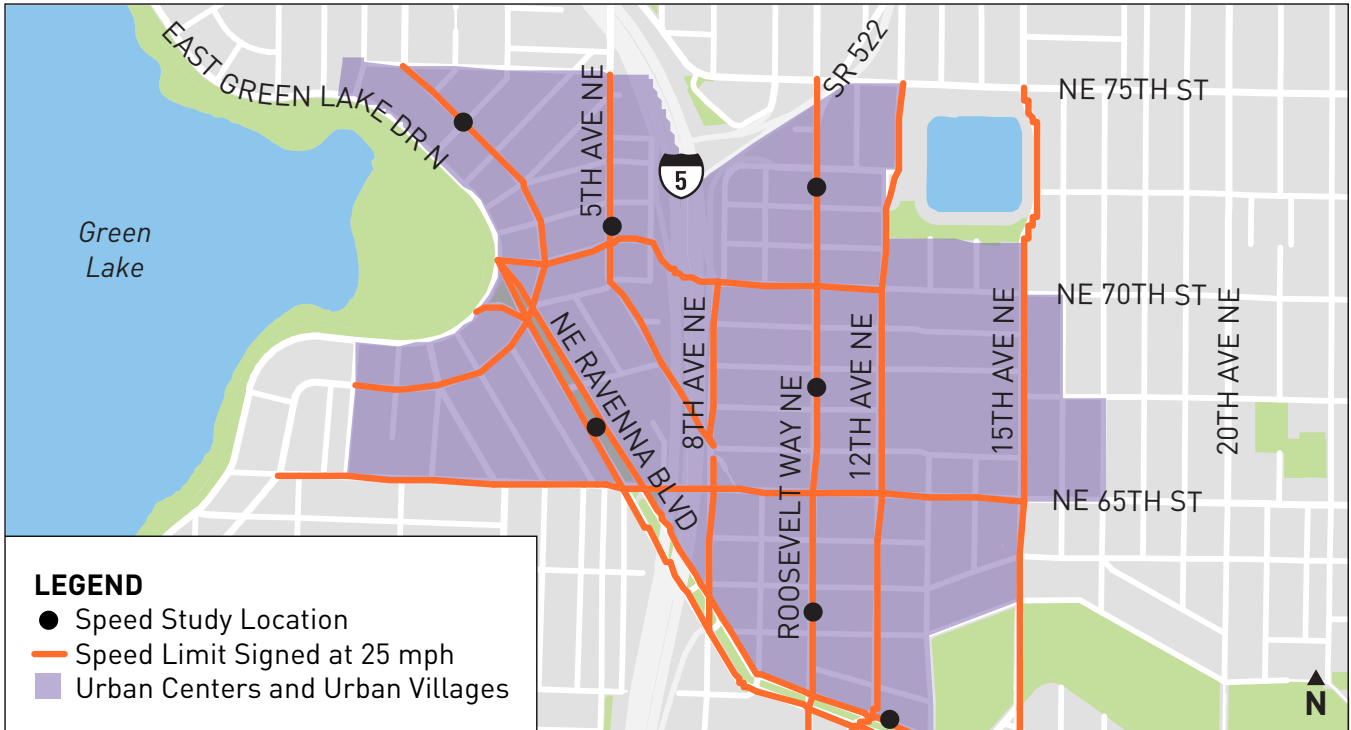
	All Crashes	Injury Crashes	50th Percentile Speed	85th Percentile Speed	# of 40+ MPH (high end speeders)
Before	101.6	38.2	26.3 MPH (EB)	31.6 MPH (EB)	653 vehicles (EB)
After	87.0	34.0	19.7 MPH (EB)	27.9 MPH (EB)	221 vehicles (EB)
% Change	-14%	-11%	-25%	-12%	-66%

*Before data: 5 years annualized (Feb 2013 – Jan 2018)

*After data: 1.8 years annualized (Mar 2018 – Nov 2019)

*Injury Crashes include injury, serious injury, and fatal collisions

GREEN LAKE / ROOSEVELT URBAN VILLAGE



Previous Speed Limit:

15th Ave NE: 30 mph (1.5-mile sign spacing)

All other streets: 25 mph (unsigned default speed limit)

Action: Installed new 25 mph signs at ¼ mile spacing

Installed: November 2018

	All Crashes	Injury Crashes	50th Percentile Speed [†]	85th Percentile Speed [†]	# of 40+ MPH (high end speeders) [†]
Before	72.8	25.2	20.6-26.5 MPH	25.9-31.3 MPH	1,072 vehicles
After	55.0	22.0	18.2-26.1 MPH	22.2-30.7 MPH	571 vehicles
% Change	-24%	-13%	-2%	-4%	-47%

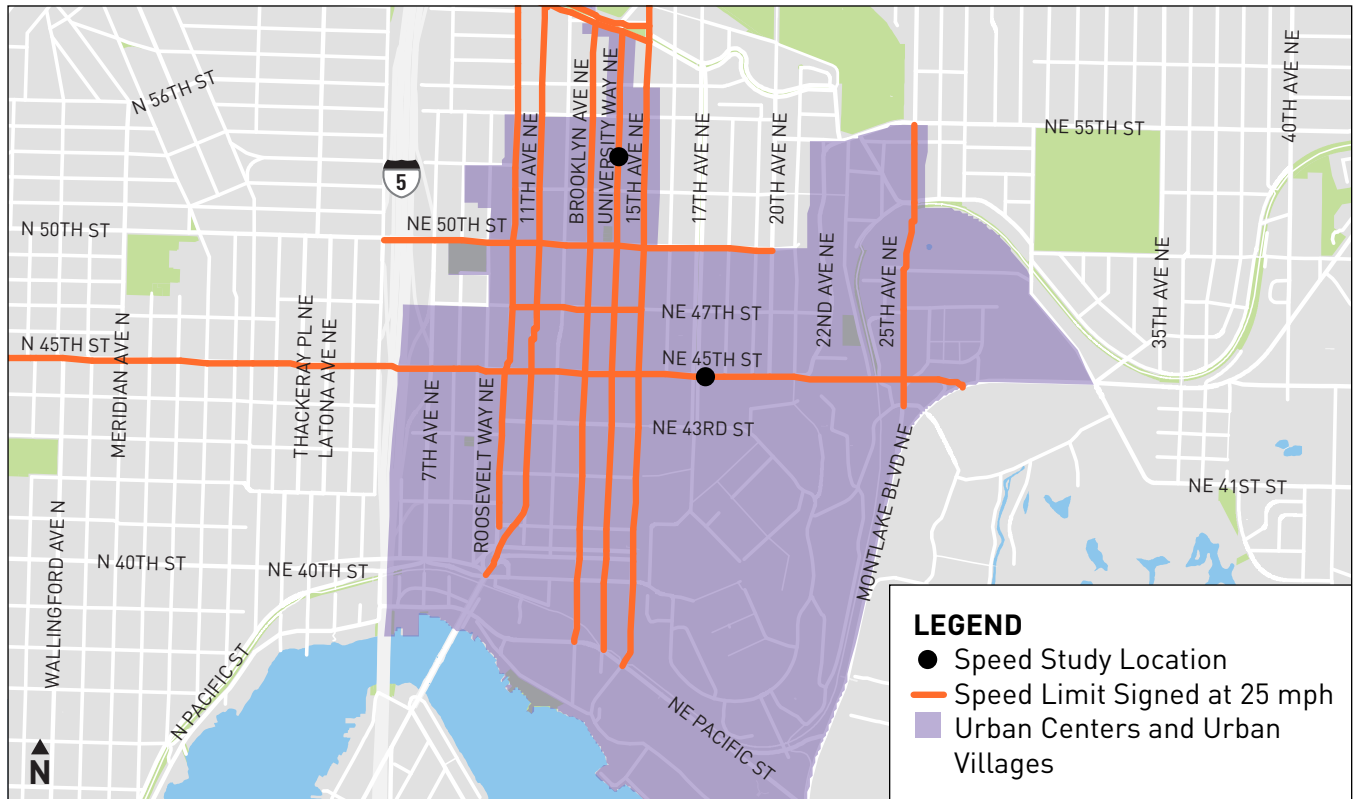
*Before data: 5 years annualized (Nov 2013 – Oct 2018)

*After data: 1 year annualized (Dec 2018 – Nov 2019)

*Injury crashes include injury, serious injury, and fatal collisions

†Speed data based on studies at 7 locations

U-DISTRICT URBAN CENTER



Previous Speed Limit:

University Way NE & 15th Ave NE: 30 mph (1.5-mile sign spacing))

All other streets: 25 mph (unsigned default speed limit)

Action: Installed new 25 mph signs at ¼ mile spacing

Installed: November 2018

	All Crashes	Injury Crashes	50th Percentile Speed†	85th Percentile Speed†	# of 40+ MPH (high end speeders)†
Before	243.8	91.8	22.1-26.3 MPH	27.9-31.6 MPH	733 vehicles
After	200.0	75.0	19.7-21.2 MPH	26.3-27.9 MPH	246 vehicles
% Change	-18%	-18%	-15%	-9%	-66%

*Before crash data: 5 years annualized (Nov 2013 – Oct 2018)

*After crash data: 1 year annualized (Dec 2018 – Nov 2019)

*Injury crashes include injury, serious injury, and fatal collisions

†Speed data based on studies at 2 locations

HISTORY OF SEATTLE LOWERING SPEED LIMITS



In 2013 the Washington State legislature passed the Neighborhood Safe Streets Bill (HB 1045), which allowed individual municipalities to establish a maximum speed limit of twenty miles per hour within residential districts. This is listed under the revised code of Washington as RCW 46.61.415 and it works in tandem with RCW 46.61.400 (passed in 1965) which allows for a speed limit of twenty-five miles per hour on city streets.

Seattle endorsed Vision Zero in 2015 to eliminate all fatal and serious injury collisions and with speeds being a major contributor, Seattle formalized lower speed limits on city streets. In 2016 the Seattle City Council unanimously passed a new ordinance revising municipal codes 11.52.060 and 11.52.080 to set the residential street speed limit to 20 miles per hour and the default arterial street speed limit to 25 miles per hour unless otherwise signed.

As soon as the new ordinances passed, Seattle quickly began implementing lower speed limits. This began with the downtown area to reduce speeds in the densest pedestrian areas in Seattle. From there, SDOT took on speed limit reductions in conjunction with other capital projects and started to target Seattle's Urban Villages.

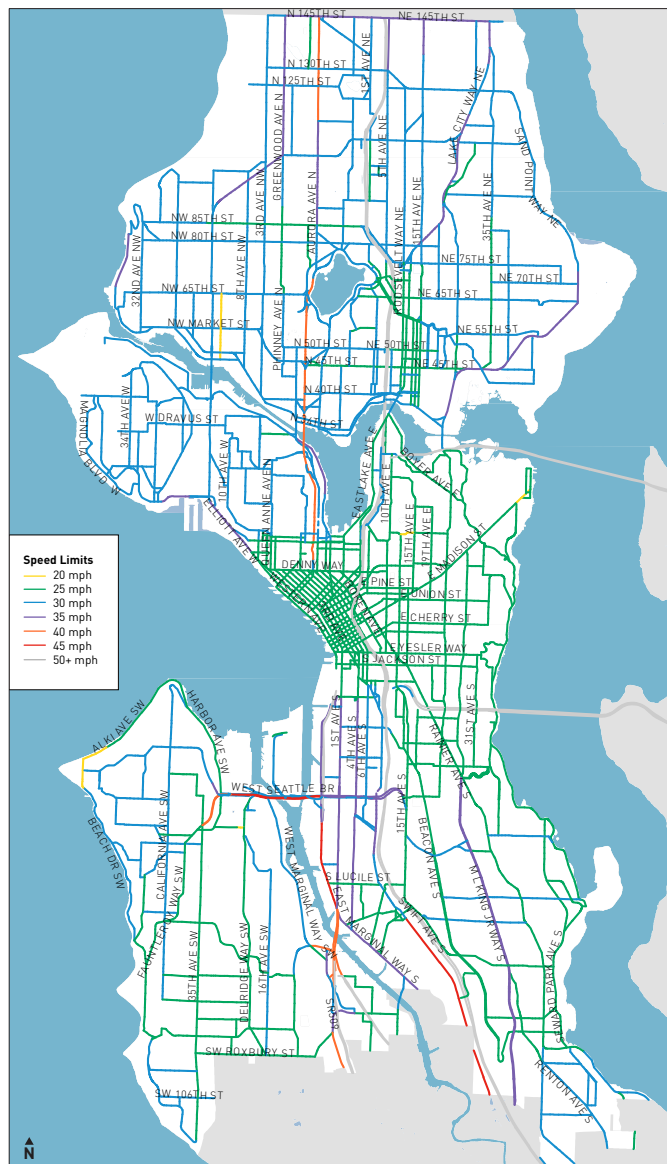
In 2019 the results of the Case Studies helped guide Mayor Jenny Durkan to commit to a citywide effort to reduce speed limits on all of Seattle's arterial streets as part of a suite of actions to advance Vision Zero.

NEXT STEPS

In 2020 SDOT continues to take aggressive action to reduce speed limits citywide. Speed limit reductions have shown to be a effective treatment but are part of a larger set of Vision Zero tools to reduce serious injury collisions and fatalities across Seattle. SDOT will continue to evaluate the effectiveness of reduced speed limit locations for

additional engineering and educational efforts that are context sensitive to the surrounding neighborhoods and street use. As of June 1st, city crews have installed new 25 mph signs on over 90 miles of arterial streets and SDOT will reduce speed limits on an additional 270 miles of streets by May 2021.

Seattle's Existing Speed Limit Network (as of 7/15/20)



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